A QUALITY, BENEFIT, COST, AND FINANCIAL FRAMEWORK FOR HEALTH INFORMATION TECHNOLOGY: A MODEL FOR E-PRESCRIBING

By

Paul R. DeMuro

A DISSERTATION

Presented to the Department of Medical Informatics and Clinical Epidemiology

and the Oregon Health & Science University

School of Medicine

In partial fulfillment of the requirements for the degree of

Doctor of Philosophy

June, 2015

School of Medicine

Oregon Health & Science University

Certificate of Approval

This is to certify that the PhD Dissertation of

Paul R. DeMuro

"A Quality, Benefit, Cost, and Financial Framework for Health Information Technology: A Model for E-Prescribing"

Has been approved

_____

Dissertation Advisor – Joan S. Ash

_____

Committee Member – Justin B. Fletcher

_____

Committee Member – James J. Huntzicker

_____

Committee Member – David L. Masuda

_____

Committee Member – Blackford Middleton

Table of Contents

Acknowledgements

Primarily, I would like to recognize Joan Ash, PhD, MLS, MS, MBA, my Advisor and Mentor for the entire time I have been in the PhD program. Without her guidance, assistance, and direction, I would never have been able to develop a cutting edge research project and have penned this dissertation, let alone become a PhD in Biomedical Informatics. She provided incredibly valuable insights throughout my tenure and I very much appreciated her genuine interest in me and in what I wanted to accomplish. She was always there when I needed to just "drop in." Quite frankly, I did not realize people like Professor Ash even existed, but I am incredibly pleased that she does.

I would be remiss if I did not recognize my other core Committee members. Justin Fletcher PhD, MBI, James Huntzicker, PhD, MM, and Blackford Middleton, MD, MPH, M.Sc, have been there with from the inception of my Committee. Justin has provided valuable guidance on information technology issues and support. Jim has had an open door policy where I could just run ideas by him from the business, finance, and economic perspective. He always seemed to have a most interesting perspective that he would discuss with me that I could incorporate into my research and/or analysis. Blackford has been there to provide me with guidance on areas I might not have thought of or articles I might not have considered, despite his having overseen the largest informatics program in the country.

David Masuda, MD, MS, was kind enough to recently join my Oral Examination Committee, after I had the pleasure of taking one of his courses while I was a visiting graduate student at the University of Washington. Given that he shares my passion for the delivery of quality healthcare in a cost-effective manner, he was a most welcomed addition to my Committee.

I very much appreciate the support of the National Library of Medicine (NLM). Research reported in this publication was supported by the National Library of Medicine of the National Institutes of Health under Award Number T15LM007088.

Finally, I want to acknowledge the assistance I have received over the years in the areas of word processing, formatting, software, and proofreading assistance from others. In this regard, primarily my colleague and friend, Cathleen Avery, has been there for me for those countless hours when I said, now what do I need to do to get another draft out, and just how do I get this to work now. These may be the details, but a dissertation does not get penned without incredible attention to details.

I am honored and privileged to have spent the last five years and three months at the Oregon Health & Science University School of Medicine, studying Biomedical Informatics, in the Clinical Informatics Track. Although it is among the most challenging endeavors that I have pursued in my life, it also is among the most rewarding. As we in the United States and those in other countries move from fee-for-service healthcare systems to payment for quality and cost-effectiveness, I hope to somehow give back as much as or more than has been given to me, to help, in some small way, to make the United States and other countries, a better place for their citizens who very much need and deserve quality healthcare services, delivered in part with the sophisticated health information technology that we know can improve their health, and the sensitivity that goes along with providing personalized health care. In short, I trust that my most sophisticated graduate education which the NLM has kindly funded will help me make a difference in the lives of many people. For making a difference in our healthcare systems and in the health of the individuals they serve was my ultimate goal when I set upon this very long journey.

Abstract

Objective: To develop a framework for payors, integrated delivery systems, policy makers/legislators, and those who influence public policy that will assist them in the development of incentives and payment mechanisms in the context of health information technologies, such e-prescribing.

Study Design: We used a combination of a Global Delphi Study and Framework Experts, reviewing the stakeholders and positives and negatives from the perspective of each stakeholder involved in e-prescribing.

Methods: We used Brainstorming, Narrowing, and Finalizing Rounds, with web-based questionnaires to obtain the Experts' perspectives on e-prescribing, including rank ordering the positives and negatives for many of the stakeholders, and to develop a Framework. We had Framework Experts evaluate the Framework.

Results: The Delphi Experts identified additional stakeholders, along with additional positives and negatives from the perspective of certain stakeholders. The Experts reached much consensus in the rank ordering of the positives and negatives. They found the Framework useful, comprehensive, and generalizable to other health information technologies.

Conclusions: It is not possible to fully participate in payment for quality and cost-effectiveness models or develop effective incentives without access to health information technologies, such as e-prescribing, and any return on investment calculations should include all applicable stakeholders and positives and negatives.

1. Chapter One: Introduction

1.1. Purpose

The quality, benefits, costs, and financial considerations (the positive and negatives) associated with Health Information Technology (HIT), particularly informatics technologies do not appear to be well understood when payors, integrated delivery systems, policy makers/legislators, and those who influence and develop public policy make decisions with respect to the implementation and development of incentives and payment mechanisms to facilitate the transformation from fee-for-service payments to payments for quality and cost-effectiveness. All the stakeholders do not appear to be identified and/or considered and the value of each of these positives and negatives is not generally determined.

This research effort identifies and prioritizes the positives and negatives associated with HIT, applicable to different stakeholder groups, both in the United States and elsewhere. It uses e-prescribing as an example because it is a mature form of HIT and representative of informatics technologies.

This research effort employed an application of the Delphi Method (1-3) which is a structured communication technique. It originated in a series of studies that the RAND Corporation conducted in the 1950's. It is a technique designed to obtain the most reliable consensus of a group of experts. It allows a group of experts to address a complex problem.

The Delphi Method allows for feedback of individuals' contributions of information and knowledge. It uses a series of questionnaires in two or more rounds, and does not allow for direct confrontation of experts and the experts are anonymous.

We employed an e-survey where all Delphi experts who agreed to participate were provided an electronic survey which afforded them the opportunity to select additional stakeholders in addition to those listed, and to rank order the positive and negative effects of e-prescribing from the perspective of each stakeholder originally listed.

E-prescribing might be defined as "a closed-loop system which the entire process of prescribing a medication is electronic from beginning to end." (4, p. 65) For the purposes of this research, e-prescribing was considered to have "five different functions: computerized prescribing associated with clinical decision support (such as drug-drug and drug-allergy interaction checking), pharmacy benefit eligibility checking, formulary compliance, and medication history reporting, followed by prescription routing to a retail pharmacy or mail order pharmacy." (5, p. 239) It is important to describe the functionalities of the hypothetical e-prescribing system that was the subject of this research effort because such systems differ in many respects and in their functionalities, just as electronic health records (EHR) systems have different features and functions. (6)

From the responses of the Delphi Experts to three rounds of questions, a Framework was created for payors, integrated delivery systems, policy makers/legislators, and those who influence and develop public policy concerning e-prescribing throughout the world to assist them in making better decisions with respect to the implementation and development of incentives and payment mechanisms to facilitate the transformation from fee-for-service payments to payment for quality and cost-effectiveness. The Framework included the rank order of the positives and negatives associated with e-prescribing by prioritizing them. The Framework should enable

individuals to consider what payment mechanisms and incentives may be designed to best influence actions of the stakeholders in a payment for quality and cost-effectiveness model.

1.2. Current Knowledge

Informatics technologies, such as e-prescribing, have the ability to improve the quality of care, while reducing the cost of health care. (7-11) One study identifies certain benefits of e-prescribing to insurers, prescribers, pharmacies, and patients. (8, p. 165) However, much of the research to date does not identify all the stakeholders and/or all of the benefits, including quality and cost considerations, whether they be direct or indirect, tangible or intangible, financial or otherwise. (8,12-14)

There exists research about quality, costs, and return on investment (ROI), but some of it appears to be limited to the costs and benefits associated with the implementation of such informatics technologies in a particular setting, such as in a medical group or hospital setting. (15),(16) One particularly good study is that of a personal health record (PHR) cost model. It provides an in-depth analysis and estimate of PHR costs. (17) Another provides a framework for assessing the value of PHRs. (18) There is even an analysis of "computer-based cost-benefit models that estimate the costs and impacts for core components of VistA." (19, p. 630) The net value was assessed "by comparing the impact of having the VA's integrated health IT system components to not having the component of similar health IT tools." (19, p. 630)

One study considers the return of investment (ROI) on telehealth systems with a sensitivity analysis. (20) Another considers the ROI for a computerized physician order entry system (CPOE) in a hospital. (21) Additional studies consider the cost of

interconnecting Health Information Exchanges (HIE) to form a national network, (22) the value of health care information exchange and interoperability through a conceptual analytic framework, (23) and the economic benefits of HIE interoperability for Australia. (24) These excellent works contribute to the body of knowledge in this area, but by their very nature, they consider varying definitions of quality, benefits, and costs.

In certain instances, there does not appear to be consensus about structure and costs, e.g. of a national health information network. (25) Little research seems to have been done about the priorities of these considerations to the various stakeholders. Thus, the existing models are limited in the above respects, and additional research is warranted. "It is critical to align risk and reward for HIT investment," (26, p. 1271) but the limitations of these models make it difficult to determine how to do so.

1.3. Overview of Benefits and Problems with E-Prescribing Systems

E-prescribing makes it possible for providers to more safely and efficiently manage patients' medications. (27) "The implementation of an e-prescribing system can potentially reduce the time spent on pharmacy callbacks, faxing prescriptions to pharmacies, and automating the prescription renewal request and authorization process. This can reduce the cost of prescribing for both physicians and pharmacies, by saving time and resources, and increasing patient convenience." (27, p. 1)

In the United States, there also are financial incentives from the Centers for Medicare & Medicaid Services (CMS) for electronic prescribing, known as the eRx Incentive Program. (28) This program "uses a combination of incentive payments and payment adjustments (penalties) to encourage electronic prescribing by eligible professionals." (29, p. 1) To be eligible for the financial incentives, providers "must use

a 'qualified e-prescribing system,' whether it be a standalone software system or integrated into an electronic medical record (EMR)."(30, p. 1)

E-Prescribing coupled with formulary decision support "allows clinicians to prescribe preferred medications more frequently." (31, p. 1)

In 2005, RAND Health set forth its researchers' perception of problems with traditional prescribing, corrective features of EMR-based e-prescribing systems, and certain problems that e-prescribing may induce.

Problems with Traditional Prescribing	Corrective Features of EMR-Based Electronic Prescribing Systems	Problems Electronic Prescribing May Introduce
Diagnosis and Prescribing Wrong chart or incomplete/illegible history in chart (i.e., missing allergies, other meds, other conditions)	Patient identity checks Complete history at hand Safety alerts triggered Complete current medications list/medication history Instant access to MEDLINE, PDR.	Wrong patient name may be selected from list; patient ID info may not be displayed on each new screen. Wrong diagnosis may be selected. Alerts may be inactivated or ignored. History or alerts may not be up-to-date or records of other prescribers may not be accessible.
Lack of information on Rx coverage	EMR includes coverage info/formulary	Coverage or formulary may not be updated.
Rare diagnosis or diagnosis for which off-label Rx being tried	System can recommend drugs.	May be unable to Rx off-label. If diagnosis entry required and inaccurate diagnosis entered, could affect future care.
Writing and Transmitting Incorrect dose calculated and written	Menus decrease wrong-dose errors.	Some menu designs can increase wrong dose choices.
Rx or dose misreads by office staff	Electronic record of prescription accessible to pharmacies or transmissible via email.	Some office and pharmacy computer systems are incompatible. Delayed transmission of prescription.
Dispensing Patient must go to pharmacy to obtain medication	May support automated in-office dispensing.	In-office dispensary may detect fewer prescribing errors than a pharmacist would.
Pharmacist or tech may misread medication or dose	Electronic record of prescription is sent.	Pharmacist may check less carefully for errors.
Providing Patient Education Prescriber may provide no information about how drug should work, possible side-effects, correct route and timing of administration, resulting in administration errors.	Can produce educational materials; may facilitate MD, RN, and pharmacist collaboration. Can help schedule and track administration.	Poorly designed materials could result in inconsistent instructions, misunderstandings, which could increase errors.
Monitoring and Follow-up Patient may fail to fill or refill Rx	System could notify prescribers when patient fail to fill Rx	
Patient may not think to notify	Systems could produce	

prescriber of adverse reactions	questionnaires to track adverse reactions.	
Prescriber may not schedule or notify patient of required or recommended monitoring tests	Systems could automatically trigger prescriber reminder or patient notification.	Time-consuming, but could save time in the long run.

(32, p. 3)

Many of the benefits and problems with e-prescribing are addressed in detail later.

1.4. Gaps

Given the state of the research and the limited nature of the models which have been developed, some might conclude that the benefits of e-prescribing do not outweigh its costs. Others might conclude that the ROI associated with such informatics technologies is insufficient to warrant their implementation. Without a true understanding of the positives and negatives of e-prescribing, particularly the quality considerations, applicable benefits and costs, and financial ramifications, and their priorities, it is difficult for payors, integrated delivery systems, policy makers/legislators, and those who influence public policy to make rational decisions about the implementation and use of such informatics technologies. This research effort fills part of these gaps by using e-prescribing as an example of HIT for which all the stakeholders, and the applicable positives and negatives are identified and prioritized within a broad, yet in-depth framework.

1.5. Long-term Goal

The long-term goal is to be able to set forth a framework for payors, integrated delivery systems, policy makers/legislators, and those who influence and develop public policy that will assist them in the development of incentives and payment mechanisms in the context of HIT, such as informatics technologies because as noted above: “[i]t is critical to align risk and reward for HIT investment.” (26, p. 1271) The overall objective

is to focus on the applicable quality, benefit, cost, and financial considerations for the stakeholders.

1.6. Research Question

The research question was: For implementing HIT, such as informatics technologies like e-prescribing, can the applicable stakeholders be identified, and the attendant positives and negatives be identified and prioritized, to create a useful framework which can be successfully used by payors, integrated delivery systems, policy makers/legislators, and those who influence public policy that will assist them in the development of incentives and payment mechanisms?

1.7. Specific Aims

My specific aims were:

1.7.1.SA1

To identify what models are presently available in the area of HIT, particularly e-prescribing, which identify stakeholders, quality, benefit, cost, and financial effects.

1.7.1.SA2

To develop a way to identify the most important quality, benefit, cost, and financial effects, and prioritize them for stakeholders.

1.7.1.SA3

To provide an expression of what I learned about quality, benefit, cost, and financial effects.

2. Chapter Two: Background **—** E-Prescribing

2.1. E-prescribing

2.1.1. Defined

As noted above, a hypothetical definition of an e-prescribing system was provided for this research effect. However, there does not appear to be a common consensus about the definition of e-prescribing and its components and its capabilities can vary substantially. Thus, it is important to describe e-prescribing.

Marceglia and colleagues note that e-prescribing "is a broad term used to define either computer-based systems to write drug prescriptions, or comprehensive systems supporting the prescribing process, including supporting tools for organizational and clinical aspects." (33, p. 1)

Black and colleagues, however, note: “e-prescribing refers to clinical information systems that are used by clinicians to enter, modify, review, and output or communicate medication prescriptions.” (34, p. 7) It includes standalone clinical decision support systems and systems that can integrate or interface with EHRs or be an element of a broader [computerized physician order entry] CPOE system.” (34, p. 7)

Balfour and colleagues set forth a much simpler definition: "E-prescribing uses technology to allow prescribers to electronically transmit prescriptions.” (35, p. S10) Cusack tries to differentiate e-prescribing systems based on the nature of the system's medication ordering. She posits: "A true e-prescribing system is a closed-loop system which the entire process of prescribing a medication is electronic from beginning to end: a clinician prescribes medications, these prescriptions are sent electronically to a pharmacy, and feedback comes back to the clinician when the patient collects the prescription." (4)

2.1.2. Described

Ammenwerth and colleagues discuss various types of vendor e-prescribing systems and their functionality noting that they range from no decision support system (DSS) to limited DSS to advanced DSS. (36) No DSS was classified as a system in which the functionality includes “selection of drugs from a list, information on available doses and on costs, access to drug monographs, no further decision-support.” (36, p. 592) A limited DSS was classified as a system which provided evidence-based-patient-specific recommendation of a drug, dosing, frequency etc. (36, p. 592) An advanced DSS was classified as a system in which the functionality also includes “at least some drug-allergy, drug-drug interaction, drug-lab, or other patient-specific alerts.” (36, p. 592) These variations in definitions of e-prescribing by many scholars and the nature and extent of different e-prescribing products offered by various vendors can make it very difficult to compare the quality and cost-benefit metrics associated with such products. Thus, a hypothetical definition of an e-prescribing system was provided for these research efforts.

2.1.3. Many Meanings

Halamka and colleagues noted: "e-Prescribing is many things to many people. Payers, CIOs, clinicians, and pharmacists differ in their definition of e-Prescribing and its benefits." They then define e-prescribing as follows:

> e-Prescribing is comprised of five different functions: computerized prescribing associated with clinical decisions support (such as drug-drug and drug-allergy interaction checking), pharmacy benefit eligibility checking, formulary compliance, and medication history reporting, followed by prescription routing to a retail pharmacy or mail order pharmacy. (5, p. 239)

E-prescribing which initially was primarily employed in ambulatory settings is now increasingly in use at inpatient hospitals through various forms of CPOE with clinical decision support systems (CDSS).

2.1.4. Functionality Guidelines

Halamka and colleagues have noted that the Massachusetts Medical Society in partnership with DrFirst developed in 2003 a list of e-prescribing functionality guidelines for clinicians to use when choosing a vendor for their e-prescribing needs. These guidelines include:

> 1. Different implementation options that adapt to physician workflow . . .
> 2. Drug-drug and drug-allergy interaction checking at point of care
> 3. Patient eligibility, formulary checking, and medication history at the point of care
> 4. Access to a drug reference guide from within e-Prescribing software at point of care
> 5. Direct, two-way connection to community pharmacy to reduce phone calls and faxes and enable automation of the renewal authorization process
> 6. Electronic pharmacy messaging to automate prescription renewal processing
> 7. Adaption to physician and practice prescribing behavior to improve usability
> 8. Reasonable installation and monthly costs
> 9. Defined process for uploading demographics from the practice management system (PMS)
> 10. Ability and defined process for developing an interface with a physician's EMR
> 11. Process and contractual agreement for delivery of physician data upon cancellation of e-Prescribing service. (5, p. 240)

Thus, there is a need to understand what an e-prescribing system does or can do to determine what it might be able to do to increase quality and cost-effectiveness.

2.1.5. Meaningful Use

In the United States, providers need to be cognizant of what their e-prescribing systems might do to help facilitate their ability to meet the Meaningful Use objectives in the regulations promulgated by the Centers for Medicare and Medicaid Services (CMS). (37) These objectives for stage 1, include the following, but are not limited to, core criteria for eligible providers (EPs): the use of CPOE for medication orders of which generally more than 30% of the patients should have at least one medication ordered through CPOE, and the implementation and enablement of the functionality of drug-drug and drug-allergy interaction checks. In addition, the e-prescribing system must generate and transmit electronically permissible prescriptions, and more than 40% of all such permissible prescriptions should be transmitted electronically using certified electronic health record (EHR) technology, maintain an active medication list, and more than 80% of the patients seen by the EP should have at least one entry recorded as structured data. The e-prescribing system must maintain an active medication allergy list and more than 80% of all patients seen by the EP must at have at least one entry recorded as structured data. Further, the system should have the ability to exchange key clinical information, which includes the medication list. There are many other core measures that may affect medication related issues, but they are not medication specific. (37)

The following are some of the measures under stage 1: the functionality for drug-formulary checks has been implemented and the EP has access to at least one internal or external formulary for the entire EHR reporting period; and provide patients with electronic access to their medication list within four days of the information being available to the EP. In addition, an EP should perform medication reconciliation for more than 50% of transitions care in which the patient becomes a patient of the EP. There are

also core and measurement criteria for Eligible Hospitals (EH), but the above provides good examples of the type of e-prescribing capabilities that are needed for Meaningful Use. (37) For stage 2, certain of the percentage criteria increase, and other core criteria and measures may need to be met.

2.1.6. Electronic Prescriptions for Controlled Substances

One issue which has particularly stymied the full implementation of e-prescribing, and why the Meaningful Use regulations refer to permissible prescriptions is the fact that initially, permissible prescriptions for controlled substances could not be sent electronically. (5) The special forms required by the Drug Enforcement Administration (DEA), applicable state law, and the need to ensure safety of such prescriptions have caused workflow problems for the many clinicians who use e-prescribing for permissible prescriptions because initially, they could not e-prescribe for controlled substances.

In 2010, however, the government issued regulations for electronic prescriptions for controlled substances (EPCS). (38) These requirements included two-factor authentication, use of a biometric subsystem, and a number of specific requirements which needed to be built into the e-prescribing system and adhered to by the prescribing clinicians. Further, in late 2011, the Department of Justice through the DEA issued a Clarification and Notation Notice concerning third-party audits of software applications for EPCS and the applicable requirements concerning same which were discussed in the Federal Register: (39)

> Historically, where federal law required that a prescription for a controlled substance be issued in writing, that requirement could only be satisfied through the issuance of a paper prescription. Given advancements in technology, and security capabilities for electronic applications, DEA recently amended its regulations to provide practitioners with the option of issuing Electronic

> Prescriptions for Controlled Substances (EPCS) in lieu of paper prescriptions. . . . While these regulations have paved the way for controlled substance prescriptions to be issue electronically, not all states have authorized electronic prescriptions for controlled substances . . . . (39, p. 64814)

The DEA requires third-party audits of software applications that an EPCS must meet. (39) There must be a thorough review and testing of all requirements to ensure secure and effective electronic prescribing and dispensing of controlled substances. Thus, additional requirements must be met for EPCS and those requirements should be incorporated into any e-prescribing system. Of course, the result could be additional clinician workflow considerations. In those states that do not permit e-prescribing for controlled substances, a clinician writing three scripts, two for permissible medications and one for a controlled substance, may have to employ e-prescribing for the first two, and a handwritten prescription for the latter.

2.2. Specific Quality Considerations

In considering an e-prescribing system, its implementation and operation, it is important to analyze its quality considerations. Can the e-prescribing system assist in

> correctly identifying the patient
>
> ensuring the script is a result of a new/previous diagnosis
>
> decreasing the risk of drug interactions with the patient
>
> decreasing the risk of incorrect drug assignment. For example, ensuring the correct dose, route, frequency, or drug choice
>
> ensuring that the prescription is completely followed and ensuring that the information needed for continuity of care is specified
>
> ensuring that the prescription is transmitted without errors to the pharmacy or the system
>
> decrease the risk of adverse drug events. (40, p. 11),(33),(4)

In commenting on the correlation between EHR and improved quality and safety, Zhou and colleagues note that the presence of clinical decision support systems, order entry, and better training and implementation of EHR systems are likely to achieve higher levels of quality and safety. (41) They even note "it is conceivable that quality and safety benefits of EHR adoption and use may be time-dependent, possibly taking some years after implementation to accrue, as users become more facile with the applications." (41, p. 457) One can certainly understand that such an observation might be equally applicable to e-prescribing.

In addition, Zhou and colleagues note that "there may be considerable lag in comprehensive usage and consequent delay in realizing the benefits attributable to EHR adoption." (41, p. 457) Thus, one should not only need to know the capabilities of an e-prescribing system, but also the length of time it has been in use prior to analyzing its ability to improve quality and cost-effectiveness, and engage in a cost-benefit analysis of the e-prescribing system.

In further analyzing the quality considerations of e-prescribing, it is useful to consider the healthcare objectives that might be addressed by the clinical decision support aspects of e-prescribing. Teich and colleagues posit the following objectives:

> Reduced medication errors and adverse medical events
> Improved management of specific acute and chronic conditions . . .
> Improved personalization of care for individual patients
> Best clinical practices consistent with available medical evidence
> Cost-effective and appropriate prescription medication use
> Effective professional and consumer education about medication use

> Effective communication and collaboration about medications across clinical/prescribing/dispensing/administering settings
>
> Efficient and convenient clinical practice and self-care
>
> Better reporting and follow-up of adverse events
>
> Compliance with accreditation and regulatory requirements
>
> Improved dissemination of expert knowledge from government and professional bodies to clinicians and patients. (10, p. 367)

Bell and colleagues note: "Provider organizations wishing to implement electronic prescribing can choose from a variety of systems, but implementation can be difficult, and providers have no basis for selecting those that can improve health quality." (42, p. w4-306) Although this statement was made in 2004, there may be a variety of reasons why it still appears to be true. As noted above, e-prescribing systems have various functionalities, and not all systems include all functionalities. Undoubtedly, the systems perform differently, and the various permutations of the functionalities of such systems may result in even greater difficulties in identifying an ideal e-prescribing system, if one were to exist. One needs to be cognizant of how the e-prescribing system interfaces with the EHR and other related healthcare technologies, and the various aspects of its interoperability or lack thereof.

2.3. Overall Benefit and Cost Considerations

Cutler and colleagues note that savings from CPOE systems "are both hard to measure and unproven." (43, p. 1655) They observe that "traditional hospital technology valuation methods do not capture all of CPOE's benefits . . . ." (43, p. 1655) It might be helpful to value improvements in quality, but "quality improvements do not necessarily translate into a healthier bottom line for hospitals and physicians." (43, p. 1655) These

observations should be equally applicable to e-prescribing. However, who actually benefits from these improvements might be analyzed. One can appreciate the benefits to the patient and also a health plan if the attendant costs are decreased. However, if the applicable reimbursement system does not employ aligned incentives for improved quality and cost-effectiveness, it is difficult to appreciate the benefits afforded to the providers.

Cook and colleagues note that CPOE usually includes "electronic prescribing (eRX)." (8, p. 164) They note: "In fact, CPOE originated in most inpatient settings to manage cost and quality in the physician-pharmacy interaction." (8, p. 164) They discuss what they perceive to be the benefits for prescribers, pharmacies, patients, and payers over handwritten prescriptions, and observe that e-prescribing "has potential to add value to patient care and decrease costs," (8, p. 164) but do not say that it does, and how it does it. Interestingly, when discussing how the implementation of an e-prescribing system can mean a major change in workflow, they note that an adverse outcome can be due to the e-prescribing system itself, or to the change in workflow.

Another quality consideration is harm reduction. Adler and colleagues note “inpatient harm reduction is associated with reduced inpatient [length of stay] LOS, mortality, and readmission rates, which will benefit patients. Harm reduction is also associated with lower costs . . . .” (44, p. 6) With respect to the use of EHRs, Menachemi and colleagues note there is "the potential to both improve physician productivity, the quality of care provided, and health outcomes, yet there is much to learn as we move forward." (45, p. 100)

2.4. Stakeholders

There are numerous stakeholders who are or may be affected by an e-prescribing system. They at least include:

Insurers/Payors (and employers)
Prescribers
Pharmacies (and Pharmacy Benefit Managers)
Patients
Hospitals and Health Systems
Skilled Nursing Facilities and Rehabilitation Hospitals
Ambulatory Surgery Centers
Home health agencies
Electronic Health Record Vendors
Vendors of E-Prescribing and related software
Clinical Decision Support System vendors.

The benefits to health insurers/payers and employers, particularly self-insured employer groups, include formulary compliance, reduction of medication errors, determination of patient non-adherence, and formulary support. Cooke and colleagues note the financial benefits to this group include: "Reduction of overall health care costs . . . ," (8, p. 165) but all they note specifically with respect to same is that it is through encouraging the use of generics and lower cost options. (8) Thus, few specific costs and benefits are noted and none are quantified.

With respect to the prescribers, the benefits to e-prescribing include:

Display of alternative medications with economic benefit
Reduction of medication errors (eg, drug-drug, drug allergy, drug duplication)
Reduction of work-flow interruptions (calls and faxes from pharmacies, patients, and payers)
Improvement of patient adherence
Financial incentives for adopting eRx systems--Physician reimbursement programs

> Can monitor patient adherence
>
> Clinical decision support software can be built according to needs of practice, including on-screen prompts for drug-specific dosage information
>
> Creates complete medication history--prescriber able to see prescriptions ordered by other prescribers
>
> Practice evaluation: adherence to clinical guidelines, adaptation to initiatives, documenting outcomes
>
> Maintains vital patient-specific information
>
> May reduce fraud and abuse especially in the "doctor shopper" category for controlled substances. (8, p. 165)

However, none of these cost reductions associated with the benefits are delineated or quantified.

For pharmacies, the authors note the benefits of e-prescribing include:

> Reduction of dispensing errors related to illegible handwriting and look-alike/sound-alike drugs
>
> Reduction of work-flow interruptions (calls to prescribers, patients, payers)
>
> Enhance time for patient counseling
>
> Can monitor patient adherence
>
> Eliminates "falsified" written prescriptions
>
> May reduce fraud and abuse
>
> Streamlines and reduces faxes (duplicates, missing) sent by pharmacy to prescriber for refills, expedites refills. (8, p. 165)

Many of these benefits can apply to pharmacy benefit managers. They "have developed relatively advanced HIT systems. Transactions with pharmacy benefit management (PBM) programs to check for patients' eligibility for medications occur electronically on a routine basis, and the cost of building this infrastructure, is accepted as "the cost of doing business." (12, p. 6) This may be a key observation. If e-prescribing enhances quality, should the healthcare industry not just adopt it and consider it a cost of

doing business? Many industries adopt information technologies because they have the propensity to increase quality which is part of their culture. The healthcare industry has not had such a culture. It has been a culture of reimbursement and fee-for service.

For patients, the authors note the benefits of e-prescribing include:

> Patient convenience: Patient may pick up prescription from pharmacy without dropping off prescription
>
> Reduction of medication errors
>
> Reduce health care costs--encourages generics, lower cost options. (8, p 165)

This last observation is not discussed in the context of any specific cost reductions or in terms of a cost-benefit analysis.

Poon and colleagues identify some of the other stakeholders in context of a comprehensive health information technology (HIT), and others, including integrated delivery networks, community stand-alone hospitals, skilled nursing facilities and rehabilitation hospitals, and home health agencies. (12, p. 2)

2.5. The E-prescribing Process

In a Prescription for E–prescribers: Getting The Most Out of Electronic Prescribing, the U.S. Government set forth the following process for creating and arranging a prescription electronically. Thus, it described the e-prescribing process as follows:

1. Identify Patient

   Providers or staff gather patient information, review stored data using sources within the EHR and select the correct patient.

2. Review Current Patient Data

   Providers and staff review patient medications using historical information from EHR sources and patient/caregiver interview.

3. Select Drug

   Providers select the drug to be prescribed from a menu in the EHR.

4. Enter Parameters

   Provider enters directions for use and provides all required information to be transmitted to the pharmacy.

5. Review Alerts and Advisories

   Provider reviews warnings such as duplicate therapy or drug-drug interactions, and other messages, as well as formulary status and drug benefits.

6. Select Pharmacy; Print and Send Rx

   Provider selects pharmacy from patient's stored preferences and reviews the final prescription before sending.

7. Pharmacy Review and Process

   Provider reviews e-prescribing with patients, has staff dedicated to monitoring e-prescription logs, and electronically manages renewal requests. (46)

3. Chapter Three: The Delphi Method

3.1. Origins

The Delphi Method was originally developed in the 1950's by the RAND Corporation in Santa Monica, California. (47),(3),(48) It has been used to address the military potential of future technology and potential political issues. (49)

"The name *originates* from the *oracle* at Delphi, where the ancient Greeks were said to receive forecasts of future events from the god Apollo." (50, p. 67) The Oracle was believed to have "skills of interpretation and foresight." (51, p. 377)

3.2. Definitions

"The *Delphi Method* is based on structural surveys and makes use of the intuitive available information of the participants, who are mainly experts." (47, p. 96) "Its object

is to obtain the most reliable consensus of opinion of a group of experts. It attempts to achieve this by a series of intensive questionnaires interspersed with controlled opinion feedback." (1, p. 458)

An early Delphi Method Study by Dalkey noted three features: 1) anonymity, 2) controlled feedback, and 3) statistical group response. (2 p. 16),(48-51) "Delphi may be characterized as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem." (52, p.3)

"It aims to guide group opinion towards a final discussion and to answer questions through triangulation of subjective group judgments, analytical techniques and the experience of the researcher." (50, p. 67) "In triangulation, the researcher uses multiple methods, sources, researchers or theories to provide evidence that strengthens his or her study." (53, p. 16) "Delphi is an expert survey in two or more 'rounds.'" (47, p 96) "The initial questionnaire is usually based on a systematic review of published scientific literature." (50, p. 67) "Starting from the second round, a feedback is given (about the results of the previous rounds) allowing individuals to change their opinions." (47, p. 97) The same experts assess the same matters once more – influenced by the opinions of the other experts. (47, p. 97) "In Delphi exercises, some people who participate in early research will drop out in subsequent rounds." (50, p. 69)

3.3. Number of Experts

Delphi encourages "a true debate, independent of personalities." (49, p.1) It "is a controlled debate" (49, p. 1) or "feedback." (51, p. 376) "[T]he number of respondents is usually small". (49, p. 3) One of the earlier Delphi Method studies included a panel of

seven experts. (1) Only three participants developed rules for a ceramic casting process. (48),(54) Delphis "do not . . . produce statistically significant results." (49, p. 4) Anonymity is required. (48-51),(2),(55) Delphi differs in part, from the nominal group technique because it does not contemplate face to face contact with the experts. (56)

3.4. Value

"The value of the Delphi method rests with the ideas it generates, both those that evoke consensus and those that do not." (49, p. 4-5) However, judgment may be expressed using summary measures rather than just a consensus statement. (51) Delphi's seek a convergence of opinion. (50),(56) "The final data generated by a Delphi may also be qualitative (sometimes referred to as policy or a historic Delphi)." (50, p. 68) Cantrill and colleagues in 1996 noted that this approach has rarely been used in health services research. (50)

3.5. When Desirable

A Delphi Study may be a desirable choice for a study in the following instances:

- The problem does not lend itself to precise techniques but cart [sic] benefit from subjective judgments on a collective basis
- The individuals needed to contribute to the examination of a broad or complex problem have no history of adequate communication and may represent diverse backgrounds with respect to experience and expertise
- More individuals are needed than can effectively interact in a face-to-face exchange
- Time and cost makes frequent group meetings infeasible
- The efficiency of face-to-face meetings can be increased by a supplemental group communication process
- Disagreements among individuals are so severe or politically unpalatable that the communication process must be refereed and/or anonymity assured

- The heterogeneity of the participants must be preserved to assure validity of the results, i.e. avoidance of domination by quantity or by strength of personality ("bandwagon effect") (52, p. 4)

3.6. Types

There are a number of types of Delphi studies, including the "Modified" Delphi and the "Ranking-type Delphi."

3.6.1. Modified Delphi

A form of "modified" Delphi is where panels of practicing clinicians rated on a one to nine scale the appropriateness and necessity of six medical procedures, (57) and then they met at RAND. A form of "modified" Delphi employed in the context of e-prescribing was conducted by Wang and colleagues in which: "The capabilities of electronic prescribing systems were compared with 60 expert panel recommendations for capabilities that would improve patient safety, health outcomes, or patients' costs." (58, p. 346)

3.6.2. Ranking-type Delphi

"Ranking-type" Delphi studies are "used to develop group consensus about the relative importance of issues." (3, p. 2) They generally include brainstorming, narrowing round, and ranking rounds. (59, p. 13) "Schmidt provides a detailed description of how to conduct this type of Delphi survey, including guidelines for data collection, data analysis (based on nonparametric statistical techniques), and reporting of results." (3, p. 2),(59) His study included a ranked list of common risks for software projects as a foundation for theory building about Information Systems (IS) project risk management. (59) Delphi surveys also may be managed using nonparametric statistical techniques. (60)

3.7. Forms

3.7.1. Delphi Exercise—paper and pencil version

Originally, the paper-and-pencil version, known as the "Delphi Exercise" (52) was the main form of Delphi method employed.

3.7.2. Delphi Conference—electronic form

With the advent of technology, there is a newer form, the "Delphi Conference," via computer. (52) Thus, electronic Delphi form is becoming much more prevalent because of its ease of administration, cost-effectiveness, and ability to reduce the time to conduct a study.

3.8. Use in Health Care

Today, the Delphi method is used extensively in health care and health sciences. (47),(49-51),(56),(57),(61) It is used where "there is incomplete knowledge about a problem or phenomenon. (48, p. 1) It is "an attractive method for graduate students completing masters and PhD level research." (48, p. 1) It has been used widely in "health care research with a variety of methodological interpretations and 'modifications.'" (61, p. 377) The findings of Delphi experts represent their opinion, not indisputable fact. (61) There are many other interesting uses of the Delphi Method today. The World Health Organization applied the Delphi method to project HIV prevalence from 1988 to the mid-2000s using fourteen persons' projections. (62) Thirteen of fourteen nationally recognized experts completed a two-round, written survey, based on the Delphi method, where they considered the appropriateness of the use of medications only in nursing home residents older than 65 years. (63) The authors of the study noted that "although the literature is an important resource in developing appropriateness

criteria, it alone is inadequate." (63, p. 1825)The rationale underlying the study was that the best criteria would be developed through consensus of experts. (63)

A modified two round Delphi questionnaire requiring quantitative and qualitative answers for prescribing indicators for primary group practice in the UK has been employed. (64) A two-round postal-Delphi questionnaire was used in Europe to develop a European framework with indicators for the organization of primary care and ratings of the face validity of the usefulness of the indicators by the expert panel in six countries. (65) This two stage web-based Delphi process used an online rating process to enable international collaboration to note quality criteria for patient decision aides. (66)

3.9. Compared to Other Quality Research

The Delphi method can be compared to other quality research. For example, a diverse group of stakeholders participated in eight multi-disciplinary roundtable discussions in the UK to assess the business case for e-prescribing. (67)

3.10. Why Appropriate Here

3.10.1. The Difficulty With Assessing Costs and Benefits

The costs of e-prescribing systems vary widely depending upon the features included. (68) "Estimating the benefits of an EHR is still much more of an art than a science." (69, p. 107) Some of the typical methods of doing so are neither low in cost nor easy to use. (69)

Adler-Milstein and colleagues note about their study: "Our study suggests that the adoption of an electronic health record system can have a markedly positive financial impact, particularly for practices that leverage systems to increase revenues. However,

the five-year return on investment was negative for the majority of practices, particularly for smaller practices." (70, p. 568)

In scrutinizing this study, Moore and colleagues noted that

> The survey represents a misleading picture of the value of EHR adoption, especially for primary care practices. The authors work from the assumption that fee-for-service payment will continue and that one of the hoped-for results of EHR adoption for the practices is an increase in revenues. They do not recognize, however, that the need for physicians to have access to clinical information to manage care in patient-centered medical homes (PCMHs) and, more broadly, to function in a world of population health management and value-based payment. In other words, the assumptions of the practices and the survey leaders are backward looking, and not focused on what is likely to be a dramatically different future. (71, p. 126)

Thus, EHR adoption coupled with other health information technologies are key to the successful implementation of payment for quality and cost-effectiveness models. In such models, providers seek additional revenues for the quality and cost-effective management of care, not by merely providing more services or capturing more fee-for-service revenues.

It is important to note that the optimistic predictions by RAND in 2005 regarding billions of dollars in savings with the implementation of EHRs turned out not to materialize and "evidence of significant savings is scant." (72, p. 1),(73) Cross has noted realizing billions in savings may be difficult. (74)

Himmelstein and colleagues concluded there is scant data supporting the claims that health IT will improve quality and reduce costs. (75) However, one letter to the editor noted if Himmelstein and colleagues "had included the impact of EMR-facilitated provider-specific reporting on costs in a hospital market rather than individual hospitals,

they may have found a significant reduction in overall health care costs because fewer services were provided." (76, p. 1)

Many believe that "[t]he EHR leads to higher billings and declines in provider productivity. . . ." (77, p. 1079) Undoubtedly, this was not the intent in the development and implementation of EHRs. "It is anticipated that the availability of EHR-extracted data will allow quality assessment without the expensive and time consuming process of medical record abtraction." (78, p. 385) Part of the value of EHRs and e-prescribing likely will be in their ability to make data more easily available for analysis and use in a payment for quality and cost-effectiveness model.

Hillestad and colleagues attempted to estimate the potential savings, costs, and health and safety benefits from EHR adoption '"assuming that interconnected and interoperable EMR systems are adopted widely and used effectively."' (79, p. 1104) Kellerman and colleague declared: "Fully interoperable, patent-centered, and easy-to-use systems are necessary but insufficient to unlock the potential of health IT . . . . Providers must do their part by reengineering processes of care to take full advantage of the efficiencies offered by Health IT. This revamping of health delivery is unlikely to happen before payment models are realigned to favor value over volume." (80, p. 66-67) Goodman noted that "it is unrealistic to hold out effective widespread adoption of HIT as a net cost saver." (81, p. 1126)

With respect to medical practices, it has been noted: "For most of the practices, the major benefits of EHRs are increased organization, accessibility, and accuracy of patient documentation." (82, p. e50) Archer and colleagues noted that EHRs may result in cost reduction but not improvement in treatment quality. (83) Not all studies of EHR

implementations are full implementations and they do not report the same indicators, particularly with respect to costs. Most of the studies are not generalizable. (84)

Chaudry and colleagues did a systematic review on the effect of health information technology on quality, efficiency, and costs of healthcare. They concluded that although the results are positive, they "found little information that could empower stakeholders to judge for themselves the financial effects of adoption." (85, p. 749),(86, p. 681), (86) "Health services do not have a good history of cost effective implementation IT and especially of EMRs." (88, p. 265)

Walker noted that "we need to know more about the total costs of EMRs and the way in which they will interact with existing health care systems to make compelling predictions about their clinical benefits or the savings they can enable." (89, p. 1) "The central challenge is how best to promote the adoption of HIT to transform health care – by restructuring the delivery system, reengineering care processes, and recreating the culture in which health care occurs – while simultaneously mitigating its potential risks." (90, p. 74)

With this backdrop, it should be noted that serious unintended consequences have emerged with the adoption of EHRs. (91) However, there is a quality case for information technology in healthcare. (92)

3.10.2. Lack of Quantification of Positives and Negatives for Stakeholders

Schade and colleagues conducted a study of e-prescribing efficiency and quality in the UK primary care practices through interviews and the review of literature, identifying theoretical benefits and benefits cited by study practices. (13) In a qualitative study of physician practices, Grossman and colleagues made a very interesting

observation by noting: “Many . . . believe that e-prescribing is potentially the ‘killer app’ that will drive broader adoption of information technology (IT) by physicians . . . .” (93, p. w393) However, this qualitative study did not quantify any benefits in quality or cost-effectiveness, but merely noted “that e-prescribing improves safety and quality while increasing practice efficiency, and they did not want to go back to paper.” (93, p. w400)

Eslami and colleagues noted the 1999 Institute of Medicine report and suggest that “hospital costs of preventable adverse drug events were estimated at $2 billion per year.” (94, p. 400) They also note that in their study of CPOE, referring specifically to medication ordering, that they “found that CPOE systems seem to support adherence to guidelines which have the potential to influence costs and safety.” (94, p. 405) It is interesting to note that the authors use the term “seem”.

If the quantification of quality and cost is difficult in the context of informatics technologies, such as e-prescribing, certainly a much more difficult challenge likely would be the development and/or measurement of a ROI. However, often that is exactly what finance professionals want to have to make a business decision: a return on investment analysis.

Yong and colleagues reported on stakeholder perspectives’ panels on value in healthcare: accounting for cost, quality, safety, outcomes, and innovations, (95) and their work is laudatory, but additional research needs to be done with respect to those considerations.

3.10.3. Impediments to Developing a Return on Investment

There are many challenges that impede the use of ROI in the study of health IT. Menachemi and colleague noted:

> Despite the wide-spread availability of financial analytical tools used to conduct ROI analyses, several challenges impede the use of these tools in the study of health IT. For example, the benefits produced by IT are not the same as benefits produced by other investments. Unlike a traditional medical technology (i.e., MRI or CT scanner) for which services can be billed, use of IT does not necessarily produce an additional direct income stream or billable service. Instead, most health IT is designed to improve or enable a new process, not necessarily to produce a new billable product or function. This makes measuring its financial impact challenging, particularly when employing traditional methods for calculation ROI. (96, p. 159-60)

They set forth certain cost categories for a typical EHR implementation, including hardware, software, implementation, training and support and temporary reduction in staff productivity. For benefits, they note improved charge capture/decrease in billing errors, improved cash flow, and less tangible benefits, such as averted costs. (96) In addition, they discuss the costs and benefits of CPOE, but note: Studies examining the benefits of health IT are much more common than studies examining the ROI, itself. (95, p. 166)

A 2008 European Commission Report on The Conceptual Framework of Interoperable Health Record on e-Prescribing systems noted that "economic return on investment for a CPOE project may be difficult to calculate because baseline costs of key processes are hard to determine; several benefits are not easily amenable to measurement . . . , and many organizations do not currently measure rates of medication errors and adverse drug events." (97, p. 27)

In fact, a significant challenge is "that many times the value associated with IT, particularly of an improved service and product quality, does not accrue to the investing healthcare organization." (96, p. 160) With respect to e-prescribing, the benefits accrue to many stakeholders, but much greater benefits under the current fee-for-service

healthcare system accrue to health insurers/payers/self-insured employer groups and patients, than to the other stakeholders. As a result, the calculation of ROI for only one stakeholder may result in a financial decision which does not fully account for the true costs and benefits of e-prescribing.

For investments by hospitals in IT, Menachemi and colleagues note that these investments benefit "patients or healthcare payers who do not directly pay for these higher quality services." (96, p. 160) For the most part, hospitals and other providers get paid the same regardless of the safety or quality of the services they provide, not including any Meaningful Use payments.

Although the instances are increasing, traditionally few providers have entered into or have negotiated compensation arrangements where they are paid for quality and cost-effectiveness. In fact, often increased quality results in the provision of less reimbursable services with the result, that providers may be paid less overall for delivering quality and cost-effective services. It is important for the stakeholders to understand the economic effect of e-prescribing before any ROI analysis can be conducted.

In EHR adoption, there is generally a misalignment of incentives. Although the providers generally have to make the investments, the benefits accrue to third party payors, patients and to society over all. (98),(99) "[A] new alignment in the costs and benefits provided to patients, prescribing clinicians, health plans and other third party payors, pharmacy benefit managers, and a wide variety of other parties" is needed. (100, p. 101)

Wang and colleagues set forth a traditional cost benefit analysis for EHR adoption by setting forth the steps of a cost-benefit analysis from a mathematical perspective for AHIMA. (101) However, Page notes: "Calculating accurate ROI . . . . can be difficult." (102, p. 38) "The problem is, hospitals typically measure ROI from a business perspective – cost, revenues or operating efficiencies – but many benefits of clinical applications fall into quality and safety realms that do not easily translate into dollars." (102, p. 38) '"If the project is strategic in nature . . . ., ROI calculations are limited,' says Denver Health Chief Information Officer, Gregg Veltri." (102, p. 38)

"While one can measure certain types of ROI, the benefits of implementing a good EHR system far exceed the monetary rewards." (103, p. 246) "[T]here are questions regarding real returns on investment from the upfront purchase and implementation costs." (104, p. 169) In a scoping review, Bassi and colleague noted that "it is clear that a high quality economic evaluation should be explicit with its six key components: having a perspective, options for comparison, time frame, costs, outcomes, and comparison of costs and outcomes for each option." (105, p. 799)

Kuperman and colleagues note: "The return on investment for a CPOE project may be difficult to calculate because baseline costs are hard to determine; several benefits are not easily amendable to measurement . . . ." (106, p. 37)

In Return on Information: A Standard Model for Assessing Institutional Return on Electronic Health Records, Adler-Milstein and colleagues set forth various stakeholders affected by EHR investment expense, components of the model and benefits components, along with potential revenue impacts. (14, p. 2) "A generally accepted, standardized but flexible analytic framework for calculating the provider's ROI from interoperable health

IT and HIE can support strategic investment decisions, such as timing and product selection." (14, p. 2)

"Although there have been promising reports on positive return on provider organizations' investments at scale, the methodologies used have not been generalizable across provider organizations, given differences in organizational structure and payer reimbursement policies." (14, p.2),(15) "Assessments from individual provider perspectives have also not been conclusive." (14, p. 2) "Logistically, calculation of ROI requires a thorough understanding of the baseline against which costs and benefits can be measured, an understanding that can vary based on the existing infrastructure of an organization." (14, p. 2)

It is important to distinguish when the benefit is clearly realized within the same organization, compared to where it might be considered to accrue primarily to society. Adler-Milstein and colleagues note that "business case calculations can vary greatly depending on the scope to which the model calculation is constrained. It is not uncommon for costs and benefits to accrue differently to different stakeholders across the broad scope of the health care system." (14, p. 3) "This tool is meant to be used as a guide by health system management teams— including CEOs, CFOs, COOs, CIOs, and clinicians, among others—to help determine the financial impact of implementing and optimizing EHRs and related technologies." However, " . . . the focus of the model is the individual organization considering investment." (14, p. 5)

Importantly, Adler-Milstein and colleagues note: "Future efforts may build on the model, to consider a broader range or different subset of impacted stakeholders." (14, p. 5) In addition, they declare: "For both the benefits and the revenue impacts, we offered

methods of financial prioritization as well as measurement methods." (14, p. 6) However, they did not employ a Delphi Method. They noted: "The primary purpose of the model is to offer providers a standardized framework for evaluating investments in health IT and related process re-engineering versus other investments that may, or may not be value-accretive. The creation of a standardized framework offers the possibility of a secondary--and potentially more significant--benefit to providers." Such a Framework was an excellent contribution to the literature. However, from the Delphi Method employed in this research, we developed a Framework with positives and negatives associated with e-prescribing from the perspective of each stakeholder, which were rank ordered except for the positives and negatives identified by the Delphi experts for any new stakeholders.

3.11. Use as a Research tool

Wang and colleagues employed "a modified Delphi technique to arrive at group consensus with a 7-member expert panel," (15, p. 397) where data on costs and benefits of EHRs were not available. As noted above, Adler-Milstein and colleagues sought to develop an analytic framework for calculating an individual organization's ROI on EHRs. (14) They identified potential stakeholders, expense and benefit components along with potential revenue impacts.

Given the difficulty in determining the negatives/cost and positives/benefits of certain information technologies, the Delphi Method holds much promise for research in this area until the stakeholders are more clearly identified and the costs and benefits can be more accurately calculated. It is important to have the assessment from the perspective of the individual stakeholder. It is important to distinguish when a benefit is

realized by an organization or another stakeholder. It is important to know the relative value of the costs and benefits from the perspective of each stakeholder. The Delphi Method is ideally suited to the above, particularly when the actual costs and benefits may not truly be capable of accurate determination.

4. Chapter Four: The Framework

4.1. Description

"A conceptual framework is described as a set of broad ideas and principles taken from relevant fields of inquiry, and used to structure a subsequent presentation." (107, p. 2), (108) It has the potential to be a structure for research and to assist researchers in making meanings of their subsequent findings. It is "a starting point for reflection about the research and its context." (107, p. 2) It "is a research tool intended to assist a researcher to develop awareness and understanding of the situation under scrutiny and to communicate this." (107, p. 2) It "forms part of the *agenda for negotiation* to be scrutinised and tested, reviewed, and reformed as a result of investigation." (107, p. 2),(109)

There are many cautions of which to be aware when using a conceptual framework. It "is a construction of knowledge bounded by life-world experiences of the person developing it and should not be attributed a power that it does not have." (107, p. 2) Its nature "means that it consciously or unconsciously informs thought and practice by increasing personal sensitivity to notice particular occurrences . . . ." (107, p. 2),(110) "[N]o researcher can expect that all data will be analysed using the framework without risk of limiting the results from the investigation." (107, p. 2)

4.2. Earlier Frameworks

Donabedian and colleagues presented a framework in 1982 “within which the relationship between resource expenditure and quality of care is examined systematically.” (111, p. 976) In their study, they “define the highest quality of care as that which yields the greatest expected improvement in health status, health being defined broadly to include physical, physiological, and psychological dimensions.” (111, p. 976)

Clarkson developed a Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance. (112) It was a framework and methodology for analyzing corporate social performance. The Framework was based on the management of a corporation’s relationship with its stakeholders. It was developed using survey instruments and guidelines. (112)

Developing a framework for analyzing risk and safety in clinical medicine, Vincent and colleagues noted that there is “a hierarchy of factors involved in the cause, and therefore in the analysis, of adverse outcomes.” (113, p. 1155) They suggested that “the condition from which the patient suffers is the most powerful direct predictor of clinical outcome.” (113, p. 1155) They constructed a framework for factors that influence clinical practice, and noted: “Each level of analysis can be expanded to provide a more detailed specification of the components of individual major factors.” (113, p. 1156)

Bacon and colleague developed a systematic framework in the field of information systems which included IS development acquisition and support, information and communication technology, people and organization, and operations and network management, centered around information for knowledge work, customer satisfaction, and business performance. (114)

4.3. Newer Frameworks

Kushniruk and colleagues in 2013, penned a paper "organized using a framework for considering national efforts and for selecting safety approaches to be reviewed." (115, p. 151) It considered "safety initiatives in terms of their impact on the following: (a) [sic] their level of recognition of the problem, including requirements for action, (2) usability and design considerations related to safety, (3) implementation issues related to safety and, (4) post implementation issues and error reporting . . . ." (115, p. 151)

Yusof and colleagues constructed an evaluation framework for health information systems which addressed Technology, including System Quality, Information Quality, and Service Quality; Human and their System Use and User Satisfaction; the Organization and its Structure and Environment; and the Net Benefits. (116) This framework was used as guideline in the evaluation of a Fundus Imaging System. (116)

Exploring whether privacy concerns might hinder the adoption of electronic health records, Angst and Agarwal presented a research framework which incorporated the Concern for Information Privacy within an Elaboration Likelihood Model. (117, p. 1) They examined three variables that influence Attitude Change, including Argument Quality, Issue Involvement, and Argument Quality x Issue Involvement. (117)

Westbrook and colleagues noted that in 2004, they "reported on a program of research that involved implementation of a comprehensive evaluation framework to measure the impact of computerized order entry systems on major academic medical institutions," but noted that they then adopted a multimethod approach "whereby a range of data collection methods was used to measure three dimensions of the study organization: safety and quality, organizational culture, and work and communication

patterns." (118, p. 746),(119) In reviewing the perceived impact of EHRs in physician office practices, Bassi and colleagues developed a Clinical Adoption Framework, to which they mapped metrics for EHRs. (120)

In a Draft Policy Brief, dated May 11, 2011, entitled "Policy Needs and Options for a Common Approval Towards Measuring Adoption, Usage and Benefits of eHealth," for ARGOS eHealth Pilot Project, editors Stroetmann and Middleton describe an analysis framework to assist in "analysing the respective national health policy and related eHealth strategy perspectives regarding measuring adoption, usage and benefits of eHealth solutions . . . ." (121, p. 2) They noted: "A rigorous evaluation framework for identifying and measuring the benefits and costs from eHealth investments and deployment is needed for two reasons: 1) In order to demonstrate the potential, including the points of high-level impact, and 2) In order to analyse incentives structures and thus identify fields of required policy initiatives and action." (121, p. 2)

Girosi and colleagues for RAND HEALTH provided "a methodological framework to scale empirical evidence on the effect of HIT at the national level and to project it into the future." (122, p. xi) They "used the framework and certain formulas to model percentage subsidies to hospitals.' (122, p. 57) In addition, there is a Study on Legal Framework of Interoperable eHealth in Europe which provides a regulatory framework for electronic prescriptions. (123)

"The American Medical Informatics Association (AMIA) convened a panel of diverse stakeholders and experts to discuss a full range of issues related to secondary use of health data." (124, p. 1) The expert panel developed the Components of a National Framework for Secondary Use of Health Data. (124) The Joint Commission authored a

monograph “that provides a framework to help health care workers make necessary decisions about what, when, why, and how they will measure hand hygiene performance.” (125, p. xvii)

Johnston and colleagues in a report for the Center for Information Technology Leadership set forth a Value Framework with three main value dimensions, including financial, clinical, and organizational. (99) Rudin and colleagues presented "a conceptual framework for measuring the value of HIT" by proposing "a checklist of the characteristics that should be considered in HIT evaluation studies." (126, p. eSP1) They note that their "framework consists of 3 key principles: 1) value includes both costs and benefits; 2) value accrues over time; and 3) value depends upon which stakeholder's perspective is used." (126, p. eSP1)

Dobrev and colleagues developed the conceptual framework of interoperable electronic health record and e-prescribing systems. (97) “The methodology builds on cost benefit analysis (CBA), and uses monetary values to index financial, but also non-financial impacts. Negative impacts fall under the cost category, whereas positive impacts are aggregated as benefits. The perspectives of all stakeholders are included in the analysis.” (97, p. 6)

Bell and colleagues developed “a conceptual framework for comparing the potential benefits and risks of e-prescribing systems based on their component functional capabilities.” (127, p. 60) In the context of e-prescribing, Porterfield and colleagues used a conceptual framework to show how new technologies such as e-prescribing “can be applied to medical settings to enhance the care of patients.” (128, p. 2) Marceglia and

colleagues presented an excellent model of the e-prescribing process, somewhat like a framework. (33)

4.4. Usefulness of Frameworks

A framework should be structured in a manner in which it can communicate. (107) Symth constructed "a matrix divided horizontally into five main themes derived as principles from the educational changed literature. These were presented as horizontal bands intersecting vertical columns of descriptors aligned to defining characteristics . . . ." (107, p. 3)

Smyth used the following criteria for making judgments about the appropriateness of her conceptual framework, by asking whether it

- provided a common language from which to describe the situation under scrutiny and to report findings about it . . . .
- developed a set of guiding principles against which judgments and predictions might be made
- acted as a series of reference points from which to locate the research questions within contemporary theorising
- provided a structure within which to organize the context of the research and to frame conclusions within the context . . . . (107, p. 5),(110),(129)

Smyth then attempted to answer whether her conceptual framework was useful.

4.5. Intended Use of this Framework

The purpose of this research effort was to develop a framework to share with experts who will analyze its usefulness for payors, integrated delivery systems, policy makers/legislators and those who influence public policy in making decisions about incentivizing stakeholders in the use of informatics technologies, particularly e-prescribing, through aligned incentives in the payment for quality and cost-effectiveness.

The current fee-for-service healthcare system in the United States and similar systems, and the desire of many of the existing stakeholders to maintain the status quo interact to make it difficult to transition to a system in which payment is made for quality and cost-effectiveness. Multiple stakeholders, some of which benefit more than others from the employment of health information technologies, such as e-prescribing, and the various positives and negatives from the perspective of each stakeholder that cannot be specifically quantified, but can be rank ordered, are factors which also interact to exacerbate the difficulties in transitioning from a fee-for-service to a system focused on payment for quality and cost-effectiveness.

For example, the cost-savings aspects of ambulatory computerized physician order entry "primarily benefits capitated care." (99) Berwick notes that "the term 'capitation' refers only to a payment mechanism--paying a provider a specific sum of money for the ongoing care of a person or group of people for a particular period of time. The sum is set in advance of the actual period of service, and it therefore represents a prediction, or at least an agreed-upon estimate, of the amount of money that will be required to provide that care." (130, p. 1227) "In order for capitation to be a force for the redesign of care processes, however, the entity paid by capitation – the one that stands to gain from innovation – must be capable of achieving such redesign." (130, p. 1229) Further, the revenue enhancements of ambulatory computerized physician order entry "help all providers but strongly favor fee-for-service care." (99, p. 53)

The actions and interventions that are more likely to lead to the development of systems focusing on payment for quality and cost-effectiveness are those where informatics technologies, such as e-prescribing, can be successfully implemented with

aligned incentives among the stakeholders. There are numerous incentive methods for various e-prescribing stakeholders. One study sought to classify their effectiveness in accelerating adoption of e-prescribing, without regard to feasibility, by classifying the incentives' effectiveness as high, moderate or minimal. (100)

Robinson and colleagues "studied the role of health insurers' financial incentives (including pay-for performance) and quality improvement initiatives in accelerating adoption of [clinical information technology] CIT in large physician practices" and distinguished direct incentives form indirect incentives. (131, p. 411) "Direct incentives come through pay-for-performance initiatives that measure the extent of CIT adoption and reward with financial bonuses those organizations with specific capabilities in use." (131, p. 411) "Indirect incentives also may flow from the medical group's participation in quality improvement collaboratives, which rely on electronic collection and analysis of data for success." (131, p. 411) They noted: "Physician organizations in the United States that face capitation payment are more likely to adopt informational capabilities than otherwise similar organizations paid solely by fee-for-service . . . ." (131, p. 414)

Robinson and colleagues also found: "Physician organizations committed to collecting and analyzing patient experience data to improve performance also may be more likely than other physician practices to invest in information technology capabilities." (131, p. 411) Increasingly today under Health Reform, Payors are moving toward value-based purchasing models, such as capitation and Accountable Care Organizations, where the participants share in the savings that they achieve for the Medicare program. (132) "Payment models are shifting toward risk-sharing and value-based healthcare." (133, p. 459)

DeAngelis and colleagues found in their Payer-Provider survey in April and June of 2014, that there is a gap between providers and payors who seem to overwhelmingly agree that value-based purchasing arrangements are important, but most commercial contracts still remain on a fee-for-service basis. (132) Importantly, they note: "Payers seeking to partner with providers in value-based arrangements have identified capabilities they wish potential partners would possess. Payers want to see providers invest in healthcare information technology (IT), especially in systems supporting clinical integration and population health management (PHM)." (132, p. 3) In fact, they further note: "Clinical integration cannot be achieved without a high degree of IT sophistication. With the proper IT and analytic tools, health risks can be mitigated by identifying groups that need special care and attention, especially those with chronic conditions that are becoming pervasive in an aging U.S. population." (132, p. 3) Thus, ROI models should focus on the value of health information technologies in making it possible to transition from the current fee-for-service system to one based on payment for quality and cost-effectiveness.

Howley and colleagues in their study found that reimbursements significantly increased after EHR implementation, while practice productivity decreased over a two year period. (134) They noted that the "EHR implementation has a significant effect on the total number of ancillary procedures . . . ." (134, p. 450) As the system moves from fee-for-service to payment for quality and cost-effectiveness, do we want more ancillary procedures? It would seem that this would only be the case if clinicians were taking better care of patients by doing so. The authors noted that they "have no data on this issue . . . ." (134, p. 450) Further, they do state: "Our data are silent to the quality of

care the patients received, but emphasize that the 'better care for fewer patients' approach depends upon advanced EHR analytic functions." (134, p. 450) This Framework should assist others in focusing on the value of analytic functions.

4.6. What the Framework Will Do

The Framework will assist payors, integrated delivery systems, policy makers/legislators and those who influence public policy by providing a big picture of who and what entities might be affected by the implementation and use of informatics technologies, particularly e-prescribing. Such entities and individuals also will be able to consider all the stakeholders that might be affected, and include any others that might be present in their system, or delete others that might not be present. They can look at the positives and negatives associated with such information technologies from the perspective of each of the stakeholders, and determine whether they should consider any other positives and/or negatives or delete some of them. They can decide to accept the current rank order by the Delphi Experts or re-rank order them based on their individual system and experience.

The expectation is that the Framework can easily be communicated to the stakeholders and/or others who interact in the context of informatics technologies, such as e-prescribing, to facilitate its implementation in the context of aligned financial and other incentives.

The Framework provides significant detail to assist in facilitating the decisions of payors, integrated delivery systems, policy makers/legislators and those who influence public policy, without providing specific quantitative estimates for the positives and negatives of e-prescribing because such quantitative estimates would not be dynamic and

would differ substantially depending upon many factors which would be unique to the particular delivery system.

The Framework provides a useful tool for all involved and/or interested in increasing quality and decreasing costs through the use of informatics technologies, such as e-prescribing. The vision for the Framework is that it will be a useful template which will be considered in the transition from the fee-for-service medicine to payment for quality and cost-effectiveness in the context of the implementation of informatics technologies, such as e-prescribing and beyond.

4.7. Objectives of the Framework

Healthcare systems will be able to more easily develop and align incentives among stakeholders to use informatics technologies, such as e-prescribing, that can improve quality and reduce costs. Such development and alignment of incentives is important, given that the current fee-for-service healthcare system is just beginning to develop payment mechanism for quality and cost-effectiveness, and there are very few incentives to adopt information technologies, except for Meaningful Use, which is not an aligned financial incentive, and many stakeholders have an invested interest in the status quo.

It is important to reduce the barriers, such as the costs/negatives associated with certain stakeholders to the implementation of informatics technologies, such as e-prescribing, that might impede improved quality and reduce costs and the desire of many stakeholders to retain the status quo. It is important to emphasize the quality/benefit/positives associated with certain stakeholders for the implementation of

informatics technologies, such as e-prescribing, that might facilitate improved quality and reduced costs.

4.8. The Framework

Payors, integrated delivery systems, policy makers/legislators and those who influence public policy can review the Framework, including the stakeholders, for e-prescribing. The stakeholders can be identified as primary and secondary stakeholders.

We have identified primary stakeholders as those who are directly involved in the e-prescribing process, including: patients, clinicians/prescribers, payors/purchasers, pharmacy benefit managers/prescription pricing authorities, pharmacies/dispensaries/pharmacists, inpatient and outpatient healthcare entities, employers, and pharmaceutical manufacturers.

Secondary stakeholders have been identified as those who are indirectly involved with the e-prescribing process, including patients' families, vendors of health information technology, suppliers/distributor of pharmaceuticals, patient associations/support groups, government prescription monitoring programs, consultants, policy makers/legislators, researchers, and society.

Payors, integrated delivery systems, policy makers/legislators and those who influence policy have the ability to add or subtract any stakeholders depending upon the particular health system. In addition, they can review the positives and negatives from the perspective of each stakeholder to determine whether they are consistent with the particular situation being considered. They also have the ability to review the impact that a particular positive or negative has on the health, finances, effort, time, management

and/or data and determine the importance of that particular impact in the context of the particular situation being considered. We defined these concepts as follows:

> Health—positives and negatives that describe an aspect of e-prescribing that could or does have an impact on health, including both safety and well-being of people.
>
> Finances—positives and negatives that describe an aspect of e-prescribing that could or does have an impact on finances, both revenues or expenses.
>
> Effort—positives and negatives that describe an aspect of e-prescribing that could or does have an impact on the nature and extent of the effort people or organizations must apply to an endeavor.
>
> Time—positives and negatives that describe an aspect of e-prescribing that could or does have an impact on the amount of time required by an endeavor.
>
> Management—positives and negatives that describe an aspect of e-prescribing that could or does have an impact on the administrative tasks of an endeavor.
>
> Data—positives and negatives that describe an aspect of e-prescribing that could or does have an impact on the quantity, quality, and/or security of the information generated and/or used.

Payors, integrated delivery systems, policy makers/legislators and those who influence public policy will have the ability to add or subtract any positives or negatives of e-prescribing from the perspective of any of the stakeholders. In addition, they will have the ability to accept or re-rank order the positives and negatives of e-prescribing from the perspective of the stakeholders. Further, they can decide on the nature and extent of the incentives for certain of the stakeholders, and whether they are financial or non-financial.

In doing so, they will review applicable resources, practical and political considerations affecting the facilitation of the implementation of the incentives, and

develop a preliminary model, perform a sensitivity analysis of the model, potentially beta test the model, and then implement it.

4.9. A Hypothetical Example

A hypothetical example of the framework showing how it influenced the decision in the hypothetical case might be as follows: A health plan designs a new payment system for a quality and cost-effectiveness product. It commissions a qualitative study to determine whether these stakeholders and the positives and negatives identified are consistent with its market, along with their rank order. The health plan decides that many of the positives accrue to the patients and the health plan, but many of the negatives, particularly costs, accrue to the physicians and/or the healthcare entity. The health plan attempts to quantify the positives, particularly the financial effects of the new product along with the benefits of being able to have the data to better manage care.

It decides to develop incentives for a patient to choose an e-prescribing provider, pays the physician and/or the healthcare entity some up-front amount to purchase and implement e-prescribing, and some amount of shared savings, but such amounts are designed to only pay part of the physician's or entity's costs because of the free-rider effect. That is, other health plans will benefit. As a result, physicians and the healthcare entities will be incentivized to seek payments from other health plans.

5. Chapter Five: Methods

We received approval for the Study IRB00010908 on August 20, 2014 from the Oregon Health & Science University School of Medicine Institutional Review Board.

5.1. Delphi

5.1.1. Selection of Experts

A literature search of the use of health information technology (HIT), particularly informatics technologies and their ability to assist in providing quality care in a cost-effective manner, identified more than 200 authors and contributors, who might be able to serve as Delphi Experts for this study. Most of these individuals came from academic centers, industry, and research institutions. Many were well-known to the Principal Investigator (PI) as having significant reputations and backgrounds in healthcare and/or informatics. Certain of these individuals are based primarily in the United States (U.S.). We identified another group of non-U.S. based would-be Delphi Experts from the literature. E mails were sent to all of these individuals, inviting them to participate as Delphi Experts in a Global Delphi Study for E-prescribing. We planned to use three rounds of questionnaires: a Brainstorming Round, a Narrowing Round, and a Finalizing Round. There were thirteen Brainstorming Round Delphi Experts, nine from the U.S. and four from outside the U.S. There were nine Narrowing Round Experts and seven Finalizing Round Experts.

5.1.2. Development of the Instrument

We decided to use electronic questionnaires by e mailing each Delphi Expert a link to the questionnaire, rather than mailing them a paper questionnaire or word document that they could complete. The electronic questionnaire was designed to automatically aggregate the data and compile the rank order based on the weighted averages of the responses of the Delphi Experts. Initially, we considered using RedCap as the survey instrument because of preferences at Oregon Health & Science University School of Medicine. However, it soon became apparent that for this type of study,

RedCap had less functionality than Survey Monkey. Therefore, we decided to use Survey Monkey.

5.1.3. Data Gathering

The individuals who agreed to participate constituted our panel of global Delphi Experts. All Delphi Experts participated in Round One, the Brainstorming Round, by responding to the questions in the web-based questionnaire. This questionnaire presented a list of stakeholders impacted by e-prescribing which was derived from the literature.

The initial stakeholders that we identified for the questionnaire were patients; clinicians/prescribers; payors/purchasers (including, but not limited to insurers, governments or their healthcare agencies, sickness funds, self-insured employer groups); entities which facilitate determining coverage, formulary, co-payments or deductible amounts including, but not limited to pharmacy benefit managers or prescription pricing authorities; and pharmacies/dispensers/pharmacists, e.g. retail, specialty or mail order pharmacies. In addition, we also identified as stakeholders inpatient or outpatient healthcare entities, e.g. hospitals, ambulatory surgery centers, long term care facilities, home health agencies, etc.; patients' families and/or individuals responsible for their care; employers; pharmaceutical manufacturers; vendors of health information technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules; suppliers/distributors of pharmaceuticals; consultants; policy makers/legislators; researchers; and society.

The Delphi Experts were given the following positives associated with e-prescribing, from the perspective of patients: fewer medication errors; fewer adverse drug events; convenience, e.g. merely pick up medicines at pharmacy or have them

delivered; lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications; improved care and/or health outcomes; improved patient safety; better medication adherence/compliance; and increased efficiency.

They were presented with the following negatives associated with e-prescribing, from the perspective of Patients: need to find a provider who e-prescribes; need to find a pharmacy/dispenser that e-prescribes; less likely to get non-formulary medications; and controlled substances may have to be separately prescribed on paper.

The Delphi Experts were given the following positives associated with e-prescribing, from the perspective of Clinicians/Prescribers: patient medication history is available (electronic record of prescriptions); fewer medication errors; time saving (e.g. less faxes, telephone calls, workflow interruptions); easier to review alternative medications on formulary; better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?); improved patient satisfaction, lesser professional liability premiums and malpractice liability; increased efficiency; fewer documents; and improved care and/or health outcomes.

They were presented with the following negatives associated with e-prescribing, from the perspective of Clinicians/Prescribers: hardware; and software licensing fees; implementation costs; vendor may go out of business and/or not support e-prescribing system; maintenance; upgrades; customization; training; IT Staff; network and internet access; wrong patient may be selected; alerts may be inactivated or ignored; history and alerts may not be updated; healthcare coverage and/or formulary may not be updated; menu designs (graphical user interfaces) may increase wrong drug choices; users may

rely on the system and be less careful; controlled substances may have to be separately prescribed on paper.

The Delphi Experts were given the following positives associated with e-prescribing, from the perspective of Payors/Purchasers: increased generic/formulary usage; increased efficiency; better medication adherence/compliance; fewer medication errors; fewer adverse drug events; improved care and/or health outcomes; improved patient safety; and more readily available data.

They were presented with the following negative associated with e-prescribing, from the perspective of Payors/Purchasers: interfaces.

The Delphi Experts were given the following positives associated with e-prescribing, from the perspective of Entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to pharmacy benefit managers or prescription pricing authorities: increased generic/formulary usage; increased efficiency; better medication adherence/compliance; fewer adverse drug events; reduced costs; and could experience increased value or business.

They were presented with the following negatives associated with e-prescribing, from the perspective of Entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to pharmacy benefit managers or prescription pricing authorities: hardware; software licensing fees; implementation costs; maintenance; upgrades; customization; training; IT Staff; and network and internet access.

The Delphi Experts were given the following positives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists: fewer

medication errors; reduced costs; time savings (e.g. less faxes, telephone calls, workflow interruptions; better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?); fewer fraudulent prescriptions; more time for consultations; increased generic/formulary usage; increased efficiency; improved care and/or health outcomes; and improved patient satisfaction.

They were presented with the following negatives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists: hardware; software licensing fees; implementation costs; maintenance; upgrades; training; and network and internet access.

The Delphi Experts were given the following positives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities: patient medication history is available (electronic record of prescriptions); fewer medication errors; increased efficiency; reduced costs; facilitation of quality measurement and reporting; improved patient satisfaction; and improved care and/or health outcomes.

They were presented with the following negatives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities: hardware; software licensing fees; implementation costs; vendor may go out of business or not support e-prescribing system; maintenance; upgrades; customization; training; IT Staff; and network and internet access.

The Delphi Experts were given the following positives associated with e-prescribing, from the perspective of Patients' Families: improved care and/or health outcomes; could reduce families' amount of time spent coordinating care; lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications.

They were presented with the following negative associated with e-prescribing, from the perspective of Patients' Families: controlled substances may have to be separately prescribed on paper.

The Delphi Experts were given the following positives associated with e-prescribing, from the perspective of Employers: improved care and/or health outcomes and reduced time employees are not working.

They were presented with the following negative associated with e-prescribing, from the perspective of Employers: may result in more costs to providers that are passed on to employers.

The Delphi Experts were given the following positive associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers: increased sales of generic drugs.

They were presented with the following negative associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers: decreased sales of brand names.

The Delphi Experts were given the following positive associated with e-prescribing, from the perspective of Vendors of Health Information Technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules: could experience increased value or business.

They were presented with the following negative associated with e-prescribing, from the perspective of Vendors of Health Information Technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules: could experience decreased value or business.

The Delphi Experts were given the following positive associated with e-prescribing, from the perspective of Suppliers and/or Distributors of Pharmaceuticals: could experience increased value or business.

They were presented with the following negative associated with e-prescribing, from the perspective of Suppliers and/or Distributors of Pharmaceuticals: could experience decreased value or business.

The Delphi Experts were given the following positive associated with e-prescribing, from the perspective of Consultants: could experience increased value or business.

They were presented with the following negative associated with e-prescribing, from the perspective of Consultants: could experience decreased value or business.

The Delphi Experts were given the following positives associated with e-prescribing, from the perspective of Policy Makers/Legislators: better data with which to make decisions, and facilitation of aligned incentives.

They were presented with the following negative associated with e-prescribing, from the perspective of Policy Maker/Legislators: costs to other stakeholders.

The Delphi Experts were given the following positive associated with e-prescribing, from the perspective of Researchers: better data that can be used in clinical trials and for comparative-effectiveness.

They were presented with the following negative associated with e-prescribing, from the perspective of Researchers: may make it more difficult to obtain complete data because some will be in electronic format and some in paper format.

The Delphi Experts were given the following positive associated with e-prescribing, from the perspective of Society: increased efficiency (reduces consumption of resources by healthcare organizations).

They were presented with the following negative associated with e-prescribing, from the perspective of Society: providers may experience more costs which may be passed onto society.

After reviewing the list, the Delphi Experts had the opportunity to add other stakeholders. When new stakeholders were chosen, the Delphi Experts were asked to describe any appropriate positives and negatives of e-prescribing from the perspective of the new stakeholders.

The questionnaire then presented positives and negatives of e-prescribing from the perspective of each original stakeholder. These positives and negatives also were derived from the literature review. The order in which the positives and negatives were presented was randomized in Round One for each participant by the Survey Monkey.

After reviewing each list of positives and negatives from the perspective of each stakeholder, the Delphi Experts were given the opportunity to add other positives and negatives. Finally, they were asked to rank order the items on each list, in this way indicating the significance of each item. A copy of one form of the Brainstorming Round questionnaire is attached as Appendix A.

After Round One, the Brainstorming Round, we proposed to distribute to the Delphi Experts Round Two, the Narrowing Round questionnaire, which was to be derived from the results of the Brainstorming Round. These results would include the rank order of the positives and negatives from the Delphi Experts' responses in Round

One. A form of the Narrowing Round questionnaire is attached as Appendix B. In this Round Two, the Delphi Experts were then asked to re-rank order the positives and negatives of e-prescribing from the perspective of the original stakeholders, and comment on additional positives and negatives for the new stakeholders.

For Round Three, the Finalizing Round, the results of Round Two, the Narrowing Round, would be summarized from the responses of the Delphi Experts. Each of the stakeholders identified and reviewed by the Delphi Experts in Round Two would have the positives and negatives and the rank order from the from the perspective of each original stakeholder presented to the Delphi Experts in a Third Round. They would be asked to determine the final ranking after consideration of the ranking of the Delphi Experts in Round Two. The Delphi Experts also would be provided with the opportunity to comment on any significant aspects of the relative impact of e-prescribing, as experienced by the different stakeholders that they believed are particularly important. In addition, they could comment on any aspect of e-prescribing's positive or negative impact on any of the stakeholders that they believed are either particularly important/significant or particularly misunderstood/over-rated. A copy of the Finalizing Round questionnaire is attached as Appendix C.

5.1.4. Analysis

From these results, we developed an initial Framework to share with an additional group of experts which would analyze the usefulness of the Framework for payors, integrated delivery systems, policy makers/legislators and those who influence public policy in making decisions about incentivizing stakeholders in the use of informatics

technologies, particularly e-prescribing, through aligned incentives in the payment for quality and cost-effectiveness.

5.2. Framework

5.2.1. Selection of Experts

The Framework Experts were chosen from payors, integrated delivery systems, policy makers/legislators and those who influence public policy who were known to the PhD candidate.

The Framework Experts were:

1. An expert in Accountable Care Organizations and in-house counsel at a major teaching hospital.
2. The CEO of a major regional health plan.
3. A senior analyst with the Department of Health and Human Services Office of the National Coordinator.
4. The Senior Vice President, Chief Financial Officer & Treasurer of a major clinically integrated healthcare system.
5. An expert in e-prescribing with the National Health Service in the United Kingdom.

5.2.2. Development of the Instrument

From the results of the Global Delphi Study on e-prescribing, we prepared the following Framework which includes charts setting forth each individual stakeholder which was identified along with the positives (on the left) and negatives (on the right) associated with e-prescribing which were identified, rank ordered, computed as weighted averages and converted to proportions, except for the positives and negatives that were identified for the new stakeholders. The numbers are a representation of the value of that

attribute, with 1.0 meaning that everyone chose it first and 0.0 meaning that everyone chose it not applicable.

The survey instrument calculates the weighted averages for each option in a rank order question. For a question with "n" options to rank, an option receives a weight of "n" if it is ranked first, n-1, if it is ranked second, n-2, if it is ranked third. It was modified to provide that if a response is marked N/A, it is n-n = 0. The final score is the weight each option received divided by the number of respondents to the question.

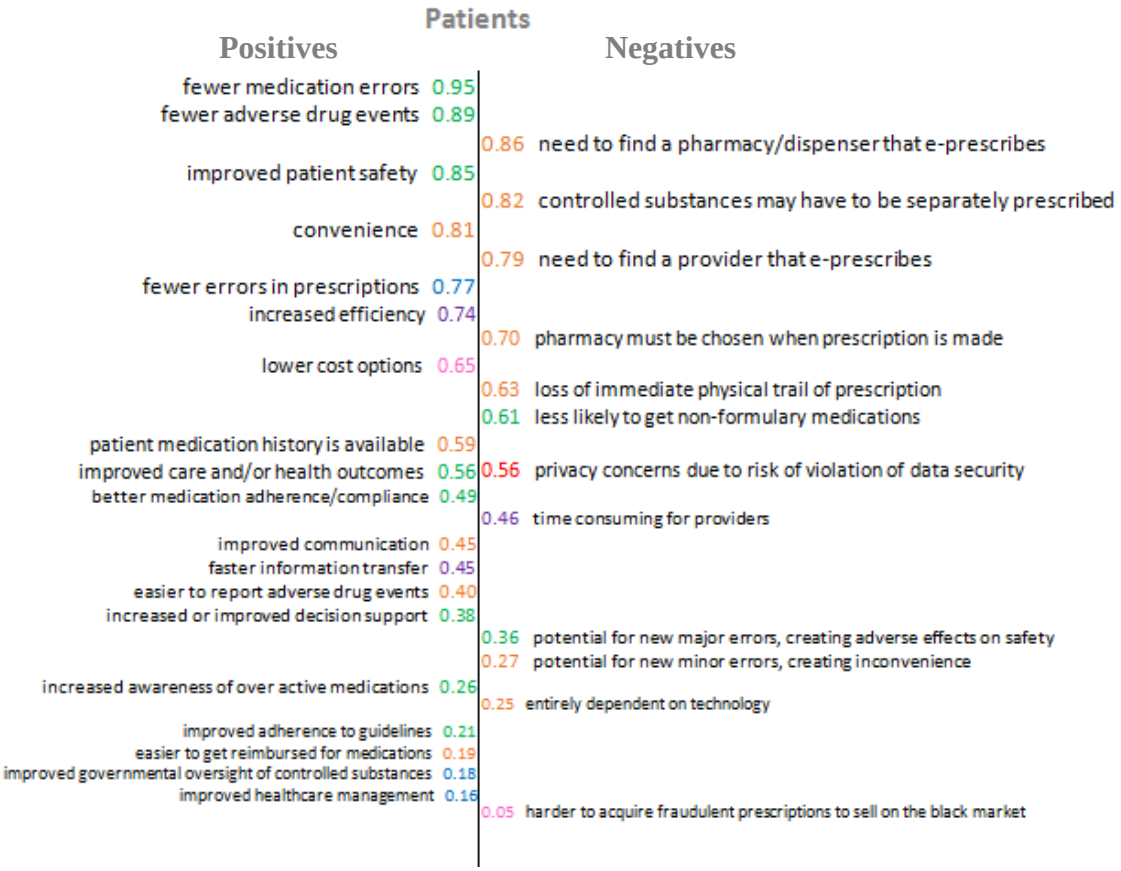
For example, if a question has four options (A, B, C, and D) to rank order and two respondents rank them as: Respondent 1: 1^{st} B, 2^{nd} A, 3^{rd} C, and 4^{th} D, and Respondent 2: 1^{st} A, 2^{nd} C, 3^{rd} B, N/A D, then each option is assigned the following weights: Option A: 3, 4, Option B: 4, 2, Option C: 2, 3, and Option D: 1, 0. Thus, the weighted averages would be: A: (3 + 4)/2 = 3.5; B: (4 + 2)/2 = 3; C: (2 + 3)/2 = 2.5; D= (1 + 0)/2 = 0.5.

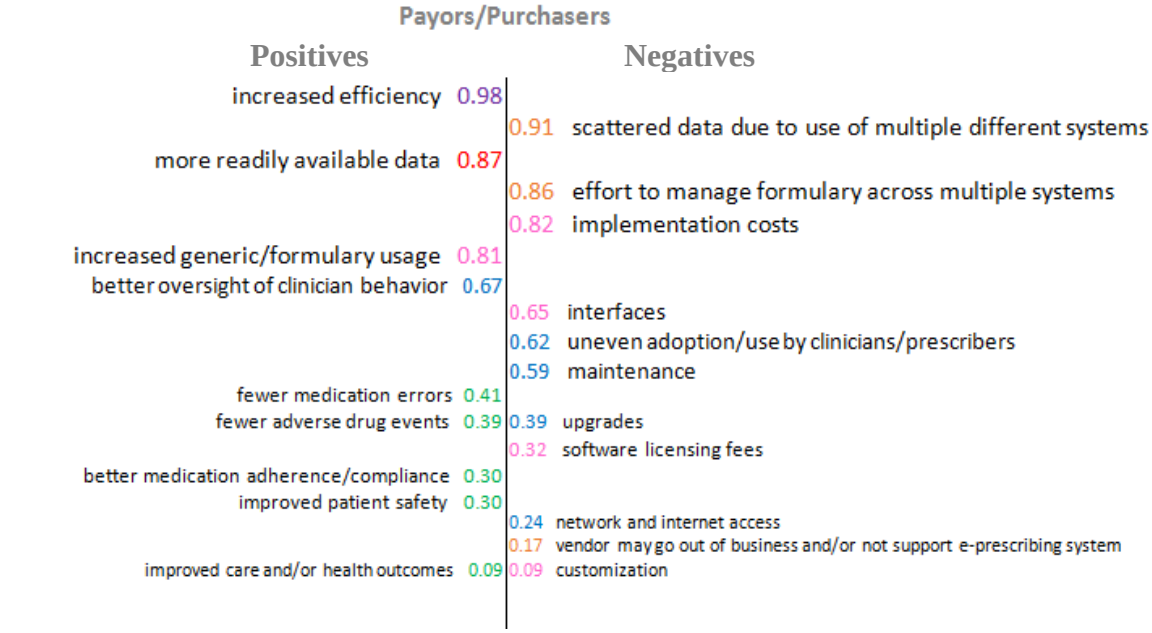
We converted these numbers to proportions for the purposes of the charts below. For each option, the proportion is the weighted average divided by the number of options (n). For the illustration above: A: 3.5/4 = 0.83; B: 3/4 = 0.75; C: 2.5/4 = 0.63; D: 0.5/4 = 0.13.

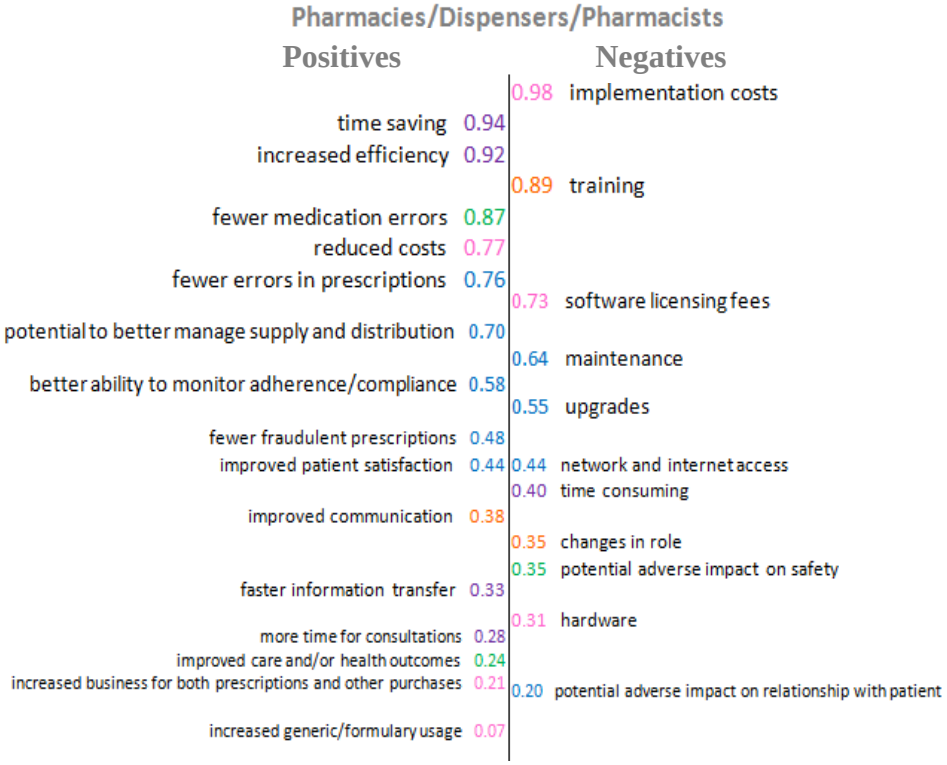
The quantity, quality, and/or security of the ***data*** generated or used by an endeavor is identified as red. The nature and extent of the ***effort*** people or organizations must apply to an endeavor is identified as orange, but it was originally identified as yellow. The ***finances***, both revenues and expenses, of people or organizations are identified as pink. The ***health***, including both safety and well-being of people, is

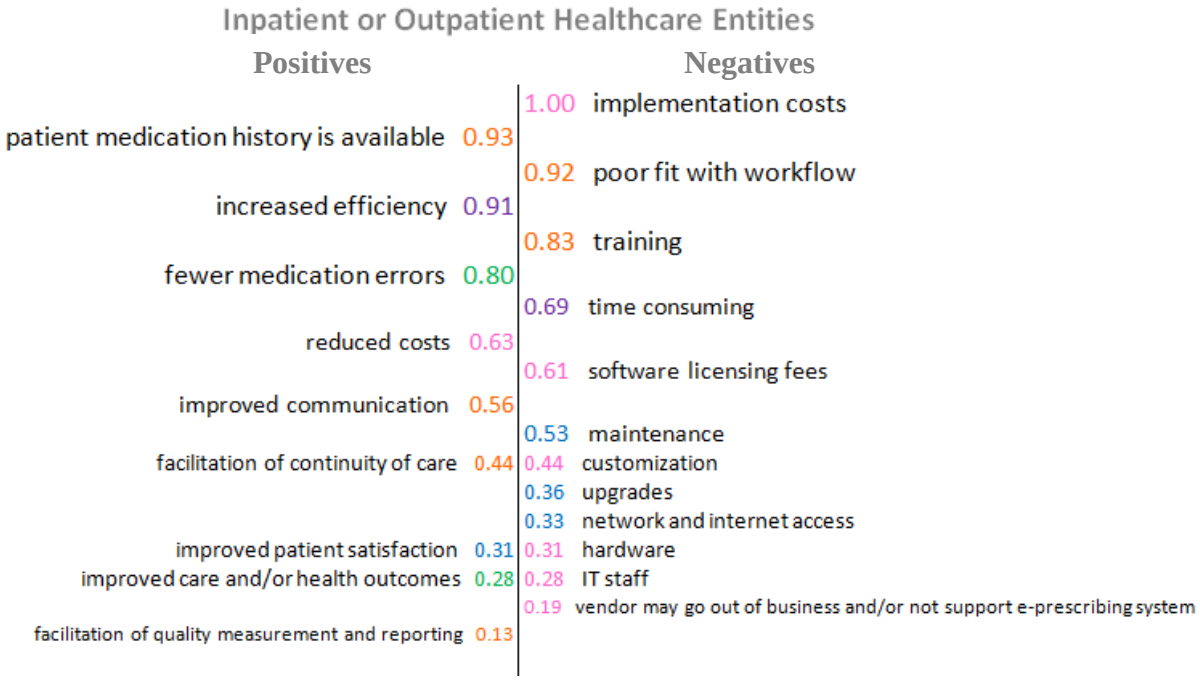
identified as green. The nature and extent of the ***management*** tasks of an endeavor is identified as blue. The amount of ***time*** required by an endeavor is identified as purple.

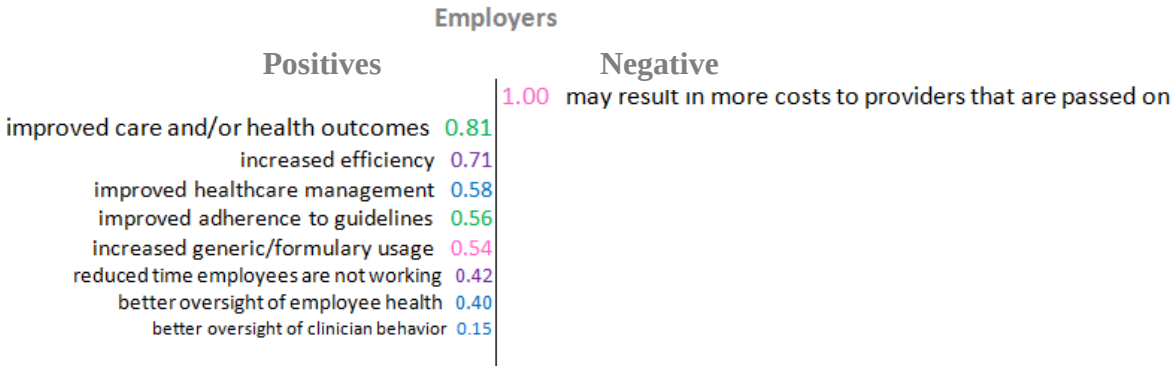
Primary Stakeholders:

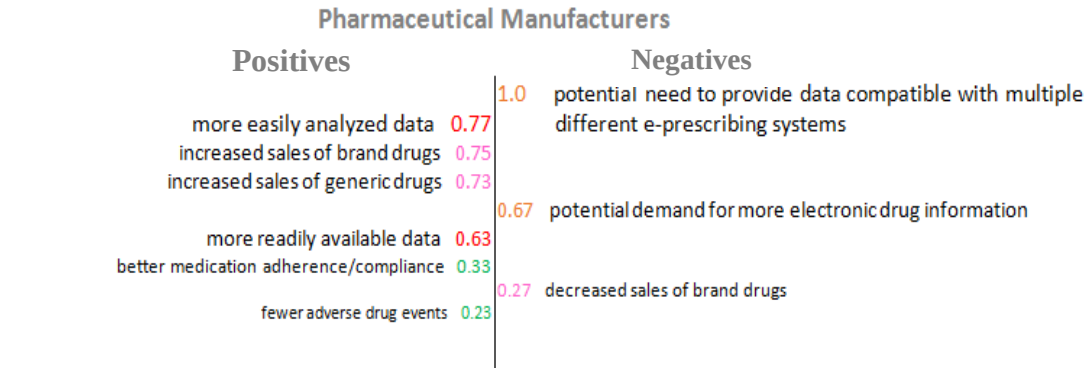



Payors/Purchasers
Positives
Negatives
increased efficiency 0.98
more readily available data 0.87
increased generic/formulary usage 0.81
better oversight of clinician behavior 0.67
fewer medication errors 0.41
fewer adverse drug events 0.39
better medication adherence/compliance 0.30
improved patient safety 0.30
improved care and/or health outcomes 0.09
0.91 scattered data due to use of multiple different systems
0.86 effort to manage formulary across multiple systems
0.82 implementation costs
0.65 interfaces
0.62 uneven adoption/use by clinicians/prescribers
0.59 maintenance
0.39 upgrades
0.32 software licensing fees
0.24 network and internet access
0.17 vendor may go out of business and/or not support e-prescribing system
0.09 customization

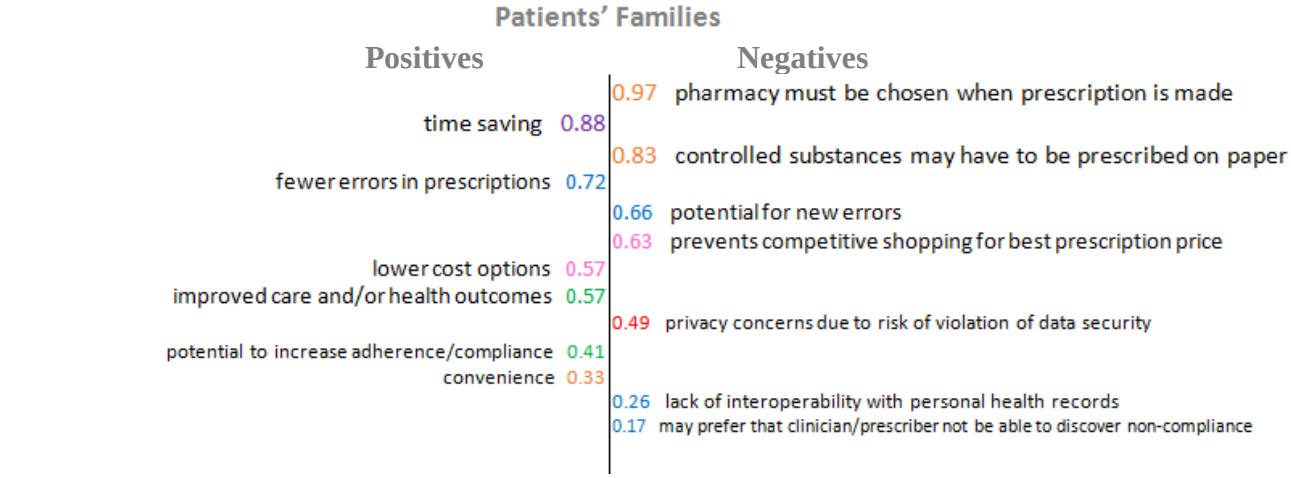

Pharmacies/Dispensers/Pharmacists
Positives
Negatives
time saving 0.94
increased efficiency 0.92
fewer medication errors 0.87
reduced costs 0.77
fewer errors in prescriptions 0.76
potential to better manage supply and distribution 0.70
better ability to monitor adherence/compliance 0.58
fewer fraudulent prescriptions 0.48
improved patient satisfaction 0.44
improved communication 0.38
faster information transfer 0.33
more time for consultations 0.28
improved care and/or health outcomes 0.24
increased business for both prescriptions and other purchases 0.21
increased generic/formulary usage 0.07
0.98 implementation costs
0.89 training
0.73 software licensing fees
0.64 maintenance
0.55 upgrades
0.44 network and internet access
0.40 time consuming
0.35 changes in role
0.35 potential adverse impact on safety
0.31 hardware
0.20 potential adverse impact on relationship with patient

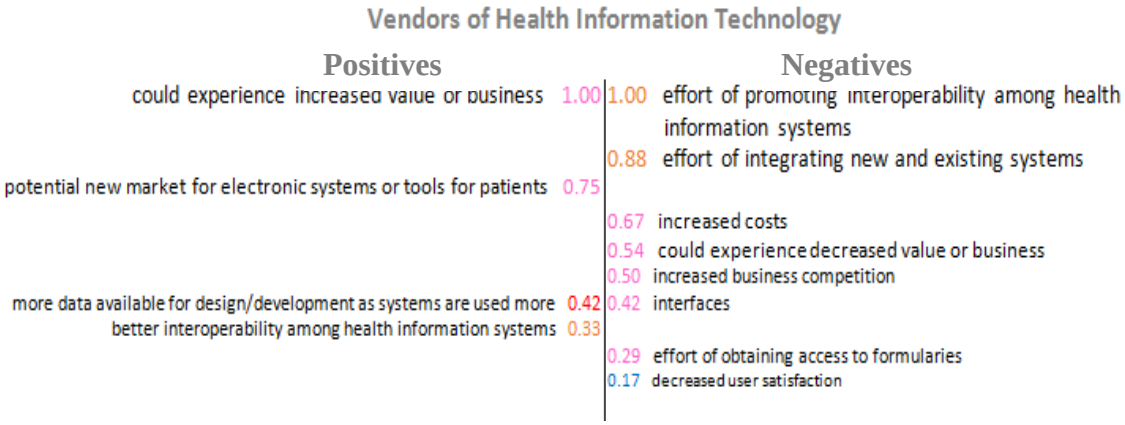

Inpatient or Outpatient Healthcare Entities
Positives
Negatives
patient medication history is available 0.93
increased efficiency 0.91
fewer medication errors 0.80
reduced costs 0.63
improved communication 0.56
facilitation of continuity of care 0.44
improved patient satisfaction 0.31
improved care and/or health outcomes 0.28
facilitation of quality measurement and reporting 0.13
1.00 implementation costs
0.92 poor fit with workflow
0.83 training
0.69 time consuming
0.61 software licensing fees
0.53 maintenance
0.44 customization
0.36 upgrades
0.33 network and internet access
0.31 hardware
0.28 IT staff
0.19 vendor may go out of business and/or not support e-prescribing system

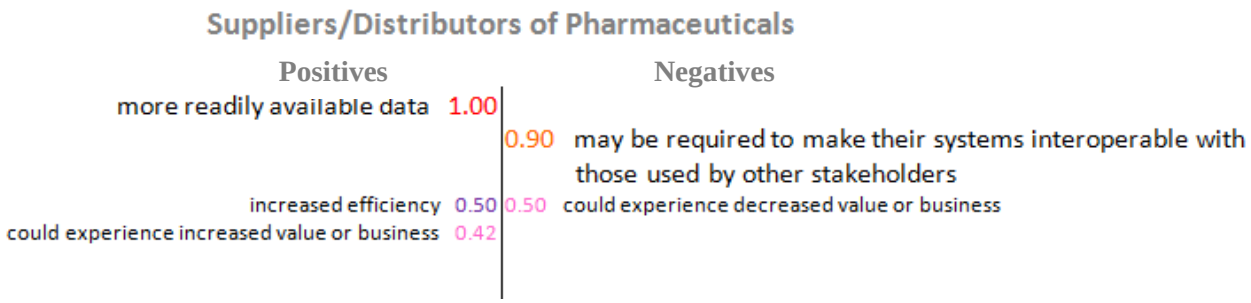

Employers
Positives
Negative
improved care and/or health outcomes 0.81
increased efficiency 0.71
improved healthcare management 0.58
improved adherence to guidelines 0.56
increased generic/formulary usage 0.54
reduced time employees are not working 0.42
better oversight of employee health 0.40
better oversight of clinician behavior 0.15
1.00 may result in more costs to providers that are passed on


Pharmaceutical Manufacturers
Positives
Negatives
more easily analyzed data 0.77
increased sales of brand drugs 0.75
increased sales of generic drugs 0.73
more readily available data 0.63
better medication adherence/compliance 0.33
fewer adverse drug events 0.23
1.0 potential need to provide data compatible with multiple different e-prescribing systems
0.67 potential demand for more electronic drug information
0.27 decreased sales of brand drugs

Secondary Stakeholders:








Consultants
Positives
Negative
could experience increased value or business 0.93
increased demand for services provided by consultants 0.60
increased opportunity to gain experience 0.27
0.40 could experience decreased value or business
Policymakers/Legislators
Positives
Negatives
better data with which to make decisions 1.00
improved patient safety 0.88
reduced costs 0.75
increased efficiency 0.63
improved care and/or health outcomes 0.50
more readily available data 0.31
better oversight of medication usage 0.28
facilitation of aligned incentives 0.13
1.00 costs to other stakeholders
0.30 need to build database systems to store and analyze the increased amount of data
Researchers
Positives
Negatives
better data 0.90
more readily available data 0.60
1.00 data scattered on different systems may not be interoperable
0.50 may make it more difficult to obtain complete data because some will be in electronic format and some in paper format
0.25 risk of violation of data security
Society
Positives
Negative
increased efficiency 0.92
improved patient safety 0.88
improved care and/or health outcomes 0.75
reduced costs 0.67
better oversight of medication usage 0.48
fewer adverse drug events 0.44
better oversight of fraudulent prescriptions 0.25
more equal distribution of drug costs 0.06
1.00 providers may experience more costs which may be passed on to society

The following Stakeholders were identified by certain Delphi Experts along with the following positives and negatives, which were not rank ordered. Once again, the positives were on the left column and the negatives were on the right column.

Patient Associations/Support groups

Positives	Negatives
improved patient safety, e.g. less waiting time	some effective therapies may be more difficult to order by eRx than by traditional prescribing methods
medication recommendations might be better tailored for those with multiple diseases	less face-to-face time with healthcare professionals
use of specific therapeutic options can be viewed by these groups and patients	introduction of new risks to patient safety
patients should have more say in how prescriptions looks	

Government Prescription Monitoring Programs

Positives	Negatives
ability to catch people filling multiple prescriptions for the same medications, e.g. opiods.	less privacy
better data for comparative effectiveness	may need a second method for prescriptions that cannot be e-prescribed, such as narcotics
time series management system could be available for public health purposes	possible over regulation of prescription practices
	data obtained may not reflect reality

Non-Clinical Staff

Positives	Negative
improved inventory control	**possible problems due to the use of different terminologies in the administrative vs. the clinical setting**
improved work flow	
reduction of on-site inventory and better supply chain management	
easier to take care of patient requests	
improved overview of medication history	
facilitated billing due to shared information	
improved information flow	
improved communication	
more complete information	

5.2.3. Data Gathering

These Framework Experts were provided with a copy of the Framework, and a description of how the Framework would be employed in the decision-making process, and presented with a series of questions concerning the usefulness of the Framework. That document is set forth on Appendix D. The Framework Experts were then interviewed in person, via telephone or skype based on the questions which had been forwarded to them. They were asked the following questions:

1. What aspects of the Framework do you find most useful?
2. Which stakeholders do you view as particularly important?
3. Please identify any stakeholders that are not identified that you think it would be important to include, and why?
4. Please identify any stakeholders included that you think would be of much less significance, and why?

5. Are there any important positives or negatives for a particular stakeholder that you think were missed? If so, what are they?

6. If the results of the Delphi Study differ substantially from what you would have expected, in what way do the results differ?

7. What incentives for the use of e-prescribing for the stakeholders, financial or otherwise, might you view a particularly important?

8. Would you like to comment on the potential value and extent of any such incentives?

9. Are there any particular barriers to the implementation of stakeholder incentives that you would like to identify?

10. How would you characterize the return on investment (ROI), given the positives and negatives accruing to multiple stakeholders, and not merely one stakeholder?

11. This Study has used e-prescribing as an example of a Health Information Technology. What is your opinion about how generalizable this Framework might be to other health information technologies?

5.2.4. Analysis

The Usefulness of E-prescribing Framework document was emailed to the five Framework Experts, four in the United States and one in the United Kingdom, on March 24, 2015 with a request to schedule an interview to discuss the questions posed. The Framework Experts were given the option of being interviewed in person or by other method. They were interviewed by telephone, Skype, and in person. Interviews were conducted between April 6 and 16, 2015. A summary of the results of these interviews are set forth in the Results Section.

6. Chapter Six: Results

6.1. Delphi

Although the summary results in Round One of the Global Delphi Study, the Brainstorming Round, are set forth on Appendix E, it is important to note that the Delphi

Experts added the following stakeholders involved in e-prescribing: Patient Associations/Support Groups, Non-clinical healthcare staff (e.g. administrative staff, assistants), Government Prescription Monitoring Programs (e.g. for controlled substances), and Health Information System Providers. They set forth as a positive associated with e-prescribing from the perspective of Patient Association/Support Groups: disease-specific enhancements that might be made to the e-prescribing process and the following negatives: disease-specific implementations of e-prescribing could be difficult and benefits might not be easily measured.

The Delphi Experts noted that the positive associated with e-prescribing from the perspective of non-clinical healthcare staff is improved communication, and the negative is increased workloads. From the perspective of Government Prescription Monitoring Programs, the Delphi Experts noted the positives are more complete data and more readily accessible data. The negatives include the fact that it might reduce patient privacy.

Due to the significant overlap between the functions and characteristics of the added stakeholder, Health Information System Providers, and the given stakeholder, Vendors of Health Information Technology, the positives and negatives associated with e-prescribing identified for this added stakeholder were incorporated into those for the given stakeholder for Round Two, the Narrowing Round Questionnaire.

The rank order for the positives and negatives for the given stakeholders that were determined in Round One, the Brainstorming Round, were presented to the Delphi Experts. In addition, any new positives and negatives that were identified were included in each list, but not rank ordered. In Round Two, the Narrowing Round, the Delphi

Experts were asked to rank order all the positives and negatives for each of the given stakeholders, along with the new positives and negatives.

The new positives identified as being associated with e-prescribing from the perspective of Patients were: patient medication history is available (electronic record of prescriptions); easier to report adverse drug events; fewer errors in prescriptions due to improved legibility, reducing transcribing errors, reduced lost paperwork, reduce dosage and/or administration errors; improved communication; faster information transfer; increased or improved decision support; improved healthcare management (e.g. through reporting and/or audits); improved adherence to guidelines; improved governmental oversight of controlled substances; increased awareness of and (perceived) control over active medications; and easier to get reimbursed for medications.

The new negatives identified as being associated with e-prescribing from the perspective of Patients were: harder to acquire fraudulent prescriptions (e.g. extra pain medication to sell on the black market); pharmacy must be chosen when prescription is made, not when it is filled; loss of immediate physical trail of prescription, including paper reminder to go to pharmacy; privacy concerns due to risk of violations of data security; time consuming for providers (could reduce face-to-face contact with patients); potential for new major errors, creating adverse effects on safety (e.g., wrong medication); potential for new minor errors, creating inconvenience (e.g. wrong pharmacy); and entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natural disaster, accident or terrorism.

The new positives identified as being associated with e-prescribing from the perspective of the Clinician/Prescribers were: fewer errors in prescriptions due to

improved legibility, reduced transcribing errors, reduced lost paperwork, reduce dosage and/or administration errors; increased or improved decision support, including alerts based on patient medication history; improved communication; and faster information.

The new negatives identified as being associated with e-prescribing from the perspective of the Clinician/Prescribers were: poor fit with workflow; difficult to identify patient's preferred pharmacy (patient may not be able to provide precise name and address); communication problems; time consuming; information overload; changes in role; adverse impact on interactions with patients; burdensome regulations for e-prescribing controlled substances; might be necessary to redo e-prescription (e.g. chosen pharmacy was out of stock); possible supervision by third parties, including payors; risk of violations of data security; potential for new major errors, creating adverse effects on safety (e.g. wrong medication); potential for new minor errors, creating inconvenience (e.g. wrong pharmacy); entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natural disaster, accident, or terrorism.

The new positive identified as being associated with e-prescribing from the perspective of the Payors/Purchasers was there would be better oversight of physician behavior. The new negatives identified as being associated with e-prescribing from the perspective of the Payors/Purchasers were: scattered data due to use of multiple different e-prescribing systems; implementation costs; maintenance; upgrades; software licensing fees; network and internet access; vendor may go out of business and/or not support e-prescribing system; customization; uneven adoption/use by clinicians/prescribers; effort to manage formulary across multiple different e-prescribing systems.

The new positives identified as being associated with e-prescribing from the perspective of the Pharmacy Benefit Managers/Prescription pricing authorities were: facilitation of marketing to payors; more readily accessible data, improved quality of data; and more data available for analysis (e.g. expenses, cost, diagnoses and appropriate use). The new negatives identified as being associated with e-prescribing from the perspective of the Pharmacy Benefit Managers/Prescription pricing authorities were: uneven adoption/use by clinicians/prescribers; use of multiple different e-prescribing systems; and potential increase in medication spending.

The new positives identified as being associated with e-prescribing from the perspective of the Pharmacies/Dispensers/Pharmacists were: potential to integrate e-prescribing system with warehouse system to better manage supply and distribution; fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage/administration errors; improved communication; faster information transfer; and increased business for both prescriptions and other purchases. The new negatives identified as being associated with e-prescribing from the perspective of the Pharmacies/Dispensers/Pharmacists were: potential adverse impact on relationship with patients; time consuming; changes in role; and potential adverse impact on safety.

The new positives identified as being associated with e-prescribing from the perspective of the Inpatient or Outpatient Healthcare Entities were: improved communication (e.g. among healthcare settings) and facilitation of continuity of care. The new negatives identified as being associated with e-prescribing from the perspective of

the Inpatient or Outpatient Healthcare Entities were: poor fit with workflow and time consuming.

The new positives identified as being associated with e-prescribing from the perspective of the Patients' Families were: convenience; fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage and/or administration errors; and potential to increase adherence/compliance (e.g. use e-prescribing system to create automatic reminders to take medications.

The new negatives identified as being associated with e-prescribing from the perspective of the Patients' Families were: pharmacy must be chosen when prescription is made, not when it is filled; prevents competitive shopping for best prescription price; potential for new errors; privacy concerns due to risk of violations of data security; lack of interoperability between e-prescribing systems and personal health records; and may prefer that clinician/prescriber not be able to discover non-compliance.

The new positives identified as being associated with e-prescribing from the perspective of the Employers were: better oversight of employee health; improved adherence to guidelines; increased efficiency (e.g. faster process of receiving justifications, more rapid patient turnaround); better oversight of clinician behavior; increased generic/formulary usage; and improved healthcare management (e.g. through reporting and/or audits). There were no negatives identified as being associated with e-prescribing from the perspective of the Employers.

The new positives identified as being associated with e-prescribing from the perspective of the Pharmaceutical Manufacturers were: increased sales of brand drugs; better medication adherence/compliance; fewer adverse drug events; more readily

available data; and more easily analyzed data. The new negatives identified as being associated with e-prescribing from the perspective of the Pharmaceutical Manufacturers were: potential need to provide data compatible with multiple different e-prescribing system and potential demand by patients/consumers for more electronic drug information.

The new positives identified as being associated with e-prescribing from the perspective of the Vendors of Health Information Technology were: potential new market for electronic systems or tools for patients; more data available for design/development as systems are used more; and better interoperability between e-prescribing systems and other health information systems. The new negatives identified as being associated with e-prescribing from the perspective of the Vendors of Health Information Technology were: interfaces; increased costs; effort of promoting interoperability between e-prescribing systems and other health information systems; decreased user satisfaction; increased business competition; effort of obtaining access to formularies; and effort of integrating new and existing systems.

The new positives identified as being associated with e-prescribing from the perspective of the Suppliers/Distributors of Pharmaceuticals were: more readily available data (e.g. for evaluation of distribution) and increased efficiency (e.g. better processes for distribution). The new negative identified as being associated with e-prescribing from the perspective of the Suppliers/Distributors of Pharmaceuticals was that they may be required to make their systems interoperable with those used by other stakeholders.

The new positives identified as being associated with e-prescribing from the perspective of the Consultants were: increased opportunity to gain experience (e.g. in

implementation) and increased demand for services provided by consultants (e.g. process modeling). There were no negatives identified as being associated with e-prescribing from the perspective of the Consultants.

The new positives identified as being associated with e-prescribing from the perspective of the Policy Makers/Legislators were: reduced costs; improved patient safety; improved care and/or health outcomes; increased efficiency; more readily available data; and better oversight of medication usage. The new negative identified as being associated with e-prescribing from the perspective of the Policy Makers/Legislators was the need to build database systems to store and analyze the increased amount of data.

The new positive identified as being associated with e-prescribing from the perspective of the Researchers was there would be more readily available data. The new negatives identified as being associated with e-prescribing from the perspective of the Researchers were: data scattered on different systems that may not be interoperable; and risk of violation of data security.

The new positives identified as being associated with e-prescribing from the perspective of Society were: improved patient safety; improved care and/or health outcomes; reduced costs; fewer adverse drug events; better oversight of medication usage; better oversight of fraudulent prescriptions; and more equal distribution of drug costs. There were no new negatives identified as being associated with e-prescribing from the perspective of Society.

The summary results of Round Two of the Global Delphi Study, the Narrowing Round, are set forth on Appendix F. The summary results of Round Three of the Global Delphi Study, the Finalizing Round, are set forth on Appendix G. All the summary

results for Appendices E, F, and G have had the identifying information for the Delphi Experts redacted.

Set forth below are listings of how the Delphi Experts rank ordered the positives and negatives associated from the perspective of each stakeholder in each of the three rounds. The third round ranking is first, followed by the second and first round rankings. After each listing is a graphical portrayal with weighted averages which were converted to proportions as noted in section 5.2.2. above for the framework charts.

Patients

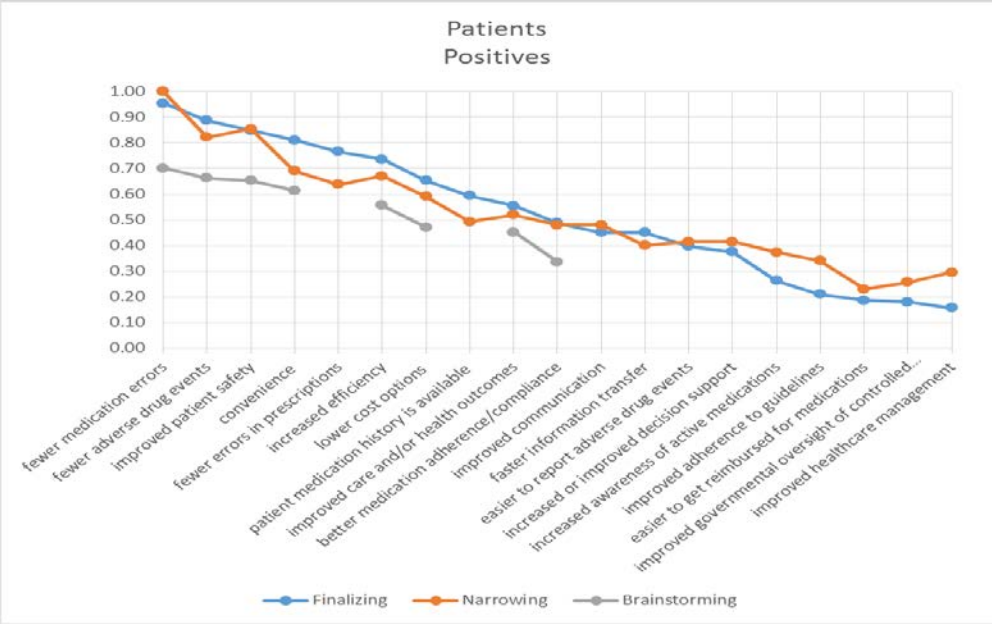
Positives

3rd	2nd	1st	
1	1	1	fewer medication errors
2	3	2	fewer adverse drug events
3	2	3	improved patient safety
4	4	4	convenience
5	6	-	fewer errors in prescriptions
6	5	5	increased efficiency
7	7	6	lower cost options
8	9	-	patient medication history is available
9	8	7	improved care and/or health outcomes
10	10	8	better medication adherence/compliance
11	10	-	improved communication
11	14	-	faster information transfer
13	12	-	easier to report adverse drug events
14	12	-	increased or improved decision support
15	15	-	increased awareness of active medications
16	16	-	improved adherence to guidelines
17	19	-	easier to get reimbursed for medications
18	18	-	improved governmental oversight of controlled substances
19	17	-	improved healthcare management

It is interesting to note that the positives associated with e-prescribing from the perspective of Patients that were added by the Delphi Experts, with two exceptions, were not ranked highly in Rounds Two or Three. These exceptions were fewer errors in prescriptions which was ultimately ranked fifth and patient medication history is

available was ranked ninth. In addition, as may be further observed in the graph below, there was substantial agreement with respect to the rankings of the first few positives.

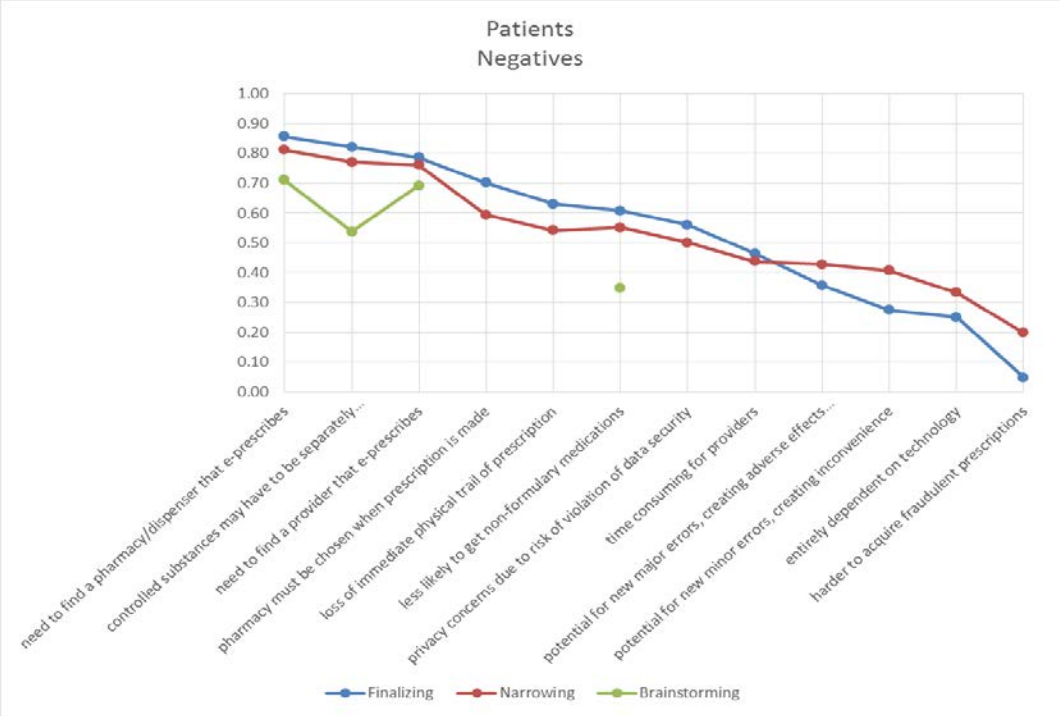
These rankings and the graphical portrayal suggest that the Delphi process worked in this instance. Additional positives which we did not identify from the literature search were noted and there was general agreement on the importance of the positives from the perspective of the stakeholder, Patients.



3rd	2nd	1st	**Patients Negatives**
1	1	1	Need to find a pharmacy/dispenser that e-prescribes
2	2	3	Controlled substances may have to be separately prescribed, on paper
3	3	2	Need to find a provider who e-prescribes
4	4	-	Pharmacy must be chosen when prescription is made
5	6	-	Loss of immediate physical trail of prescription
6	5	4	Less likely to get non-formulary medications
7	7	-	Privacy concerns due to risk of violations of data security
8	8	-	Time consuming for providers
9	9	-	Potential for new major errors, creating adverse effects on safety
10	10	-	Potential for new minor errors, creating inconvenience
11	11	-	Entirely dependent on technology
12	12	-	Harder to acquire fraudulent prescriptions

Similarly, with regard to the negatives associated with e-prescribing from the perspective of Patients that were added by the Delphi Experts, with a few exceptions, they were not ranked highly in rounds Two and Three. However, pharmacy must be chosen when prescription is made ranked fourth in Round Three and loss of immediate trail of prescription ranked fifth.

The rankings and the graphical portrayal also suggest that the Delphi process worked in this instance. Additional negatives were noted and there was general agreement in the importance of the negatives from the perspective of the stakeholder, Patients. However, in this instance, two of the new negatives received much higher rankings than the new positives.

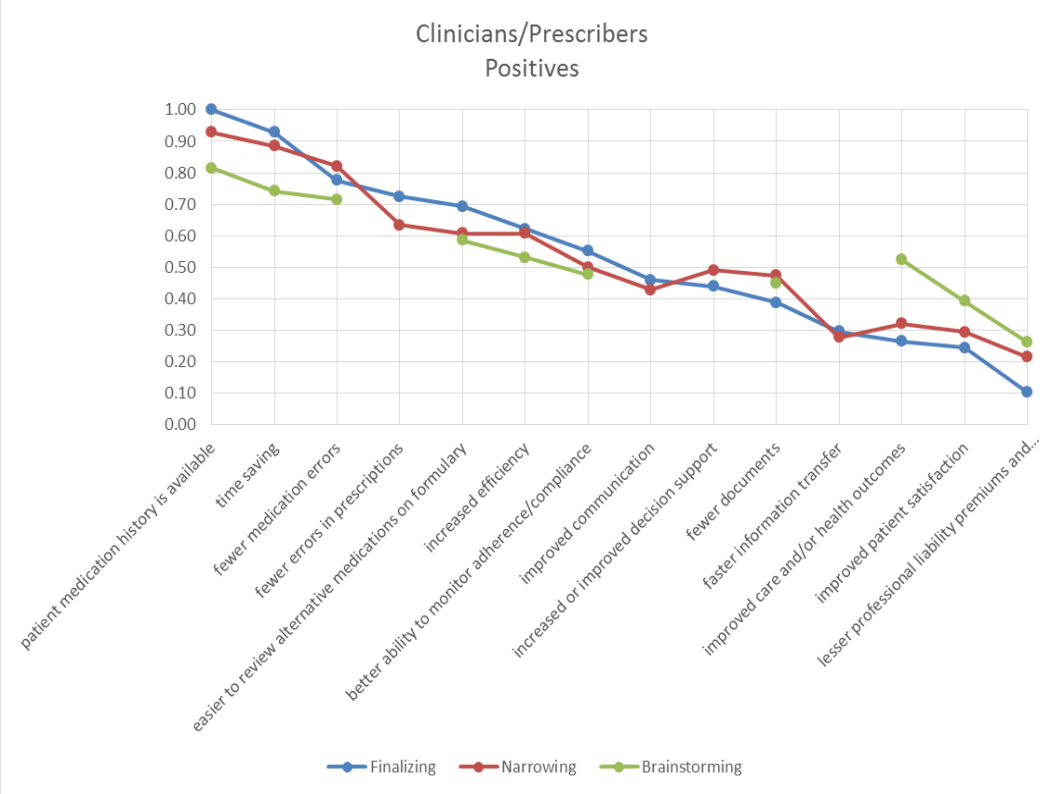


Clinicians/Prescribers

3rd	2nd	1st	Positives
1	1	1	Patient medication history is available

2	2	2	Time saving
3	3	3	Fewer medication errors
4	4	-	Fewer errors in prescriptions
5	5	4	Easier to review alternative medications on formulary
6	5	5	Increased efficiency
7	7	7	Better ability to monitor patient adherence/compliance
8	10	-	Improved communication
9	8	-	Increased or improved decision support
10	9	8	Fewer documents
11	13	-	Faster information transfer
12	11	6	Improved care and/or health outcomes
13	12	9	Improved patient satisfaction
14	14	10	Lesser professional liability premiums and malpractice liability

Once again, with respect to the positives identified for Clinicians/Prescribers, the Delphi process appeared to work. In this instance, however, the Delphi Experts identified fewer errors in prescriptions which immediately rose to a fourth ranking and stayed there. In addition, improved communication and increased, or improved decision support ranked in the top ten. This listing and the graphical portrayal indicate a relative degree of agreement between Rounds Two and Three, but not as pervasive as the positives and negatives from the perspective of the Patients.



Clinicians/Prescribers

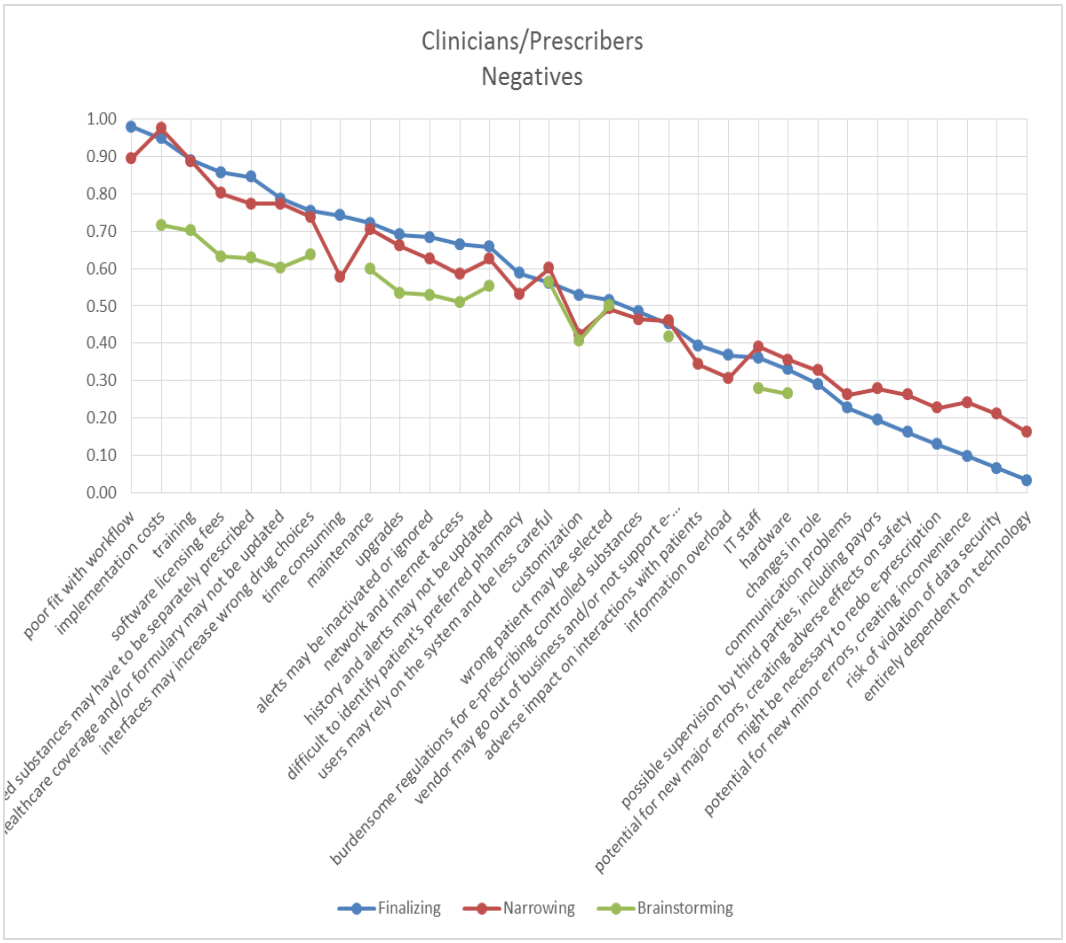
3rd	2nd	1st	Negatives
1	2	-	poor fit with workflow
2	1	1	implementation costs
3	3	2	training
4	4	4	software licensing fees
5	5	4	controlled substances may have to be separately prescribed
6	5	6	healthcare coverage and/or formulary may not be updated
7	7	3	interfaces may increase wrong drug choices
8	13	-	time consuming
9	8	6	maintenance
10	9	10	upgrades
11	10	10	alerts may be inactivated or ignored
12	13	12	network and internet access
12	10	9	history and alerts may not be updated
14	15	-	difficult to identify patient's preferred pharmacy
15	12	8	users may rely on the system and be less careful
16	19	15	customization
17	16	13	wrong patient may be selected
18	17	-	burdensome regulations for e-prescribing controlled substances
19	17	14	vendor may go out of business and/or not support e-prescribing
20	22	-	adverse impact on interactions with patients

21	24	-	information overload
22	20	16	IT staff
23	21	17	hardware
24	23	-	changes in role
25	26	-	communication problems
26	25	-	possible supervision by third parties, including payors
27	26	-	potential for new major errors, creating adverse effects on safety
28	29	-	might be necessary to redo e-prescription
29	28	-	potential for new minor errors, creating inconvenience
30	30	-	risk of violation of data security
31	31	-	entirely dependent on technology

Interestingly, not only had we identified from the literature search, more negatives from the perspective of the Clinicians/Prescribers than positives, the Delphi Experts even identified more. Importantly, they identified poor fit with work flow which rose to number two in Round Two and number one in Round Three. This ranking demonstrates that the Delphi process made a substantial contribution to this analysis. The Delphi Experts also identified time consuming as a negative which rose to a ranking of eight in Round Three, and difficult to identify patients preferred pharmacy as a negative, ranked as 14 in Round Three.

These three negatives identified by the Delphi Experts represent a substantial contribution to the analysis. Although the other 11 negatives identified by the Delphi Experts were not ranked as high in importance, they are quite important and demonstrate the value of the Delphi Experts in this area.

The graphical portrayal also supports the value of the Delphi process, indicating the greater agreement in Round Three, the Finalizing Round.

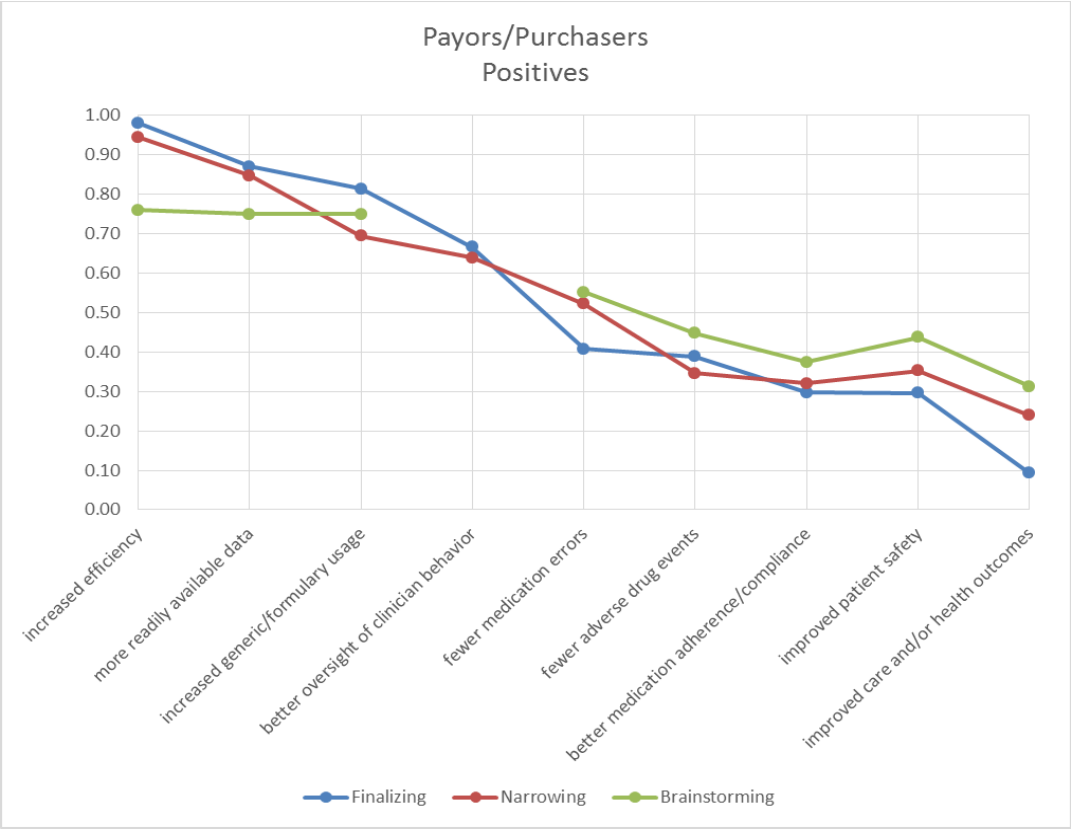


Payors/Purchasers

3rd	2nd	1st	**Positives**
1	1	1	increased efficiency
2	2	2	more readily available data
3	3	2	increased generic/formulary usage
4	4	-	better oversight of clinician behavior
5	5	4	fewer medication errors
6	6	5	fewer adverse drug events
7	8	7	better medication adherence/compliance
7	6	6	improved patient safety
9	9	8	improved care and/or health outcomes

The Delphi Experts only identified one positive from the perspective of the Payors/Purchasers: better oversight of clinician behavior that was not identified by the

literature search. This positive was ranked fourth in both Rounds Two and Three. Both the listing and the graphical portrayal indicate early agreement of the Delphi Experts.

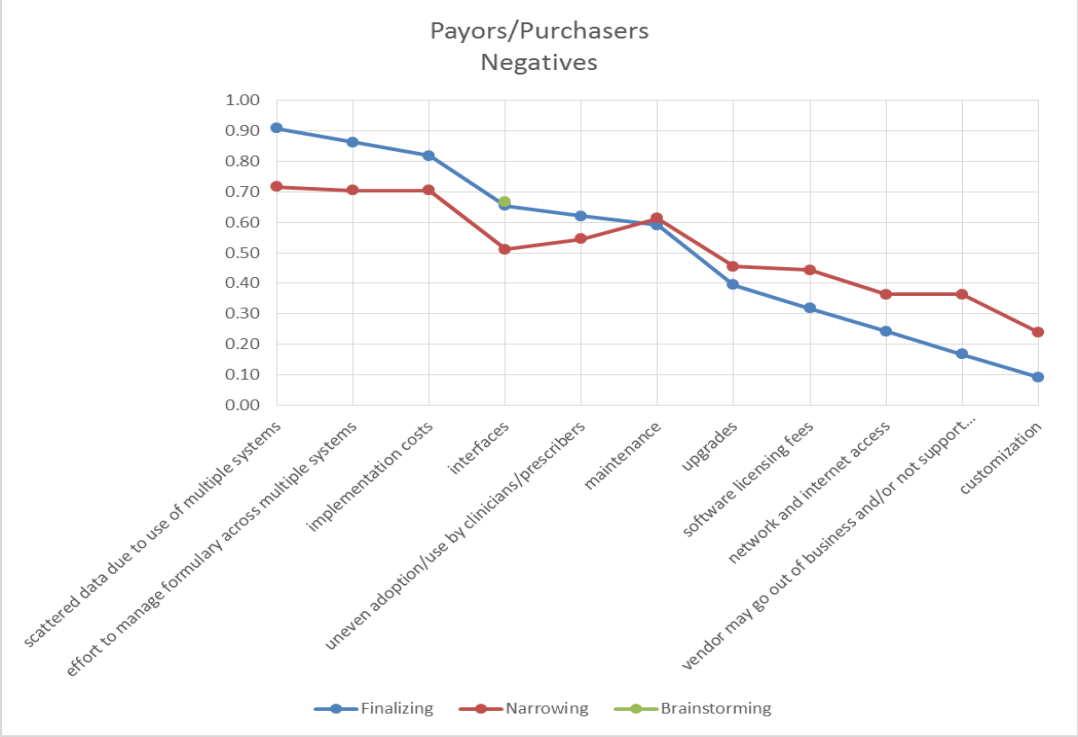


Payors/Purchasers

3rd	2nd	1st	**Negatives**
1	1	-	scattered data due to use of multiple different e-prescribing system
2	3	2	effort to manage formulary across multiple different systems
3	2	-	implementation costs
4	6	1	interfaces
5	5	-	uneven adoption/use by clinicians/prescribers
6	4	-	maintenance
7	7	-	upgrades
8	8	-	software licensing fees
9	9	-	network and internet access
10	9	-	vendor may go out of business and/or not support e-prescribing
11	11	-	customization

The Delphi Experts were able to identify a number of new negatives from the perspective of the stakeholders, Payors/Purchasers. Not only were they quite significant, but also scattered data due to use of multiple different e-prescribing systems ranked number one in both Rounds Two and Three. They also identified implementation costs which ranked number three in Round Three and uneven adoption/use by clinicians/prescribers as number five. This attribute along with six others identified by the Delphi Experts were ranked lower than the others.

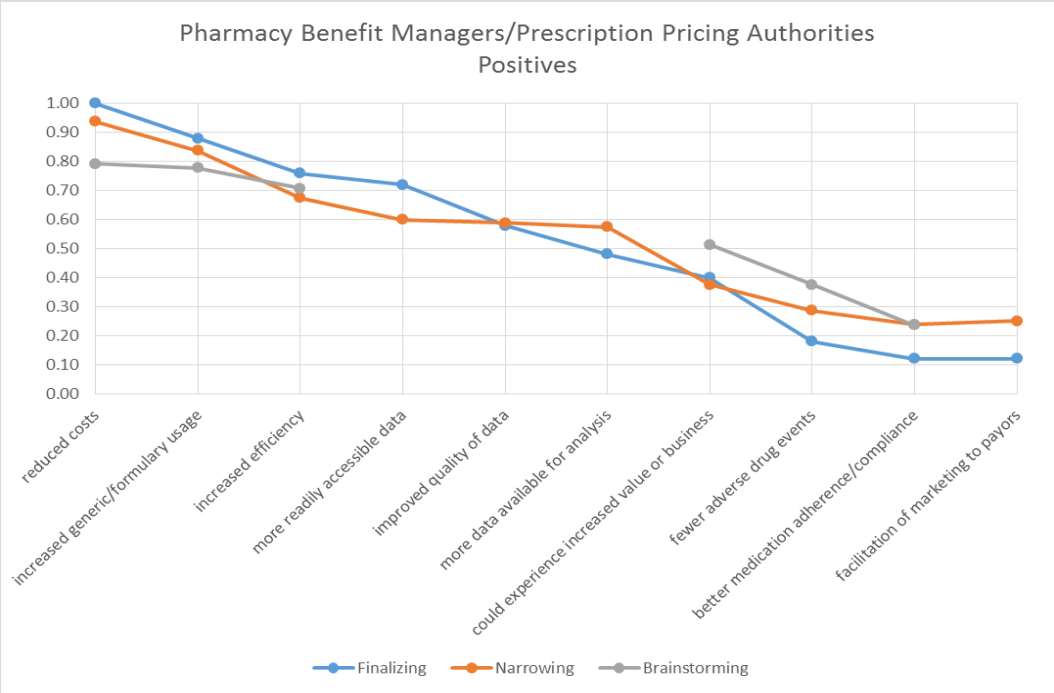
The graphical portrayal indicates a significant degree of agreement but in Round Three. Interestingly, the first few negatives were ranked higher than in Round Two, and the last few negatives were ranked lower.



3rd	2nd	1st	**Pharmacy Benefit Managers/Prescription Pricing Authorities Positives**
1	1	1	reduced costs
2	2	2	increased generic/formulary usage

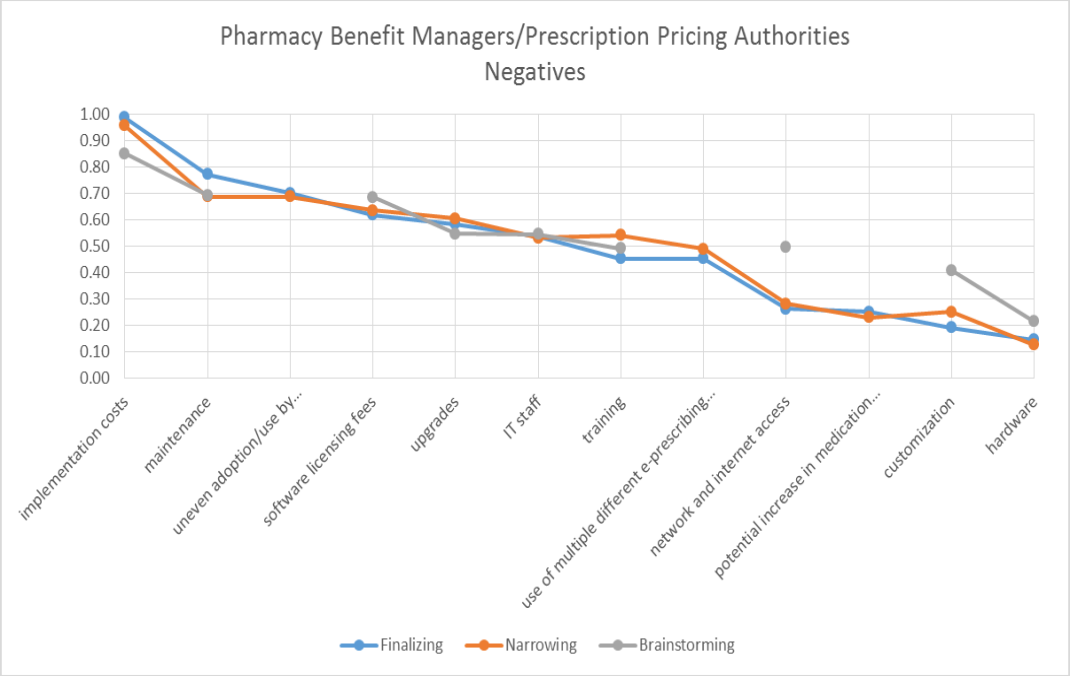
3	3	3	increased efficiency
4	4	-	more readily accessible data
5	5	-	improved quality of data
6	6	-	more data available for analysis
7	7	4	could experience increased value or business
8	8	5	fewer adverse drug events
9	10	6	better medication adherence/compliance
9	9	-	facilitation of marketing to payors

The Delphi Experts identified four new positives associated with Pharmacy Benefit Managers/Prescription Pricing Authorities from the perspectives of these stakeholders: more readily accessible data, improved quality of data, more data available for analysis, and facilitation of marketing to payors. Interestingly, the first three of these were ranked in the middle by the Delphi Experts, and the latter one, last. In the Finalizing Round, the Delphi Experts ranked the first four positives higher than in the Narrowing Round and the last three lower in the Finalizing Round that in the Narrowing Round.



3rd	2nd	1st	Pharmacy Benefit Managers/Prescription Pricing Authorities Negatives
1	1	1	implementation costs
2	2	2	maintenance
3	3	-	uneven adoption/use by clinicians/prescribers
4	4	3	software licensing fees
5	5	4	upgrades
6	7	4	IT staff
7	6	6	training
7	8	-	use of multiple different e-prescribing systems
9	9	6	network and internet access
10	11	-	potential increase in medication spending
11	10	8	customization
12	12	9	hardware

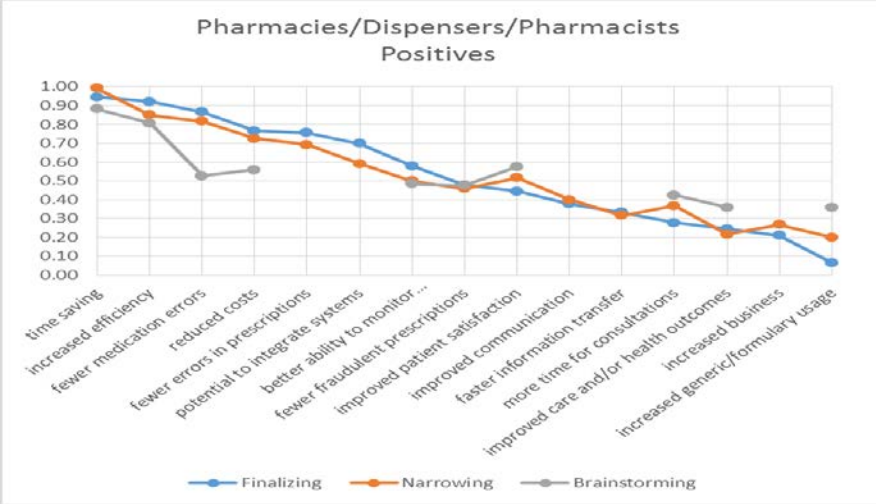
The Delphi Experts identified three new negatives associated with Pharmacy Benefit Managers/Prescription Pricing Authorities from the perspectives of these stakeholders: uneven adoption/use by clinicians/prescribers, use of multiple different e-prescribing systems, and potential increase in medication spending. Uneven adoption/use by clinicians/prescribers was ranked third in both the Narrowing and Finalizing Rounds. The latter two additions were ranked much further down. There was reasonable similarity in the rankings for the latter two rounds.



3rd	2nd	1st	Pharmacies/Dispensers/Pharmacist Positives
1	1	1	time saving
2	2	2	increased efficiency
3	3	5	fewer medication errors
4	4	4	reduced costs
5	5	-	fewer errors in prescriptions
6	-	-	potential to integrate systems
7	8	6	better ability to monitor adherence/compliance
8	9	6	fewer fraudulent prescriptions
9	7	3	improved patient satisfaction
10	10	-	improved communication
11	12	-	faster information transfer
12	11	8	more time for consultations
13	14	9	improved care and/or health outcomes
14	13	-	increased business for both prescriptions and other purchases
15	15	9	increased generic/formulary usage

The Delphi Experts identified five new positives from the perspective of the stakeholders, Pharmacies/Dispensers/Pharmacists, including fewer errors in prescriptions,

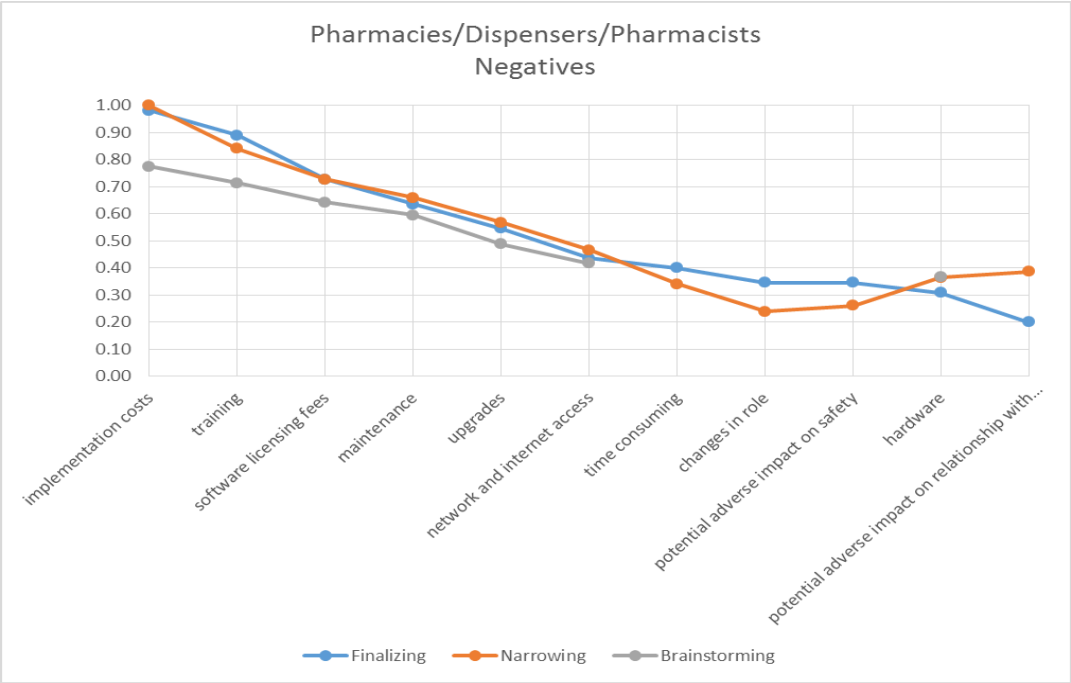
potential to integrate systems, improved communication, faster information transfer, and increased business. Fewer errors in prescriptions was ranked fifth and potential to integrate systems was ranked sixth. The other additions were ranked later. There was greater agreement in the Finalizing Round.



3rd	2nd	1st	Pharmacies/Dispensers/Pharmacists Negatives
1	1	1	implementation costs
2	2	2	training
3	3	3	software licensing fees
4	4	4	maintenance
5	5	5	upgrades
6	6	6	network and internet access
7	9	-	time consuming
8	11	-	changes in role
8	10	-	potential adverse impact on safety
10	8	7	hardware
11	7	-	potential adverse impact on relationship with patient

The Delphi Experts identified four new negatives from the perspective of the stakeholders, Pharmacies/Dispensers/Pharmacists, including time consuming, changes in role, potential adverse impact of safety, and potential adverse impact on relationship with

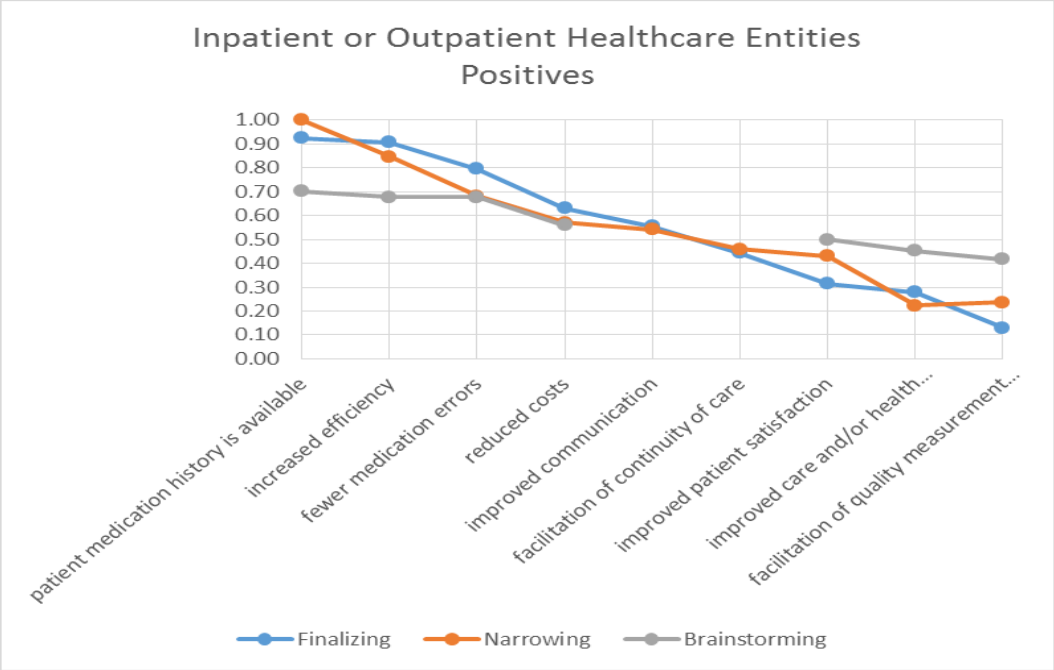
patients. All of the new negatives were ranked near the bottom. The Narrowing and Finalizing Rounds resulted in somewhat greater agreement.



3rd	2nd	1st	Inpatient or Outpatient Healthcare Entities Positives
1	1	1	patient medication history is available
2	2	2	increased efficiency
3	3	3	fewer medication errors
4	4	4	reduced costs
5	5	5	improved communication
6	6	-	facilitation of continuity of care
7	7	-	improved patient satisfaction
8	9	6	improved care and/or health outcomes
9	8	7	facilitation of quality measurement and reporting

The Delphi Experts identified two new positives associated with Inpatient or Outpatient Healthcare Entities from the perspective of those entities, including improved communication and facilitation of continuity of care. The Delphi Experts ranked these

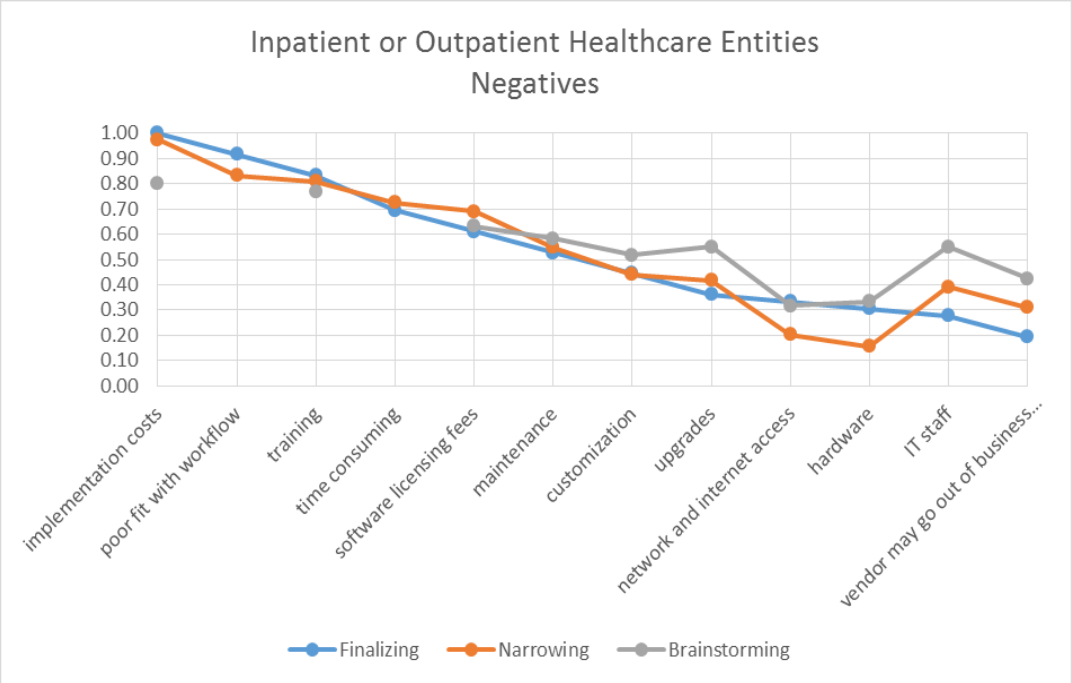
new positives in the middle of the positives. The Finalizing Round resulted in greater agreement among the Delphi Experts.



3rd	2nd	1st	**Inpatient or Outpatient Healthcare Entities Negatives**
1	1	1	implementation costs
2	2	-	poor fit with workflow
3	3	2	training
4	4	-	time consuming
5	5	3	software licensing fees
6	6	4	maintenance
7	7	7	customization
8	8	-	upgrades
9	11	10	network and internet access
10	12	9	hardware
11	9	-	IT staff
12	10	8	vendor may go out of business and/or not support e-prescribing system

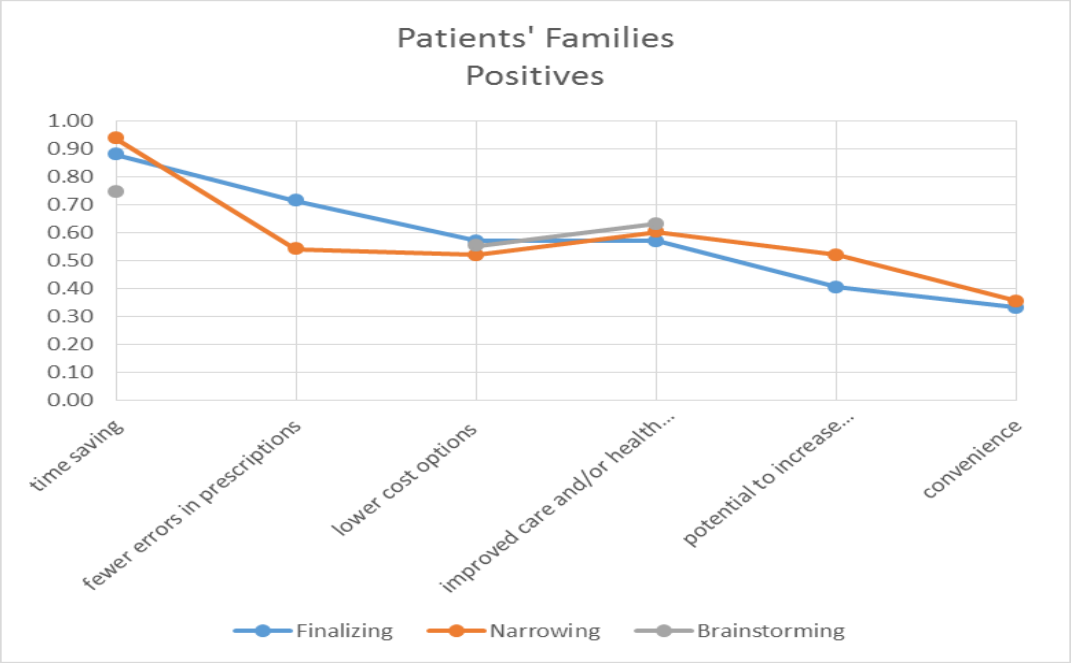
The Delphi Experts identified three new negatives from the perspective of Inpatient or Outpatient Healthcare Entities, including poor fit with workflow, time

consuming, and upgrades. The first two of these additions were ranked near the top, second and fourth, respectively. Each round of the Delphi process resulted in greater agreement of the Delphi Experts.



3rd	2nd	1st	**Patients' Families** **Positives**
1	1	1	time saving
2	3	-	fewer errors in prescriptions
3	4	3	lower cost options
3	2	2	improved care and/or health outcomes
5	4	-	potential to increase adherence/compliance
6	6	-	convenience

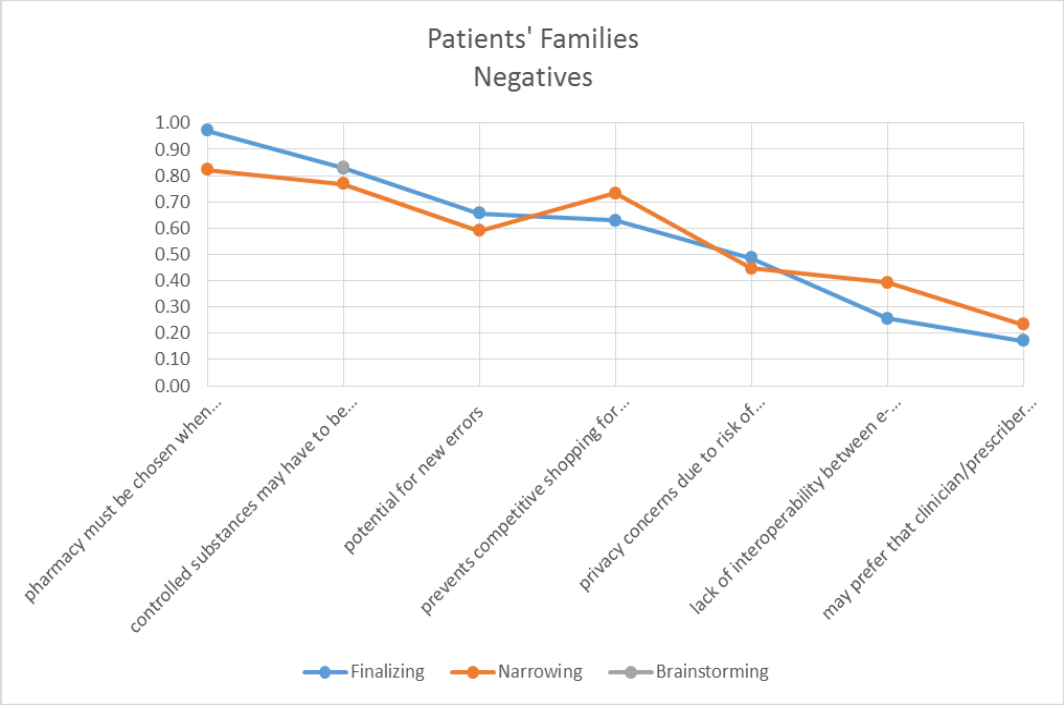
The Delphi Experts identified three new positives from the perspective of Patients' Families, including fewer errors in prescriptions, potential to increase adherence/compliance (e.g. use e-prescribing system to create automatic reminders to take medications, and convenience.



3rd	2nd	1st	Patients' Families Negatives
1	1	-	pharmacy must be chosen when prescription is made, not when it is filled
2	2	1	controlled substances may have to be separately prescribed, on paper
3	4	-	potential for new errors
4	3	-	prevents competitive shopping for best prescription price
5	5	-	privacy concerns due to risk of violation of data security
6	6	-	lack of interoperability between e-prescribing systems and personal health records
7	7	-	may prefer that clinician/prescriber not be able to discover non-compliance

We had only initially identified one negative from the perspective of Patients' Families. The Delphi Experts identified another six, including pharmacy must be chosen when prescription is made, not when it is filled, potential for new errors, prevents competitive shopping for best prescription price, privacy concerns due to risk of violations of data security, lack of interoperability between e-prescribing systems and personal health records, and may prefer that clinicians/prescriber not be able to discover non-compliance. Thus, the Delphi process worked here, given that the Delphi Experts

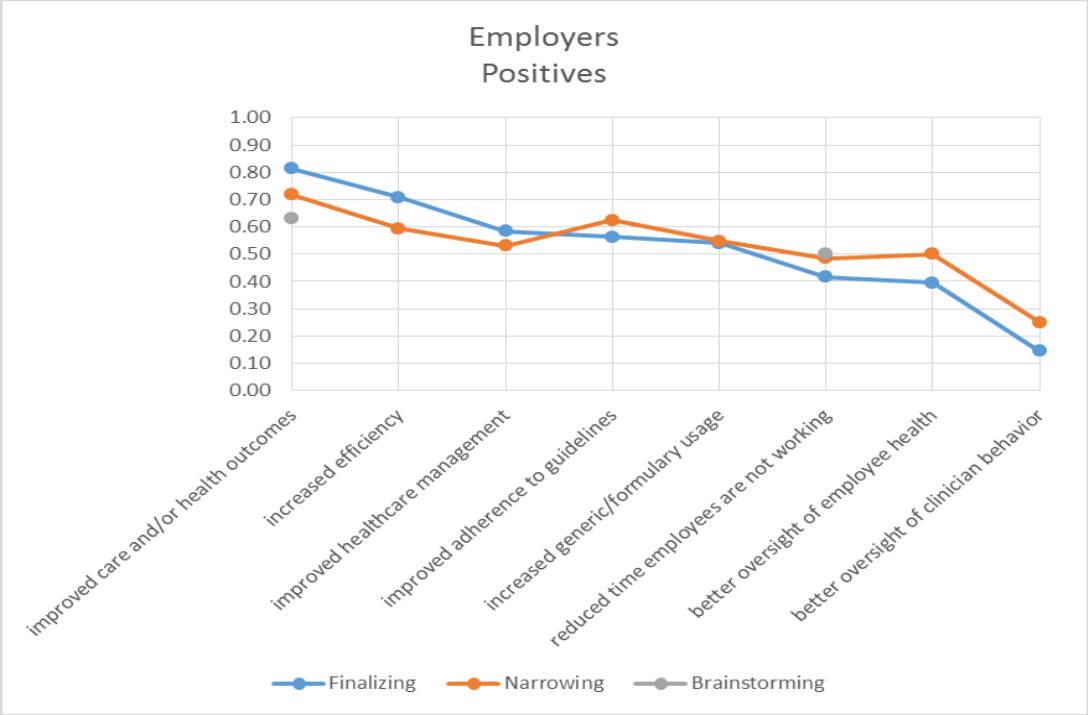
identified a significant number of negatives from the perspective of the Patients' Families. The Finalizing Round resulted in a further agreement of the Delphi Experts.



3rd	2nd	1st	**Employers Positives**
1	1	1	improved care and/or health outcomes
2	3	-	increased efficiency
3	5	-	improved healthcare management
4	2	-	improved adherence to guidelines
5	4	-	increased generic/formulary usage
6	7	2	reduced time employees are not working
7	6	-	better oversight of employee health
8	8	-	better oversight of clinician behavior

We only identified two positives from the perspective of Employers. The Delphi Experts identified another six, including increased efficiency, improved healthcare management, improved adherence to guidelines, increased generic/formulary usage, better oversight of employee health, and better oversight of clinician behavior. Thus, once again, the Delphi process worked, given that the Delphi Experts identified a

significant number of additional positives from the perspective of the Employers. We did, however, identify, what the Delphi Experts agreed was the most important: improved care and/or health outcomes.

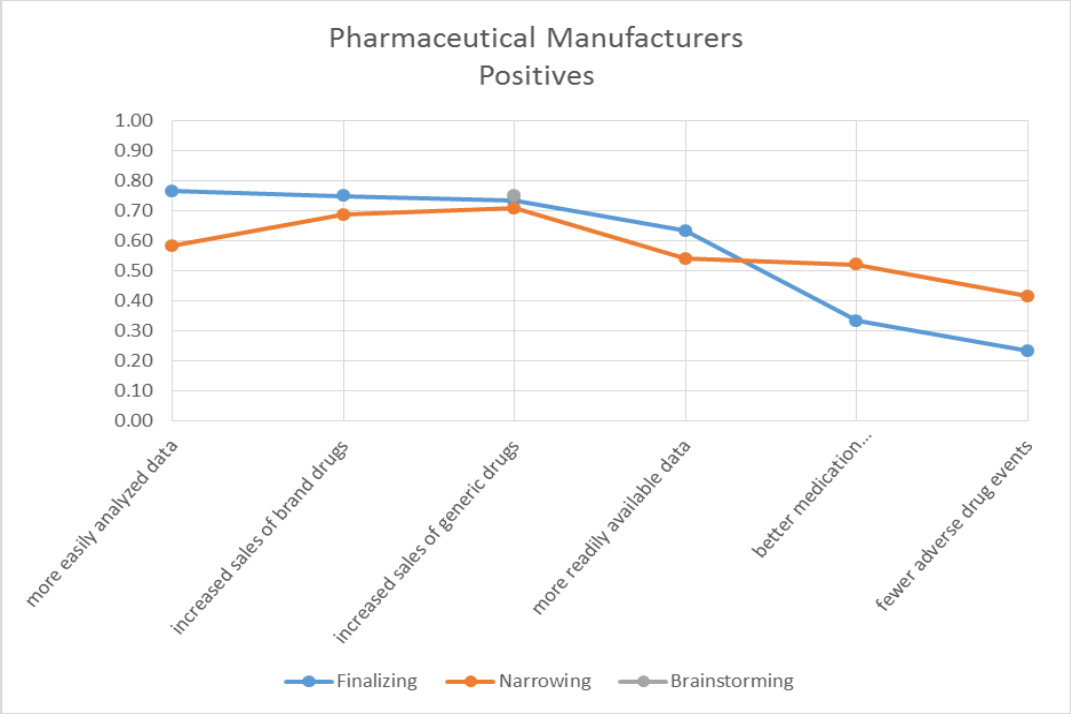


Neither we nor the Delphi Experts identified any negatives associated with e-prescribing from the perspective of the Employers.

3rd	2nd	1st	**Pharmaceutical Manufacturers Positives**
1	3	-	more easily analyzed data
2	2	-	increased sales of brand drugs
3	1	1	increased sales of generic drugs
4	-	-	more readily available data
5	5	-	better medication adherence/compliance
6	6	-	fewer adverse drug events

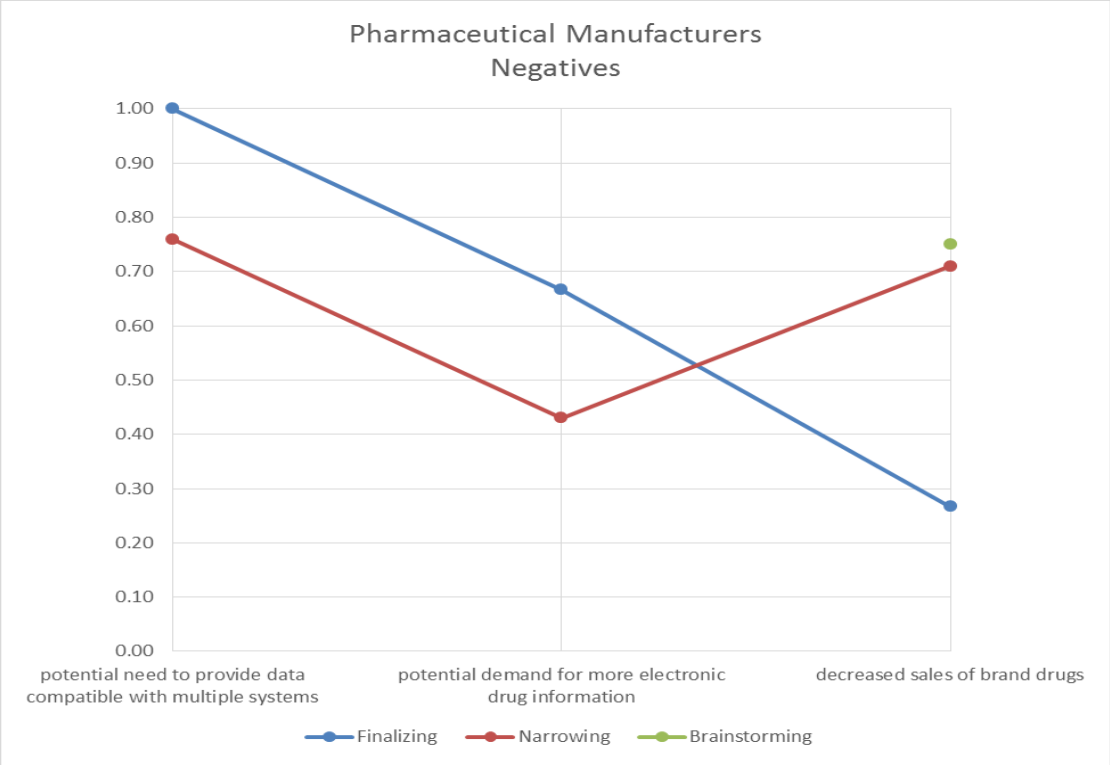
We only identified one positive from the perspective of Pharmaceutical Manufacturers: increased sales of generic drugs. The Delphi Experts identified another five positives, including more easily analyzed data, increased sales of brand drugs, more

readily available data, better medication adherence/compliance, and fewer adverse drug events. Thus, once again the Delphi process worked.



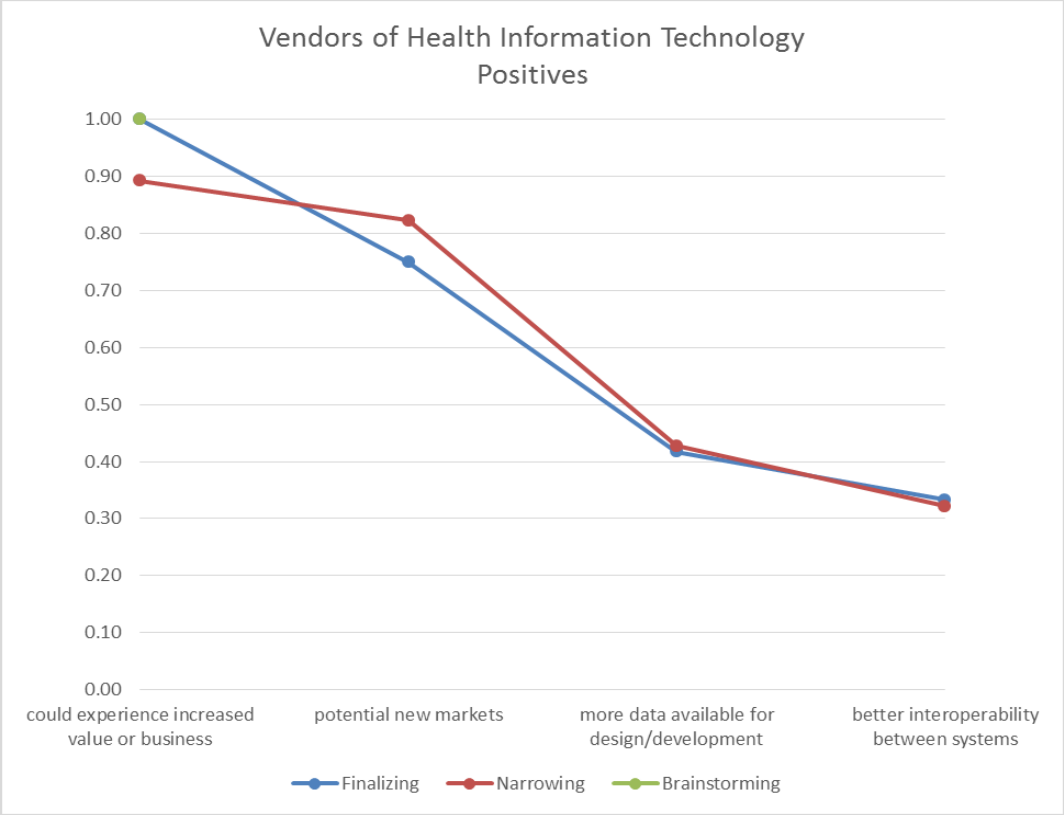
3rd	2nd	1st	**Pharmaceutical Manufacturers Negatives**
1	1	-	potential need to provide data compatible with multiple different e-prescribing systems
2	3	-	potential demand by patients/consumers for more electronic drug information
3	2	1	decreased sales of brand drugs

We only identified one negative from the perspective of Pharmaceutical Manufacturers: decreased sales of brand drugs. The Delphi Experts identified another two, including potential need to provide data compatible with multiple systems and potential demand for more electronic drug information. Both of these were ranked higher in importance than what we identified.



3rd	2nd	1st	**Vendors of Health Information Technology Positives**
1	1	1	could experience increased value or business
2	2	-	potential new markets
3	3	-	more data available for design/development
4	4	-	better interoperability between systems

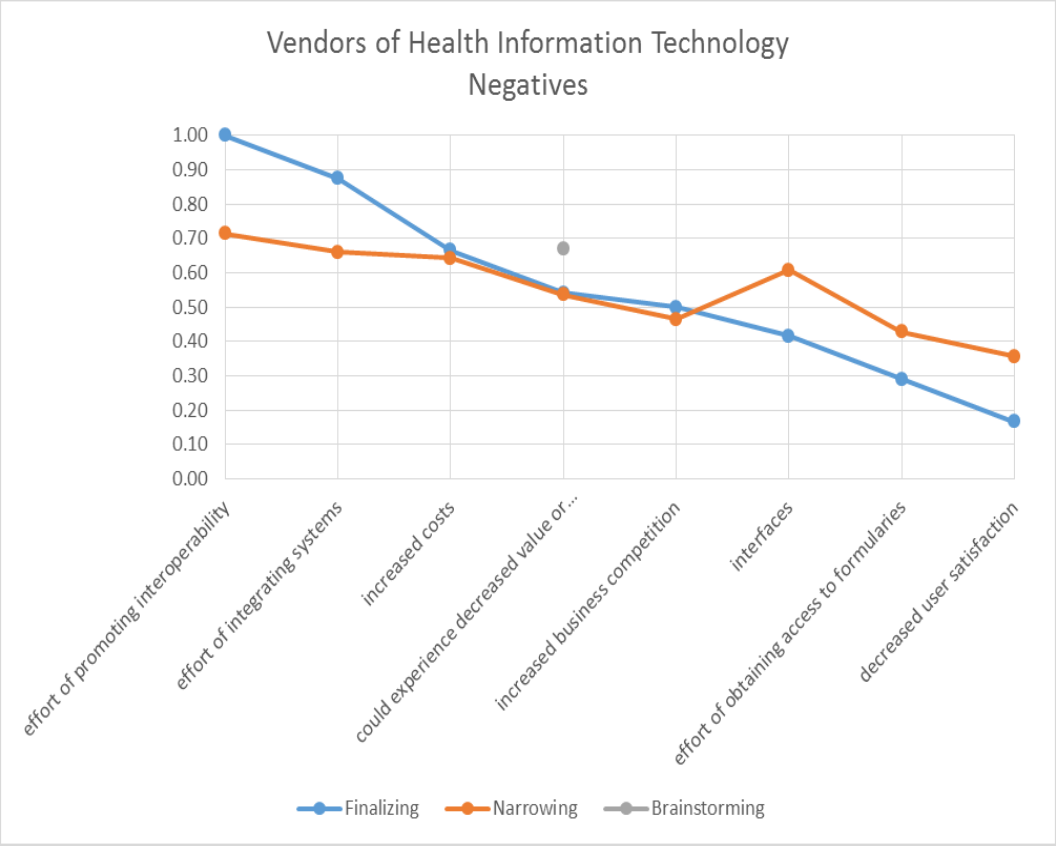
We identified one positive from the perspective of Vendors of Health Information Technology: could experience increased value or business. The Delphi Experts identified another three, including potential new markets, more data available for design/development, and better interoperability between systems. All of these additional positives were ranked below the one we identified, which was could find increased value or business.



3rd	2nd	1st	Vendors of Health Information Technology Negatives
1	1	-	effort of promoting interoperability
2	2	-	effort of integrating systems
3	3	-	increased costs
4	5	1	could experience decreased value or business
5	6	-	increased business competition
6	4	-	interfaces
7	7	-	effort of obtaining access to formularies
8	8	-	decreased user satisfaction

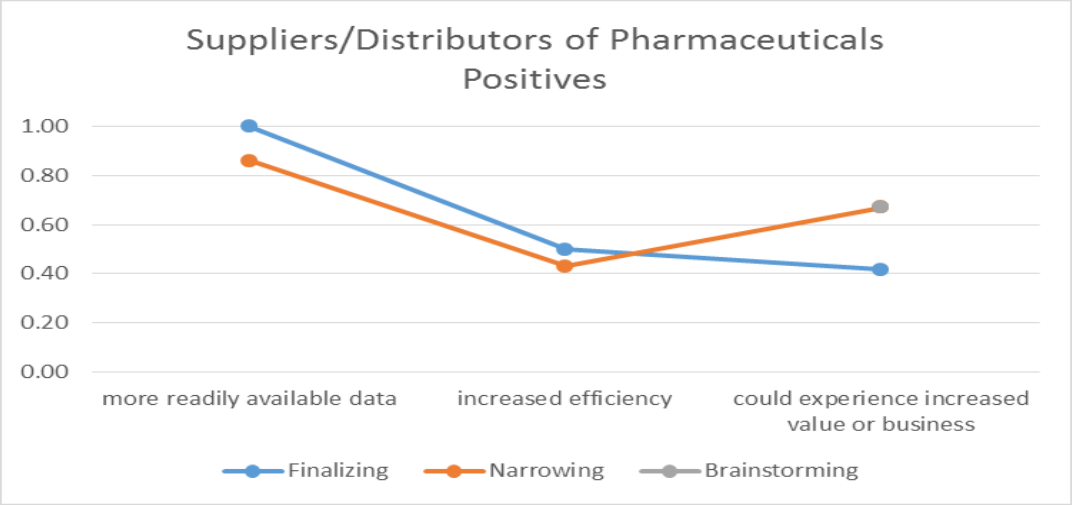
We identified one negative from the perspective of Vendors of Health Information Technology: could experience decreased value or business. The Delphi Experts identified another seven negatives, including interfaces, increased costs, effort of promoting interoperability between e-prescribing systems and other health information systems, decreased user satisfaction, increased business competition, effort of obtaining

access to formularies, and effort of integrating new and existing systems. Our negative was ranked close to the middle by the Delphi Experts.



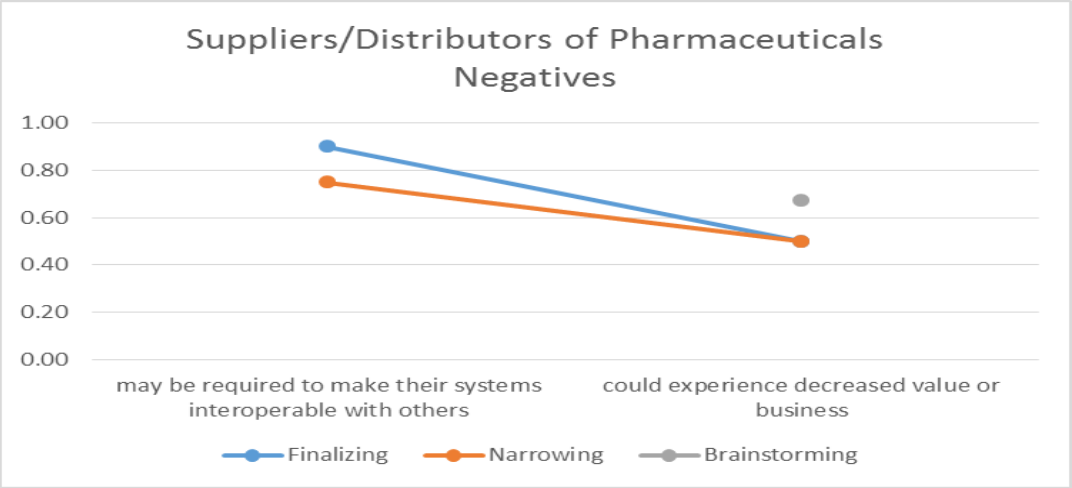
3rd	2nd	1st	**Suppliers/Distributors of Pharmaceuticals Positives**
1	1	-	more readily available data
2	3	-	increased efficiency
3	2	1	could experience increased value or business

We identified one positive from the perspective of Suppliers/Distributors of Pharmaceuticals: could experience increased value of business. The Delphi Experts identified two more, including more readily available data and increased efficiency, and both of them ranked above the positive that we identified.



3rd	2nd	1st	**Suppliers/Distributors of Pharmaceuticals Negatives**
1	1	-	may be required to make their systems interoperable with others
2	2	1	could experience decreased value or business

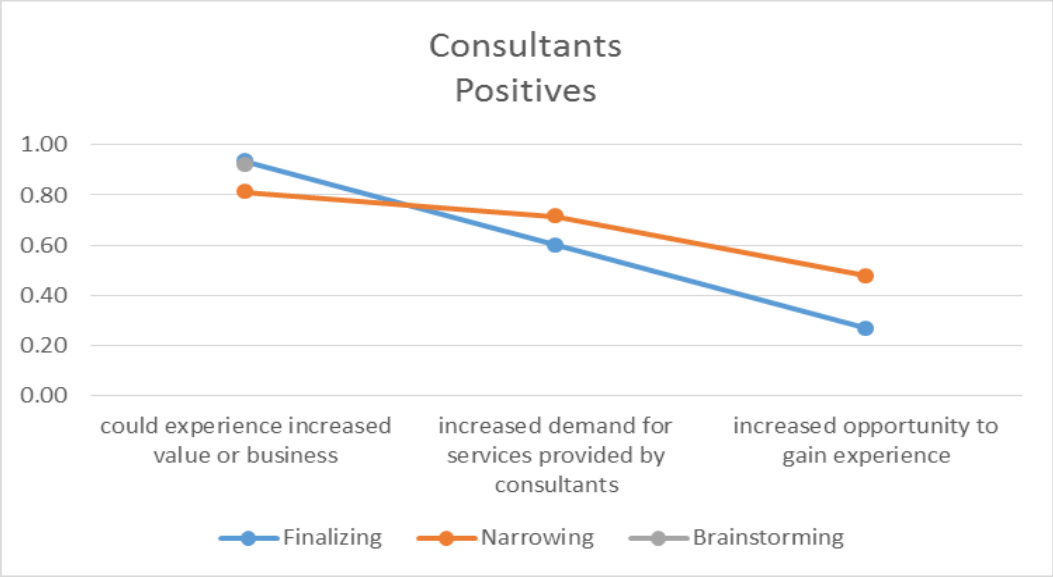
We identified one negative from the perspective of Suppliers/Distributors of Pharmaceuticals: could experience decreased value or business. The Delphi Experts identified another one that they ranked higher than ours: may be required to make their systems interoperable with others.



3rd	2nd	1st	**Consultants Positives**

1	1	1	could experience increased value or business
2	2	-	increased demand for services provided by consultants
3	3	-	increased opportunity to gain experience

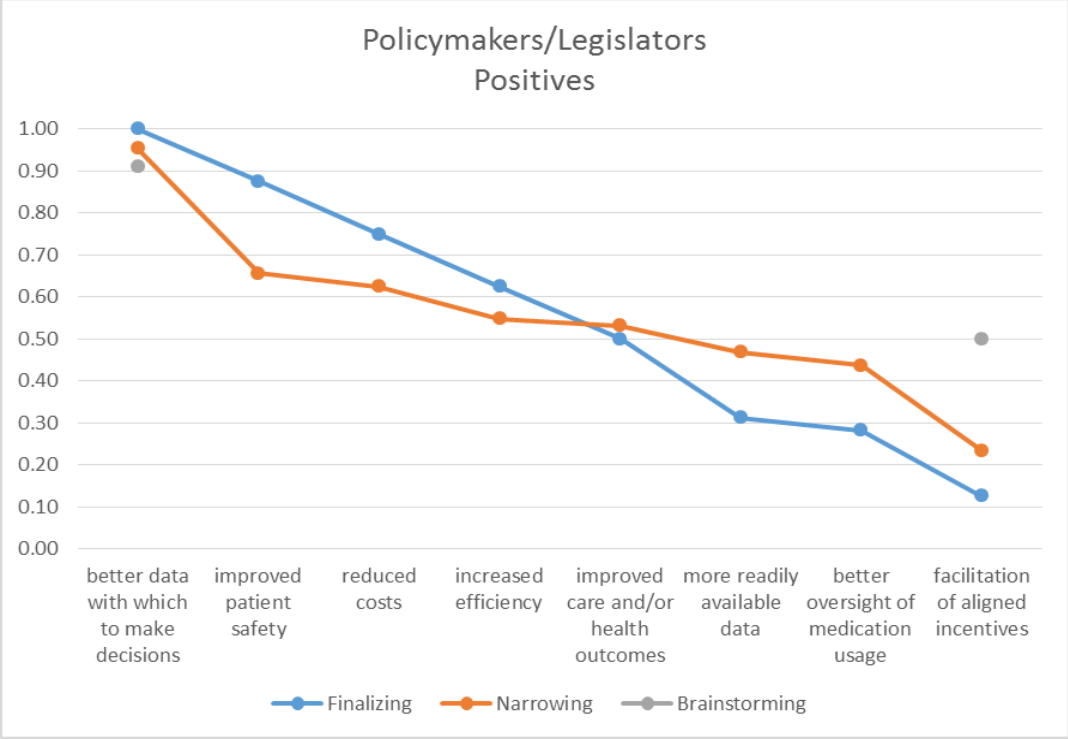
We identified one positive from the perspective of Consultants: could experience increased value or business. The Delphi Experts identified two new positives, both of which they ranked lower, including increased demand for services provided by consultants and increased opportunity to gain experience.



Neither we nor the Delphi Experts identified any negatives from the perspective of Consultants.

3rd	2nd	1st	**Policy Makers/Legislators** **Positives**
1	1	1	better data with which to make decisions
2	2	-	improved patient safety
3	3	-	reduced costs
4	4	-	increased efficiency
5	5	-	improved care and/or health outcomes
6	6	-	more readily available data
7	7	-	better oversight of medication usage
8	8	2	facilitation of aligned incentives

We identified two positives from the perspective of Policy Makers/Legislators: better data with which to make decisions and facilitation of aligned incentives. The Delphi Experts identified the following additional positives from the perspective of Policy Makers/Legislators, including improved patient safety, reduced costs, increased efficiency, improved care and/or health outcomes, more readily available data, and better oversight of medication usage. Interestingly, the Delphi Experts ranked our positives first and last. Particularly interesting is the fact that the Delphi Experts ranked facilitation of aligned incentives last. This positive would seem to be a key to the transition from fee-for-service to payment for quality and cost-effectiveness. Perhaps, the Delphi Experts were not looking at the positives from a healthcare financial system perspective.



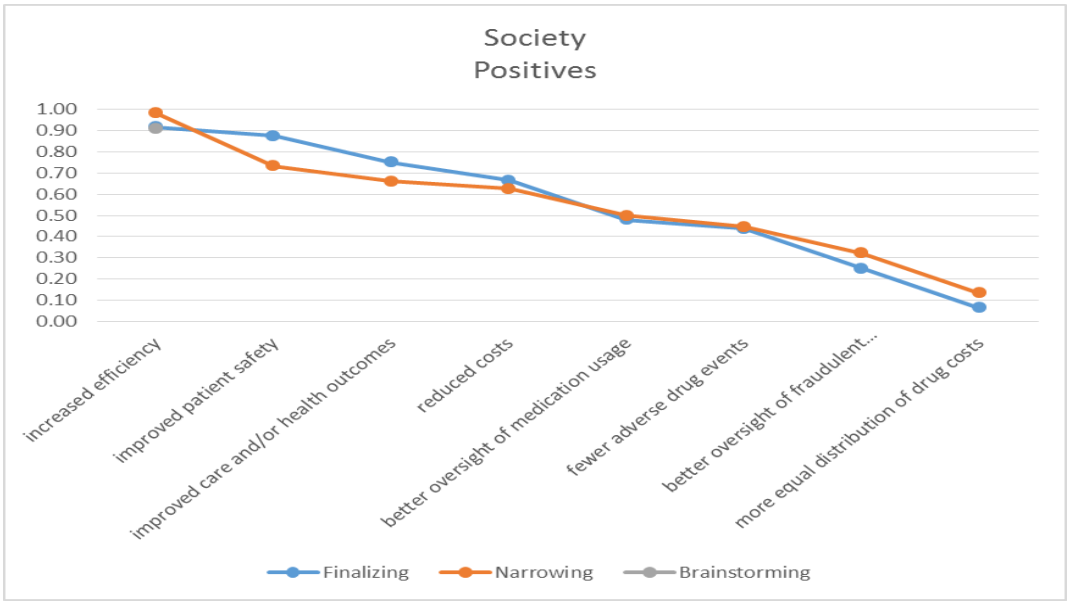
3rd	2nd	1st	Policy Makers/Legislators Negatives
1	1	1	costs to other stakeholders
2	2	-	Need to build database systems to store and analyze the increased

amount of data

We identified only one negative from the perspective of Policy Makers/Legislators: costs to other stakeholders. The Delphi Experts only identified one additional negative which they ranked lower: the need to build database systems to store and analyze the increased amount of data.

3rd	2nd	1st	**Society** **Positives**
1	1	1	increased efficiency
2	2	-	improved patient safety
3	3	-	improved care and/or health outcomes
4	4	-	reduced costs
5	5	-	better oversight of medication usage
6	6	-	fewer adverse drug events
7	7	-	better oversight of fraudulent prescriptions
8	8	-	more equal distribution of drug costs

We identified one positive from the perspective of Society: increased efficiency. The Delphi Experts identified seven more, all of which were ranked after increased efficiency. The additional positives identified by the Delphi Experts were improved patient safety, improved care and/or health outcomes, reduced costs, better oversight of medication usage, fewer adverse drug events, better oversight of fraudulent prescriptions, and more equal distribution of drug costs.



3rd	2nd	1st	Society Negatives
1	1	1	providers may experience more costs which may be passed on to society

We only had identified one negative from the perspective of society: providers may experience more costs which may be passed on to Society. The Delphi Experts did not identify another negative.

Third Round Delphi Experts were afforded the opportunity to comment about certain aspects of the Study in free text. They were invited to comment on any significant aspects of the relative impact of e-prescribing, as experienced by the different stakeholders that they believed are particularly important. In addition, they could comment on any aspect of e-prescribing's positive or negative impact on any of the stakeholders that they believed are either particularly important, significant or particularly misunderstood/over-rated.

One Expert suggested that he would be curious if payors secretly wished patients were taking less medication. Another Expert suggested that the only way he could see it

being a negative that a patient might find it harder to acquire fraudulent prescriptions would be because a patient might want to divert controlled substances. That same Expert noted that although a positive impact on Clinicians/Prescribers that he believed was particularly important or significant is the time saving, he also noted that there are still a number of problems with e-prescribing, such as the pharmacy does not get the script, the script is sent to the wrong pharmacy, or it might go via mail order rather than to the retail pharmacy, if that was intended. Furthermore, this Expert identified that a number of the other Experts identified fewer medication errors, fewer adverse drug events, improved patient safety and improved care and/or health outcomes not applicable as positives associated with e-prescribing, from the perspective of Payors/Purchasers. He believes that these positives are very important and he noted that it is the payors that pay when patients experience adverse drug events, except in the rare circumstance, where there is a malpractice claim. Regarding the negative impact on Payors/Purchasers in the context of e-prescribing, this Expert believed that most of the negatives identified only indirectly affected Payors. This Expert also thought that two of the positives associated with e-prescribing from the perspective of Consultants: "increased demand" and "could experience increased value or business" were really the same. He also noted that the positive added, "increased opportunity to gain experience" is sort of mediocre. He also thought "better data with which to make decisions" and "more readily available data," positives associated with e-prescribing from the perspective of Policy Makers/Legislators were very similar. He liked the positive: "facilitation of aligned incentives."

In commenting on the significant aspects of e-prescribing, as experienced by the different stakeholders, that one believed are particularly important, a third Expert noted

that "nurses are really important, as the impact on them does usually consist of 'more work' and the benefits for them are relatively negligible." She also noted that the negative associated with e-prescribing from the perspective of Patients, "entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natural disaster, accident, or terrorism," can easily be disrupted by quite simple things such as upgrades. This Expert thought that "more readily accessible data" and "more data available for analysis" were similar and might be combined. This Expert also believed that there are differences in the United Kingdom and the United States on the positive impact on Employers, and that these differences should be considered when analyzing such priorities because these differences may well be influenced by the country's regulations. This Expert also believed that the positives associated with e-prescribing from the perspective of Policy Makers/Legislators: "better data with which to make decisions" and "more readily available data" are similar and might be combined. In addition, this Expert noted that with respect to the negative aspect of e-prescribing on Researchers that a meaningful analysis of big data will become an issue. Finally, this Expert noted that the risks about storing large amounts of data electronically might be a negative on Society that is particularly important/significant or misunderstood.

A fourth Expert commented that although all the stakeholders identified were potentially important, that he believed that e-prescribing is most important for clinicians and pharmacies, and payors, and all others seem much more peripheral to him. This Expert noted that he did not see how payors are involved with many of the negatives noted as being associated with e-prescribing, and wondered why others thought they were. He also thought that e-prescribing itself does not lead to prescribing of more

generics, but that clinical decision support that is incorporated into the e-prescribing system is responsible for this. In addition, this Expert noted that with regard to e-prescribing's positive impact on Employers that, unless the Employer is the payor, he did not think Employers have access to prescription data due to the HIPAA privacy laws. He also noted that it seems that there are many misunderstandings in how these benefits are related to the stakeholders. He thought the experts were missing something, or maybe he was. Furthermore, he did not believe the negatives identified for an HIT vendor were negatives, as these were the vendor's business. He observed that if they did not have e-prescribing, what would they sell? Finally, in commenting on the negatives associated with e-prescribing from the perspective of Policy Makers/Legislators, he noted that policy makers never build data bases and wondered how the other experts could rate this, and said he did not believe that the data here had any validity.

6.2. Aggregated Delphi Results

Once we further reviewed the results of the three rounds of the Delphi Study, we thought it would be useful to analyze the results across the category of attributes that we identified for the Framework Experts as part of the Framework. That is, we calculated the number of positives and negatives that were related to data, effort, finances, health, management, and time, along with the percentage of value of the positives and negatives. In addition, we reviewed these categories in the context of all the stakeholders and in groups of stakeholders.

Data was defined as the quantity, quality, and/or security of the data generated or used by an endeavor. Effort was defined as the nature and extent of the effort that people or organizations must apply to an endeavor. Finances were defined as both revenues and

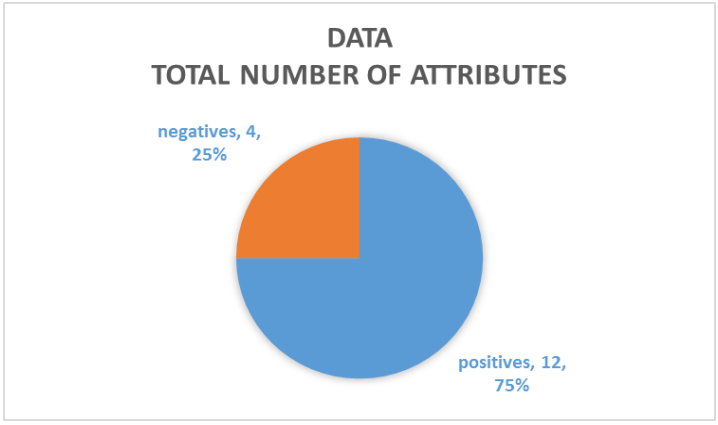
expenses of people or organization. Health was defined as including both safety and well-being of people. Management was defined as the nature and extent of the management tasks of an endeavor. Time was defined as the time required by an endeavor. Our assignment of one of these six categories to the positive and negative attributes is set forth in section 5.2.2. and in the Framework. We used our best determination as to the category to which the positive or negative was assigned. We recognize that many of the positives and negatives might be placed in more than one category, but we chose the category that we deemed most applicable. Others could differ regarding our assignment of the categories to certain of the positives and negatives.

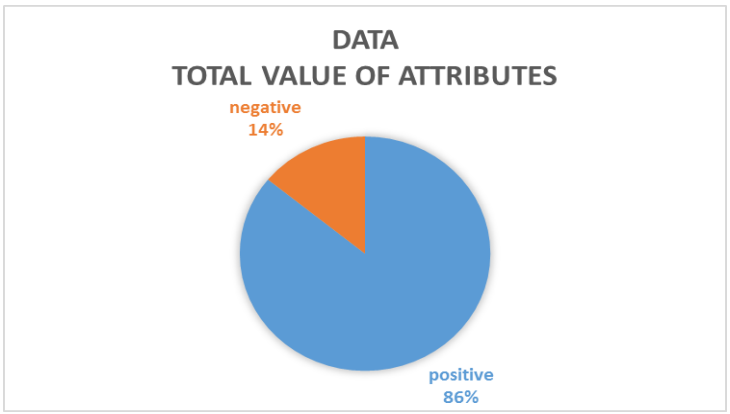
The groups of stakeholders that we analyzed in the context of the category of attributes, included stakeholders involved in the business of e-prescribing (electronic tools and/or pharmaceuticals), stakeholders involved in paying for e-prescribing, stakeholders involved in providing e-prescriptions, stakeholders involved in receiving e-prescriptions, stakeholders involved in regulating e-prescribing, and stakeholders involved in studying e-prescriptions.

The stakeholders that were determined to be involved in the business of e-prescriptions were Pharmaceutical Manufacturers, Vendors of Health Information Technology, Pharmacy Benefit Managers/Prescription Pricing Authorities, Suppliers/Distributors of Pharmaceuticals, and Consultants. The stakeholders that were determined to be involved in paying for e-prescribing were Payors/Purchasers and Employers. The stakeholders that were determined to be involved in providing e-prescriptions were Clinicians/Prescribers, Healthcare Entities, Pharmacies/Dispensers/Pharmacists, and Nonclinical Healthcare Staff. The stakeholders

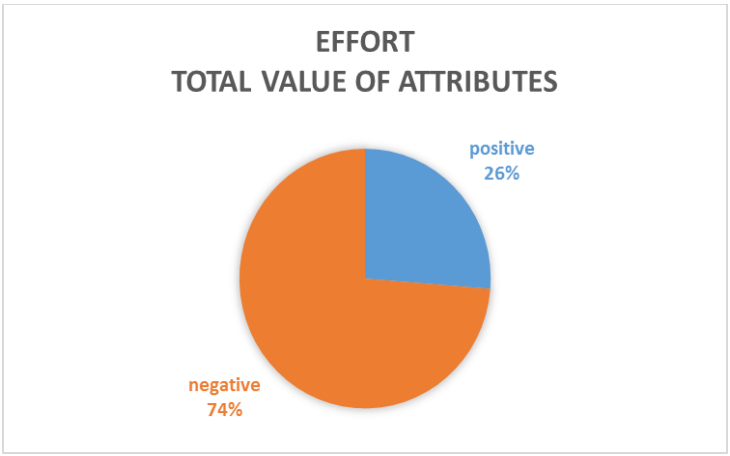
that were determined to be involved in receiving e-prescriptions were Patients, Patients' Families, Society, and Patient Associations/Support Groups. The stakeholder that was determined to be involved in regulating e-prescriptions was Policy Makers/Legislators. The stakeholders that were determined to be involved in studying e-prescriptions were Researchers and Government Prescription Monitoring Programs.

For data, the total number of positives and negatives were 16, four of which were negative and 12 of which were positive, representing 25% and 75%, respectively. The total value of these negatives was 14%, and the total value of the positives was 86%, demonstrating that the total value of the positives associated with data from the perspective of the stakeholders were much greater than the negatives.

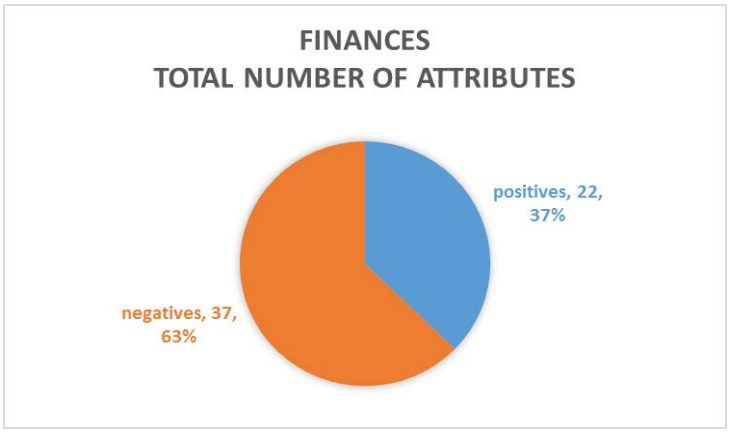


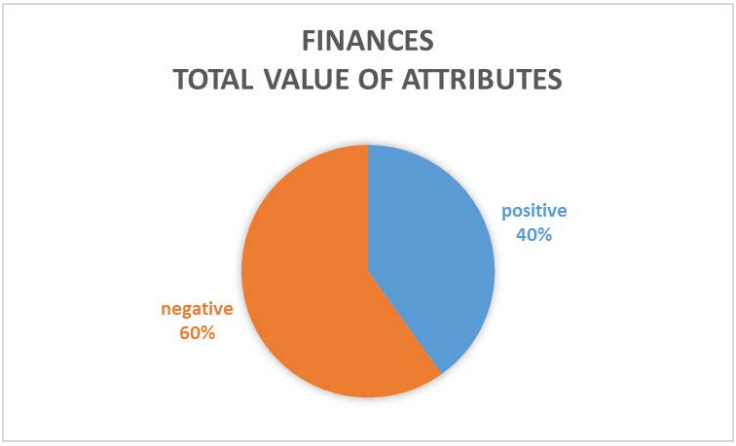


For effort, the total number of positives and negatives were 58, 39 of which were negative and 19 of which were positive, representing 67% and 33%, respectively. The total value of the negatives was 74%, and the total value of the positives was 26%, demonstrating that the value of the negatives associated with effort from the perspective of the stakeholders was much greater than the positives.

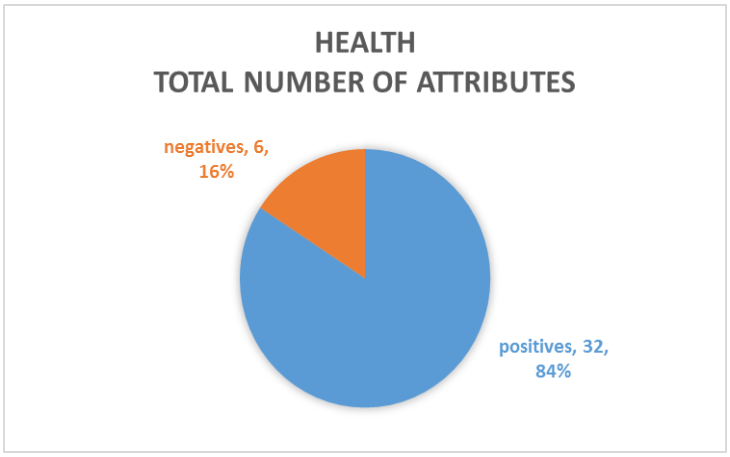


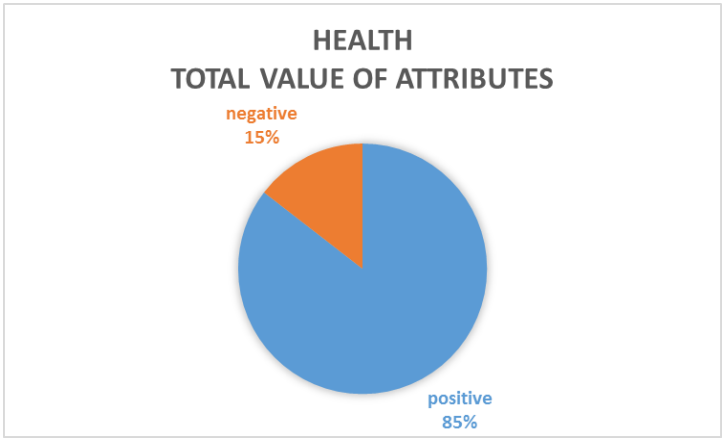
For finances, the total number of positives and negatives were 59, 37 of which were negative and 22 of which were positive, representing 63% and 37%, respectively. The total value of the negatives was 60%, and the total value of the positives was 40%, demonstrating that the negatives associated with finances from the perspective of the stakeholders were much greater than the positives, but there was not as great a difference percentage-wise as with effort.



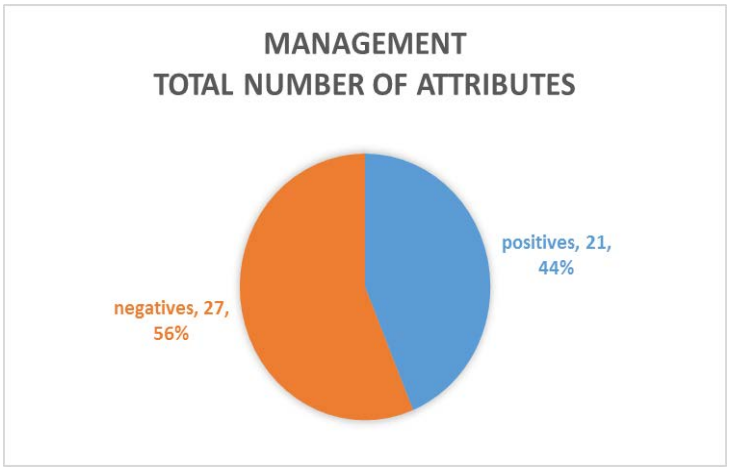


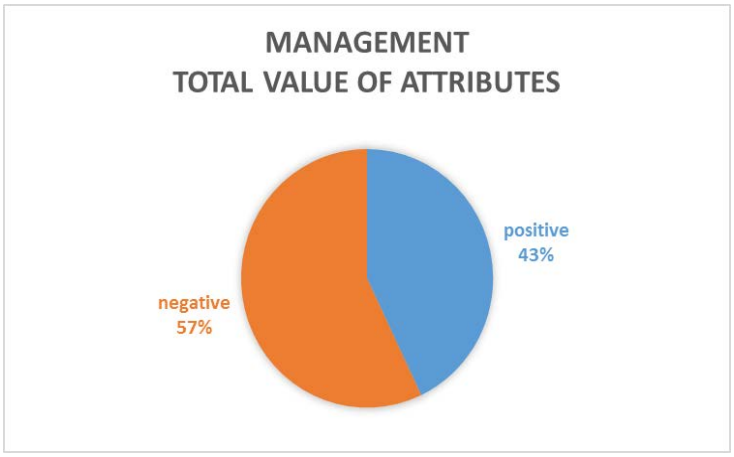
For health, the total number of positives and negatives were 38, six of which were negative and 32 of which were positive, representing 16% and 84%, respectively. The total value of the negatives was 15%, and the total value of the positives was 85%, demonstrating that the value of the positives associated with health for the stakeholders far exceeded the value of the negatives associated with health.



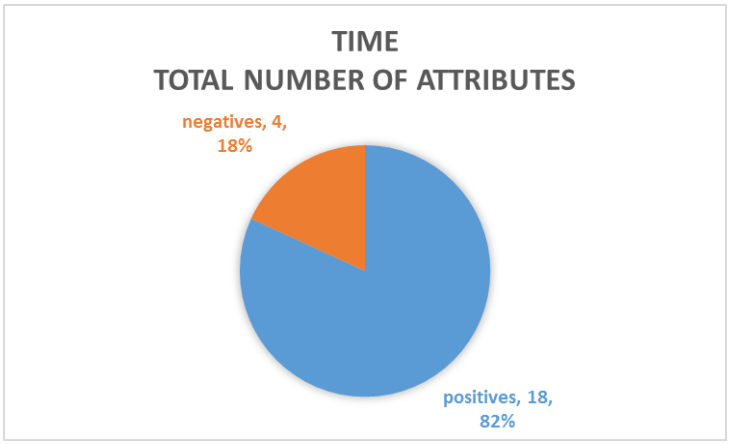


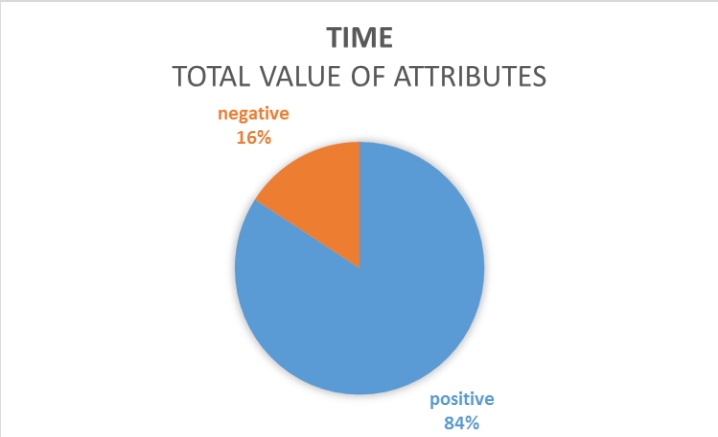
For management, the total number of positives and negatives were 48, twenty-seven of which were negative and 21 of which were positive, representing 56% and 44%, respectively. The total value of the negatives associated with health was 57%, and the total value of the positives associated with health was 43%, demonstrating not only that the value of the negatives exceeded the positives, but also the difference in the amount and value of the positives and negatives was not as significant as some of the other categories.



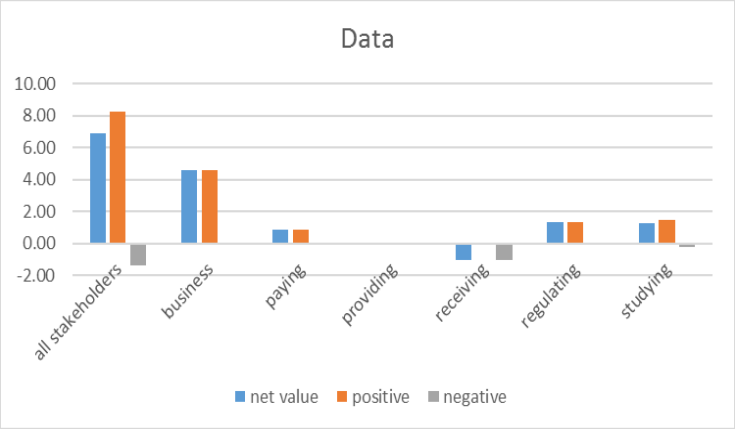


For time, the total number of positives and negatives were 22, four of which were negative and 18 of which were positive, representing 18% and 82%, respectively. The total value of the negatives was 16%, and the total value of the positives was 84%, demonstrating that the positives far exceeded the value of the negatives for time.





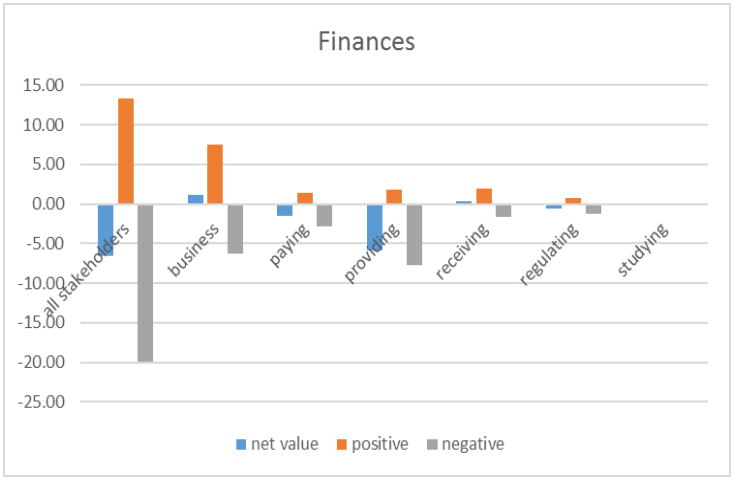
We calculated the total value of the positives and negatives for the categories of data, effort, finances, health, management, and time across all stakeholders, and stratified them across the groupings of stakeholders noted above. That is, we considered those stakeholders that are in the business of e-prescribing, those that pay for e-prescribing, those stakeholders that provide e-prescriptions, those that receive e-prescriptions, those that regulate e-prescribing, and those that study e-prescriptions. Set forth below is the analysis of the value of the positives and negatives associated with data, calculated by adding up the values (determined by the weighted averages calculated as noted in section 5.2.2) of each positive and negative. The value of the positives across all stakeholders was much greater than the negatives. Interestingly, the categories stakeholders in the business of e-prescribing, those that pay for e-prescribing, and those that regulate e-prescribing only experienced positives from the perspective of data.



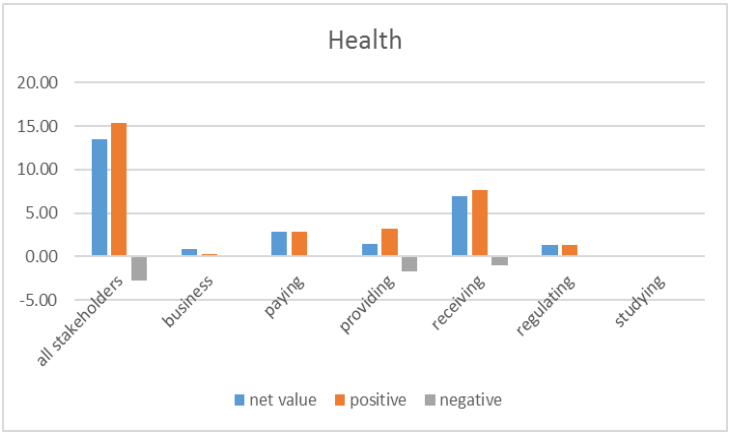
In the analysis of the positives and negatives associated with effort, we found that the negatives were more than two times greater than the positives across all stakeholders from a value perspective. Those stakeholders in the business of e-prescribing, those paying for e-prescribing, those providing e-prescriptions, those receiving e-prescriptions, and those studying e-prescriptions experienced substantially less value, given the that value of the negatives were higher than the value of the positives. Those who pay for e-prescribing and those who study it experienced only negative effects.

The value of the negatives associated with finances was much more pronounced than the positives across all stakeholders. For those in the business of e-prescribing, the value of the positives exceeded the value of the negatives for those paying for e-

prescriptions, and those providing e-prescribing, the value of the negatives exceed the value of the positives.

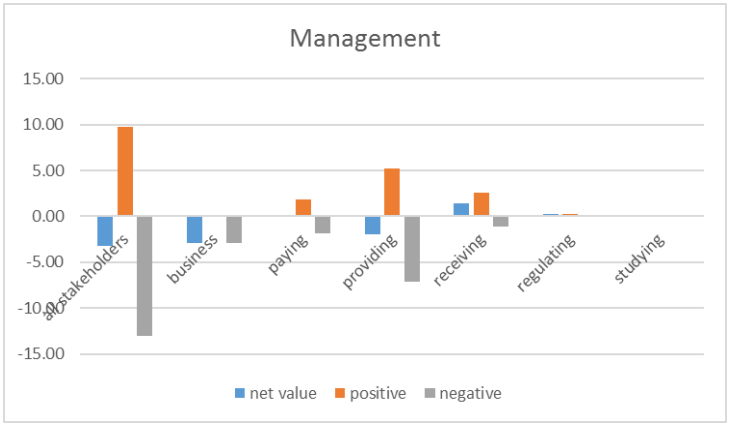


For health, the value of the positives far exceeded the negatives across all stakeholders. Only those stakeholders providing e-prescriptions and those receiving e-prescriptions were thought to experience any negatives.

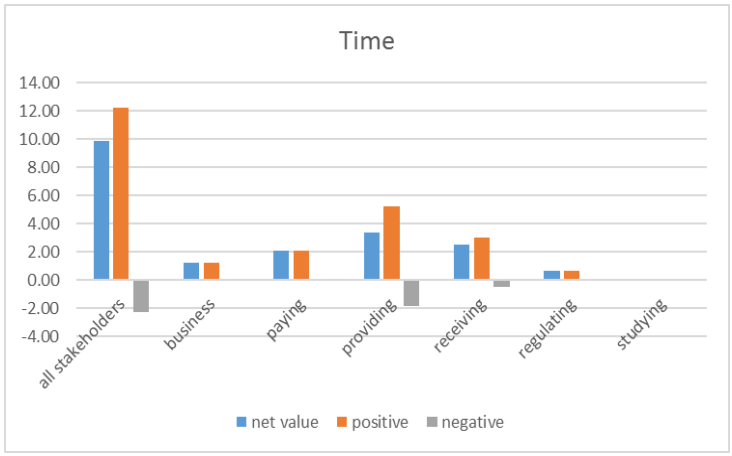


The value of the negatives associated with management exceeded the value associated with the positives of management across all stakeholders, but not by a substantial amount. Those in the business of e-prescribing experienced only negative value. Those that pay for e-prescriptions seemed to receive a positive value to the same extent as their negative value. Those who provide e-prescriptions experienced a greater

negative than positive value, and those that receive e-prescriptions experienced a greater positive value than negative value.

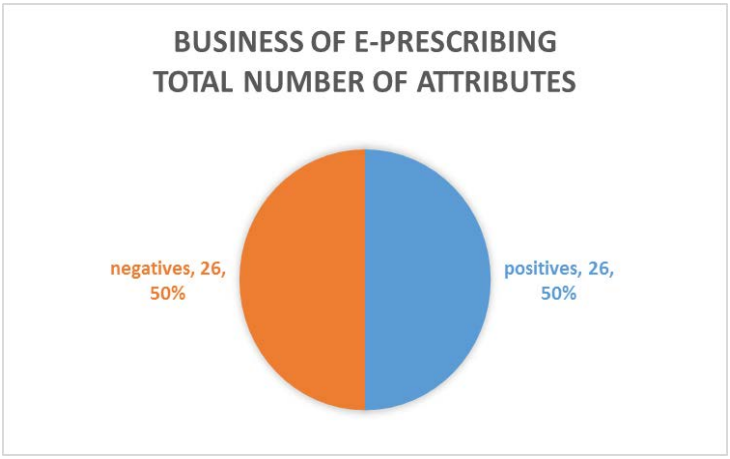


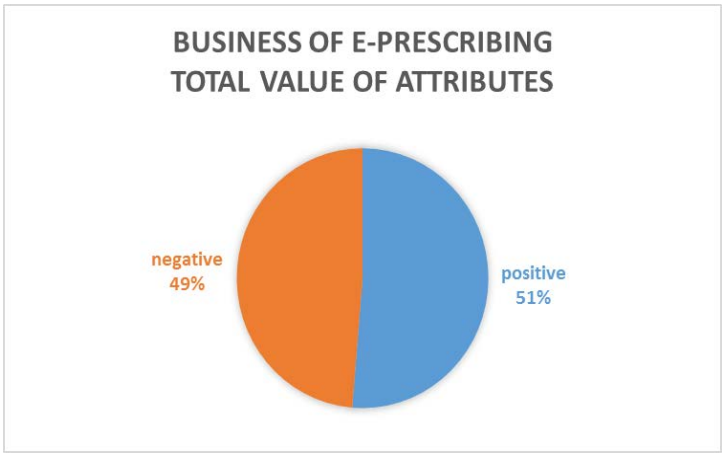
With respect to time across all stakeholders, the value of the positives was substantially greater than the negatives. There were no negative values associated with time for those in the business of e-prescribing, those who pay for e-prescriptions, and those who regulate e-prescribing. Those who provide e-prescriptions and those who receive e-prescriptions experienced some negative value, but not much in comparison to the value of the positives.



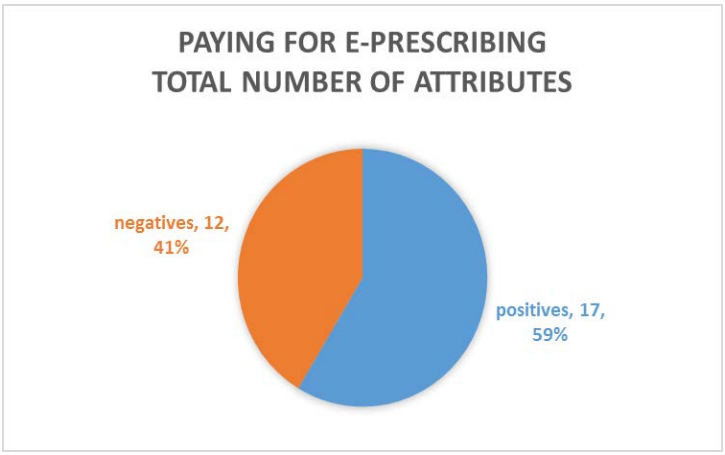
Focusing on the categories of stakeholders and the amount of negatives and positives associated with each and their value, we found that there were a total of 52 negatives and positives associated with those in the stakeholder category of the business

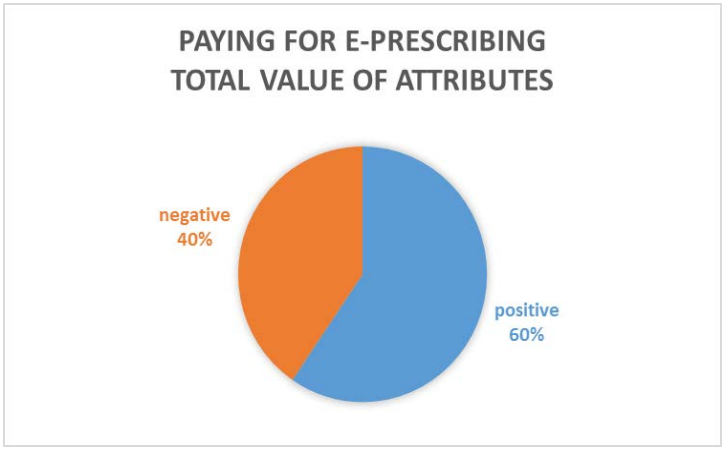
of e-prescribing. Although the division was equal, 26 for each, the value of them was slightly in favor of the positives as compared to the negatives, 51% and 49%, respectively.



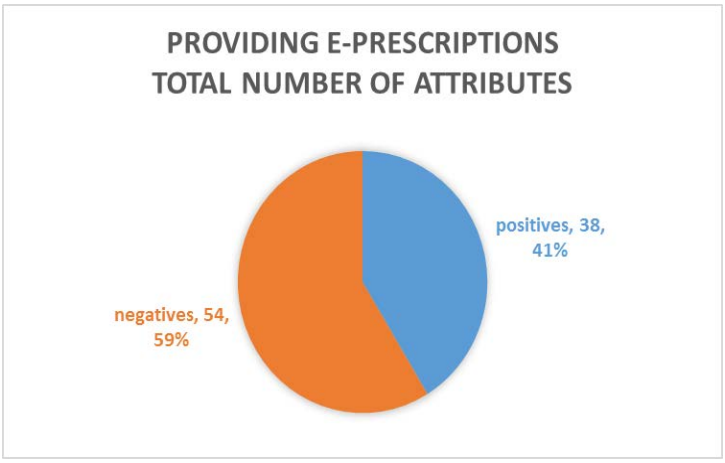


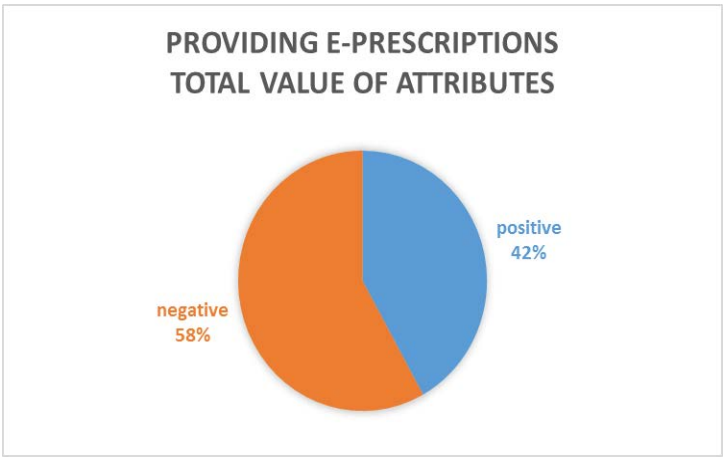
For the stakeholder category of those that pay for e-prescribing we found the number of negatives was 12 and the number of positives was 17, for a total of 29. The value of the positives was 60% and the value of the negatives was 40%.



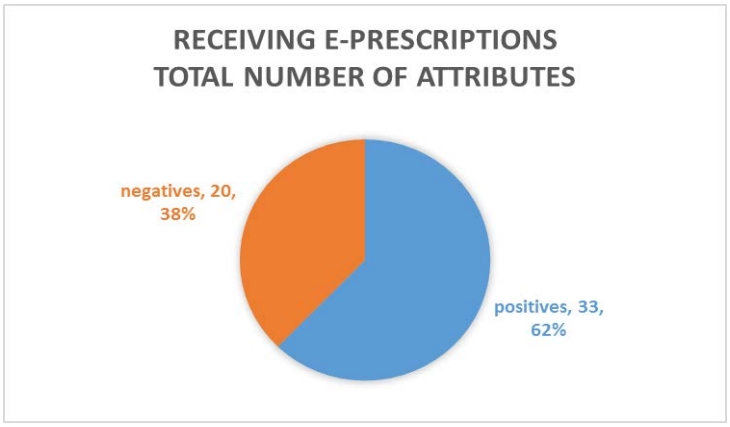


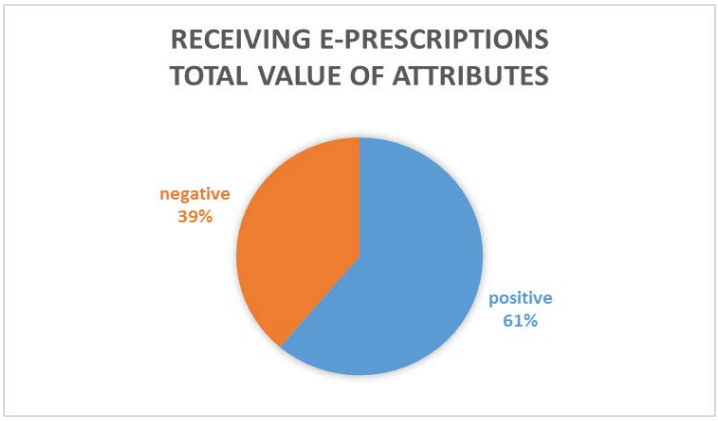
For the stakeholder category of those that provide e-prescriptions, there was a total of 92 negatives and positives, 54 and 38, respectively. The value of the negatives (58%) exceeded the value of the positives (42%).



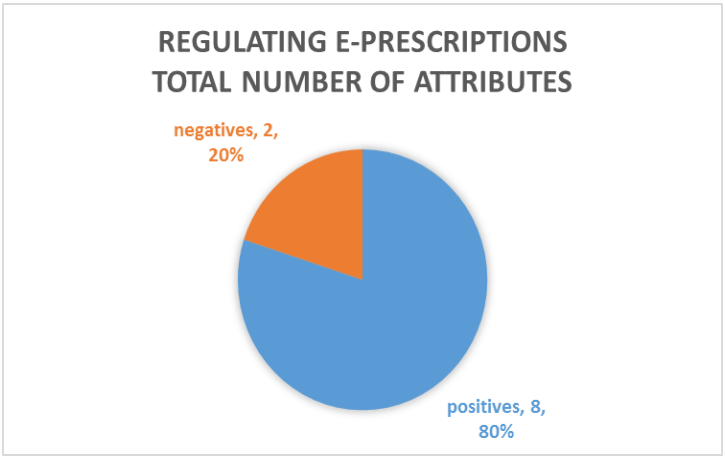


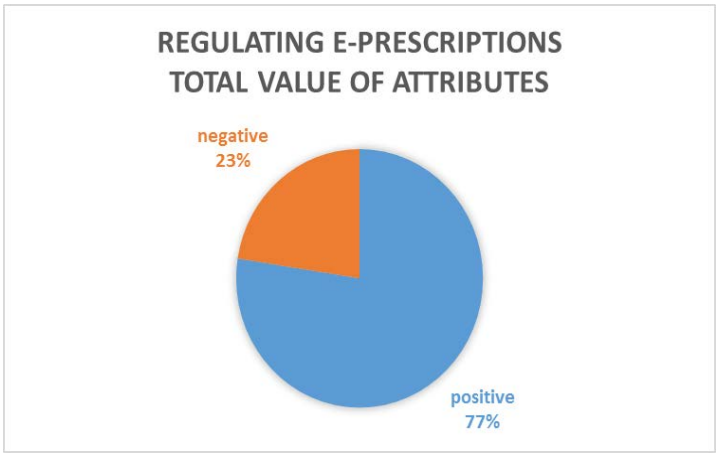
The total number of attributes for the stakeholder category of those receiving e-prescriptions was 53, 20 negative and 33 positive. The value of the negatives was 39% and the value of the positives was 61%.



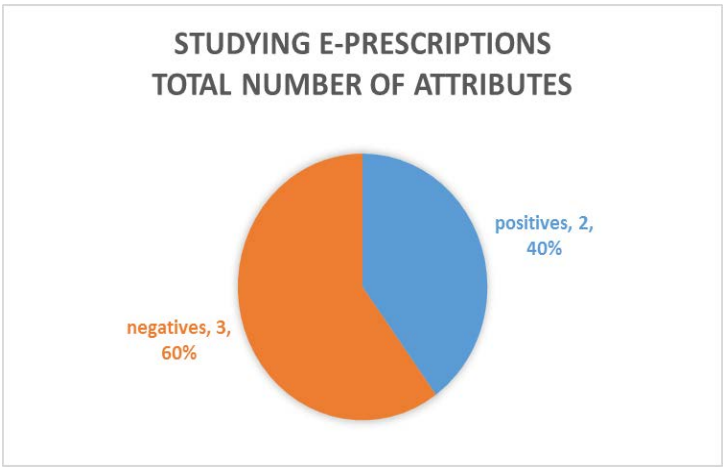


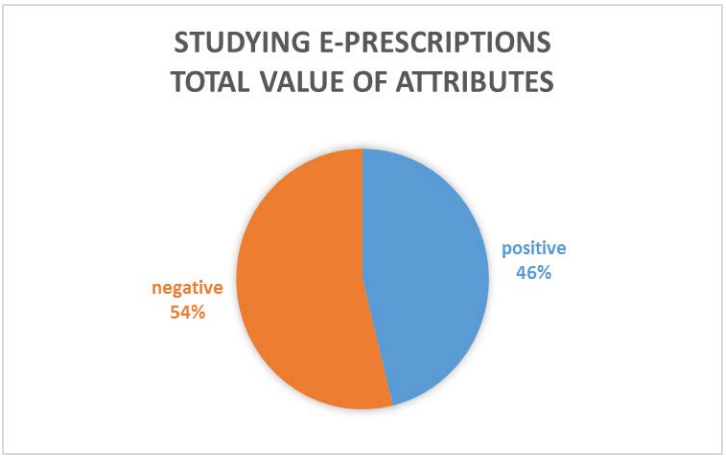
For the stakeholder category of regulating e-prescriptions, the total number of attributes was 10, two negatives and eight positives. The value of the negatives was 23%, while the value of the positives was 77%.





There were three negatives associated with the stakeholder category of studying e-prescriptions and two positives. The respective values were 54% and 46%.

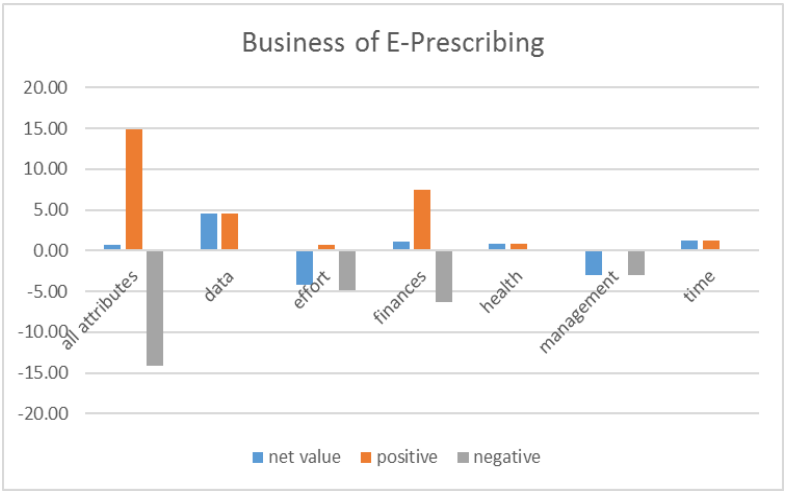




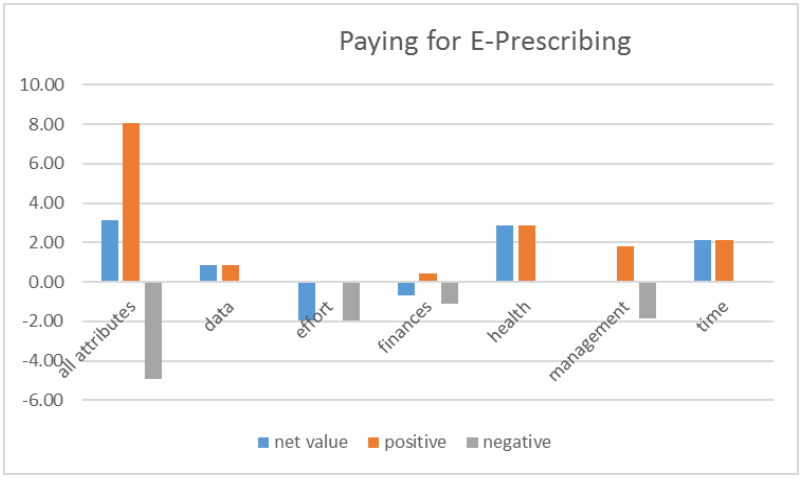
Finally, we considered each of the six categories of stakeholders, those in the business of e-prescribing, those paying for e-prescribing, those providing e-prescriptions, those receiving e-prescriptions, those regulating e-prescribing, and those studying e-prescribing and analyzed the value of the positives and negatives across all six attributes of data, effort, finances, health, management, and time, and then across all six attributes together.

Set forth below for the business of e-prescribing, the value of the positives barely exceeded the value of the negatives across all six attributes. There were positive values for data, health, and time, but no negative values. The value of the negatives for effort

was much greater than the positives. There was barely a positive net value for finances. For management, there was a negative value.

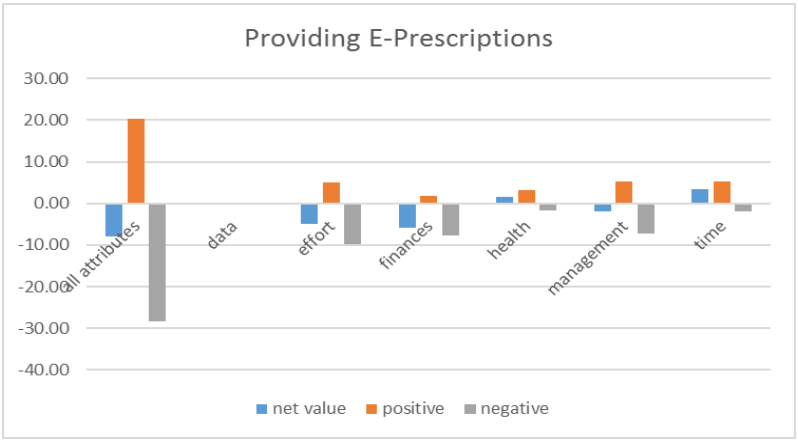


For the category of stakeholders, paying for e-prescribing, the value of the positives far exceeded the negatives. For the attributes of data, health, and time, there was only a positive value. For effort, there was only a negative value. For finances, the value of the negatives exceeded the positives, and the value of the positives and negatives were similar for management.

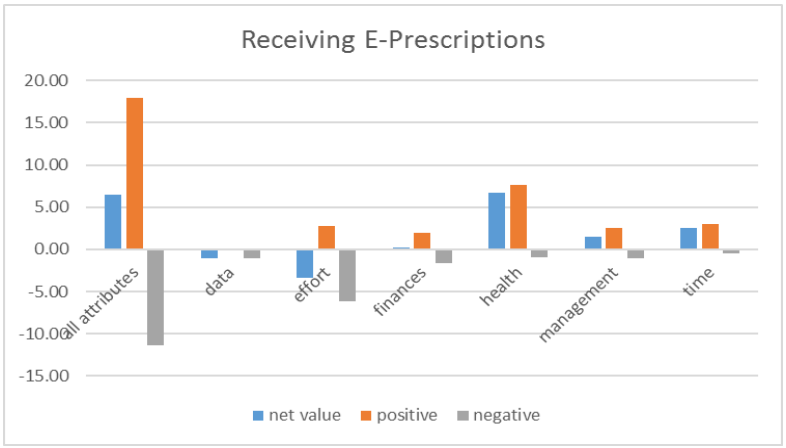


For the category of stakeholders, providing e-prescriptions, the value of the negatives exceeded the value of the positives. The value of the negatives across effort,

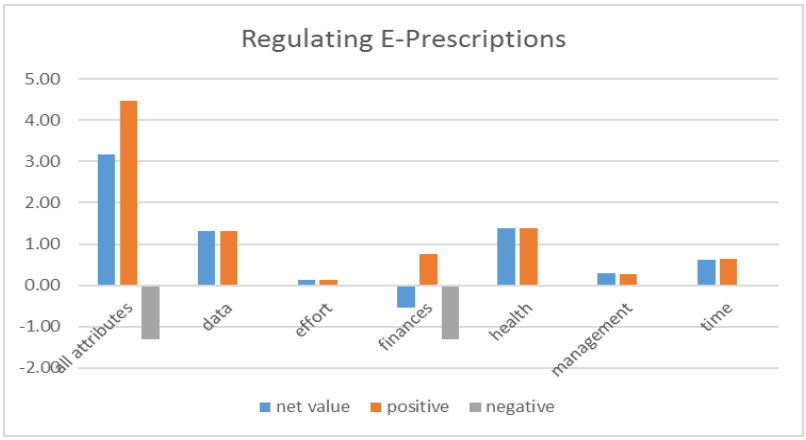
finances, and management were much higher than the positives, but the value of the positives for health and time exceeded the value of the negatives.



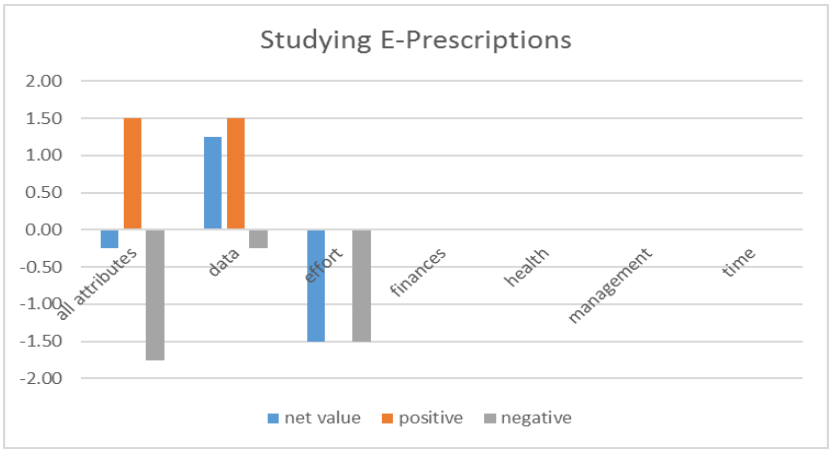
The value of the positives for the category of stakeholders, receiving e-prescriptions, far exceeded the value of the negatives. The value of the positives associated with finances, health, management, and time which were greater than the value of the negatives accounted for most of the positives. The attributes of data and effort had a net negative value.



For the category of stakeholders, regulating e-prescriptions, the value of the positives far exceeded the value of the negatives. The attributes of data, effort, health, management, and time only had positives. The value of the negatives was solely attributable to finances.



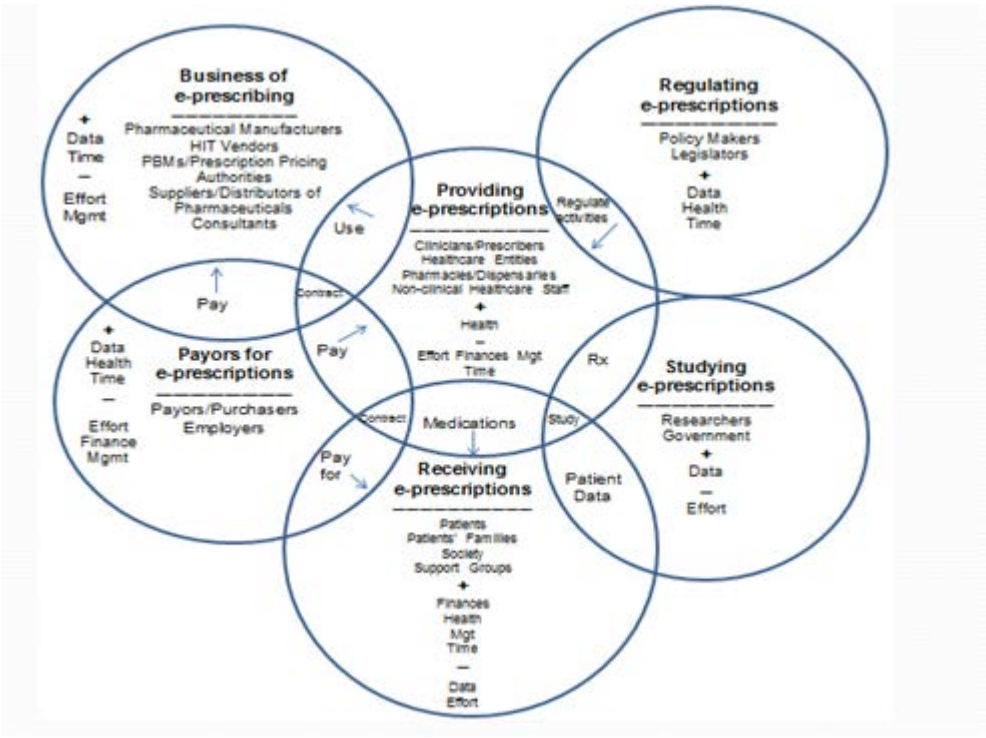
The value of the negatives for the stakeholder category, studying e-prescriptions, barely exceeded the value of the positives. The value of the positives associated with data far exceeded the value of the negatives, but there were only negatives associated with the attribute effort.



6.3. Aggregated Delphi Results—Summarized

The following chart summarizes the stakeholder categories and the six attributes for each. Those attributes in green are positive values and those in red are negative values. The size of the type of each attribute is representative of their proportionate value.

Some of the interactions among the stakeholder categories are set forth on the following chart, which notes that payors for e-prescriptions pay stakeholders in the business of e-prescribing and those stakeholders who provide e-prescriptions. They pay for the e-prescriptions for those who receive them. Stakeholders who provide e-prescriptions use the products and/or services of those in the business of e-prescribing, and prescribe pharmaceuticals to those stakeholders who receive e-prescriptions. These four categories of stakeholders contract with each other in various ways. Those stakeholders who regulate e-prescriptions regulate the activities of those who provide e-prescriptions, and those stakeholders who study e-prescriptions review patient data of those who receive e-prescriptions and the scripts that are generated by those who provide e-prescriptions.



6.4. Framework Expert Interviews

The summaries of the responses to the questions posed to the Framework Experts are set forth on Appendix H-1 through H-5.

6.4.1. Expert No. 1

Expert No. 1 thought that identifying the different stakeholders was useful, particularly looking at the positives and negatives from their perspective. She generally viewed those stakeholders which were identified as primary to be particularly important, but noted that perhaps Pharmaceutical Companies and Pharmacy Benefit Managers might be secondary stakeholders and Policy Makers might be a primary stakeholder. Expert No. 1 did not identify any new stakeholders that she thought it would be important to include, but noted that she might call some of them by different names. She stated that she believed that Vendors and Consultants were of much less significance than the other

stakeholders, apparently because they have no direct involvement in the e-prescribing process.

She did not believe that there were any important positives or negatives for a particular stakeholder that were missed, but she did note that sometimes clinicians like to hide information from other clinicians about what they might have prescribed, e.g. for the patient's personal privacy reasons. The results of the Delphi Study did not differ substantially from what Expert No. 1 would have expected.

Expert No. 1 identified the Meaningful Use financial incentives and the Shared Savings Program under the Affordable Care Act for ACOs as incentives for the use of e-prescribing. She noted that Employers, Payors, and Pharmacy Benefit Managers can experience lower costs where e-prescribing is employed. They have a better idea of what is being prescribed, and there can be greater use of generics, and they and the process can inform clinicians on how to reduce costs and better manage patient care, particularly in addressing cross reactions and drug side effects. Expert No. 1 cited the example of ACOs and how e-prescribing makes it easier to address the measures for population health, by keeping costs down, and achieving shared savings. She stated that in her experience with an Independent Physician Association almost ten years ago, where the physicians incorporated a pharmacist and e-prescribing into their primary care mode, that very good results were achieved. In that situation, the IPA provided financial incentives for the software needed to link the IPA physicians to the main office with the Health Information Exchange (HIE). Expert No. 1 noted that the potential value and extent of incentives for e-prescribing are that they result in better care, pride in the care provided, and better value to employers and payors.

She thought that the biggest barrier to the implementation of stakeholder incentives was patient privacy concerns. For example, a patient might not want his or her information about alcohol consumption or certain pharmaceuticals that he or she might be taking to be accessible by other clinicians. Expert No. 1 suggested that certain state laws are more restrictive on the sharing of data and privacy and one might need to obtain permission from a patient to share his or her information and this might also be a further barrier to the implementation of stakeholder incentives. Further barriers include the cost of the investment in e-prescribing technology, the cost of workflow changes, the need to keep current with the technology, and the cost of information technology support.

Expert No. 1 noted that it is important to focus on the ROI from the perspective of multiple stakeholders, not merely one stakeholder. She said positives or benefits, such as better health and population management, and better productivity should be accounted for in the ROI calculation. She also noted that having the United States government incentivize providers through Meaningful Use was probably the right thing to do. She noted that there are now negative incentives for not using certain information technologies. She declared that one might not spend the money on certain information technologies if the ROI was being considered from the perspective of only one stakeholder.

She believe that the Framework developed for e-prescribing would be generalizable to other health information technologies, whether they involved medication management, HIE software, or technology investments in super servers.

6.4.2. Expert No. 2

Expert No. 2 noted that the aspects of the Framework which he found most useful were its flexibility and that it would be helpful in analyzing many different health information technologies. He viewed the Patients/Consumers as particularly important stakeholders, along with their Families. He did not identify any stakeholders that were not identified. He believes that Employers are stakeholders which would be of much less significance than the others. He noted that they would be primarily interested in the money and the cost of the drugs, and that there is no evidence that e-prescribing will decrease the cost of drugs. It may lead to better decision making, but he did not envision pharmaceutical companies reducing their prices as a result of the implementation of e-prescribing.

He noted that the positives and negatives with respect to certain of the stakeholders might include the economic sustainability of the current healthcare system and the need for patient focus. He said that the positives and negatives identified were more around the tactical areas, not economics. Although he did not believe that the results of the Delphi Study differed substantially from what he would have expected, he did note that it was interesting that so many negatives were identified from the perspective of the physicians, and this appeared consistent with the culture in healthcare, including physicians' resistance to change. He did not think that any particular incentives for the use of e-prescribing might be viewed as particularly important, noting that a decision not to use a technology as important as e-prescribing should be made painful and immediate. He thought that e-prescribing should be mandated, along with certain other health information technologies, but not necessarily all of them. He thought that the main barrier to the implementation of stakeholder incentives was physician reluctance.

Expert No. 2 suggested that physicians do not get any real returns from using e-prescribing. They may save on pens and paper, but that is an insignificant saving. He said physicians need to spend time training their staff, and thus, paying for the e-prescribing system, and these are costs to them. He said the potential for a positive ROI resides with pharmacies. He further noted that the reason to implement e-prescribing is the benefit to Society. There will be increased speed and efficiencies and much better accuracy. Expert No. 2 noted that it is unclear whether health information technologies get at all the fundamental drivers of healthcare costs. In some instances, such technology might accelerate bad practices. This Framework should include a consideration of the economic sustainability and patient focus for any health system. He said that the Framework generated by the Study is generalizable to other health information technologies, is flexible, and useful.

6.4.3. Expert No. 3

Expert No. 3 thought that the Framework should have distinguished between e-prescribing technology used in the outpatient setting, such as Surescripts, and that used in the inpatient setting, such as EPIC, Cerner, and McKesson. She noted that the answers to the questions in the interview might be different depending upon the technology employed. Specifically, she noted that in the ambulatory setting the biggest negative is diagnostic errors, but in the inpatient setting, the biggest negative is medication errors. She stated that patients in an inpatient setting are generally the older patients. She suggested that the stakeholders that she viewed as particularly important were the Patients, Clinicians/Prescribers, and the Pharmacists. She noted that with e-prescribing, patients do not have to carry a piece of paper, but they are not looking at an electronic

health record (EHR), whereas Clinicians/Prescribers are looking at a screen and responding to many different things. She noted that one tends to think of the clinician at the front end of e-prescribing, but e-prescribing is really a medication process which involves not just ordering, but also a pharmacist. Another reason that Expert No. 3 believed that the Clinician/Prescribers were important is that they have the responsibility for Patient safety, but they are totally dependent on technology for which someone else is responsible. They assume that e-prescribing is safe and this reliance on e-prescribing as being safe is not totally justified.

She did not identify any stakeholders that she thought it would be important to include beyond the list presented, nor did she identify any positives and negatives for a particular stakeholder that she thought was missed, except that she did stress the negative from the perspective of the Clinicians/Prescribers that people are over relying on these systems, and there needs to be a better focus on the feedback loop. She did think the results of the Delphi Study would differ if there were separate focuses on the ambulatory and inpatient settings, as noted above. In her opinion, the single most important issue is bad communication. She noted there is confusion due to certain socio-technical considerations such as human computer interaction, the failure to support workflow, and the inadequacy of clinical content, e.g. the difference between what the clinician expected and what was there. Many clinicians believe that e-prescribing systems will catch their mistakes or prompt them when they are about to make a mistake.

With respect to incentives, Expert No. 3 noted that Meaningful Use is an incentive to adopt certain health information technologies, such as e-prescribing. She noted that the single most important thing one can do to have an effective e-prescribing

system is to adopt an electronic health record (EHR) in conjunction with e-prescribing. She noted that one study suggested that e-prescribing resulted in medication errors being reduced by 30%. She did not identify any barriers to the implementation of stakeholder incentives.

Expert No. 3 noted that in characterizing the ROI, given the positives and negatives accruing to multiple stakeholders, and not merely one stakeholder, that one should consider the Institute for Healthcare Improvement (IHI) Global Trigger Tool (GTT) for Measuring Adverse Events. She cited an article, entitled: "Impact of Inpatient Harms on Hospital Finances and Patient Clinical Outcomes," by Adler and colleagues. (44) The authors note: "The GTT is a standardized, 2-stage review process refined from the Harvard Medical Practice Study's methodology to identify and measure the rate of all-cause harm over time in a variety of settings." (44, p. 1) Her suggestion was that not only do we need to look at the positives and negatives accruing to multiple stakeholders in determining ROI, but also the costs of harms' impact on numerous hospital financial measures and clinical outcome measures, such as readmission rates and lengths of stay, which are reduced by identifying and avoiding more medication errors through e-prescribing. This broadening of factors considered should result in a determination of a positive ROI in many more instances. She did note that typically one looks at who is making the investment and what it means to them from an ROI perspective. She noted that it is easier to demonstrate a positive ROI in a hospital setting than in a free-standing physician's office. She noted much of the true benefits that should be in an ROI calculation are keeping people out of hospitals, and the attendant harm that they might experience there.

6.4.4. Expert No. 4

Expert No. 4 thought that the identification and rank ordering of the positives and negatives from the perspective of each stakeholder was the most useful aspect of the Framework. He noted that such recognition could help one understand what incentives might facilitate the implementation and use of e-prescribing and any funds flows. His initial reaction is that the positives associated with e-prescribing should outweigh the negatives. He considered the stakeholders that were identified as primary stakeholders to be the most important, but particularly the Patients and Clinicians. He then noted that perhaps the Payors were next in importance, particularly if they were going to be at risk for the costs of health care. He observed that other entities that might assume risk and/or be payor-like are important. He noted the blurring of the lines between providers and payors. He also thought that Policy Makers were important stakeholders. He thought Consultants were less important, particularly if this group included attorneys. He did note that Consultants and attorneys were likely to have more business in the area of advising medical practices.

He did not identify any stakeholders that were not identified and thought the list was rather exhaustive. He did not note any new positives or negatives for a particular stakeholder that might have been missed, but he stressed that one negative associated with e-prescribing from the perspective of the clinicians was that they might select the wrong patient. Expert No. 4 said the results of the Delphi Study that differed substantially from what he would have expected were the large number of negatives from the perspective of the clinicians. He said that the list seemed rather high and thought that

training on software and the possibility of having to separately prescribe controlled substances were not that significant.

Expert No. 4 noted that he viewed the Meaningful Use program as an incentive for the use of e-prescribing by clinicians. He also noted that his system's single contracting entity required all physicians to use electronic health records and related technology, and the first specific technology required was e-prescribing. He noted that the use of e-prescribing started as a financial incentive, that is—if one did not use it, it affected that individual's financial distribution. However, later, the use of e-prescribing was required if one wanted to participate in the managed care contracting network. He had no comment on the potential value and extent of any such incentives, except to note there were legal considerations. He did not identify any particular barriers to the implementation of stakeholder incentives, suggesting that if there were any, they were basically legal in nature.

He noted that the ROI from the perspective of the patient is that e-prescribing results in improved health outcomes and quality of life. He suggested that the total cost of health care for Society should be less and there should be a positive ROI, when all the stakeholders and all the positives and negatives are considered. Finally, he thought that the Framework was a good one, and that it is generalizable to other health information technologies.

6.4.5. Expert No. 5

Expert No. 5 stated that the bulk of the Framework is incredibly helpful, particularly from the policy research perspective. She noted that in the UK there were differences in e-prescribing in the ambulatory side compared to the acute side, and the

Framework appeared to be constructed with more of the ambulatory side in mind. Further, she declared that the expectations of patients are growing substantially as they do many more things online.

She thought that the stakeholders that were particularly important were the Patients and the Clinicians. She did not identify any stakeholders that were not already identified. She did believe that in the UK, suppliers, distributors, and the pharmaceutical industry were probably of less significance than the other stakeholders. She did note that the data that the UK would have from e-prescribing would not be available to the drug companies.

Expert No. 5 believed that there did not appear to be any important positives or negatives for a particular stakeholder that were missed, but she stressed that from a patient's point of view, if a patient has problems accessing/or using information technology, then that would be a negative. It would be a form of information technology illiteracy. She did not think that the results of the Delphi Study differed substantially from what she would have expected, but she did note that there were a few cultural differences.

With respect to incentives for the use of e-prescribing for the stakeholders, financial or otherwise, Expert No. 5 noted that the only incentive needed was clinician-buy in. She also noted that there were local considerations. She stated that there needs to be better communication and a cultural change among the physicians. Thus, these appeared to be barriers to implementation.

Given that the UK cannot sustain its rate of growth in healthcare spending, Expert No. 5 noted that it will be necessary to adopt health information technologies to improve

quality and reduce costs. Clinicians will still have to have the data and if they do not use information technologies, they will have to do much additional work to obtain it. The prospect of this additional work should cause them to adopt information technologies. She believes much of the potential value of the incentives is that they should result in more data being available and better quality care provided in a more cost-effective manner. In addition, she noted that patients are driving much of the change with their desire for additional information and their familiarity with all things online.

With respect to the characterization of ROI, given the positives and negatives accruing to multiple stakeholders, and not merely one stakeholder, Expert No. 5 noted that the NHS is poor. Although it traditionally has been handed the necessary funding, this is changing and it will be necessary to have the expertise required to consider the ROI from the perspective of multiple stakeholders, not just the NHS itself. Major considerations in any ROI calculations should be the applicable benefits of the information technology, IT safety, and it contribution to quality. These might be viewed as higher level benefits.

Finally, Expert No. 5 did believe that although the Delphi Study used e-prescribing as an example of a health information technology, that the Framework would be generalizable to other health information technologies, noting, however, that other technologies might be somewhat more difficult to study. However, she did note that the focus is shifting, e.g. to payment for quality and cost-effectiveness, and thus, these types of analyses are quite valuable.

6.4.6. Summary Analysis of Framework Expert Interviews

Most of the Framework Experts thought that the Framework was useful and/or helpful. They cited the value of the identification and rank ordering of the positives and negatives from the perspective of the stakeholders, its usefulness in analyzing different informatics technologies, its flexibility, and value from a policy perspective. Two Framework Experts though it might have been better to distinguish between e-prescribing in an ambulatory from a hospital setting. Although the Delphi Experts were provided a hypothetical definition of e-prescribing in their questionnaire, the Framework Experts were not. Given this comment, it would be better in future research to provide a definition of whatever health information technology might be involved. We did provide a definition to one of the Framework Experts who requested it before her interview.

Generally, Patients were cited as the most important stakeholders, followed by Clinicians, and then Pharmacists. One Framework Expert stressed the importance of Patients' Families. No Framework Experts identified any new stakeholders, and they did not really identify any new positives and negatives form the perspective of the stakeholders, but one Framework Expert stressed the importance of considering economic sustainability of the current healthcare system, while another one noted the issue of information technology illiteracy.

Except for the observation that perhaps the results of the Delphi Study might be different if one was analyzing an ambulatory, rather than an inpatient e-prescribing system, the Framework Experts did not believe that the results of the Study were different than what they would have expected, except for perhaps the large number of negatives from the perspective of the Clinicians. There may have been a bias in the Study because the Delphi Experts that were identified were generally academic researchers, PhDs,

physicians and those in industry who do research in various areas of health information technology. Much of this research seems to center on the perspective of the Clinician, and as such, many more negatives associated with e-prescribing from the perspective of the Clinicians might have been identified.

Interestingly, the Framework Experts did not identify many incentives for e-prescribing, whether financial or otherwise. Some noted the Meaningful Use incentives, others noted potential financial incentives. One noted the importance of having an EHR coupled with e-prescribing. A few believed that certain health information technologies, such as e-prescribing needed to be mandated. The Framework Experts noted as barriers to the implementation of certain incentives and/or e-prescribing patient privacy concerns, costs (such as the investment in the technology, workflow changes, keeping the technology current and IT support), and physician resistance/reluctance. The need for data and patient demands were cited as factors that would facilitate e-prescribing implementation.

The Framework Experts agreed that all stakeholders and all positives and negatives should be considered in developing an ROI, but one Framework Expert suggested that the ROI would be best for pharmacies. This same Framework Expert suggested that the benefit of e-prescribing and certain other health information technologies inures primarily to Society and the overall healthcare system. The result should be improved health outcomes and quality of life. Some of the Framework Experts believed that it is important to expand the considerations in determining an ROI, such as considering the value of better health, population management, better productivity, greater safety, better quality, and better health outcomes. All the Framework Experts

believed that the Framework is generalizable to other health information technologies, depending upon the nature of those technologies.

7. Chapter Seven: Discussion

7.1. Statement of Principal Findings

A Framework was created from the Delphi Study which identifies stakeholders and positives and negatives associated with health information technologies, such as e-prescribing, from the perspective of each stakeholder and rank ordered, such that the Framework created from the results of the Delphi Study will be useful to payors, policy makers/legislators and those who influence public policy, particularly in the transition from fee-for-service based systems to those based on payment for quality and cost-effectiveness. The Framework Experts believed that the Framework was useful and generalizable to other health information technologies.

7.2. Strengths and Weaknesses of the Study

7.2.1. Strengths—Delphi experts were identified through a comprehensive literature review. Those in the United States known to the Principal Investigator were contacted for possible participation as a global Delphi Expert. The PhD Candidate approached the international contacts for possible participation as a global Delphi Expert.

A structured survey was used. The Delphi Experts were not advised of the identity of the other Delphi Experts. Thus, they were anonymous as such experts generally are in a traditional Delphi Study.

There were three rounds in this Delphi Study: the Brainstorming Round, the Narrowing Round, and the Finalizing Round. In the First Round, the stakeholders that were identified though the literature review and the positives and negatives, randomized

by the survey instrument, from the perspective of each of the stakeholders, were presented to the Delphi Experts. After completing the First Round, the Second Round Delphi Experts received controlled feedback in the form of the Second Round questionnaire, which had the positives and negatives rank ordered from the perspective of each of the stakeholders presented in Round One, except for the positives and negatives associated with the newly identified stakeholders. The Round Two Delphi Experts were invited to re-rank order the positives and negatives from the perspective of each stakeholder. The Third Round Delphi Experts reviewed this controlled feedback in the form of the Third Round questionnaire. Thus, this form of Delphi encouraged true debate.

Weaknesses—This Delphi study, like others, did not provide statistically significant results. The initial list of stakeholders and positives and negatives were determined by the PhD Candidate through a literature search. The ideas generated through this study are summary measures and are not truly a consensus statement. There were a limited number of both Delphi and Framework Experts.

7.3. Strengths and weaknesses in relation to other studies, discussing particularly any differences in results.

7.3.1. Strengths—Much research does not identify all the stakeholders and all the positives and negatives from the perspective of each stakeholder as this study attempts to do. In addition, many research studies are limited to the costs and benefits associated with the implementation of informatics technologies in a particular setting, not generally. The costs of e-prescribing systems can vary dramatically, and trying to

quantify the costs is in certain other studies may be less helpful than rank ordering the positives and negatives from the perspective of each stakeholder.

Most studies work from the assumption of a fee-for-service system, which is increasingly less relevant as the United States healthcare system moves to pay for quality and performance in a cost-effective manner. Further in their zeal to try to develop a return on investment analysis, many other studies do not recognize the need for physicians to have access to clinical information to manage care in a patient-centered medical home model and to function in a world of population health management and value-based payment.

This research effort does not focus on higher billings and increased reimbursement which may be beneficial in a fee-for-service world, but does not lead to higher quality services in a cost-effective manner. This research effort seeks to empower payors, integrated delivery systems, policy makers/legislators and those who influence public policy to judge for themselves the financial effects of the adoption of health information technologies, such as e-prescribing, and to have a basis to determine their own ROI with all or part of the applicable stakeholders and the positives and negatives associated with e-prescribing from the perspective of those stakeholders.

7.3.2. Weaknesses—This research does not focus on a specific system. It does not quantify any of the positives and negatives of e-prescribing. It presents a conceptual framework that is only a starting point for payors, integrated delivery systems, policy makers/legislators and those who influence public policy. No specific data is used.

7.3.3. Meaning of the study: possible mechanisms and implications for clinicians or policy makers.

The study provides a framework for payors, integrated delivery systems, policy makers/legislators and those who influence public policy, particularly in the transition of healthcare systems from fee-for-service based to systems based on payment for quality and cost-effectiveness. This study emphasizes that the positives and negatives associated with e-prescribing affect multiple stakeholders and in different ways. Thus, the traditional incentives, financial or otherwise, may not be sufficient to facilitate implementation and use of e-prescribing systems. It is important to consider all the stakeholders and the importance of the positives and negatives from the perspective of each stakeholder if a payor, integrated delivery system, policy maker/legislator or those who influence public policy are going to try to design incentives, financial or otherwise, in the context of pay for performance or pay for quality and cost-effectiveness.

7.3.4. Unanswered questions and future research

This research area is embryonic. Most research seems to assume a fee-for-service world. In addition, most research does not appear to consider all the stakeholders and all the positives and negatives associated from the perspective of each stakeholder.

The following questions might be considered. What are the many ways that payors, integrated delivery systems, policy makers/legislators and those who influence public policy might use this information to design incentives, financial or otherwise, for stakeholders to embrace health information technologies, such as e-prescribing? Can this e-prescribing research be applied to other health information technologies? Will the rank order truly be the order of individual stakeholders in an individual market? What might be the incentives? How might they differ?

Additional research efforts might include qualitative research in a specific market with specific stakeholders who might rank order different health information technologies from their perspective. Research efforts might address the quantification of the positives and negatives where possible in the context of a system. A focus might be on research for system-wide ROI. Further, research efforts focusing on the identification of incentives, financial or otherwise, and their nature and extent could be helpful.

Research might also focus on measuring the value of harm reduction, reduced LOS, mortality, and readmission rates. In addition, better attempts to measure physician productivity are warranted, along with the quality of care provided, and better health outcomes. Many may posit that the measurement of such things is difficult, if not impossible. However, Hubbard states: "All important decision makers could benefit from learning that anything they really need to know is measureable." (135, p. xv) He also stated that "we should care about measurement because it informs key decisions." (135, p. 7) Thus, additional research might be conducted in how to measure such positives and negatives.

Most interesting, however, may be his comments in discussing how to measure the value of information technologies. He noted:

> I sometimes hear Chief Information Officers (CIOs) ask how to measure the value of information technology. I ask, "Why are you considering getting rid of it?" All valuation problems in business or government are about a comparison of alternatives. If you were to attempt to compute the value of IT for a company, you would presumably have to compare it against the costs and benefits of not having IT. So unless you are really considering doing without IT (or whatever you want to know the value of), the question is irrelevant.

Given, this observation, another area of further research might be the comparison of the costs and benefits associated with the use of paper prescribing compared to e-prescribing, however, not in the context of the current fee-for-service system, but in a payment for quality and cost-effectiveness model.

Perhaps the need for HIT is essential to implementing payment for quality and cost-effectiveness models. In addition, perhaps such implementation should not be subject to traditional ROI models. Finally, perhaps system-wide and/or society-wide stakeholders and the positives and negatives associated with them should be considered.

8. Conclusion

The three round Delphi Study, Brainstorming, Narrowing, and Finalizing Rounds resulted in achieving much consensus. Additional stakeholders for e-prescribing were identified, along with additional positives and negatives with respect to certain of the stakeholders from their perspective. In a number of instances, a substantial number of new positives and negatives were cited by the Delphi Experts, suggesting that the Delphi process worked. The Narrowing and Finalizing Rounds demonstrated that the global Delphi Experts from around the globe reached much consensus in rank ordering the positives and negatives.

Disparate Framework Experts found the Framework was useful and comprehensive. They primarily focused on the importance of the patients and clinicians. They were not surprised by the findings. They recognized the importance of incentives, but had differing views on them. Some suggested that the use of certain health information technologies should just be mandatory. They thought that physician reluctance to change was a barrier to the implementation of incentives and health

information technologies. They noted that it is not possible to fully participate in today's payment for quality and cost-effectiveness models without access to health information technologies, such as e-prescribing, and that any ROI calculations should include all applicable stakeholders and the positives and negatives. Perhaps, most importantly, they all thought that the Framework was generalizable to other health information technologies.

9. References

1. Dalkey N, Helmer O. An experimental application of the Delphi Method to the use of experts. Manage Sci 1963 Apr;9(3):458-67.

2. Dalkey NC. The Delphi Method: an experimental study of group opinion. Santa Monica, CA: RAND 1969 Jun.

3. Okoli C, Pawlowski SD. The Delphi Method as a research tool: an example, design considerations and applications. Inform & Manage 2004 Dec;42(1):15-29.

4. Cusack CM. Electronic health records and electronic prescribing: promises and pitfalls. Obstet Gynecol Clin Am 2008;35(1):63-79

5. Halamka J, Aranow M, Ascenzo C, Bates D, Berry K, Debor G, et al. E-Prescribing collaboration in Massachusetts: early experiences from regional prescribing projects. J Am Med Inform Assoc 2006;13:239-44.

6. Sittig DF, Wright A, Ash JS, Middleton B. A set of preliminary standards recommended for achieving a national repository of clinical decision support interventions. AMIA Annu Symp Proc 2009;614-18.

7. Lapane KL, Waring ME, Dube C, Schneider KL. E-Prescribing and patient safety: Results from a mixed method study. Am J Pharm Benefits 2011;3(2):e24-e34.

8. Cooke CE, Isetts, BJ, Sullivan TE, Fustgaard, M, Belletti DA. Potential value of electronic prescribing in health economic and outcomes research. Patient Relat Outcome Meas 2010 Jul;1:163-78.

9. Wacker RC. The Promise – and the Reality of ePrescribing. Annual Meeting of the California ePrescribing Consortium (CaleRx); 2010 Nov 9; Oakland, California.

10. Teich JM, Osheroff JA, Pifer EA, Sittig DF, Jenders RA. Clinical decision support in electronic prescribing: recommendations and an action plan. J Am Med Inform Assoc 2005;12(4):365-76.

11. Duffy RL, Yiu SSA, Molokhia E, Walker R, Perkins RA. Effects of electronic prescribing on the clinical practice of a family medicine residency. Fam Med 2010; 42(5):358-63.

12. Poon EG, Jha AK, Christino M, Honour MM, Fernandopulle R, Middleton B, et al. Assessing the level of healthcare information technology adoption in the United States: a snapshot. BMC Med Inform Decis Mak 2006 Jan 5; 6:1. Available from: URL:http://link.springer.com//article/10.1186%2F1472-6947-6-1#page-1

13. Schade CP, Sullivan FM, de Lusignan S, Madeley J. e-Prescribing, efficiency, quality: lessons from the computerization of UK family practice. J Am Med Inform Assoc 2006 Sep/Oct;13(5):470-475.

14. Alder-Milstein J, Daniel G, Grossman C, Mulvany C, Nelson R, Pan E, et al. Return on Information: A standard model for assessing institutional return on electronic health records. Institute of Medicine of the National Academies. 2013 Jan 6;1-21.

15. Wang SJ, Middleton B, Prosser LA, Bardon CG, Spurr CD, Carchidi PJ et al. A cost-benefit analysis of electronic medical records in primary care. Am J Med 2003 Apr 1;114(5):397-403.

16. Fischer MA, Vogeli C, Stedman M, Ferris T, Brookhart, MA, Weissman JS. Effect of electronic prescribing with formulary decision support on medication use and cost. Arch Intern Med 2008 Dec;168(22): 2433-39.

17. Shah S, Kaelber DC, Vincent A, Pan EC, Johnson D, Middleton B. A cost model for personal health records (PHRs). AMIA Annu Symp Proc 2009;657-61.

18. Johnston D, Kaelber D, Pan EC, Bu D, Shah S, Hook JM, Middleton B. A framework and approach for assessing the value of personal health records (PHRs). AMIA Annu Symp Proc 2007;374-78.

19. Byrne CM, Mercincavage LM, Pan EC, Vincent AG, Johnston DS, Middleton B. The value from investments in health information technology at the U.S. Department of Veteran Affairs. Health Aff 2010;29(4):629-38.

20. Cusack CM, Pan E, Hook JM, Vincent A, Kaelber DC, Middleton B. The value proposition in the widespread use of telehealth. J of Telemed Telecare 2008;14:167-68.

21. Kaushal R, Jha AK, Franz C, Glaser J, Shetty KD, Jaggi T, et al. Return on investment for a computerized physician order entry system. J Am Med Inform Assoc 2006 May-Jun;13(3): 261-66.

22. Pan E, Cusack CM, Hook JM, Middleton B. Cost of interconnecting health information exchanges to form a national network. AMIA Annu Symp Proc 2007;583-87.

23. Walker J, Pan E, Johnston D, Adler-Milstein J, Bates DW, Middleton B. The value of health care information exchanges and interoperability. Health Aff 2005 Jan 19:w5-10-w-5-18.

24. Sprivulis P, Walker J, Johnston D, Pan E, Adler-Milstein J, Middleton B, Bates DW. The economic benefits of health information exchange interoperability for Australia. Aust Health Rev 2007 Nov;31(4):531-39.

25. Kaushal R, Blumenthal D, Poon EG, Jha AK, Franz C, Middleton B, et al. The costs of a national health information network. Ann Intern Med 2005 Aug 2;143(3):165-73.

26. Middleton B. Achieving U.S. health information technology adoption: the need for a third hand. Health Aff 2005 Sept/Oct;24(5):1269-72.

27. Health Resources and Services Administration. Health information technology and quality improvement what are some of the benefits of e-prescribing? U.S. Department of Health and Human Services. Available from: URL:http://www.hrsa.gov/healthit/toolbox/HealthITAdoptiontoolbox/ElectronicPrescribing/benefitsepres.html

28. Centers for Medicare & Medicaid Services. Electronic prescribing (eRx) incentive program. Available from: URL:http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/ERxIncentive/index.html?redirect=/ERXIncentive/

29. Successfully Navigating the Centers for Medicare & Medicaid (CMS) Electronic Prescribing Incentive Program. American Academy of Otolaryngology – Head and Neck Surgery. Available from: URL:http://www.entnet.org/Practice/upload/Final-EHR_FactSheet.pdf

30. Surescripts. CMS e-Prescribing incentives MIPPA incentive program. 2009 Dec. Available from: URL:http://www.surescripts.com/about-e-prescribing/incentive-programs

31. E-prescribing system increases generic usage. Managed Care Magazine Online. 2009 Jan. Available from: URL: http://www.managedcaremag.com/archives/0901/0901.formfiles.html

32. RAND Health. Electronic prescribing systems making it safer to take your medicine? Research Highlights. 2005. Available from: URL:

http://www.rand.org/content/dam/rand/pubs/research_briefs/RB9052/RAND_RB9052.pdf

33. Marceglia M, Mazzola L, Bonacina S, Tarquini P, Donzelli P, Pinciroli F. A comprehensive E-prescribing model to allow representing, comparing, and analyzing available systems. Methods Inf Med 2013;52:199-219.
34. Black AD, Car J, Pagliari C, Anandan C, Cresswell K, Bokun T, et al. The impact of eHealth on the quality and safety of health care: a systematic overview. PLoS Med 2011 Jan; 8(1):e1000387, doi:10.1371/journal.pmed.1000387.
35. Balfour DC, Evans S, Januska J, Lee HY, Lewis SJ, Nolan SR, et al. Health information technology−results from a roundtable discussion. J Manag Care Pharm 2009 Jan-Feb;15(1)(Suppl S-a):S10-S17.
36. Ammenwerth E, Schnell-Inderst P, Machan C, Siebert U. The effect of electronic prescribing on medication errors and adverse drug events: a systematic review. J Am Med Inform Assoc 2008 Sep/Oct;15(5):585-600
37. 42 C.F.R. section 495.6 (July 28, 2010)
38. 21 C.F.R. section 1311 (March 31, 2010)
39. Federal Register, 716, no. 202, p.64813-64816 (October 19, 2011)
40. DeMuro PR. E-prescribing and quality and cost benefit metrics. Electronic Healthcare Law Review. 2013 Nov;3(2):9-19.
41. Zhou L, Soran CS, Jenter CA, Volk LA, Orav EJ, Bates DW, et al. The relationship between electronic health record use and quality of care over time. J Am Med Inform Assoc 2009;16:457-64.
42. Bell, DS, Marken RS, Meili RC, Wang CJ, Rosen M, Brook RH, et al. Recommendations for comparing electronic prescribing systems: results of an expert consensus process. Health Affairs Project Hope. 2004 May 25; W4-305-16. DOI 10.1377/hlthaff.W4.305 Available at: URL:http://content.healthaffairs.org/content/early/2004/05/25/hlthaff.w4.305
43. Cutler, DM, Feldman, NE, Horwitz JR. U.S. adoption of computerized physician order entry systems. Health Affairs Project Hope. 2005 Nov/Dec;24(6):1654-63.
44. Adler L, Yi D, Li M, McBroom B, Hauck L, Sammer C, et al. Impact on inpatient harms on hospital finances and patient clinical outcomes. J Patient Saf 2015 Mar 23;00[00]:1-7.
45. Menachemi N, Yeager VA, Welty E, Mazella B. Are physician productivity and quality of care related? J Healthcare Quality 2015 Mar/Apr;37(2):93-101.
46. A prescription for e-prescribers: getting the most out of electronic prescribing. HealthIT.gov. Available from: URL:

http://www.healthit.gov/providers-professionals/prescription-e-prescribers-getting-most-out-electronic-prescribing

47. Cuhls K. Delphi Method, Abstract. Germany: Fraunhofer Institute for Systems and Innovation Research. 93-113. Available from: URL: http://www.unido.org/fileadmin/import/16959_DelphiMethod.pdf

48. Skulmoski GJ, Hartman FT. The Delphi Method for graduate research. J Int Tech Ed 2007;6:1-21.

49. Gordon TJ. The Delphi Method. The Millennium Project. Futures Research Methodology—V3.0; 1-29.

50. Cantrill JA, Sibbald B, Buetow S. The Delphi and nominal group techniques in health services research. Int J of Pharm Pract 1996 Jun;67-74.

51. Jones J, Hunter D. Consensus methods for medical and health services research. BMJ 1995 Aug 5;311:376-80.

52. Lindstone HA, Turoff M, editors. The Delphi Method techniques and applications. 2002.

53. Al-Busaidi ZQ. Qualitative research and its uses in health care. Sultan Qaboos Univ Med J 2008 Mar;8(1):11-19.

54. Lam SSY, Petri KL, Smith AE. Prediction and optimization of a ceramic casting process using a hierarchical hybrid system of neural networks and fuzzy logic. IIE Trans 2000 Jan;32(1):83-91

55. Rowe G, Wright G. The Delphi technique as a forecasting tool: issue and analysis. Int J Forecast 1999;15:353-75.

56. Murphy MK, Black NA, Lamping DL, McKee CM, Sanderson CF, Askham J, et al. Consensus development methods, and their use in clinical guideline development. Health Technol 1998 Mar;2(3):1-88.

57. Kahan JP, Bernstein SJ, Leape LL, Hilborne LH, Park RE, Parker L, et al. Measuring the necessity of medical procedures. Medical Care 1994;32(4):357-65.

58. Wang CJ, Marken RS, Meili RC, Straus JB, Landman AB, Bell DS. Functional charateristics of commercial ambulatory electronic prescribing systems: a field study. J A Med Inform Assoc 2005;12:346-45.

59. Schmidt RC, Lyytinen K, Keil M, Cule P. Identifying software project risks: An international Delphi study. J Manage Inform Sys 2001;17(4):5-36.

60. Schmidt RC. Managing Delphi surveys using nonparametric statistical techniques. Decision Sciences. 1997 Summer;28(3):763-74.

61. Powell C. The Delphi technique: myths and realities. J of Advanced Nursing 2003;41(4):376-82.

62. Chin J, Sato PA, Mann JM. Projections of HIV and AIDS cases to the year 2000. Bull World Health Org 1990;68(1):1-11.

63. Beers MH, Ouslander JG, Rollingher I, Reuben DB, Brooks J, Beck JC. Explicit criteria for determining inappropriate medication use in nursing home residents. Arch Intern Med 1991 Sep;151:1825-32.

64. Campbell SM, Cantrill JA, Roberts D. Prescribing indicators for UK general practice: Delphi consultation study. BMJ 2000 Aug 15;321:1-5

65. Engels Y, Campbell S, Dautzenberg M, Van Den Hombergh P, Brinkmann H, Szécsényi J, et al. Developing a framework of, and quality indicators for, general practice management in Europe. Fam Pract 2005 Feb;22(2);215-22.

66. Elwyn G, O'Connor A, Stacey D, Volk R, Edwards A, Coulter A et al. Developing a quality criteria framework for patient decision aids: online international Delphi consensus process. BMJ doi:10.1136/bmj.38926.629329.AE 2006 Aug 14.

67. Cresswell KM, Slee A, Coleman J, Williams R, Bates DW, Sheikh A. Qualitative analysis of round-table discussions on the business case and procurement challenges for hospital electronic prescribing systems. PloS One 2013 Nov;8(11):e79394.

68. Corley ST. Electronic prescribing: a review of costs and benefits. Top Health Inform Manage 2003;24(1):29-38.

69. Thompson D, Velasco F, Classen D, Raddemann RJ. Reducing clinical costs with an EHR. Healthc Financ Manage 2010 Oct;64(10):106-14.

70. Adler-Milstein J, Green CE, Bates DW. A survey analysis suggests that electronic health records will yield revenue gains for some practices and losses for many. Health Aff 2013 Mar;32(3):562-70.

71. Moore KD, Eyestone K, Coddington DC. Costs and benefits of EHRs: a broader view. Healthc Financ Manage 2013 Apr;126-28.

72. Abelson R, Creswell J. In second look, few savings from digital health records. The New York Times. 2013 Jan 10. Available from: URL: http://www.nytimes.com/2013/01/11/business/electronic-records-systems-have-not-reduced-health-costs-report-says.html?_r=0

73. Karimbux NY. Costs and benefits of an electronic health record. J of Dental Educ 2013 Apr;391.

74. Cross M. Experts question size of savings from NHS going "paperless". BMJ 2013 Jan;346:f438.

75. Himmelstein DU, Wright A, Woolhandler S. Hospital computing and the costs and quality of care: a national study. Am J Med 2010 Jan;123(1):40-46.

76. McLean TR, Richards EP. Letter to the Editor. Electronic medical records and economics. Am J Med. Available from: URL: http://dx.doi.org/10.1016/j.amjmed.2009.12.026

77. Sidorov J. It ain't necessarily so: the electronic health record and the unlikely prospect of reducing health care costs. Health Aff 2006 Jul;25(4):1079-85.

78. Roth CP, Lim Y, Pevnick JM, Asch SM, McGlynn EA. The challenge of measuring quality of care from the electronic health record. Am J Med Qual 2009 Sep/Oct;24(5):385-94.

79. Hillestad R, Bigelow J, Bower A, Girosi F, Meili R, Scoville R, Taylor R. Can electronic medical records systems transform health care? Potential health benefits, savings, and costs. Health Aff 2005 Sep/Oct;24(5):1103-17.

80. Kellermann AL, Jones SS. What it will take to achieve the as-yet-unfulfilled promises of health information technology. Health Aff 2013 Jan;32(1):63.68.

81. Goodman C. Savings in electronic medical record systems? Do it for the quality. Health Aff 2005 Sep/Oct;24(5):1124-26.

82. Goldberg DG, Kuzel AJ, Feng LB, DeShazo JP, Love LE. EHRs in primary care practices: benefits, challenges, and successful strategies. Am J Manag Care 2012 Feb;18(2):e48-e54.

83. Archer N, Fevrier-Thomas U, Lokker C, McKibbon KA, Straus SE. Personal health records: a scoping review. J Am Med Inform Assoc 2001;18:515-22.

84. Gallego AI, Gagnon MP, Desmartis M. Assessing the cost of electronic health records: a review of cost indicators. Telemed J E Health 2010 Nov;16(9):963-72.

85. Chaudhry B, Wang J, Wu S, Maglione M, Mojica W, Roth E et al. Systematic review: impact of health information technology on quality, efficiency, and costs of medical care. Ann Intern Med 2006 May 16;144(10):742-52.

86. Uslu AM, Stausberg J. Value of the electronic patient record: an analysis of the literature. J Biomed Inform 2008;41:675-82.

87. Goldzweig CL, Towfigh A, Maglione M, Shekelle PG. Costs and benefits of health information technology: new trends from the literature. Health Aff 2009 Jan 27;28(2):w282-93.

88. Ovretveit J, Scott T, Rundall TG, Shortell SM, Brommels M. Improving quality through effective implementation of information technology in healthcare. Intern J for Qual in Health Care 2007 Aug 23;9(5):259-66.

89. Walker JM. Electronic medical records and health care transformation. Health Aff 2005 Sep/Oct;24(5):1118-20.

90. Goldschmidt PG. HIT and MIS: implications of health information technology and medical information systems. Comm ACM 2005 Oct;48(10):69-74.

91. Bowman S. Impact of electronic health record systems on information integrity: quality and safety implications. Perspect Health Inf Manag 2013 Fall;1-19

92. Bates DW. The quality case for information technology in healthcare. BMC Med Inform Decis Mak 2002;2:7.

93. Grossman JM, Gerland A, Reed MC, Fahlman C. Physicians' experiences using commercial e-prescribing systems. Health Affairs Project Hope. 2007 Apr 3;W393-404. DOI 10.1377/hlthaff.26.3.w393. Available from: URL:http://content.healthaffairs.org/content/26/3/w393.full.pdf+html

94. Eslami S, Abu-Hanna A, de Keiser NF. Evaluation of outpatient computerized physician medication order entry systems: a systematic review. J Am Med Inform Assoc 2007 Jul/Aug;14:400-06.

95. Yong PL, Olsen LA, McGinnis JM. Roundtable on Evidence-Based Medicine, Institute of Medicine. Value in health care: accounting, for cost, quality, safety, outcomes, and innovations: workshop summary. Washington, DC. The National Academics Press. 2012.

96. Menachemi N, Brooks RG. Reviewing the benefits and costs of electronic health records and associated patient safety technologies. J Med Syst 2006 Apr;30(3):159-168.

97. Dobrev A, Stroetmann KA, Stroetmann VN, Artmann J, Jones T, Hammerschmidt R. EHR Impact European Commission, DG INFSO & Media Report on the conceptual framework of interoperable electronic health record and ePrescribing systems. 2008 Apr; Communications and Technology Research. Bonn, Germany

98. Menachemi N, Collum TH. Benefits and drawbacks of electronic health record systems. Risk Management and Healthcare Policy. 2011;4:47-55.

99. Johnston D, Pan E, Walker J, Bates DW, Middleton B. The value of computerized provided order entry in ambulatory settings. Center for Information Technology Leadership. 2003 Partners Healthcare System. Wellesley, MA.

100. A Report of the Electronic Prescribing Initiative eHealth Initiative, Electronic prescribing toward maximum value and rapid adoption recommendations for optimal design and implementation to improve care, increase efficiency and reduce costs in ambulatory care. 2004 Apr 14; Washington, DC.

101. Wang T, Biedermann S. Running the numbers on an EHR applying cost-benefit analysis in EHR adoption. J of AHIMA 2010 Aug;81(8):32-36.

102. Page D. IT's return on investment is tricky to pin down. Hosp Health Netw 2010 Jun; 84(6):38-40.

103. Aita S. Implementing an EHR with ROI in mind. J Med Pract Manage 2008 Jan/Feb;23(4):244-6.

104. Zlabek JA, Wickus JW, Mathiason MA. Early cost and safety benefits of an inpatient electronic health record. J Am Med Inform Assoc 2011;18:169-72.

105. Bassi J, Lau F. Measuring value for money: a scoping review on economic evaluation of health information systems. J Am Med Inform Assoc 2013;20:792-801.

106. Kuperman GJ, Gibson RF. Computer physician order entry: benefits, costs, and issues. Ann Intern Med 2003;139:31-39.

107. Smyth R. Exploring the usefulness of a conceptual framework as a research tool: A researcher's reflections. IIER. 2004;14:1-11.

108. Reichel M, Ramey MA, editors. Conceptual Frameworks for bibliographic education: theory into practice. Littleton, Colorado: Libraries Unlimited Inc. 1987.

109. Guba EG, Lincoln YS. Fourth Generation Evaluation. Sage Publications. 1989.

110. Mason J, Waywood A. The role of theory in mathematics education and research. In Bishop AJ, Clements K, Keitel C, Kilpatrick J, Laborde C, editors. International handbook of Mathematics education. Netherlands: Kluwer Academic 1996;1055-89.

111. Donabedian A, Wheeler JRC, Wyszewianski L. Quality, cost, and health: an integrative model. Med Care 1982 Oct;20(10):975-92.

112. Clarkson ME. A stakeholder framework for analyzing and evaluating corporate social performance. Acad Manage Rev 1995 Jan;20(1):92-117.

113. Vincent C, Taylor-Adams S, Stanhope N. Framework for analysing risk and safety in clinical medicine. BMJ 1998 Apr 11;316:1154-7.

114. Bacon CJ, Fitzgerald B. A systemic framework for the field of information systems. The DATA BASE for Advances in Information Systems. 2001 Spring;32(2):46-67.

115. Kushniruk AW, Bates DW, Bainbridge M, Househ MS, Borycki EM. National efforts to improve health information system safety in Canada, The United States of America and England. Internet J of Med Inform 2013;82:e149-e160. Available from: URL:http://ac.els-cdn.com.liboff.ohsu.edu/S138650561200247X/1-s2.0-

S138650561200247X-main.pdf?_tid=5031d764-b64b-11e4-98d9-00000aab0f26&acdnat=1424139711_ebc2a6bb565fb74178bb2bdaf9fca15a

116. Yusof MM, Kuljis J, Papazafeiropoulou A. Stergioulas LK. An evaluation framework for health information systems: human, organization and technology-fit factors (HOT-fit). Int J of Med Inform 2008;77:386-98.

117. Angst CM, Agarwal R. Electronic health records: will privacy concerns hinder adoption? Research Briefing Center for Health Information and Decision Support Systems Decision and Information Technologies. University of Maryland Robert H. Smith School of Business 2006 Fall;1(1A);1-4.

118. Westbrook J, Braithwaite J, Georgiou A, Ampt A, Creswick N, Coiera E, et al. Multimethod evaluation of information and communication technologies in health in the context of wicked problems and sociotechnical theory. J Am Med Inform Assoc 2007 Nov 1;14(6):746-55.

119. Westbrook JI, Braithwaite J, Iedema R, Coiera EW. Evaluating the impact of information communication technologies on complex organizational systems: a multi-disciplinary, multi-method framework. MedInfo 2004.

120. Bassi J, Lau F, Lesperance M. Perceived impact of electronic medical records in physician office practices: a review of survey-based research. Interact J Med Res 2012;1(2):e3.

121. Stroetmann KA, Middleton B, editors. Draft Policy Brief: Policy needs and options for a common transatlantic approach toward measuring adoption, usage and benefits of eHealth. ARGOS. Transatlantic Methods for Handling Global Challenges in the European Union and the United States. 2011 May 11; Bonn, Germany.

122. Girosi F, Meili R, Scoville R. Extrapolating evidence of health information technology savings and costs. RAND 2005. Santa Monica, California.

123. European Commission Directorate General Information Society. Study on the legal framework for interoperable eHealth in Europe. National Profile Sweden SMART 2007/0059. Brussels, Belgium.

124. Safran C, Bloomrosen M, Hammond WE, Labkoff S, Markel-Fox S, Tang P et al. Toward a national framework for the secondary use of health data: an American Medical Informatics Association white paper. J Am Med Inform Assoc 2007 Jan/Feb;14(1):1-9.

125. The Joint Commission. Measuring hand hygiene adherence: overcoming the challenges. The Joint Commission 2009. Oakbrook Terrace, Illinois.

126. Rudin RS, Jones SS, Shekelle P, Hillestad RJ, Keeler EB. The value of health information technology: filling the knowledge gap. Am J Manag Care 2014 Nov;20(11 Spec No. 17):eSP1-eSP8.

127. Bell DS, Cretin S, Marken RS, Landman AB. A conceptual framework for evaluating outpatient electronic prescribing systems based on their functional capabilities. J Am Med Inform Assoc 2004 Jan-Feb;11(1):60-70.

128. Porterfield A, Engelbert K, Coustasse A. Electronic prescribing: improving the efficiency and accuracy of prescribing in the ambulatory care setting. Perspect Health Info Manag 2014 Apr 1;1-13. Available from: URL:http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3995494/

129. Minichiello V, Sullivan G, Greenwood KM, Axford R, editors. Handbook for research methods in health sciences. 1999 Melbourne: Longman.

130. Berwick DM. Part 5: Payment by capitation and the quality of care. N Engl J Med 1996 Oct 17;335(16):1227-31.

131. Robinson JC, Casalino LP, Gillies RR, Rittenhouse DR, Shortell SS, Fernandes-Taylor S. Financial incentives, quality improvement programs, and the adoption of clinical information technology. Med Care 2009 Apr;47(4):411-17.

132. DeAngelis D, Polakoff PL, Fish M, Landau J. The great divide: how payers and physicians view value-based arrangements. FTI Journal. 2014 Sep: Available from: URL:http://ftijournal.com/article/the-great-divide

133. Riskin L, Koppel R, Riskin D. Re-examining health IT policy: what will it take to derive value from our investment? J Am Inform Assoc 2015;22:459-64.

134. Howley MJ, Chou EY , Hansen N, Dalrymple PW. The long-term financial impact of electronic health record implementation. J Am Med Inform Assoc 2015 Mar;22(2):443-52.

135. Hubbard DW. How to measure anything finding the value of the "intangibles" in business. 3rd ed. New Jersey: John Wiley & Sons; 2007.

10. Appendices

Appendix A — One form of Round One, The Brainstorming Round Questionnaire

Appendix B — Round Two, The Narrowing Round Questionnaire

Appendix C — Round Three, The Finalizing Round Questionnaire

Appendix D — Usefulness of E-prescribing Framework

APPENDIX A

Questionnaire One: Brainstorming

Introduction

Dear Delphi Expert:

Thank you for taking time to complete this questionnaire on the stakeholders and the quality/benefits/positive effects and costs/negative effects of e-prescribing from the perspective of each stakeholder, and rank-ordering them.

For the purposes of this questionnaire, e-prescribing is defined as a "closed-loop system, which the entire process of prescribing a medication is electronic from beginning to end." For the purposes of responding to this questionnaire, the functions of the e-prescribing system include computerized prescribing associated with clinical decision support (such as drug-drug and drug-allergy interaction checking), pharmacy impact eligibility checking, formulary compliance, medication history reporting, followed by prescription routing to a retail pharmacy or mail order pharmacy. As this is a global study, the intention of which is to develop a Framework to assist payors, integrated delivery systems, legislators, and those who influence public policy in developing and implementing incentives and payment mechanisms in payment for quality and cost-effectiveness models, a quality/benefits/positive effects or costs/negative effect should not be that e-prescribing increases or decreases reimbursement to a provider or healthcare facility.

Next

Questionnaire One: Brainstorming

Communications

If you participate in all three rounds, a copy of this research summary, the framework, and the evaluation of its usefulness will be forwarded to you after its completion. In addition, your name will be entered into a drawing with the other Delphi Experts and the framework evaluation experts. The winner will have a donation of $2,500 made in his or her name to the American Medical Informatics Association (AMIA) for educational and/or research purposes.

Please enter your name as you would like it to appear for the purposes of this drawing and donation.

Please confirm the email address to which you would like further communications sent, including the links to the following questionnaires.

Prev Next

Questionnaire One: Brainstorming
Stakeholders

Set forth below are a number of the stakeholders involved in e-prescribing.

• **Patients**

• **Clinicians/Prescribers**

• **Payors/Purchasers** (including, but not limited to health plans or insurers, governments or their healthcare agencies, sickness funds, self-insured employer groups)

• Entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to **Pharmacy Benefit Managers or Prescription Pricing Authorities**

• **Pharmacies/Dispensers/Pharmacists**, e.g. retail, specialty or mail order pharmacies

• **Inpatient or Outpatient Healthcare Entities**, e.g. hospitals, ambulatory surgery centers, long term care facilities, home health agencies, etc.

• **Patients' Families** and/or individuals responsible for their care

• **Employers**

• **Pharmaceutical Manufacturers**

• **Vendors of Health Information Technology**, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules

• **Suppliers/Distributors of Pharmaceuticals**

• **Consultants**

• **Policy-makers/Legislators**

• **Researchers**

• **Society**

Do you believe any other entities should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

First Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- ○ Yes
- ○ No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Second Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- ○ Yes
- ○ No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Third Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- ○ Yes
- ○ No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Fourth Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- ○ Yes
- ○ No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Fifth Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- ○ Yes
- ○ No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Sixth Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- ○ Yes
- ○ No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Seventh Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- ○ Yes
- ○ No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Eighth Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- ○ Yes
- ○ No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Ninth Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- Yes
- No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Tenth Additional Stakeholder

Please describe one stakeholder you believe should be added to the given list.

Please describe the *positives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Please describe the *negatives* associated with e-prescribing, considering only the perspective of this additional stakeholder.

Do you believe that the list of stakeholders is now complete?

- ○ Yes
- ○ No

This added stakeholder and associated positive and negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Further Additional Stakeholder Justification

If you are reading this message, then you have not only added ten additional stakeholders to the given list but also expressed a desire to add at least one more. The given list was developed using an exhaustive literature review. Please explain why you believe that it fell so far short of complete. Thank you.

Prev Next

Questionnaire One: Brainstorming

Patients

Positives

Set forth below are a number of positives associated with e-prescribing, from the perspective of **Patients**.

- Fewer medication errors
- Fewer adverse drug events
- Convenience, e.g. merely pick up medicines at pharmacy or have them delivered
- Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications
- Improved care and/or health outcomes
- Improved patient safety
- Better medication adherence/compliance
- Increased efficiency

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Patients

Positives

Please describe the positive(s), considering only the perspective of Patients, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Patients

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of **Patients**.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

[ ]	Fewer medication errors	☐ N/A
[ ]	Fewer adverse drug events	☐ N/A
[ ]	Convenience, e.g. merely pick up medicines at pharmacy or have them delivered	☐ N/A
[ ]	Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	☐ N/A
[ ]	Improved care and/or health outcomes	☐ N/A
[ ]	Improved patient safety	☐ N/A
[ ]	Better medication adherence/compliance	☐ N/A
[ ]	Increased efficiency	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Patients

Negatives

Set forth below are a number of negatives associated with e-prescribing, from the perspective of Patients.

- Need to find a provider who e-prescribes
- Need to find a pharmacy/dispenser that e-prescribes
- Less likely to get non-formulary medications
- Controlled substances may have to be separately prescribed, on paper

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Patients

Negatives

Please describe the negative(s), considering only the perspective of Patients, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Patients

Negatives

Please rank order these negatives associated with e-prescribing, considering only the perspective of Patients.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Need to find a provider who e-prescribes	☐ N/A
▾	Need to find a pharmacy/dispenser that e-prescribes	☐ N/A
▾	Less likely to get non-formulary medications	☐ N/A
▾	Controlled substances may have to be separately prescribed, on paper	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Clinicians/Prescribers

Positives

Set forth below are a number of positives associated with e-prescribing, from the perspective of Clinicians/Prescribers.

- Patient medication history is available (electronic record of prescriptions)
- Fewer medication errors
- Time saving (e.g. less faxes, telephone calls, workflow interruptions)
- Easier to review alternative medications on formulary
- Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)
- Improved patient satisfaction
- Lesser professional liability premiums and malpractice liability
- Increased efficiency
- Fewer documents
- Improved care and/or health outcomes

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Clinicians/Prescribers

Positives

Please describe the positive(s), considering only the perspective of Clinicians/Prescribers, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Clinicians/Prescribers

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Clinicians/Prescribers.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Patient medication history is available (electronic record of prescriptions)	☐ N/A
▾	Fewer medication errors	☐ N/A
▾	Time saving (e.g. less faxes, telephone calls, workflow interruptions)	☐ N/A
▾	Easier to review alternative medications on formulary	☐ N/A
▾	Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)	☐ N/A
▾	Improved patient satisfaction	☐ N/A
▾	Lesser professional liability premiums and malpractice liability	☐ N/A
▾	Increased efficiency	☐ N/A
▾	Fewer documents	☐ N/A
▾	Improved care and/or health outcomes	☐ N/A

Prev Next

Questionnaire One: Brainstorming
Clinicians/Prescribers
Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of **Clinicians/Prescribers**.

• Hardware

• Software licensing fees

• Implementation costs

• Vendor may go out of business and/or not support e-prescribing system

• Maintenance

• Upgrades

• Customization

• Training

• IT Staff

• Network and internet access

• Wrong patient may be selected

• Alerts may be inactivated or ignored

• History and alerts may not be updated

• Healthcare coverage and/or formulary may not be updated

• Menu designs (Graphical User Interfaces) may increase wrong drug choices

• Users may rely on the system and be less careful

• Controlled substances may have to be separately prescribed, on paper

Do you believe any other negatives should be added to this list?

○ Yes
○ No

Prev Next

Questionnaire One: Brainstorming

Clinicians/Prescribers

Negatives

Please describe the negative(s), considering only from the perspective of the Clinicians/Prescribers, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Clinicians/Prescribers

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of **Clinicians/Prescribers**.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Hardware	☐ N/A
▾	Software licensing fees	☐ N/A
▾	Implementation costs	☐ N/A
▾	Vendor may go out of business and/or not support e-prescribing system	☐ N/A
▾	Maintenance	☐ N/A
▾	Upgrades	☐ N/A
▾	Customization	☐ N/A
▾	Training	☐ N/A
▾	IT Staff	☐ N/A
▾	Network and internet access	☐ N/A
▾	Wrong patient may be selected	☐ N/A
▾	Alerts may be inactivated or ignored	☐ N/A
▾	History and alerts may not be updated	☐ N/A
▾	Healthcare coverage and/or formulary may not be updated	☐ N/A
▾	Menu designs (Graphical User Interfaces) may increase wrong drug choices	☐ N/A
▾	Users may rely on the system and be less careful	☐ N/A
▾	Controlled substances may have to be separately prescribed, on paper	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Payors/Purchasers

Positives

Set forth below are a number of **positives** associated with e-prescribing, from the perspective of **Payors/Purchasers**.

- Increased generic/formulary usage
- Increased efficiency
- Better medication adherence/compliance
- Fewer medication errors
- Fewer adverse drug events
- Improved care and/or health outcomes
- Improved patient safety
- More readily available data

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Payors/Purchasers

Positives

Please describe the positive(s), considering only the perspective of Payors/Purchasers, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Payors/Purchasers

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of **Payors/Purchasers**.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Increased generic/formulary usage	☐ N/A
▾	Increased efficiency	☐ N/A
▾	Better medication adherence/compliance	☐ N/A
▾	Fewer medication errors	☐ N/A
▾	Fewer adverse drug events	☐ N/A
▾	Improved care and/or health outcomes	☐ N/A
▾	Inproved patient safety	☐ N/A
▾	More readily available data	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Payors/Purchasers

Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of **Payors/Purchasers**.

• Interfaces

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Payors/Purchasers

Negatives

Please describe the negative(s), considering only the perspective of Payors/Purchasers, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Payors/Purchasers

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of **Payors/Purchasers**.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Interfaces	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Pharmacy Benefit Managers/Prescription Pricing Authorities

Positives

Set forth below are a number of **positives** associated with e-prescribing, from the perspective of **entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to Pharmacy Benefit Managers or Prescription Pricing Authorities**.

- Increased generic/formulary usage
- Increased efficiency
- Better medication adherence/compliance
- Fewer adverse drug events
- Reduced costs
- Could experience increased value or business

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Pharmacy Benefit Managers/Prescription Pricing Authorities

Positives

Please describe the positive(s), considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Pharmacy Benefit Managers/Prescription Pricing Authorities

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Increased generic/formulary usage	☐ N/A
▾	Increased efficiency	☐ N/A
▾	Better medication adherence/compliance	☐ N/A
▾	Fewer adverse drug events	☐ N/A
▾	Reduced costs	☐ N/A
▾	Could experience increased value or business	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Pharmacy Benefit Managers/Prescription Pricing Authorities

Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to **Pharmacy Benefit Managers/Prescription Pricing Authorities**

- Hardware
- Software licensing fees
- Implementation costs
- Maintenance
- Upgrades
- Customization
- Training
- IT Staff
- Network and internet access

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Pharmacy Benefit Managers/Prescription Pricing Authorities

Negatives

Please describe the negative(s), considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Pharmacy Benefit Managers/Prescription Pricing Authorities

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Hardware	☐ N/A
▾	Software licensing fees	☐ N/A
▾	Implementation costs	☐ N/A
▾	Maintenance	☐ N/A
▾	Upgrades	☐ N/A
▾	IT Staff	☐ N/A
▾	Customization	☐ N/A
▾	Training	☐ N/A
▾	Network and internet access	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Pharmacies/Dispensers/Pharmacists

Positives

Set forth below are a number of **positives** associated with e-prescribing, from the perspective of **Pharmacies/Dispensers/Pharmacists**.

- Fewer medication errors
- Reduced costs
- Time saving (e.g. less faxes, telephone calls, workflow interruptions)
- Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)
- Fewer fraudulent prescriptions
- More time for consultations
- Increased generic/formulary usage
- Increased efficiency
- Improved care and/or health outcomes
- Improved patient satisfaction

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Pharmacies/Dispensers/Pharmacists

Positives

Please describe the positive(s), considering only the perspective of Pharmacies/Dispensers/Pharmacists, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Pharmacies/Dispensers/Pharmacists

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Pharmacies/Dispensers/Pharmacists.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

[ ]	Fewer medication errors	☐ N/A
[ ]	Reduced costs	☐ N/A
[ ]	Time saving (e.g. less faxes, telephone calls, workflow interruptions)	☐ N/A
[ ]	Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)	☐ N/A
[ ]	Fewer fraudulent prescriptions	☐ N/A
[ ]	More time for consultations	☐ N/A
[ ]	Increased generic/formulary usage	☐ N/A
[ ]	Increased efficiency	☐ N/A
[ ]	Improved care and/or health outcomes	☐ N/A
[ ]	Improved patient satisfaction	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Pharmacies/Dispensers/Pharmacists

Negatives

Set forth below are a number of**negatives** associated with e-prescribing, from the perspective of **Pharmacies/Dispensers/Pharmacists.**

- Hardware
- Software licensing fees
- Implementation costs
- Maintenance
- Upgrades
- Training
- Network and internet access

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Pharmacies/Dispensers/Pharmacists

Negatives

Please describe the negative(s), considering only the perspective of Pharmacies/Dispensers/Pharmacists, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see t hem. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Pharmacies/Dispensers/Pharmacists

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Pharmacies/Dispensers/Pharmacists.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Hardware	☐ N/A
▾	Software licensing fees	☐ N/A
▾	Implementation costs	☐ N/A
▾	Maintenance	☐ N/A
▾	Training	☐ N/A
▾	Upgrades	☐ N/A
▾	Network and internet access	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Inpatient or Outpatient Healthcare Entities

Positives

Set forth below are a number of **positives** associated with e-prescribing, from the perspective of **Inpatient or Outpatient Healthcare Entities**.

- Patient medication history is available (electronic record of prescriptions)
- Fewer medication errors
- Increased efficiency
- Reduced costs
- Facilitation of quality measurement and reporting
- Improved patient satisfaction
- Improved care and/or health outcomes

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Inpatient or Outpatient Healthcare Entities

Positives

Please describe the positive(s), considering only the perspective of Inpatient or Outpatient Healthcare Entities, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Inpatient or Outpatient Healthcare Entities

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Inpatient or Outpatient Healthcare Entities.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Patient medication history is available (electronic record of prescriptions)	☐ N/A
▾	Fewer medication errors	☐ N/A
▾	Increased efficiency	☐ N/A
▾	Reduced costs	☐ N/A
▾	Facilitation of quality measurement and reporting	☐ N/A
▾	Improved patient satisfaction	☐ N/A
▾	Improved care and/or health outcomes	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Inpatient or Outpatient Healthcare Entities

Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of **Inpatient or Outpatient Healthcare Entities**.

- Hardware
- Software licensing fees
- Implementation costs
- Vendor may go out of business or not support e-prescribing system
- Maintenance
- Upgrades
- Customization
- Training
- IT staff
- Network and internet access

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Inpatient or Outpatient Healthcare Entities

Negatives

Please describe the negative(s), considering only the perspective of Inpatient or Outpatient Healthcare Entities, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Inpatient or Outpatient Healthcare Entities

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Inpatient or Outpatient Healthcare Entities.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Hardware	☐ N/A
▾	Software licensing fees	☐ N/A
▾	Implementation costs	☐ N/A
▾	Vendor may go out of business or not support e-prescribing system	☐ N/A
▾	Network and internet access	☐ N/A
▾	Maintenance	☐ N/A
▾	Upgrades	☐ N/A
▾	Training	☐ N/A
▾	Customization	☐ N/A
▾	IT Staff	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Patients' Families

Positives

Set forth below are a number of **positives** associated with e-prescribing, from the perspective of **Patients' Families.**

- Improved care and/or health outcomes
- Could reduce families' amount of time spent coordinating care
- Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Patients' Families

Positives

Please describe the positive(s), considering only the perspective of Patients' Families you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Patients' Families

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Patients' Families.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Improved care and/or health outcomes	☐ N/A
▾	Could reduce family members amount of time spent coordinating care	☐ N/A
▾	Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Patients' Families

Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of **Patients' Families.**

• Controlled substances may have to be separately prescribed, on paper

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Patients' Families

Negatives

Please describe the negative(s), considering only the perspective of Patients' Families, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Patients' Families

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Patients' Families.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

	Controlled substances may have to be separately prescribed, on paper	N/A

Prev Next

Questionnaire One: Brainstorming

Employers

Positives

Set forth below are a number of **positives** associated with e-prescribing, from the perspective of **Employers**.

- Improved care and/or health outcomes
- Reduced time employees are not working

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Employers

Positives

Please describe the positive(s), considering only the perspective of Employers, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Employers

Positives

Please rank order these positives associated with e-prescribing, considering only the perspective of Employers.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Improved care and/or health outcomes	☐ N/A
▾	Reduced time employees are not working	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Employers

Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of **Employers**.

• May result in more costs to providers that are passed on to employers

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Employers

Negatives

Please describe the negative(s), considering only the perspective of Employers, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Employers

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Employers.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

[▾]	May result in more costs to providers that are passed on to employers	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Pharmaceutical Manufacturers

Positives

Set forth below are a number of **positives** associated with e-prescribing, from the perspective of **Pharmaceutical Manufacturers.**

• Increased sales of generic drugs

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Pharmaceutical Manufacturers

Positives

Please describe the positive(s), considering only the perspective of Pharmaceutical Manufacturers, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Pharmaceutical Manufacturers

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Pharmaceutical Manufacturers.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Increased sales of generic drugs	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Pharmaceutical Manufacturers

Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of **Pharmaceutical Manufacturers.**

• Decreased sales of brand drugs

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Pharmaceutical Manufacturers

Negatives

Please describe the negative(s), considering only the perspective of Pharmaceutical Manufacturers, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Pharmaceutical Manufacturers

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Pharmaceutical Manufacturers.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Decreased sales of brand drugs	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Vendors of Health Information Technology

Positives

Set forth below are a number of**positives** associated with e-prescribing, from the perspective of **\endors of Health Information Technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules.**

• Could experience increased value or business

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Vendors of Health Information Technology

Positives

Please describe the positive(s), considering only the perspective of Vendors of Health Information Technology, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Vendors of Health Information Technology

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Vendors of Health Information Technology.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Could experience increased value or business	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Vendors of Health Information Technology

Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of **Vendors of Health Information Technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules.**

• Could experience decreased value or business

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Vendors of Health Information Technology

Negatives

Please describe the negative(s), considering only the perspective of Vendors of Health Information Technology, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Vendors of Health Information Technology

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Vendors of Health Information Technology.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

	Could experience decreased value or business	N/A

Prev Next

Questionnaire One: Brainstorming

Suppliers/Distributors of Pharmaceuticals

Positives

Set forth below are a number of **positives** associated with e-prescribing, from the perspective of **Suppliers and/or Distributors of Pharmaceuticals**.

• Could experience increased value or business

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Suppliers/Distributors of Pharmaceuticals

Positives

Please describe the positive(s), considering only the perspective of Suppliers/Distributors of Pharmaceuticals, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Suppliers/Distributors of Pharmaceuticals

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Suppliers/Distributors of Pharmaceuticals.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Could experience increased value or business	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Suppliers/Distributors of Pharmaceuticals

Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of **Suppliers/Distributors of Pharmaceuticals.**

• Could experience decreased value or business

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Suppliers/Distributors of Pharmaceuticals

Negatives

Please describe the negative(s), considering only the perspective of Suppliers/Distributors of Pharmaceuticals, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Suppliers/Distributors of Pharmaceuticals

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Suppliers/Distributors of Pharmaceuticals.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Could experience decreased value or business	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Consultants

Positives

Set forth below are a number of **positives** associated with e-prescribing, from the perspective of **Consultants**.

• Could experience increased value or business

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Consultants

Positives

Please describe the positive(s), considering only the perspective of Consultants, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Consultants

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Consultants.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Could experience increased value or business	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Consultants

Negatives

Set forth below are a number of **negatives** associated with e-prescribing, from the perspective of **Consultants**.

• Could experience decreased value or business

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Consultants

Negatives

Please describe the negative(s), considering only the perspective of Consultants, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Consultants

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Consultants.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Could experience decreased value or business	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Policy-makers/Legislators

Positives

Set forth below are a number of**positives** associated with e-prescribing, from the perspective of**Policy-makers/Legislators**.

• Better data with which to make decisions

• Facilitation of aligned incentives

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Policy-makers/Legislators

Positives

Please describe the positive(s), considering only the perspective of Policy-makers/Legislators, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Policy-makers/Legislators

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Policy-makers/Legislators.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Better data with which to make decisions	☐ N/A
▾	Facilitation of aligned incentives	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Policy-makers/Legislators

Negatives

Set forth below are a number of**negatives** associated with e-prescribing, from the perspective of**Policy-makers/Legislators**.

• Costs to other stakeholders

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Policy-makers/Legislators

Negatives

Please describe the negative(s), considering only from the perspective of Policy-makers/Legislators, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Policy-makers/Legislators

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Policy-makers/Legislators.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

	Costs to other stakeholders	N/A

Prev Next

Questionnaire One: Brainstorming

Researchers

Positives

Set forth below are a number of**positives** associated with e-prescribing, from the perspective of **Researchers**.

• Better data that can be used in clinical trials and for comparative-effectiveness

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Researchers

Positives

Please describe the positive(s), considering only the perspective of Researchers, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Researchers

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Researchers.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Better data that can be used in clinical trials and for comparative-effectiveness	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Researchers

Negatives

Set forth below are a number of**negatives** associated with e-prescribing, from the perspective of **Researchers**.

• May make it more difficult to obtain complete data because some will be in electronic format and some in paper format

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Researchers

Negatives

Please describe the negative(s), considering only the perspective of Researchers, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Researchers

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Researchers.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

	May make it more difficult to obtain complete data because some will be in electronic format and some in paper form	N/A

Prev Next

Questionnaire One: Brainstorming

Society

Positives

Set forth below are a number of**positives** associated with e-prescribing, from the perspective of**Society**.

• Increased efficiency (reduces consumption of resources by healthcare organizations)

Do you believe any other positives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Society

Positives

Please describe the positive(s), considering only the perspective of Society, you believe should be added to the given list.

These added positive effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Society

Positives

Please rank order these **positives** associated with e-prescribing, considering only the perspective of Society.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

[▾]	Increased efficiency (reduces consumption of resources by healthcare organizations)	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Society

Negatives

Set forth below are a number of**negatives** associated with e-prescribing, from the perspective of**Society**.

• Providers may experience more costs which may be passed on to society

Do you believe any other negatives should be added to this list?

- ○ Yes
- ○ No

Prev Next

Questionnaire One: Brainstorming

Society

Negatives

Please describe the negative(s), considering only the perspective of Society, you believe should be added to the given list.

These added negative effects will not be included in the ranking in this round because the other Delphi Experts will not be able to see them. However, your additions will be included in the second round where you and other Delphi Experts will have the opportunity to rank them.

Prev Next

Questionnaire One: Brainstorming

Society

Negatives

Please rank order these **negatives** associated with e-prescribing, considering only the perspective of Society.

If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option.

The items on this list appear in a random order.

▾	Providers may experience more costs which may be passed on to society	☐ N/A

Prev Next

Questionnaire One: Brainstorming

Conclusion

Thank you for completing this questionnaire. Your answers will be aggregated with those of other Delphi Experts for this brainstorming round, and an additional questionnaire will be generated in the next few months which will provide the results of this first brainstorming round. None of the Delphi Experts will be identified at this time. The second questionnaire will be part of the narrowing round, and after the results of that questionnaire are aggregated, a final third ranking round questionnaire will be generated. The results of this questionnaire will be aggregated into a framework for a different group of Delphi Experts to evaluate with respect to its usefulness in assisting payors, integrated delivery systems, legislators, and those who influence public policy in developing and implementing incentives and payment mechanisms in payment for quality and cost-effectiveness models. Should you complete all three questionnaires, you will be provided with a copy of the study once it is finalized.

Thank you again for your contributions to the industry.

Prev Done

APPENDIX B

Questionnaire Two: Narrowing

Introduction

Dear Delphi Expert:

Thank you for taking time to complete this questionnaire on the stakeholders and the quality/benefits/positive effects and costs/negative effects of e-prescribing from the perspective of each stakeholder, and rank-ordering them.

In this questionnaire, you will see the additions to the original given lists as well as the results of the previous rank ordering, which was determined by aggregating the data from all of the Delphi Experts. As you again rank order the positives and negatives associated with e-prescribing, you will not only be able to incorporate the additions, but also make some assessment of how your ranking choices affect the results.

For the purposes of this questionnaire, e-prescribing is defined as a "closed-loop system, which the entire process of prescribing a medication is electronic from beginning to end." For the purposes of responding to this questionnaire, the functions of the e-prescribing system include computerized prescribing associated with clinical decision support (such as drug-drug and drug-allergy interaction checking), pharmacy impact eligibility checking, formulary compliance, medication history reporting, followed by prescription routing to a retail pharmacy or mail order pharmacy. As this is a global study, the intention of which is to develop a Framework to assist payors, integrated delivery systems, legislators, and those who influence public policy in developing and implementing incentives and payment mechanisms in payment for quality and cost-effectiveness models, a quality/benefits/positive effects or costs/negative effect should not be that e-prescribing increases or decreases reimbursement to a provider or healthcare facility.

3%

Next

Questionnaire Two: Narrowing

Communications

If you participate in all three rounds, a copy of this research summary, the framework, and the evaluation of its usefulness will be forwarded to you after its completion. In addition, your name will be entered into a drawing with the other Delphi Experts and the framework evaluation experts. The winner will have a donation of $2,500 made in his or her name to the American Medical Informatics Association (AMIA) for educational and/or research purposes.

Please enter your name as you would like it to appear for the purposes of this drawing and donation.

Please confirm the email address to which you would like further communications sent, including the links to the final questionnaire.

5%

Prev Next

Questionnaire Two: Narrowing

Stakeholders

Set forth below are the stakeholders involved in e-prescribing presented to the Delphi Experts in Questionnaire One.

• Patients

• Clinicians/Prescribers

• Payors/Purchasers (including, but not limited to health plans or insurers, governments or their healthcare agencies, sickness funds, self-insured employer groups)

• Patients' Families and/or individuals responsible for their care

• Employers

• Entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to Pharmacy Benefit Managers or Prescription Pricing Authorities

• PharmaciesDispensers/Pharmacists, e.g. retail, specialty or mail order pharmacies

• Pharmaceutical or Drug Manufacturers

• Inpatient or Outpatient Healthcare Entities, e.g. hospitals, ambulatory surgery centers, long term care facilities, home health agencies, etc.

• Vendors of Health Information Technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules

• Suppliers/Distributors of Pharmaceuticals

• Consultants

• Policy-makers/Legislators

• Researchers

• Society

Set forth below are the stakeholders involved in e-prescribing added by the Delphi Experts in Questionnaire One.

• Patient Associations/Support Groups

• Nonclinical Healthcare Staff (e.g. administrative staff, assistants)

• Government Prescription Monitoring Programs (e.g. for controlled substances)

• Health Information System Providers

Prev Next

Questionnaire Two: Narrowing

Patient Associations/Support Groups

Set forth below are positives associated with e-prescribing, from the perspective of Patient Associations/Support Groups.

- Disease-specific enhancements might be made to e-prescribing process

Please describe the positive(s), considering only the perspective of Patient Associations/Support Groups, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

Set forth below are negatives associated with e-prescribing, from the perspective of Patient Associations/Support Groups.

- Disease-specific implementations of e-prescribing could be difficult
- Benefits might not be easily measured

Please describe the negative(s), considering only the perspective of Patient Associations/Support Groups, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

10%

Prev Next

Questionnaire Two: Narrowing

Nonclinical Healthcare Staff

Set forth below are positives associated with e-prescribing, from the perspective of Nonclinical Healthcare Staff.

- Improved communication

Please describe the positive(s), considering only the perspective of Nonclinical Healthcare Staff, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

Set forth below are negatives associated with e-prescribing, from the perspective of Nonclinical Healthcare Staff.

- Increased workloads

Please describe the negative(s), considering only the perspective of Nonclinical Healthcare Staff, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

13%

Prev Next

Questionnaire Two: Narrowing

Government Prescription Monitoring Programs

Set forth below are positives associated with e-prescribing, from the perspective of Government Prescription Monitoring Programs.

- More complete data
- More readily accessible data

Please describe the positive(s), considering only the perspective of Government Prescription Monitoring Programs, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

Set forth below are negatives associated with e-prescribing, from the perspective of Government Prescription Monitoring Programs.

- Might reduce patient privacy

Please describe the negative(s), considering only the perspective of Government Prescription Monitoring Programs, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

15%

Prev Next

Questionnaire Two: Narrowing

Health Information System Providers

Due to the significant overlap between the functions and characteristics of the added stakeholder, Health Information System Providers, and the given stakeholder, Vendors of Health Information Technology, the positives and negatives associated with e-prescribing identified for this added stakeholder have been incorporated into those for the given stakeholder.

Prev Next

Questionnaire Two: Narrowing

Rank Ordering

As you may have noticed previously, the software with which these questionnaires has been built allows a number of ways to manipulate the items on a list as you rank order them. Before any ranks have been selected with the drop down menus, clicking anywhere on any item will assign every item a rank based on the order in which they appear. At any time, moving any item, either by selecting it and dragging it to a different place on the list or by changing its rank with the drop down menu, will cause every item on the list to be renumbered accordingly.

The ranking results from the previous round are indicated within the text of the item and will thus remain, no matter where you place them on the list during this round. They appear for informational purposes only.

Prev Next

Questionnaire Two: Narrowing

Patients

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Patients.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Patients**.

	1. Fewer medication errors	☐ N/A
	2. Fewer adverse drug events	☐ N/A
	3. Improved patient safety	☐ N/A
	4. Convenience, e.g. merely pick up medicines at pharmacy or have them delivered	☐ N/A
	5. Increased efficiency	☐ N/A
	6. Improved care and/or health outcomes **[8% N/A]**	☐ N/A
	7. Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	☐ N/A
	8. Better medication adherence/compliance **[23% N/A]**	☐ N/A
	Patient medication history is available (electronic record of prescriptions)	☐ N/A
	Easier to report adverse drug events	☐ N/A
	Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduce dosage and/or administration errors	☐ N/A
	Improved communication	☐ N/A
	Faster information transfer	☐ N/A
	Increased or improved decision support	☐ N/A
	Improved healthcare management (e.g. through reporting and/or audits)	☐ N/A
	Improved adherence to guidelines	☐ N/A
	Improved governmental oversight of controlled substances	☐ N/A
	Increased awareness of and (perceived) control over active medications	☐ N/A
	Easier to get reimbursed for medications	☐ N/A

Prev Next

Questionnaire Two: Narrowing

Patients

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Patients.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Patients**

.

	1. Need to find a pharmacy/dispenser that e-prescribes **[8% N/A]**	N/A
	2. Need to find a provider who e-prescribes **[8% N/A]**	N/A
	3. Controlled substances may have to be separately prescribed, on paper **[8% N/A]**	N/A
	4. Less likely to get non-formulary medications **[15% N/A]**	N/A
	Harder to acquire fradulent prescriptions (e.g. extra pain medication to sell on the black market)	N/A
	Pharmacy must be chosen when prescription is made, not when it is filled	N/A
	Loss of immediate physical trail of prescription, including paper reminder to go to pharmacy	N/A
	Privacy concerns due to risk of violations of data security	N/A
	Time consuming for providers (could reduce face-to-face contact with patients)	N/A
	Potential for new major errors, creating adverse effects on safety (e.g. wrong medication)	N/A
	Potential for new minor errors, creating inconvenience (e.g. wrong pharmacy)	N/A
	Entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natural di… accident, or terrorism	N/A

26%

Prev Next

Questionnaire Two: Narrowing

Clinicians/Prescribers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Clinicians/Prescribers.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Clinicians/Prescribers**.

	1. Patient medication history is available (electronic record of prescriptions)	☐ N/A
	2. Time saving (e.g. fewer faxes, telephone calls, workflow interruptions)	☐ N/A
	3. Fewer medication errors	☐ N/A
	4. Easier to review alternative medications on formulary	☐ N/A
	5. Increased efficiency **[8% N/A]**	☐ N/A
	6. Improved care and/or health outcomes **[8% N/A]**	☐ N/A
	7. Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)	☐ N/A
	8. Fewer documents	☐ N/A
	9. Improved patient satisfaction **[8% N/A]**	☐ N/A
	10. Lesser professional liability premiums and malpractice liability **[8% N/A]**	☐ N/A
	Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduce dosage and/or administration errors	☐ N/A
	Increased or improved decision support, including alerts based on patient medication history	☐ N/A
	Improved communication	☐ N/A
	Faster information transfer	☐ N/A

Prev Next

Questionnaire Two: Narrowing

Clinicians/Prescribers

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Clinicians/Prescribers.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Clinicians/Prescribers**.

	1. Implementation costs	☐ N/A
	2. Training	☐ N/A
	3. Software licensing fees	☐ N/A
	4. Controlled substances may have to be separately prescribed, on paper	☐ N/A
	5. Healthcare coverage and/or formulary may not be updated	☐ N/A
	6. Menu designs (Graphical User Interfaces) may increase wrong drug choices	☐ N/A
	7. Maintenance	☐ N/A
	8. Upgrades	☐ N/A
	9. History and alerts may not be updates	☐ N/A
	10. Network and internet access	☐ N/A
	11. Users may rely on the system and be less careful	☐ N/A
	12. Alerts may be inactivated or ignored	☐ N/A
	13. Wrong patient may be selected	☐ N/A
	14. Vendor may go out of business and/or not support e-prescribing system	☐ N/A
	15. Customization **[9% N/A]**	☐ N/A
	16. IT Staff	☐ N/A
	17. Hardware	☐ N/A

	Poor fit with workflow	N/A
	Difficult to identify patient's preferred pharmacy (patient may not be able to provide precise name or address)	N/A
	Communication problems	N/A
	Time consuming	N/A
	Information overload	N/A
	Changes in role	N/A
	Adverse impact on interactions with patients	N/A
	Burdensome regulations for e-prescribing controlled substances	N/A
	Might be necessary to redo e-prescription (e.g. chosen pharmacy was out of stock)	N/A
	Possible supervision by third parties, including payors	N/A
	Risk of violations of data security	N/A
	Potential for new major errors, creating adverse effects on safety (e.g. wrong medication)	N/A
	Potential for new minor errors, creating inconvenience (e.g. wrong pharmacy)	N/A
	Entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natural di[illegible] accident, or terrorism	N/A

31%

Prev Next

Questionnaire Two: Narrowing

Payors/Purchasers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Payors/Purchasers.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Payors/Purchasers**.

	1. Increased efficiency	N/A
	2. More readily available data	N/A
	3. Increased generic/formulary usage	N/A
	4. Fewer medication errors **[9% N/A]**	N/A
	5. Fewer adverse drug events **[9% N/A]**	N/A
	6. Improved patient safety **[9% N/A]**	N/A
	7. Improved care and/or health outcomes **[18% N/A]**	N/A
	8. Better medication adherence/compliance	N/A
	Better oversight of physician behavior	N/A

33%

Prev Next

Questionnaire Two: Narrowing

Payors/Purchasers

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Payors/Purchasers.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Payors/Purchasers**.

	1. Interfaces **[36% N/A]**	☐ N/A
	Scattered data due to use of multiple different e-prescribing systems	☐ N/A
	Implementation costs	☐ N/A
	Maintenance	☐ N/A
	Upgrades	☐ N/A
	Software licensing fees	☐ N/A
	Network and internet access	☐ N/A
	Vendor may go out of business and/or not support e-prescribing system	☐ N/A
	Customization	☐ N/A
	Uneven adoption/use by clinicians/prescribers	☐ N/A
	Effort to manage formulary across multiple different e-prescribing systems	☐ N/A

36%

Prev Next

Questionnaire Two: Narrowing

Pharmacy Benefit Managers/Prescription Pricing Authorities

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Pharmacy Benefit Managers/Prescription Pricing Authorities**.

[ ]	**1.** Reduced costs	☐ N/A
[ ]	**2.** Increased generic/formulary usage	☐ N/A
[ ]	**3.** Increased efficiency	☐ N/A
[ ]	**4.** Could experience increased value or business **[9% N/A]**	☐ N/A
[ ]	**5.** Fewer adverse drug events **[18% N/A]**	☐ N/A
[ ]	**6.** Better medication adherence/compliance **[27% N/A]**	☐ N/A
[ ]	Facilitation of marketing to payors	☐ N/A
[ ]	Improved quality of data	☐ N/A
[ ]	More readily accessible data	☐ N/A
[ ]	More data available for analysis (e.g. expenses, costs, diagnoses and appropriate use)	☐ N/A

38%

Prev Next

Questionnaire Two: Narrowing

Pharmacy Benefit Managers/Prescription Pricing Authorities

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Pharmacy Benefit Managers/Prescription Pricing Authorities**.

	1. Implementation costs	☐ N/A
	2. Maintenance **[9% N/A]**	☐ N/A
	3. Software licensing fees	☐ N/A
	4. IT Staff **[9% N/A]**	☐ N/A
	5. Upgrades	☐ N/A
	6. Training	☐ N/A
	7. Network and internet access **[9% N/A]**	☐ N/A
	8. Customization **[9% N/A]**	☐ N/A
	9. Hardware **[18% N/A]**	☐ N/A
	Uneven adoption/use by clinicians/prescribers	☐ N/A
	Use of multiple different e-prescribing systems	☐ N/A
	Potential increase in medication spending	☐ N/A

41%

Prev Next

Questionnaire Two: Narrowing

Pharmacies/Dispensers/Pharmacists

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Pharmacies/Dispensers/Pharmacists**.

	1. Time saving (e.g. fewer faxes, telephone calls, workflow interruptions)	☐ N/A
	2. Increased efficiency	☐ N/A
	3. Fewer medication errors **[9% N/A]**	☐ N/A
	4. Reduced costs	☐ N/A
	5. Better ability to monitor patient adherence/compiance (e.g., did the patient pick up the prescription?) **[18% N/A]**	☐ N/A
	6. Improved patient satisfaction	☐ N/A
	7. Fewer fradulent prescriptions	☐ N/A
	8. More time for consultations	☐ N/A
	9. Improved care and/or health outcomes **[9% N/A]**	☐ N/A
	10. Increased generic/formulary usage **[9% N/A]**	☐ N/A
	Potential to integrate e-prescribing system with warehouse system to better manage supply and distribution	☐ N/A
	Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduce dosage/administration errors	☐ N/A
	Improved communication	☐ N/A
	Faster information transfer	☐ N/A
	Increased business for both prescriptions and other purchases	☐ N/A

Prev Next

Questionnaire Two: Narrowing

Pharmacies/Dispensers/Pharmacists

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Pharmacies/Dispensers/Pharmacists**.

	1. Implementation costs	N/A
	2. Training	N/A
	3. Software licensing fees	N/A
	4. Maintenance	N/A
	5. Upgrades	N/A
	6. Network and internet access	N/A
	7. Hardware	N/A
	Potential adverse impact on relationship with patients	N/A
	Time consuming	N/A
	Changes in role	N/A
	Potential adverse impact on safety	N/A

46%

Prev Next

Questionnaire Two: Narrowing

Inpatient or Outpatient Healthcare Entities

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Inpatient or Outpatient Healthcare Entities**.

	1. Patient medication history is available (electronic record of prescriptions)	☐ N/A
	2. Increased efficiency	☐ N/A
	3. Fewer medication errors	☐ N/A
	4. Reduced costs	☐ N/A
	5. Improved patient satisfaction	☐ N/A
	6. Improved care and/or health outcomes **[9% N/A]**	☐ N/A
	7. Facilitation of quality measurement and reporting	☐ N/A
	Improved communication (e.g. among healthcare settings)	☐ N/A
	Facilitation of continuity of care	☐ N/A

49%

Prev Next

Questionnaire Two: Narrowing

Inpatient or Outpatient Healthcare Entities

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Inpatient or Outpatient Healthcare Entities**.

	1. Implementation costs **[9% N/A]**	☐ N/A
	2. Training	☐ N/A
	3. Software licensing fees	☐ N/A
	4. Customization **[9% N/A]**	☐ N/A
	5. Maintenance	☐ N/A
	6. Upgrades	☐ N/A
	7. IT Staff	☐ N/A
	8. Vendor may go out of business or not support e-prescribing system	☐ N/A
	9. Network and internet access **[9% N/A]**	☐ N/A
	10. Hardware	☐ N/A
	Poor fit with workflow	☐ N/A
	Time consuming	☐ N/A

51%

Prev Next

Questionnaire Two: Narrowing

Patients' Families

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Patients' Families.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Patients' Families**.

	1. Could reduce family members' amount of time spent coordinating care (time saving) **[9% N/A]**	☐ N/A
	2. Improved care and/or health outcomes **[9% N/A]**	☐ N/A
	3. Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	☐ N/A
	Convenience	☐ N/A
	Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduce	☐ N/A
	Potential to increase adherence/compliance (e.g. use e-prescription system to create automatic reminders to take medication)	☐ N/A

54%

Prev Next

Questionnaire Two: Narrowing

Patients' Families

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Patients' Families.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Patients' Families**.

	1. Controlled substances may have to be separately prescribed, on paper **[18% N/A]**	N/A
	Pharmacy must be chosen when prescription is made, not when it is filled	N/A
	Prevents competitive shopping for best prescription price	N/A
	Potential for new errors	N/A
	Privacy concerns due to risk of violations of data security	N/A
	Lack of interoperability between e-prescribing systems and personal health records	N/A
	May prefer that clinician/prescriber not be able to discover non-compliance	N/A

56%

Prev Next

Questionnaire Two: Narrowing

Employers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Employers.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Employers**.

[ ]	**1.** Improved care and/or health outcomes **[27% N/A]**	☐ N/A
[ ]	**2.** Reduced time employees are not working **[27% N/A]**	☐ N/A
[ ]	Better oversight of employee health	☐ N/A
[ ]	Improved adherence to guidelines	☐ N/A
[ ]	Increased efficiency (e.g. faster process of receiving justifications, more rapid patient turnaround)	☐ N/A
[ ]	Better oversight of clinican behavior	☐ N/A
[ ]	Increased generic/formulary usage	☐ N/A
[ ]	Improved healthcare management (e.g. through reporting and/or audits)	☐ N/A

59%

Prev Next

Questionnaire Two: Narrowing

Employers

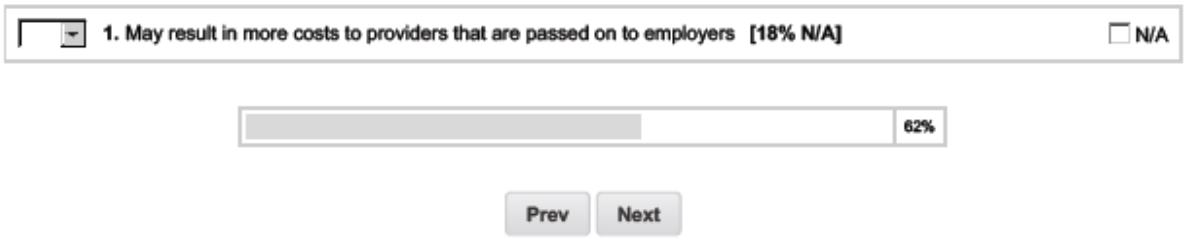
Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Employers.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Employers**.



Questionnaire Two: Narrowing

Pharmaceutical Manufacturers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Pharmaceutical Manufacturers**.

	1. Increased sales of generic drugs **[27% N/A]**	☐ N/A
	Increased sales of brand drugs	☐ N/A
	Better medication adherence/compliance	☐ N/A
	Fewer adverse drug events	☐ N/A
	More readily available data	☐ N/A
	More easily analyzed data	☐ N/A

64%

Prev Next

Questionnaire Two: Narrowing

Pharmaceutical Manufacturers

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Pharmaceutical Manufacturers**.

	1. Decreased sales of brand drugs **[27% N/A]**	☐ N/A
	Potential need to provide data compatible with multiple different e-prescribing systems	☐ N/A
	Potential demand by patients/consumers for more electronic drug information	☐ N/A

67%

Prev Next

Questionnaire Two: Narrowing

Vendors of Health Information Technology

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Vendors of Health Information Technology.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Vendors of Health Information Technology**.

	1. Could experience increased value or business	☐ N/A
	Potential new market for electronic systems or tools for patients	☐ N/A
	More data available for design/development as systems are used more	☐ N/A
	Better interoperability between e-prescribing systems and other health information systems	☐ N/A

69%

Prev Next

Questionnaire Two: Narrowing

Vendors of Health Information Technology

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Vendors of Health Information Technology.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Vendors of Health Information Technology**.

[ ]	**1.** Could experience decreased value or business **[36% N/A]**	☐ N/A
[ ]	Interfaces	☐ N/A
[ ]	Increased costs	☐ N/A
[ ]	Effort of promoting interoperability between e-prescribing systems and other health information systems	☐ N/A
[ ]	Decreased user satisfaction	☐ N/A
[ ]	Increased business competition	☐ N/A
[ ]	Effort of obtaining access to formularies	☐ N/A
[ ]	Effort of integrating new and existing systems	☐ N/A

72%

Prev Next

Questionnaire Two: Narrowing

Suppliers/Distributors of Pharmaceuticals

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Suppliers/Distributors of Pharmaceuticals.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Suppliers/Distributors of Pharmaceuticals**.

[ ]	**1.** Could experience increased value or business **[36% N/A]**	☐ N/A
[ ]	More readily available data (e.g. for evaluation of distribution)	☐ N/A
[ ]	Increased efficiency (e.g. better processes for distribution)	☐ N/A

74%

Prev Next

Questionnaire Two: Narrowing

Suppliers/Distributors of Pharmaceuticals

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Suppliers/Distributors of Pharmaceuticals.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Suppliers/Distributors of Pharmaceuticals**.

	1. Could experience decreased value or business **[36% N/A]**	☐ N/A
	May be required to make their systems interoperable with those used by other stakeholders	☐ N/A

77%

Prev Next

Questionnaire Two: Narrowing

Consultants

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Consultants.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Consultants**.

	1. Could experience increased value or business **[9% N/A]**	☐ N/A
	Increased opportunity to gain experience (e.g. in implementation)	☐ N/A
	Increased demand for services provided by consultants (e.g. process modeling)	☐ N/A

79%

Prev Next

Questionnaire Two: Narrowing

Consultants

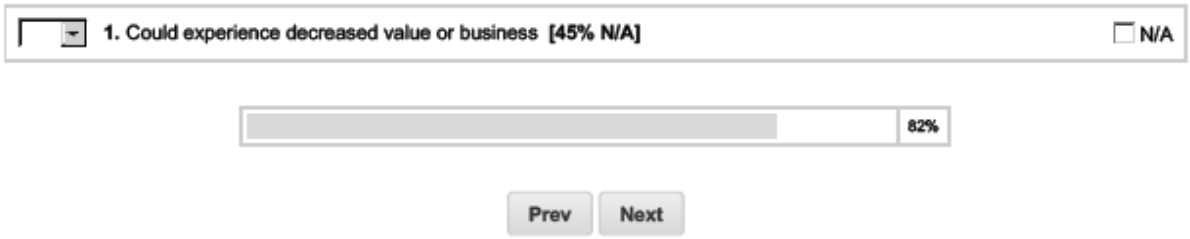
Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Consultants.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Consultants**.



Questionnaire Two: Narrowing

Policy-makers/Legislators

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Policy-makers/Legislators.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Policy-makers/Legislators**.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Policy-makers/Legislators**.

[▾]	**1.** Better data with which to make decisions	☐ N/A
[▾]	**2.** Facilitation of aligned incentives **[18% N/A]**	☐ N/A
[▾]	Reduced costs	☐ N/A
[▾]	Improved patient safety	☐ N/A
[▾]	Improved care and/or health outcomes	☐ N/A
[▾]	Increased efficiency	☐ N/A
[▾]	More readily available data	☐ N/A
[▾]	Better oversight of medication usage	☐ N/A

85%

Prev Next

Questionnaire Two: Narrowing

Policy-makers/Legislators

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Policy-makers/Legislators.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Policy-makers/Legislators**.

▾	**1.** Costs to other stakeholders **[9% N/A]**	☐ N/A
▾	Need to build database systems to store and analyze the increased amount of data	☐ N/A

87%

Prev Next

Questionnaire Two: Narrowing

Researchers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Researchers.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Researchers**.

[ ]	1. Better data that can be used in clinical trials and for comparative-effectiveness	☐ N/A
[ ]	More readily available data	☐ N/A

90%

Prev Next

Questionnaire Two: Narrowing

Researchers

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Researchers.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Researchers**.

	1. May make it more difficult to obtain complete data because some will be in electronic format and some in paper f	N/A
[36% N/A]		
	Data scattered on different systems that may not be interoperable	N/A
	Risk of violation of data security	N/A

92%

Prev Next

Questionnaire Two: Narrowing

Society

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Society.

Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **positives**, considering only the perspective of **Society**.

	1. Increased efficiency (reduced comsumption of resources by healthcare organizations) **[9% N/A]**	☐ N/A
	Improved patient safety	☐ N/A
	Improved care and/or health outcomes	☐ N/A
	Reduced costs	☐ N/A
	Fewer adverse drug events	☐ N/A
	Better oversight of medication usage	☐ N/A
	Better oversight of fradulent prescriptions	☐ N/A
	More equal distribution of drug costs	☐ N/A

95%

Prev Next

Questionnaire Two: Narrowing

Society

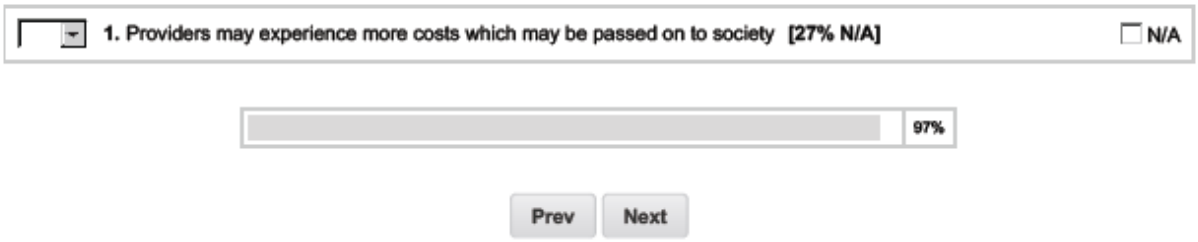
Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Society.

Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order.

Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please again rank order these **negatives**, considering only the perspective of **Society**.



Questionnaire Two: Narrowing

Conclusion

Thank you for completing this questionnaire. Your answers will again be aggregated with those of other Delphi Experts for this narrowing round, and a final questionnaire will be generated in the next month which will provide the results of this second narrowing round. None of the Delphi Experts will be identified at this time. The third questionnaire will be part of the finalizing round, and involved a final ranking of the identified attributes. The results of this questionnaire will be aggregated into a framework for a different group of Delphi Experts to evaluate with respect to its usefulness in assisting payors, integrated delivery systems, legislators, and those who influence public policy in developing and implementing incentives and payment mechanisms in payment for quality and cost-effectiveness models. Should you complete all three questionnaires, you will be provided with a copy of the study once it is finalized.

Thank you again for your contributions to the industry.

Prev Done

APPENDIX C

Questionnaire Three: Finalizing

Introduction

Dear Delphi Expert:

Thank you for taking time to complete this final questionnaire on the stakeholders and the quality/benefits/positive effects and costs/negative effects of e-prescribing from the perspective of each stakeholder, and rank-ordering them.

In this questionnaire, you will see the results of the previous rank ordering, which was determined by aggregating the data from all of the Delphi Experts. As you again rank order the positives and negatives associated with e-prescribing, you will not only be able to incorporate the additions, but also make some assessment of how your ranking choices affect the results.

For the purposes of this questionnaire, e-prescribing is defined as a "closed-loop system, which the entire process of prescribing a medication is electronic from beginning to end." For the purposes of responding to this questionnaire, the functions of the e-prescribing system include computerized prescribing associated with clinical decision support (such as drug-drug and drug-allergy interaction checking), pharmacy impact eligibility checking, formulary compliance, medication history reporting, followed by prescription routing to a retail pharmacy or mail order pharmacy. As this is a global study, the intention of which is to develop a Framework to assist payors, integrated delivery systems, legislators, and those who influence public policy in developing and implementing incentives and payment mechanisms in payment for quality and cost-effectiveness models, a quality/benefits/positive effects or costs/negative effect should not be that e-prescribing increases or decreases reimbursement to a provider or healthcare facility.

3%

Next

Questionnaire Three: Finalizing

Communications

If you participate in all three rounds, a copy of this research summary, the framework, and the evaluation of its usefulness will be forwarded to you after its completion. In addition, your name will be entered into a drawing with the other Delphi Experts and the framework evaluation experts. The winner will have a donation of $2,500 made in his or her name to the American Medical Informatics Association (AMIA) for educational and/or research purposes.

Please enter your name as you would like it to appear for the purposes of this drawing and donation.

Please confirm the email address to which you would like further communications sent, including the links to the final questionnaire.

6%

Prev Next

Questionnaire Three: Finalizing

Stakeholders

Set forth below is the final list of the stakeholders involved in e-prescribing, as developed by the researchers and the Delphi Experts during the course of this study:

• Patients

• Clinicians/Prescribers

• Payors/Purchasers (including, but not limited to health plans or insurers, governments or their healthcare agencies, sickness funds, self-insured employer groups)

• Patients' Families and/or individuals responsible for their care

• Employers

• Entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to Pharmacy Benefit Managers or Prescription Pricing Authorities

• PharmaciesDispensers/Pharmacists, e.g. retail, specialty or mail order pharmacies

• Pharmaceutical or Drug Manufacturers

• Inpatient or Outpatient Healthcare Entities, e.g. hospitals, ambulatory surgery centers, long term care facilities, home health agencies, etc.

• Vendors of Health Information Technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules

• Suppliers/Distributors of Pharmaceuticals

• Consultants

• Policy-makers/Legislators

• Researchers

• Society

• Patient Associations/Support Groups

• Nonclinical Healthcare Staff (e.g. administrative staff, assistants)

• Government Prescription Monitoring Programs (e.g. for controlled substances)

If you wish, please describe any significant aspects of the relative impact of e-prescribing, as experienced by the different stakeholders, that you believe are particularly important.

9%

Prev Next

Questionnaire Three: Finalizing

Rank Ordering

As you may have noticed previously, the software with which these questionnaires has been built allows a number of ways to manipulate the items on a list as you rank order them. Before any ranks have been selected with the drop down menus, clicking anywhere on any item will assign every item a rank based on the order in which they appear. At any time, moving any item, either by selecting it and dragging it to a different place on the list or by changing its rank with the drop down menu, will cause every item on the list to be renumbered accordingly.

The ranking results from the previous round are indicated within the text of the item and will thus remain, no matter where you place them on the list during this round. They appear for informational purposes only.

Prev Next

Questionnaire Three: Finalizing

Patients

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Patients.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these**positives**, considering only the perspective of**Patients**.

	1. Fewer medication errors	☐ N/A
	2. Fewer adverse drug events **[13% N/A]**	☐ N/A
	3. Improved patient safety	☐ N/A
	4. Convenience, e.g. merely pick up medicines at pharmacy or have them delivered	☐ N/A
	5. Increased efficiency	☐ N/A
	6. Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage and/or administration errors	☐ N/A
	7. Improved care and/or health outcomes **[13% N/A]**	☐ N/A
	9. Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	☐ N/A
	10. Better medication adherence/compliance **[13% N/A]**	☐ N/A
	11. Patient medication history is available (electronic record of prescriptions)	☐ N/A
	12. Improved communication	☐ N/A
	13. Easier to report adverse drug events	☐ N/A
	13. Increased or improved decision support	☐ N/A
	15. Faster information transfer	☐ N/A
	16. Increased awareness of and (perceived) control over active medications	☐ N/A
	17. Improved adherence to guidelines	☐ N/A
	18. Improved healthcare management (e.g. through reporting and/or audits)	☐ N/A
	19. Improved governmental oversight of controlled substances	☐ N/A
	20. Easier to get reimbursed for medications	☐ N/A

If you wish, please describe any aspect of e-prescribing's**positive impact on Patients** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

14%

Prev Next

Questionnaire Three: Finalizing

Patients

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Patients.

The negatives are labeled with the rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Patients**.

	1. Need to find a pharmacy/dispenser that e-prescribes **[13% N/A]**	☐ N/A
	2. Need to find a provider who e-prescribes **[13% N/A]**	☐ N/A
	3. Controlled substances may have to be separately prescribed, on paper	☐ N/A
	4. Less likely to get non-formulary medications **[13% N/A]**	☐ N/A
	5. Pharmacy must be chosen when prescription is made, not when it is filled	☐ N/A
	6. Loss of immediate physical trail of prescription, including paper reminder to go to pharmacy	☐ N/A
	7. Privacy concerns due to risk of violations of data security	☐ N/A
	7. Time consuming for providers (could reduce face-to-face contact with patients) **[13% N/A]**	☐ N/A
	9. Potential for new major errors, creating adverse effects on safety (e.g. wrong medication)	☐ N/A
	10. Potential for new minor errors, creating inconvenience (e.g. wrong pharmacy)	☐ N/A
	11. Entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natur disaster, accident, or terrorism **[13% N/A]**	☐ N/A
	12. Harder to acquire fraudulent prescriptions (e.g. extra pain medication to sell on the black market) **[38% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Patients** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

17%

Prev Next

Questionnaire Three: Finalizing

Clinicians/Prescribers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Clinicians/Prescribers.

The positives are labeled with the rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **positives**, considering only the perspective of **Clinicians/Prescribers**.

	1. Patient medication history is available (electronic record of prescriptions)	☐ N/A
	2. Time saving (e.g. fewer faxes, telephone calls, workflow interruptions)	☐ N/A
	3. Fewer medication errors	☐ N/A
	4. Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, redu dosage and/or administration errors **[13% N/A]**	☐ N/A
	5. Easier to review alternative medications on formulary	☐ N/A
	5. Increased efficiency	☐ N/A
	7. Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)	☐ N/A
	8. Increased or improved decision support, including alerts based on patient medication history	☐ N/A
	9. Fewer documents	☐ N/A
	10. Improved communication	☐ N/A
	11. Improved care and/or health outcomes **[13% N/A]**	☐ N/A
	12. Improved patient satisfaction	☐ N/A
	13. Faster information transfer	☐ N/A
	14. Lesser professional liability premiums and malpractice liability	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Clinicians/Prescribers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Prev Next

Questionnaire Three: Finalizing

Clinicians/Prescribers

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Clinicians/Prescribers.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these**negatives**, considering only the perspective of **Clinicians/Prescribers**.

	1. Implementation costs	☐ N/A
	2. Poor fit with workflow	☐ N/A
	3. Training	☐ N/A
	4. Software licensing fees	☐ N/A
	5. Controlled substances may have to be separately prescribed, on paper	☐ N/A
	5. Healthcare coverage and/or formulary may not be updated	☐ N/A
	7. Menu designs (Graphical User Interfaces) may increase wrong drug choices	☐ N/A
	8. Maintenance	☐ N/A
	9. Upgrades	☐ N/A
	10. History and alerts may not be updated	☐ N/A
	10. Alerts may be inactivated or ignored	☐ N/A
	12. Users may rely on the system and be less careful	☐ N/A
	13. Network and internet access	☐ N/A
	14. Time consuming	☐ N/A
	15. Difficult to identify patient's preferred pharmacy (patient may not be able to provide precise name or address)	☐ N/A
	16. Wrong patient may be selected	☐ N/A
	17. Burdensome regulations for e-prescribing controlled substances	☐ N/A
	18. Vendor may go out of business and/or not support e-prescribing system	☐ N/A

	19. Customization **[9% N/A]**	N/A
	20. Adverse impact on interactions with patients	N/A
	21. IT Staff	N/A
	22. Hardware	N/A
	23. Changes in role	N/A
	24. Information overload	N/A
	25. Communication problems	N/A
	26. Possible supervision by third parties, including payors	N/A
	27. Potential for new major errors, creating adverse effects on safety (e.g. wrong medication)	N/A
	28. Might be necessary to redo e-prescription (e.g. chosen pharmacy was out of stock)	N/A
	29. Potential for new minor errors, creating inconvenience (e.g. wrong pharmacy)	N/A
	30. Risk of violations of data security	N/A
	31. Entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natur disaster, accident, or terrorism	N/A

If you wish, please describe any aspect of e-prescribing's**negative impact on Clinicians/Prescribers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

23%

Prev Next

Questionnaire Three: Finalizing

Payors/Purchasers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Payors/Purchasers.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these positives, considering only the perspective of **Payors/Purchasers**.

	1. Increased efficiency	☐ N/A
	2. More readily available data	☐ N/A
	3. Increased generic/formulary usage	☐ N/A
	4. Better oversight of physician behavior	☐ N/A
	5. Fewer medication errors **[13% N/A]**	☐ N/A
	6. Fewer adverse drug events **[25% N/A]**	☐ N/A
	7. Improved patient safety **[13% N/A]**	☐ N/A
	8. Better medication adherence/compliance	☐ N/A
	9. Improved care and/or health outcomes **[13% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Payors/Purchasers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

26%

Prev Next

Questionnaire Three: Finalizing

Payors/Purchasers

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Payors/Purchasers.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Payors/Purchasers**.

	1. Implementation costs **[13% N/A]**	☐ N/A
	2. Scattered data due to use of multiple different e-prescribing systems	☐ N/A
	3. Effort to manage formulary across multiple different e-prescribing systems	☐ N/A
	4. Maintenance **[13% N/A]**	☐ N/A
	5. Interfaces **[25% N/A]**	☐ N/A
	6. Uneven adoption/use by clinicians/prescribers	☐ N/A
	7. Upgrades **[13% N/A]**	☐ N/A
	8. Software licensing fees **[13% N/A]**	☐ N/A
	9. Network and internet access **[13% N/A]**	☐ N/A
	9. Vendor may go out of business and/or not support e-prescribing system **[13% N/A]**	☐ N/A
	11. Customization **[13% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Payors/Purchasers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

29%

Prev Next

Questionnaire Three: Finalizing

Pharmacy Benefit Managers/Prescription Pricing Authorities

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **positives**, considering only the perspective of **Pharmacy Benefit Managers/Prescription Pricing Authorities**.

	1. Reduced costs	☐ N/A
	2. Increased generic/formulary usage	☐ N/A
	3. Increased efficiency	☐ N/A
	4. More readily accessible data	☐ N/A
	5. Improved quality of data	☐ N/A
	6. More data available for analysis (e.g. expenses, costs, diagnoses and appropriate use)	☐ N/A
	7. Could experience increased value or business **[13% N/A]**	☐ N/A
	8. Fewer adverse drug events **[25% N/A]**	☐ N/A
	9. Better medication adherence/compliance **[38% N/A]**	☐ N/A
	10. Facilitation of marketing to payors **[13% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Pharmacy Benefit Managers/Prescription Pricing Authorities** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Prev Next

Questionnaire Three: Finalizing

Pharmacy Benefit Managers/Prescription Pricing Authorities

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Pharmacy Benefit Managers/Prescription Pricing Authorities**.

▾	**1.** Implementation costs	☐ N/A
▾	**2.** Maintenance **[13% N/A]**	☐ N/A
▾	**2.** Uneven adoption/use by clinicians/prescribers **[13% N/A]**	☐ N/A
▾	**4.** Software licensing fees **[13% N/A]**	☐ N/A
▾	**5.** IT Staff **[13% N/A]**	☐ N/A
▾	**6.** Upgrades	☐ N/A
▾	**7.** Use of multiple different e-prescribing systems **[13% N/A]**	☐ N/A
▾	**8.** Training	☐ N/A
▾	**9.** Network and internet access **[13% N/A]**	☐ N/A
▾	**10.** Customization **[13% N/A]**	☐ N/A
▾	**11.** Potential increase in medication spending **[13% N/A]**	☐ N/A
▾	**12.** Hardware **[25% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Pharmacy Benefit Managers/Prescription Pricing Authorities** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Prev Next

Questionnaire Three: Finalizing

Pharmacies/Dispensers/Pharmacists

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these**positives**, considering only the perspective of **Pharmacies/Dispensers/Pharmacists**.

	1. Time saving (e.g. fewer faxes, telephone calls, workflow interruptions)	☐ N/A
	2. Increased efficiency	☐ N/A
	3. Fewer medication errors	☐ N/A
	4. Reduced costs	☐ N/A
	5. Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, redu dosage/administration errors	☐ N/A
	6. Potential to integrate e-prescribing system with warehouse system to better manage supply and distribution	☐ N/A
	7. Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?) **[13% N/A]**	☐ N/A
	8. Improved patient satisfaction	☐ N/A
	9. Fewer fraudulent prescriptions	☐ N/A
	10. Faster information transfer **[25% N/A]**	☐ N/A
	11. Improved communication	☐ N/A
	12. More time for consultations	☐ N/A
	13. Increased business for both prescriptions and other purchases	☐ N/A
	14. Improved care and/or health outcomes **[13% N/A]**	☐ N/A
	15. Increased generic/formulary usage **[13% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's**positive impact on Pharmacies/Dispensers/Pharmacists** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

37%

Prev Next

Questionnaire Three: Finalizing

Pharmacies/Dispensers/Pharmacists

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Pharmacies/Dispensers/Pharmacists**.

	1. Implementation costs	☐ N/A
	2. Training	☐ N/A
	3. Software licensing fees	☐ N/A
	4. Maintenance	☐ N/A
	5. Upgrades	☐ N/A
	6. Network and internet access	☐ N/A
	7. Time consuming **[25% N/A]**	☐ N/A
	8. Potential adverse impact on relationship with patients **[13% N/A]**	☐ N/A
	9. Potential adverse impact on safety **[38% N/A]**	☐ N/A
	10. Hardware	☐ N/A
	11. Changes in role **[25% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Pharmacies/Dispensers/Pharmacists** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

40%

Prev Next

Questionnaire Three: Finalizing

Inpatient or Outpatient Healthcare Entities

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these**positives**, considering only the perspective of**Inpatient or Outpatient Healthcare Entities**.

	1. Patient medication history is available (electronic record of prescriptions)	☐ N/A
	2. Increased efficiency	☐ N/A
	3. Fewer medication errors	☐ N/A
	4. Reduced costs	☐ N/A
	5. Improved communication (e.g. among healthcare settings)	☐ N/A
	6. Facilitation of continuity of care	☐ N/A
	7. Improved patient satisfaction	☐ N/A
	8. Improved care and/or health outcomes **[13% N/A]**	☐ N/A
	9. Facilitation of quality measurement and reporting	☐ N/A

If you wish, please describe any aspect of e-prescribing's**positive impact on Inpatient or Outpatient Healthcare Entities** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

43%

Prev Next

Questionnaire Three: Finalizing

Inpatient or Outpatient Healthcare Entities

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Inpatient or Outpatient Healthcare Entities**.

▾	**1.** Implementation costs	☐ N/A
▾	**2.** Poor fit with workflow	☐ N/A
▾	**3.** Training	☐ N/A
▾	**4.** Time consuming	☐ N/A
▾	**5.** Software licensing fees	☐ N/A
▾	**6.** Maintenance	☐ N/A
▾	**7.** Customization	☐ N/A
▾	**8.** Upgrades	☐ N/A
▾	**9.** IT Staff	☐ N/A
▾	**10.** Vendor may go out of business or not support e-prescribing system	☐ N/A
▾	**11.** Network and internet access	☐ N/A
▾	**12.** Hardware	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Inpatient or Outpatient Healthcare Entities** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Prev Next

Questionnaire Three: Finalizing

Patients' Families

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Patients' Families.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **positives**, considering only the perspective of **Patients' Families**.

	1. Could reduce family members' amount of time spent coordinating care (time saving) **[9% N/A]**	☐ N/A
	2. Improved care and/or health outcomes **[9% N/A]**	☐ N/A
	3. Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, redu dosage and/or administration errors	☐ N/A
	4. Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	☐ N/A
	4. Potential to increase adherence/compliance (e.g. use e-prescription system to create automatic reminders to take medication)	☐ N/A
	5. Convenience	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Patients' Families** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

49%

Prev Next

Questionnaire Three: Finalizing

Patients' Families

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Patients' Families.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Patients' Families**.

	1. Pharmacy must be chosen when prescription is made, not when it is filled	N/A
	2. Controlled substances may have to be separately prescribed, on paper	N/A
	3. Prevents competitive shopping for best prescription price	N/A
	4. Potential for new errors	N/A
	5. Privacy concerns due to risk of violations of data security	N/A
	6. Lack of interoperability between e-prescribing systems and personal health records	N/A
	7. May prefer that clinician/prescriber not be able to discover non-compliance **[13% N/A]**	N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Patients' Families** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

51%

Prev Next

Questionnaire Three: Finalizing

Employers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Employers.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **positives**, considering only the perspective of **Employers**.

	1. Improved care and/or health outcomes **[13% N/A]**	☐ N/A
	2. Increased efficiency (e.g. faster process of receiving justifications, more rapid patient turnaround) **[13% N/A]**	☐ N/A
	3. Better oversight of employee health **[25% N/A]**	☐ N/A
	4. Reduced time employees are not working **[25% N/A]**	☐ N/A
	5. Improved adherence to guidelines	☐ N/A
	6. Increased generic/formulary usage	☐ N/A
	7. Improved healthcare management (e.g. through reporting and/or audits)	☐ N/A
	8. Better oversight of clinician behavior **[38% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Employers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

54%

Prev Next

Questionnaire Three: Finalizing

Employers

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Employers.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Employers**.

	1. May result in more costs to providers that are passed on to employers	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Employers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

57%

Prev Next

Questionnaire Three: Finalizing

Pharmaceutical Manufacturers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **positives**, considering only the perspective of **Pharmaceutical Manufacturers**.

▾	**1.** Increased sales of generic drugs **[13% N/A]**	☐ N/A
▾	**2.** Increased sales of brand drugs **[13% N/A]**	☐ N/A
▾	**3.** More easily analyzed data	☐ N/A
▾	**4.** More readily available data	☐ N/A
▾	**5.** Better medication adherence/compliance	☐ N/A
▾	**6.** Fewer adverse drug events	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Pharmaceutical Manufacturers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

60%

Prev Next

Questionnaire Three: Finalizing

Pharmaceutical Manufacturers

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Pharmaceutical Manufacturers**.

	1. Potential need to provide data compatible with multiple different e-prescribing systems	☐ N/A
	2. Decreased sales of brand drugs	☐ N/A
	3. Potential demand by patients/consumers for more electronic drug information **[29% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Pharmaceutical Manufacturers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

63%

Prev Next

Questionnaire Three: Finalizing

Vendors of Health Information Technology

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Vendors of Health Information Technology.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **positives**, considering only the perspective of **Vendors of Health Information Technology**.

	1. Could experience increased value or business	☐ N/A
	2. Potential new market for electronic systems or tools for patients	☐ N/A
	3. More data available for design/development as systems are used more	☐ N/A
	4. Better interoperability between e-prescribing systems and other health information systems **[14%N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Vendors of Health Information Technology** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

66%

Prev Next

Questionnaire Three: Finalizing

Vendors of Health Information Technology

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Vendors of Health Information Technology.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Vendors of Health Information Technology**.

	1. Effort of promoting interoperability between e-prescribing systems and other health information systems	☐ N/A
	2. Effort of integrating new and existing systems	☐ N/A
	3. Increased business competition **[29% N/A]**	☐ N/A
	4. Increased costs	☐ N/A
	5. Could experience decreased value or business **[14% N/A]**	☐ N/A
	6. Interfaces	☐ N/A
	7. Effort of obtaining access to formularies **[14% N/A]**	☐ N/A
	8. Decreased user satisfaction	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Vendors of Health Information Technology** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

69%

Prev Next

Questionnaire Three: Finalizing

Suppliers/Distributors of Pharmaceuticals

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Suppliers/Distributors of Pharmaceuticals.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these**positives**, considering only the perspective of**Suppliers/Distributors of Pharmaceuticals**.

	1. More readily available data (e.g. for evaluation of distribution)	☐ N/A
	2. Could experience increased value or business **[14% N/A]**	☐ N/A
	3. Increased efficiency (e.g. better processes for distribution)	☐ N/A

If you wish, please describe any aspect of e-prescribing's**positive impact on Suppliers/Distributors of Pharmaceuticals** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

71%

Prev Next

Questionnaire Three: Finalizing

Suppliers/Distributors of Pharmaceuticals

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Suppliers/Distributors of Pharmaceuticals.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Suppliers/Distributors of Pharmaceuticals**.

1.	1. May be required to make their systems interoperable with those used by other stakeholders **[13% N/A]**	☐ N/A
2.	2. Could experience decreased value or business **[38% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Suppliers/Distributors of Pharmaceuticals** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

74%

Prev Next

Questionnaire Three: Finalizing

Consultants

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Consultants.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **positives**, considering only the perspective of **Consultants**.

[ ]	**1.** Could experience increased value or business	☐ N/A
[ ]	Increased demand for services provided by consultants (e.g. process modeling)	☐ N/A
[ ]	Increased opportunity to gain experience (e.g. in implementation)	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Consultants** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

77%

Prev Next

Questionnaire Three: Finalizing

Consultants

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Consultants.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Consultants**.

1. Could experience decreased value or business **[71% N/A]** N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Consultants** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

80%

Prev Next

Questionnaire Three: Finalizing

Policy-makers/Legislators

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Policy-makers/Legislators.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these**positives**, considering only the perspective of**Policy-makers/Legislators**.

	1. Better data with which to make decisions	☐ N/A
	2. Improved patient safety	☐ N/A
	3. Reduced costs	☐ N/A
	4. Increased efficiency	☐ N/A
	5. Improved care and/or health outcomes	☐ N/A
	6. More readily available data	☐ N/A
	7. Better oversight of medication usage	☐ N/A
	8. Facilitation of aligned incentives **[38% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's**positive impact on Policy-makers/Legislators** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

83%

Prev Next

Questionnaire Three: Finalizing

Policy-makers/Legislators

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Policy-makers/Legislators.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Policy-makers/Legislators**.

	1. Costs to other stakeholders	☐ N/A
	2. Need to build database systems to store and analyze the increased amount of data **[25% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Policy-makers/Legislators** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

86%

Prev Next

Questionnaire Three: Finalizing

Researchers

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Researchers.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **positives**, considering only the perspective of **Researchers**.

	1. Better data that can be used in clinical trials and for comparative-effectiveness	☐ N/A
	2. More readily available data	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Researchers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

89%

Prev Next

Questionnaire Three: Finalizing

Researchers

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Researchers.

Those negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Researchers**.

	1. Data scattered on different systems that may not be interoperable **[13% N/A]**	N/A
	2. May make it more difficult to obtain complete data because some will be in electronic format and some in paper f	N/A
	[25% N/A]	
	3. Risk of violation of data security **[25% N/A]**	N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Researchers** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

91%

Prev Next

Questionnaire Three: Finalizing

Society

Positives

Set forth below are positives associated with e-prescribing, from the perspective of Society.

The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **positives**, considering only the perspective of **Society**.

	1. Increased efficiency (reduced consumption of resources by healthcare organizations)	☐ N/A
	2. Improved patient safety	☐ N/A
	3. Improved care and/or health outcomes	☐ N/A
	4. Reduced costs	☐ N/A
	5. Better oversight of medication usage	☐ N/A
	6. Fewer adverse drug events	☐ N/A
	7. Better oversight of fraudulent prescriptions	☐ N/A
	8. More equal distribution of drug costs **[43% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **positive impact on Society** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

94%

Prev Next

Questionnaire Three: Finalizing

Society

Negatives

Set forth below are negatives associated with e-prescribing, from the perspective of Society.

The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.

Please finalize the rank order of these **negatives**, considering only the perspective of **Society**.

[ ]	**1.** Providers may experience more costs which may be passed on to society **[17% N/A]**	☐ N/A

If you wish, please describe any aspect of e-prescribing's **negative impact on Society** that you feel is either particularly important/significant or particularly misunderstood/over-rated.

97%

Prev Next

Questionnaire Three: Finalizing

Conclusion

Thank you for completing this questionnaire. Your answers will again be aggregated with those of other Delphi Experts for this finalizing round. The results of this questionnaire will be aggregated into a framework for a different group of Delphi Experts to evaluate with respect to its usefulness in assisting payors, integrated delivery systems, legislators, and those who influence public policy in developing and implementing incentives and payment mechanisms in payment for quality and cost-effectiveness models. If you have completed all three questionnaires, you will be provided with a copy of the study once it is finalized.

Thank you again for your contributions to the industry.

Prev Done

APPENDIX D

TO:

FROM: Paul R. DeMuro, JD, PhD Candidate
Oregon Health & Science University, School of Medicine

DATE: March 24, 2015

RE: Usefulness of E-Prescribing Framework

Thank you again for agreeing to be a Framework Expert for the Global Delphi Study on e-prescribing.

Given the pending transition of the United States healthcare and other systems from primarily fee-for-service based to systems based on payment for quality and cost-effectiveness, many believe that health information technologies, such as e-prescribing will play a large role in facilitating the transition of the system.

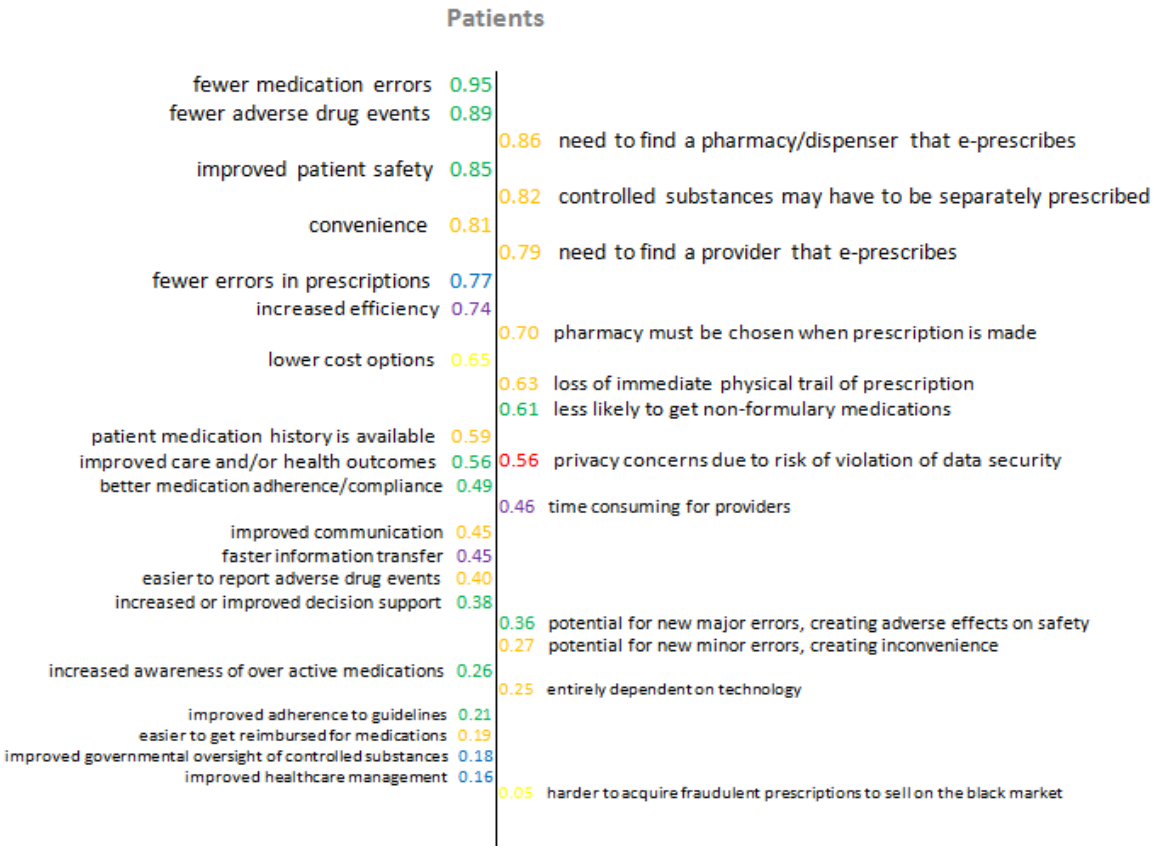
From a literature search, we identified and assembled a group of Global Delphi Experts who reviewed a preliminary list of stakeholders and positives and negatives associated with e-prescribing from the perspective of each stakeholder. Certain Delphi Experts participated in three rounds, the Brainstorming Round, the Narrowing Round, and the Finalizing Round, identifying additional stakeholders and positives and negatives associated with e-prescribing from the perspective of each stakeholder and rank-ordered them, except for the positives and negatives that they identified for any new stakeholders. It is believed that the Framework created from the results of this Delphi Study will be useful to payors, integrated delivery systems, policy makers/legislators and those who influence public policy.

The following Framework includes charts setting forth each individual stakeholder which was identified along with the positives (on the left) and negatives (on the right) associated with e-prescribing which were identified, rank-ordered, computed as weighted averages and converted to proportions, except for the positives and negatives that were identified for the new

stakeholders. The numbers are a representation of the value of the attribute, with 1.0 meaning that everyone chose it first and 0.0 meaning that everyone chose it N/A. From these charts, you can review the attributes that could or do have an impact on:

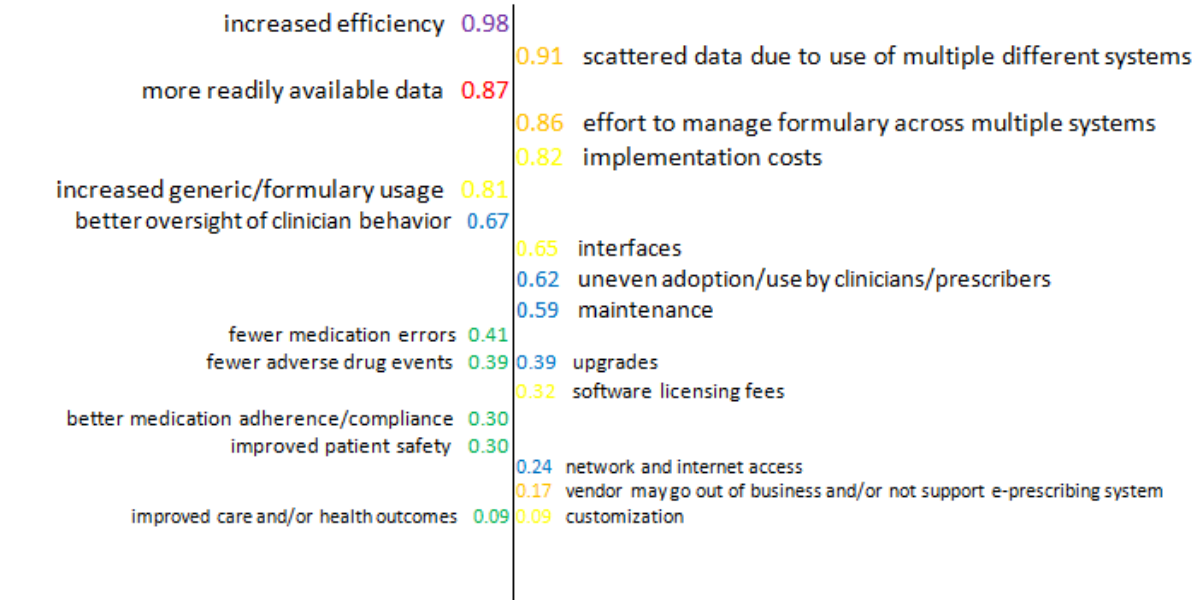
The quantity, quality, and/or security of the ***data*** (identified as red) generated or used by an endeavor. The nature and extent of the ***effort*** (identified as dark orange) people or organizations must apply to an endeavor. The ***finances*** (identified as pink), both revenues and expenses, of people or organizations. The ***health***, (identified as green) including both safety and well-being of people. The nature and extent of the ***management*** (identified as blue) tasks of an endeavor. The amount of ***time*** (identified as purple) required by an endeavor.

Primary Stakeholders:

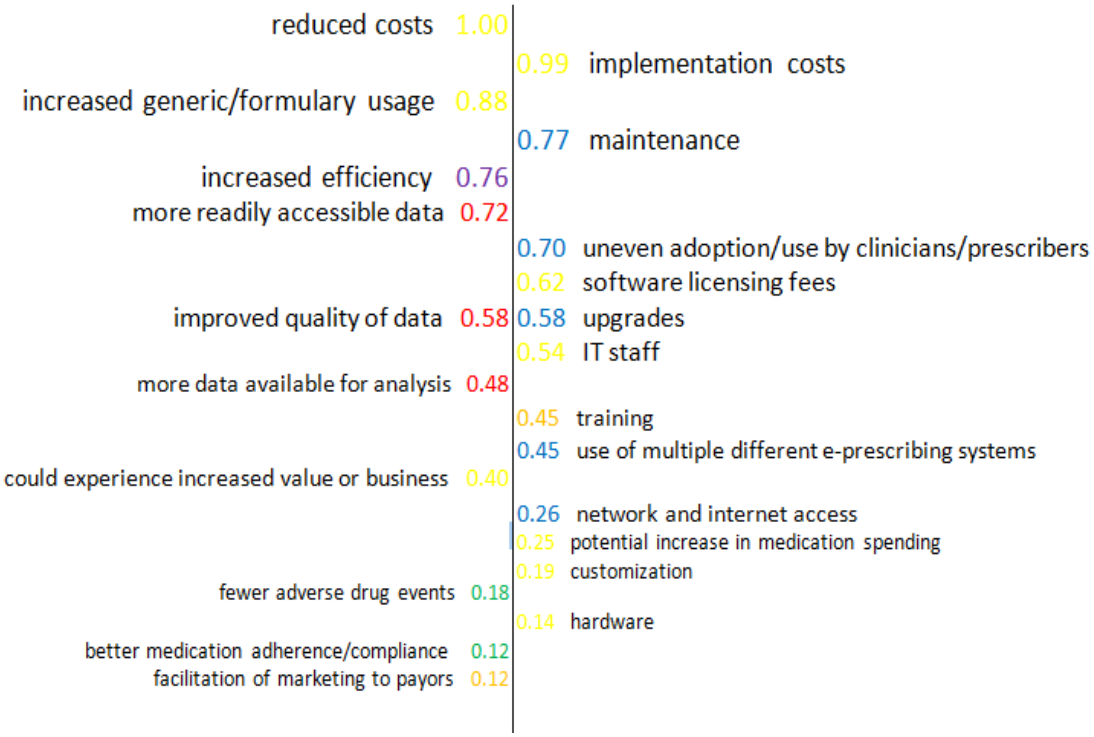



Clinicians/Prescribers
patient medication history is available 1.00
time saving 0.93
fewer medication errors 0.78
fewer errors in prescriptions 0.72
easier to review alternative medications on formulary 0.69
increased efficiency 0.62
better ability to monitor adherence/compliance 0.55
improved communication 0.46
increased or improved decision support 0.44
fewer documents 0.39
faster information transfer 0.30
improved care and/or health outcomes 0.27
improved patient satisfaction 0.25
lesser professional liability premiums and malpractice liability 0.10
0.98 poor fit with workflow
0.95 implementation costs
0.89 training
0.86 software licensing fees
0.85 controlled substances may have to be separately prescribed
0.79 healthcare coverage and/or formulary may not be updated
0.75 menu designs may increase wrong drug choices
0.74 time consuming
0.72 maintenance
0.69 upgrades
0.68 alerts may be inactivated or ignored
0.66 network and internet access
0.66 history and alerts may not be updated
0.59 difficult to identify patient's preferred pharmacy
0.56 users may rely on the system and be less careful
0.53 customization
0.52 wrong patient may be selected
0.48 burdensome regulations for e-prescribing controlled substances
0.45 vendor may go out of business and/or not support e-prescribing system
0.39 impact on interactions with patients
0.37 information overload
0.36 IT staff
0.33 hardware
0.29 changes in role
0.23 communication problems
0.19 possible supervision by third parties, including payors
0.16 potential for new major errors, creating adverse effects on safety
0.13 might be necessary to redo e-prescription
0.10 potential for new minor errors, creating inconvenience
0.06 risk of violation of data security
0.03 entirely dependent on technology

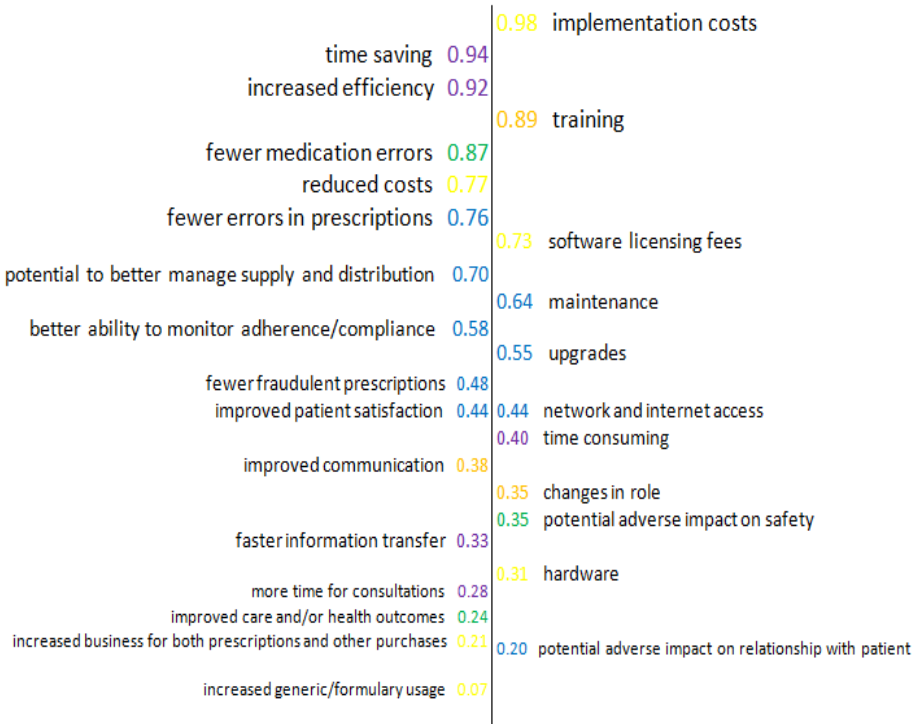
Payors/Purchasers



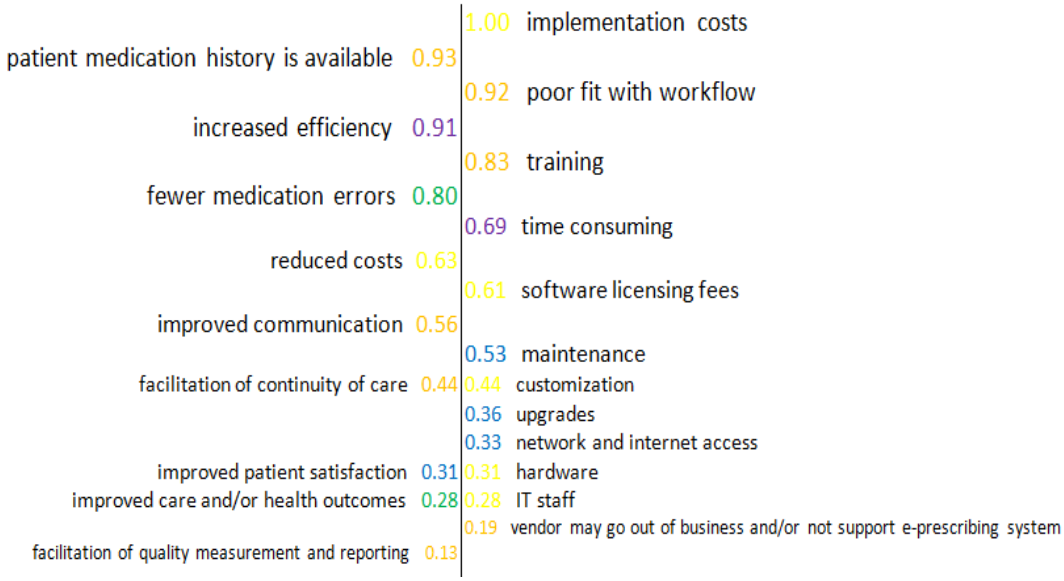
Pharmacy Benefit Managers/Prescription Pricing Authorities



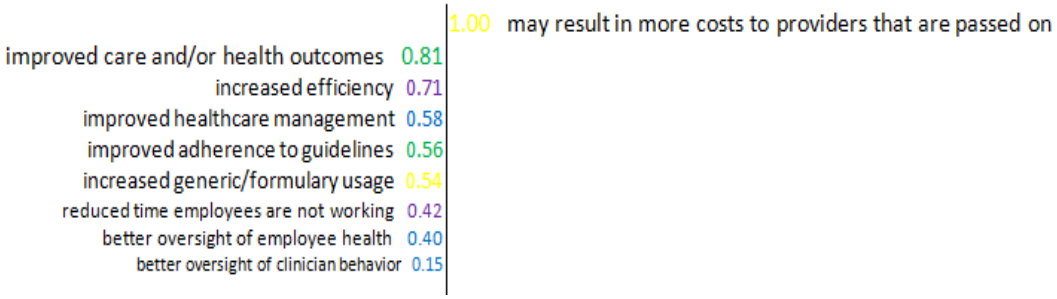
Pharmacies/Dispensers/Pharmacists



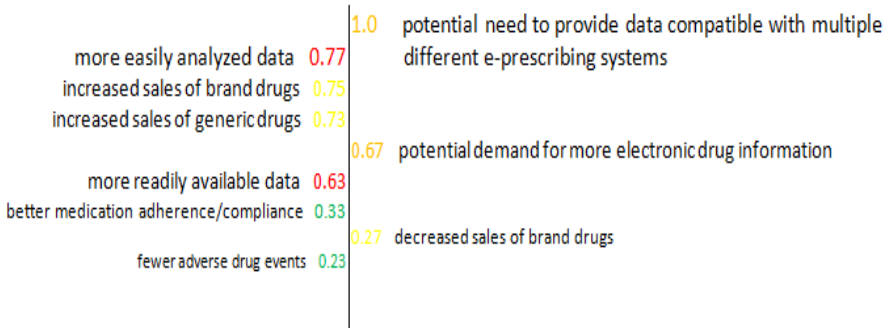
Inpatient or Outpatient Healthcare Entities



Employers

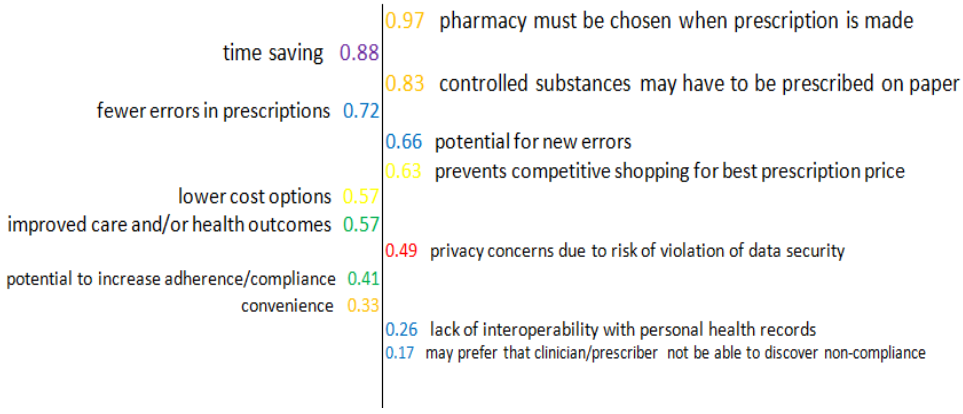


Pharmaceutical Manufacturers

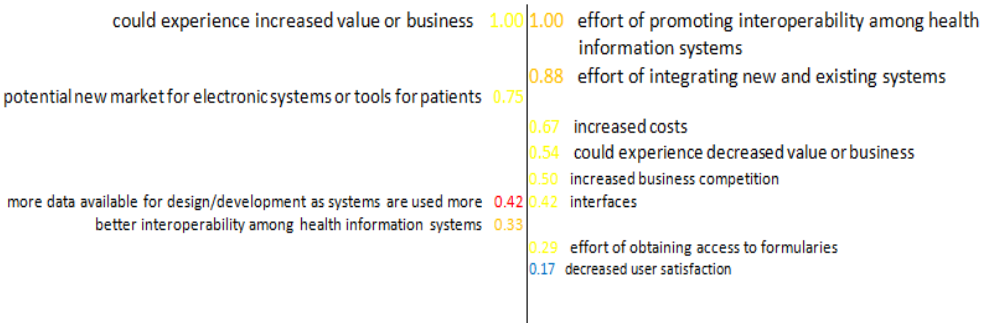


Secondary Stakeholders:

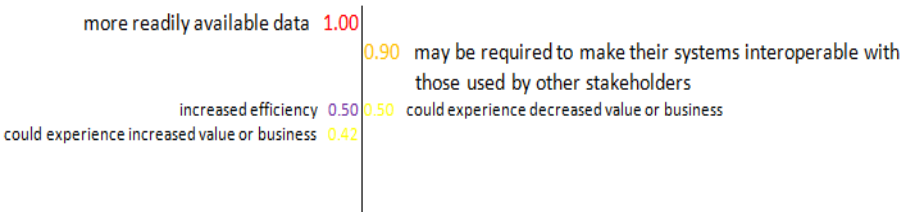
Patients' Families



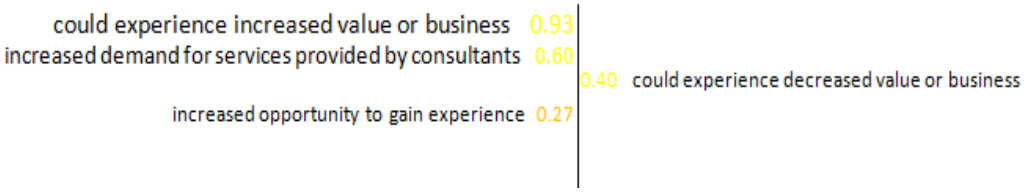
Vendors of Health Information Technology



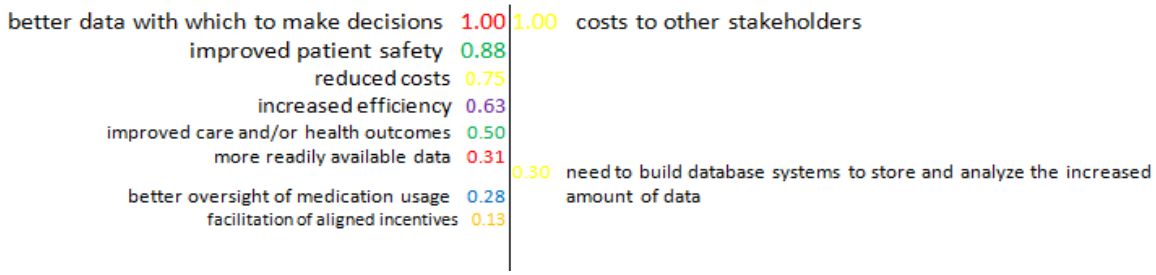
Suppliers/Distributors of Pharmaceuticals

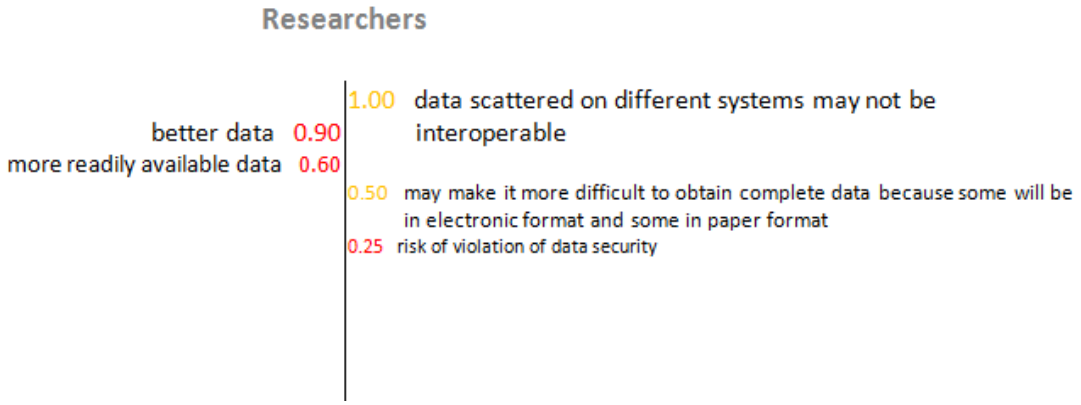


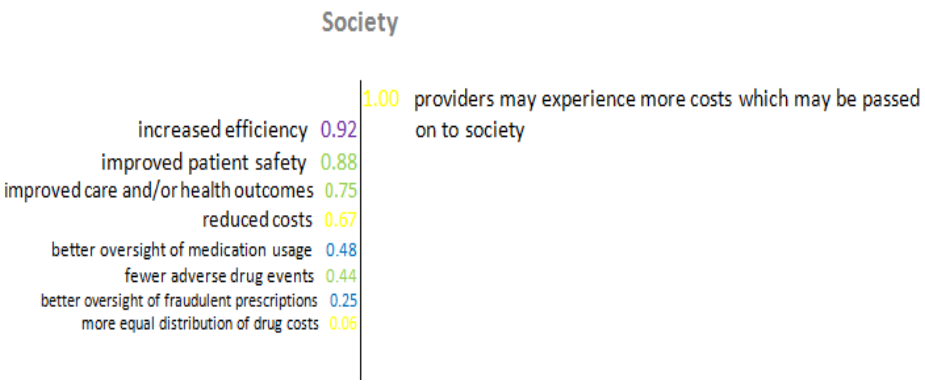
Consultants



Policymakers/Legislators







The following Stakeholders were identified by certain Delphi Experts along with the following positives and negatives, which were not rank-ordered.

Patient Associations/Support groups

improved patient safety, e.g. less waiting time

medication recommendations might be better tailored for those with multiple diseases

use of specific therapeutic options can be viewed by these groups and patients

patients should have more say in how prescriptions looks

some effective therapies may be more difficult to order by eRx than by traditional prescribing methods

less face-to-face time with healthcare professionals

introduction of new risks to patient safety

Government Prescription Monitoring Programs

ability to catch people filling multiple prescriptions for the same medications, e.g. opiods.	less privacy
better data for comparative effectiveness	may need a second method for prescriptions that cannot be e-prescribed, such as narcotics
time series management system could be available for public health purposes	possible over regulation of prescription practices
	data obtained may not reflect reality

Non-Clinical Staff

improved inventory control	possible problems due to the use of different terminologies in the administrative vs. the clinical setting
improved work flow	
reduction of on-site inventory and better supply chain management	
easier to take care of patient requests	
improved overview of medication history	
facilitated billing due to shared information	
improved information flow	
improved communication	
more complete information	

To assist us in analyzing the usefulness of this Framework, we would appreciate it if you would review the following questions which we will discuss with you for approximately a half hour in the next few weeks.

If you participate and complete the interview, your name will be entered into a drawing with the Global Delphi Experts who completed all three rounds of the survey to have a donation in the amount of $2,500 made in the name of the one individual selected to the American Medical Informatics Association (AMIA) for educational and research purposes.

From your perspective as a [your position]

1. What aspects of the Framework do you find most useful?

2. Which stakeholders do you view as particularly important?

3. Please identify any stakeholders that are not identified that you think it would be important to include, and why?

4. Please identify any stakeholders included that you think would be of much less significance, and why?

5. Are there any important positives or negatives for a particular stakeholder that you think were missed? If so, what are they?

6. If the results of the Delphi Study differ substantially from what you would have expected, in what way do the results differ?

7. What incentives for the use of e-prescribing for the stakeholders, financial or otherwise, might you view as particularly important?

8. Would you like to comment on the potential value and extent of any such incentives?

9. Are there any particular barriers to the implementation of stakeholder incentives that you would like to identify?

10. How would you characterize the return on investment (ROI), given the positives and negatives accruing to multiple stakeholders, and not merely one stakeholder?

11. This Study has used e-prescribing as an example of a Health Information Technology. What is your opinion about how generalizable this Framework might be to other health information technologies?

Thank you so much for your time. We will be contacting you about a time to interview you about this Framework.

APPENDIX E

Questionnaire One: Brainstorming

Q1 If you participate in all three rounds, a copy of this research summary, the framework, and the evaluation of its usefulness will be forwarded to you after its completion. In addition, your name will be entered into a drawing with the other Delphi Experts and the framework evaluation experts. The winner will have a donation of $2,500 made in his or her name to the American Medical Informatics Association (AMIA) for educational and/or research purposes. Please enter your name as you would like it to appear for the purposes of this drawing and donation.

Answered: 13 Skipped: 0

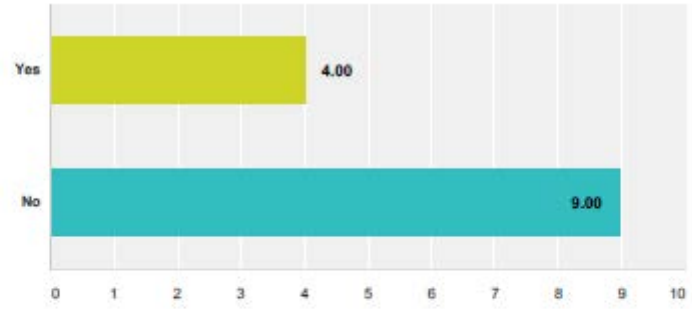
Questionnaire One: Brainstorming

Q2 Please confirm the email address to which you would like further communications sent, including the links to the following questionnaires.

Answered: 13 Skipped: 0

Q3 Set forth below are a number of the stakeholders involved in e-prescribing. • Patients• Clinicians/Prescribers• Payors/Purchasers (including, but not limited to health plans or insurers, governments or their healthcare agencies, sickness funds, self-insured employer groups)• Entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to Pharmacy Benefit Managers or Prescription Pricing Authorities• Pharmacies/Dispensers/Pharmacists, e.g. retail, specialty or mail order pharmacies• Inpatient or Outpatient Healthcare Entities, e.g. hospitals, ambulatory surgery centers, long term care facilities, home health agencies, etc.• Patients' Families and/or individuals responsible for their care• Employers• Pharmaceutical Manufacturers• Vendors of Health Information Technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules• Suppliers/Distributors of Pharmaceuticals• Consultants• Policy-makers/Legislators• Researchers• SocietyDo you believe any other entities should be added to this list?

Answered: 13 Skipped: 0



Answer Choices	Responses	
Yes	30.77%	4.00
No	69.23%	9.00
Total		13

Questionnaire One: Brainstorming

Q4 Please describe one stakeholder you believe should be added to the given list.

Answered: 4 Skipped: 9

Questionnaire One: Brainstorming

Q5 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

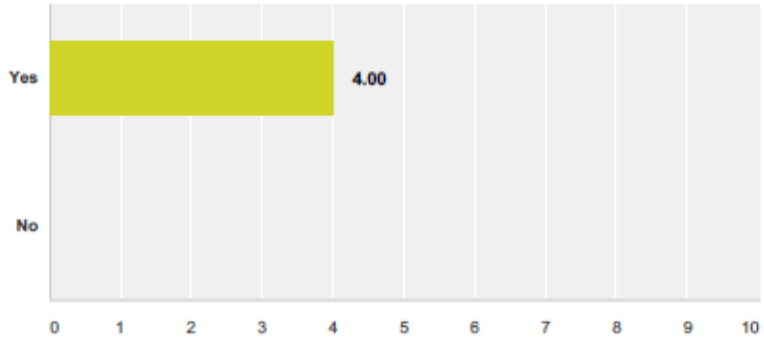
Answered: 4 Skipped: 9

Q6 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 4 Skipped: 9

Q7 Do you believe that the list of stakeholders is now complete?

Answered: 4 Skipped: 9



Answer Choices	Responses	
Yes	100.00%	4.00
No	0.00%	0.00
Total		4

Questionnaire One: Brainstorming

Q8 Please describe one stakeholder you believe should be added to the given list.

Answered: 0 Skipped: 13

Questionnaire One: Brainstorming

Q9 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Questionnaire One: Brainstorming

Q10 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q11 Do you believe that the list of stakeholders is now complete?

Answered: 0 Skipped: 13

! No matching responses.

Answer Choices	Responses	
Yes	0.00%	0.00
No	0.00%	0.00
Total		0

Q12 Please describe one stakeholder you believe should be added to the given list.

Answered: 0 Skipped: 13

Q13 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q14 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q15 Do you believe that the list of stakeholders is now complete?

Answered: 0 Skipped: 13

! No matching responses.

Answer Choices	Responses	
Yes	0.00%	0.00
No	0.00%	0.00
Total		0

Questionnaire One: Brainstorming

Q16 Please describe one stakeholder you believe should be added to the given list.

Answered: 0 Skipped: 13

Q17 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q18 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q19 Do you believe that the list of stakeholders is now complete?

Answered: 0 Skipped: 13

! No matching responses.

Answer Choices	Responses	
Yes	0.00%	0.00
No	0.00%	0.00
Total		0

Q20 Please describe one stakeholder you believe should be added to the given list.

Answered: 0 Skipped: 13

Questionnaire One: Brainstorming

Q21 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q22 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q23 Do you believe that the list of stakeholders is now complete?

Answered: 0 Skipped: 13

! No matching responses.

Answer Choices	Responses	
Yes	0.00%	0.00
No	0.00%	0.00
Total		0

Questionnaire One: Brainstorming

Q24 Please describe one stakeholder you believe should be added to the given list.

Answered: 0 Skipped: 13

Q25 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q26 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q27 Do you believe that the list of stakeholders is now complete?

Answered: 0 Skipped: 13

! No matching responses.

Answer Choices	Responses	
Yes	0.00%	0.00
No	0.00%	0.00
Total		0

Questionnaire One: Brainstorming

Q28 Please describe one stakeholder you believe should be added to the given list.

Answered: 0 Skipped: 13

Questionnaire One: Brainstorming

Q29 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Questionnaire One: Brainstorming

Q30 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q31 Do you believe that the list of stakeholders is now complete?

Answered: 0 Skipped: 13

! No matching responses.

Answer Choices	Responses	
Yes	0.00%	0.00
No	0.00%	0.00
Total		0

Q32 Please describe one stakeholder you believe should be added to the given list.

Answered: 0 Skipped: 13

Q33 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q34 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q35 Do you believe that the list of stakeholders is now complete?

Answered: 0 Skipped: 13

! No matching responses.

Answer Choices	Responses	
Yes	0.00%	0.00
No	0.00%	0.00
Total		0

Q36 Please describe one stakeholder you believe should be added to the given list.

Answered: 0 Skipped: 13

Q37 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q38 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q39 Do you believe that the list of stakeholders is now complete?

Answered: 0 Skipped: 13

! No matching responses.

Answer Choices	Responses	
Yes	0.00%	0.00
No	0.00%	0.00
Total		0

Q40 Please describe one stakeholder you believe should be added to the given list.

Answered: 0 Skipped: 13

Questionnaire One: Brainstorming

Q41 Please describe the positives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q42 Please describe the negatives associated with e-prescribing, considering only the perspective of this additional stakeholder.

Answered: 0 Skipped: 13

Q43 Do you believe that the list of stakeholders is now complete?

Answered: 0 Skipped: 13

! No matching responses.

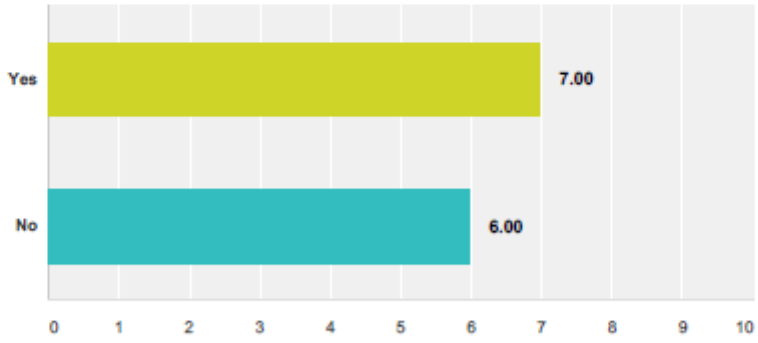
Answer Choices	Responses	
Yes	0.00%	0.00
No	0.00%	0.00
Total		0

Q44 If you are reading this message, then you have not only added ten additional stakeholders to the given list but also expressed a desire to add at least one more. The given list was developed using an exhaustive literature review. Please explain why you believe that it fell so far short of complete. Thank you.

Answered: 0 Skipped: 13

Q45 Set forth below are a number of positives associated with e-prescribing, from the perspective of Patients.• Fewer medication errors• Fewer adverse drug events• Convenience, e.g. merely pick up medicines at pharmacy or have them delivered• Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications• Improved care and/or health outcomes• Improved patient safety• Better medication adherence/compliance• Increased efficiencyDo you believe any other positives should be added to this list?

Answered: 13 Skipped: 0



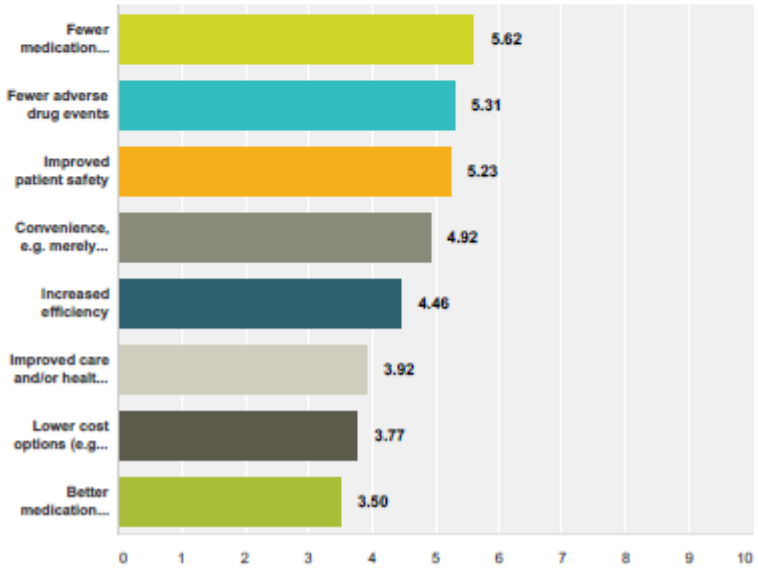
Answer Choices	Responses	
Yes	53.85%	7.00
No	46.15%	6.00
Total		13

Q46 Please describe the positive(s), considering only the perspective of Patients, you believe should be added to the given list.

Answered: 7 Skipped: 6

Q47 Please rank order these positives associated with e-prescribing, considering only the perspective of Patients. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

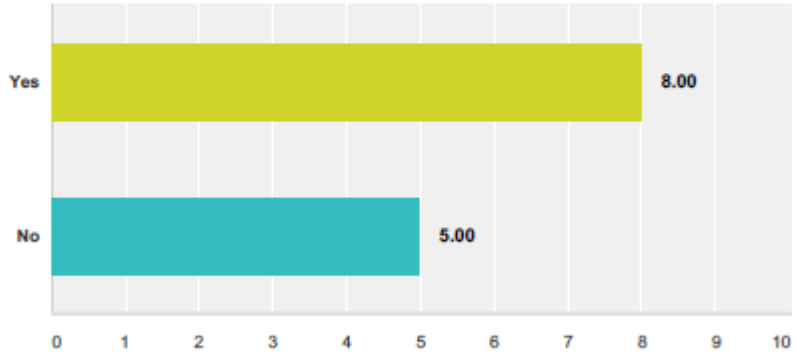
Answered: 13 Skipped: 0



	1	2	3	4	5	6	7	8	N/A	Total	Score
Fewer medication errors	23.08% 3.00	23.08% 3.00	7.69% 1.00	15.38% 2.00	15.38% 2.00	0.00% 0.00	15.38% 2.00	0.00% 0.00	0.00% 0.00	13	5.62
Fewer adverse drug events	7.69% 1.00	30.77% 4.00	23.08% 3.00	7.69% 1.00	0.00% 0.00	23.08% 3.00	0.00% 0.00	7.69% 1.00	0.00% 0.00	13	5.31
Improved patient safety	23.08% 3.00	0.00% 0.00	30.77% 4.00	23.08% 3.00	0.00% 0.00	7.69% 1.00	0.00% 0.00	15.38% 2.00	0.00% 0.00	13	5.23
Convenience, e.g. merely pick up medicines at pharmacy or have them delivered	23.08% 3.00	15.38% 2.00	0.00% 0.00	15.38% 2.00	7.69% 1.00	23.08% 3.00	7.69% 1.00	7.69% 1.00	0.00% 0.00	13	4.92
Increased efficiency	15.38% 2.00	7.69% 1.00	15.38% 2.00	0.00% 0.00	23.08% 3.00	7.69% 1.00	30.77% 4.00	0.00% 0.00	0.00% 0.00	13	4.46
Improved care and/or health outcomes	7.69% 1.00	0.00% 0.00	0.00% 0.00	15.38% 2.00	38.46% 5.00	7.69% 1.00	23.08% 3.00	0.00% 0.00	7.69% 1.00	13	3.92
Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	0.00% 0.00	15.38% 2.00	23.08% 3.00	0.00% 0.00	7.69% 1.00	15.38% 2.00	15.38% 2.00	23.08% 3.00	0.00% 0.00	13	3.77
Better medication adherence/compliance	0.00% 0.00	7.69% 1.00	0.00% 0.00	23.08% 3.00	7.69% 1.00	15.38% 2.00	0.00% 0.00	23.08% 3.00	23.08% 3.00	13	3.50

Q48 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Patients.• Need to find a provider who e-prescribes• Need to find a pharmacy/dispenser that e-prescribes• Less likely to get non-formulary medications• Controlled substances may have to be separately prescribed, on paperDo you believe any other negatives should be added to this list?

Answered: 13 Skipped: 0



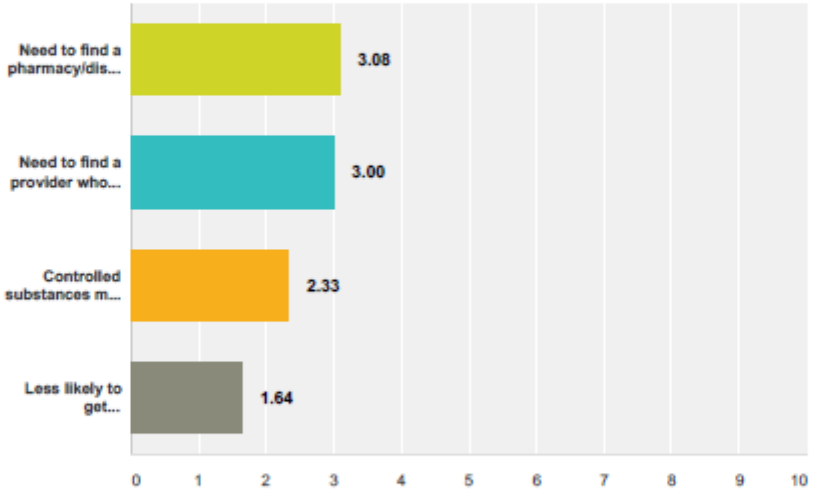
Answer Choices	Responses	
Yes	61.54%	8.00
No	38.46%	5.00
Total		13

Q49 Please describe the negative(s), considering only the perspective of Patients, you believe should be added to the given list.

Answered: 8 Skipped: 5

Q50 Please rank order these negatives associated with e-prescribing, considering only the perspective of Patients. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

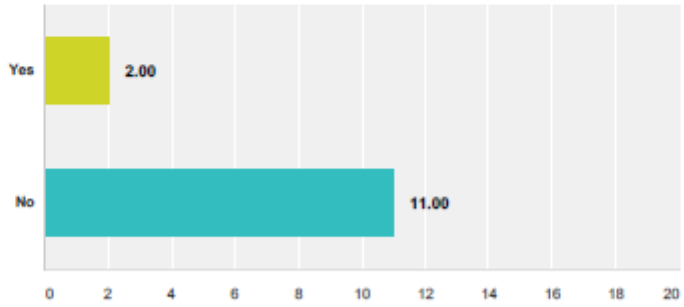
Answered: 13 Skipped: 0



	1	2	3	4	N/A	Total	Score
Need to find a pharmacy/dispenser that e-prescribes	38.46% 5.00	38.46% 5.00	0.00% 0.00	15.38% 2.00	7.69% 1.00	13	3.08
Need to find a provider who e-prescribes	30.77% 4.00	30.77% 4.00	30.77% 4.00	0.00% 0.00	7.69% 1.00	13	3.00
Controlled substances may have to be separately prescribed, on paper	15.38% 2.00	15.38% 2.00	46.15% 6.00	15.38% 2.00	7.69% 1.00	13	2.33
Less likely to get non-formulary medications	7.69% 1.00	7.69% 1.00	15.38% 2.00	53.85% 7.00	15.38% 2.00	13	1.64

Q51 Set forth below are a number of positives associated with e-prescribing, from the perspective of Clinicians/Prescribers.• Patient medication history is available (electronic record of prescriptions)• Fewer medication errors• Time saving (e.g. less faxes, telephone calls, workflow interruptions)• Easier to review alternative medications on formulary• Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)• Improved patient satisfaction• Lesser professional liability premiums and malpractice liability• Increased efficiency• Fewer documents• Improved care and/or health outcomesDo you believe any other positives should be added to this list?

Answered: 13 Skipped: 0



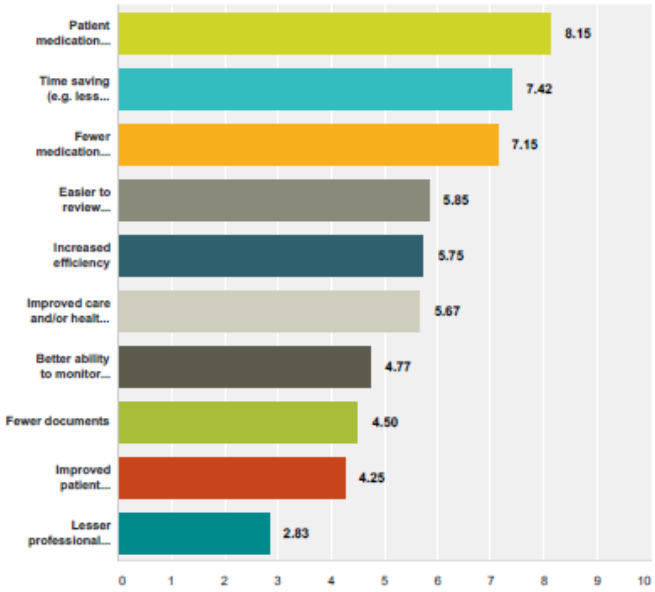
Answer Choices	Responses	
Yes	15.38%	2.00
No	84.62%	11.00
Total		13

Q52 Please describe the positive(s), considering only the perspective of Clinicians/Prescribers, you believe should be added to the given list.

Answered: 2 Skipped: 11

Q53 Please rank order these positives associated with e-prescribing, considering only the perspective of Clinicians/Prescribers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

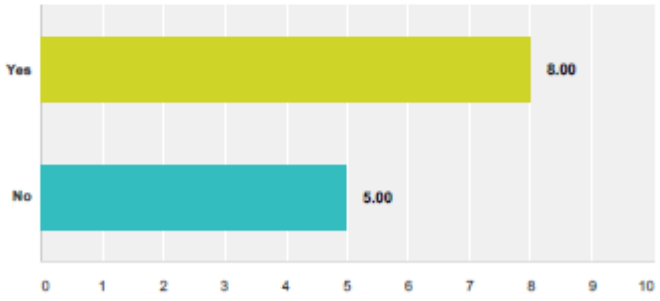
Answered: 13 Skipped: 0



	1	2	3	4	5	6	7	8	9	10	N/A	Total	Score
Patient medication history is available (electronic record of prescriptions)	38.46% 5.00	7.69% 1.00	30.77% 4.00	0.00% 0.00	15.38% 2.00	0.00% 0.00	0.00% 0.00	7.69% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	13	8.15
Time saving (e.g. less faxes, telephone calls, workflow interruptions)	25.00% 3.00	16.67% 2.00	16.67% 2.00	25.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	12	7.42
Fewer medication errors	38.46% 5.00	7.69% 1.00	0.00% 0.00	15.38% 2.00	15.38% 2.00	0.00% 0.00	7.69% 1.00	0.00% 0.00	15.38% 2.00	0.00% 0.00	0.00% 0.00	13	7.15
Easier to review alternative medications on formulary	0.00% 0.00	15.38% 2.00	23.08% 3.00	0.00% 0.00	7.69% 1.00	23.08% 3.00	15.38% 2.00	7.69% 1.00	7.69% 1.00	0.00% 0.00	0.00% 0.00	13	5.85
Increased efficiency	0.00% 0.00	15.38% 2.00	7.69% 1.00	23.08% 3.00	7.69% 1.00	7.69% 1.00	7.69% 1.00	15.38% 2.00	0.00% 0.00	7.69% 1.00	7.69% 1.00	13	5.75
Improved care and/or health outcomes	0.00% 0.00	23.08% 3.00	0.00% 0.00	7.69% 1.00	23.08% 3.00	0.00% 0.00	15.38% 2.00	15.38% 2.00	7.69% 1.00	0.00% 0.00	7.69% 1.00	13	5.67
Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)	0.00% 0.00	7.69% 1.00	23.08% 3.00	0.00% 0.00	7.69% 1.00	7.69% 1.00	15.38% 2.00	15.38% 2.00	7.69% 1.00	15.38% 2.00	0.00% 0.00	13	4.77
Fewer documents	0.00% 0.00	8.33% 1.00	0.00% 0.00	25.00% 3.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	0.00% 0.00	12	4.50
Improved patient satisfaction	0.00% 0.00	0.00% 0.00	0.00% 0.00	7.69% 1.00	7.69% 1.00	30.77% 4.00	15.38% 2.00	15.38% 2.00	15.38% 2.00	0.00% 0.00	7.69% 1.00	13	4.25
Lesser professional liability premiums and malpractice liability	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7.69% 1.00	23.08% 3.00	7.69% 1.00	7.69% 1.00	0.00% 0.00	46.15% 6.00	7.69% 1.00	13	2.83

Q54 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Clinicians/Prescribers.• Hardware• Software licensing fees • Implementation costs• Vendor may go out of business and/or not support e-prescribing system• Maintenance• Upgrades• Customization• Training• IT Staff• Network and internet access• Wrong patient may be selected• Alerts may be inactivated or ignored• History and alerts may not be updated• Healthcare coverage and/or formulary may not be updated• Menu designs (Graphical User Interfaces) may increase wrong drug choices• Users may rely on the system and be less careful• Controlled substances may have to be separately prescribed, on paperDo you believe any other negatives should be added to this list?

Answered: 13 Skipped: 0



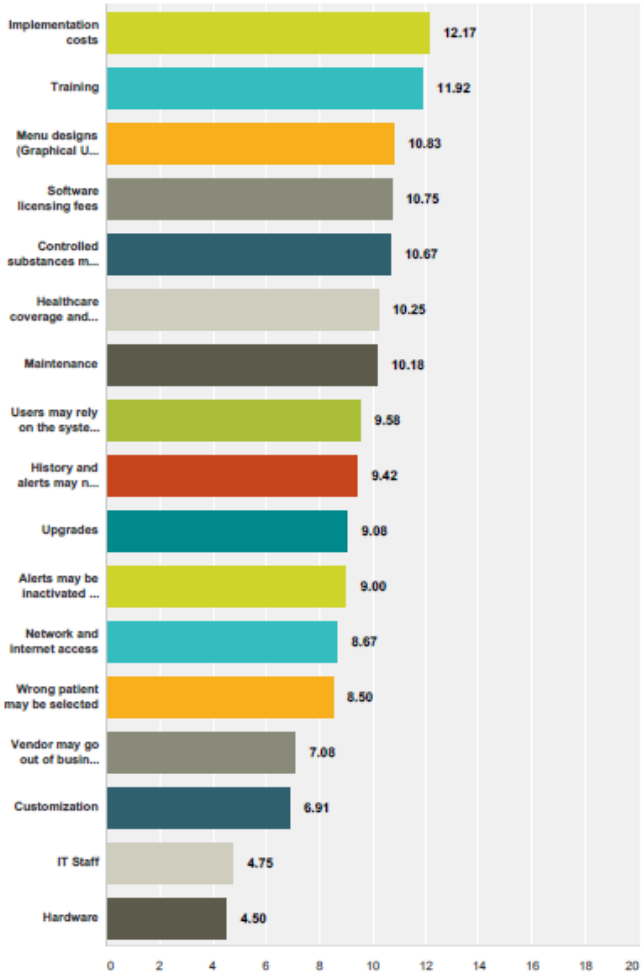
Answer Choices	Responses	
Yes	61.54%	8.00
No	38.46%	5.00
Total		13

Q55 Please describe the negative(s), considering only from the perspective of the Clinicians/Prescribers, you believe should be added to the given list.

Answered: 8 Skipped: 5

Q56 Please rank order these negatives associated with e-prescribing, considering only the perspective of Clinicians/Prescribers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

Answered: 12 Skipped: 1



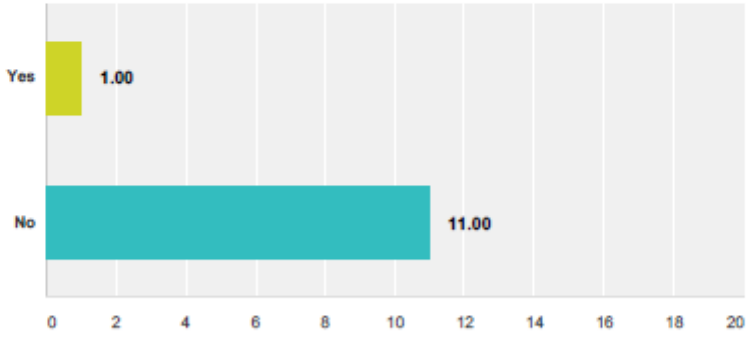
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	N/A
Implementation costs	25.00% 3.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Training	8.33% 1.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	25.00% 3.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Menu designs (Graphical User Interfaces) may increase wrong drug choices	0.00% 0.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Software licensing fees	16.67% 2.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00

Questionnaire One: Brainstorming

Controlled substances may have to be separately prescribed, on paper	8.33% 1.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Healthcare coverage and/or formulary may not be updated	8.33% 1.00	16.67% 2.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Maintenance	0.00% 0.00	0.00% 0.00	9.09% 1.00	18.18% 2.00	27.27% 3.00	0.00% 0.00	9.09% 1.00	0.00% 0.00	0.00% 0.00	9.09% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	18.18% 2.00	9.09% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Users may rely on the system and be less careful	16.67% 2.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00
History and alerts may not be updated	8.33% 1.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	0.00% 0.00
Upgrades	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00
Alerts may be inactivated or ignored	0.00% 0.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	33.33% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00
Network and internet access	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00
Wrong patient may be selected	0.00% 0.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Vendor may go out of business and/or not support e-prescribing system	0.00% 0.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 3.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	0.00% 0.00
Customization	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	33.33% 4.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	8.33% 1.00
IT Staff	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	41.67% 5.00	0.00% 0.00
Hardware	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	25.00% 3.00	8.33% 1.00	33.33% 4.00	8.33% 1.00	0.00% 0.00

Q57 Set forth below are a number of positives associated with e-prescribing, from the perspective of Payors/Purchasers.• Increased generic/formulary usage• Increased efficiency• Better medication adherence/compliance• Fewer medication errors• Fewer adverse drug events• Improved care and/or health outcomes• Improved patient safety• More readily available dataDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



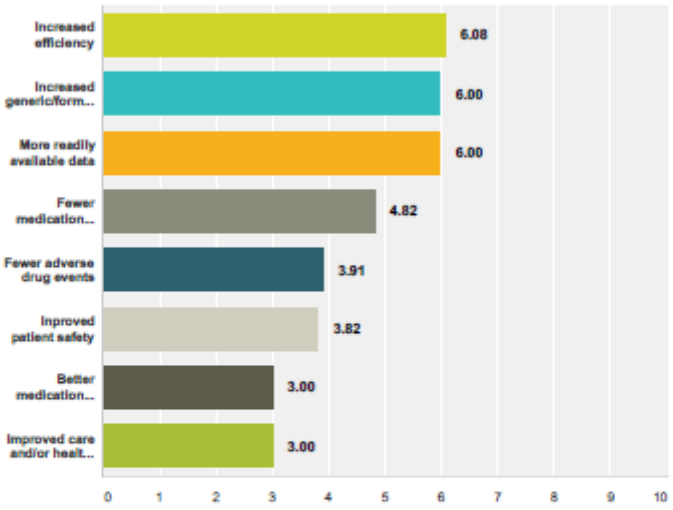
Answer Choices	Responses	
Yes	8.33%	1.00
No	91.67%	11.00
Total		12

Q58 Please describe the positive(s), considering only the perspective of Payors/Purchasers, you believe should be added to the given list.

Answered: 1 Skipped: 12

Q59 Please rank order these positives associated with e-prescribing, considering only the perspective of Payors/Purchasers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

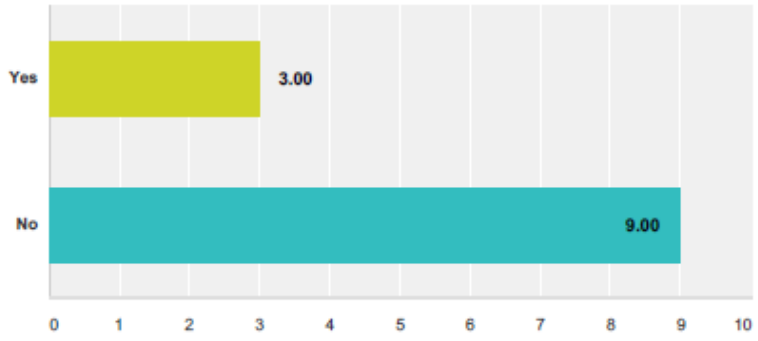
Answered: 12 Skipped: 1



	1	2	3	4	5	6	7	8	N/A	Total	Score
Increased efficiency	16.67% 2.00	33.33% 4.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12	6.08
Increased generic/formulary usage	25.00% 3.00	25.00% 3.00	33.33% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	12	6.00
More readily available data	33.33% 4.00	25.00% 3.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	12	6.00
Fewer medication errors	16.67% 2.00	0.00% 0.00	0.00% 0.00	25.00% 3.00	33.33% 4.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	12	4.82
Fewer adverse drug events	0.00% 0.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	25.00% 3.00	16.67% 2.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	12	3.91
Inproved patient safety	0.00% 0.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	25.00% 3.00	25.00% 3.00	0.00% 0.00	8.33% 1.00	12	3.82
Better medication adherence/compliance	8.33% 1.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	33.33% 4.00	25.00% 3.00	0.00% 0.00	12	3.00
Improved care and/or health outcomes	0.00% 0.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	16.67% 2.00	25.00% 3.00	16.67% 2.00	12	3.00

Q60 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Payors/Purchasers.• InterfacesDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



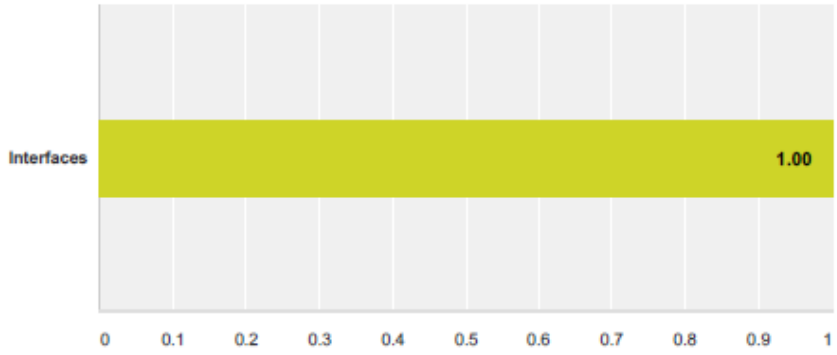
Answer Choices	Responses	
Yes	25.00%	3.00
No	75.00%	9.00
Total		12

Q61 Please describe the negative(s), considering only the perspective of Payors/Purchasers, you believe should be added to the given list.

Answered: 3 Skipped: 10

Q62 Please rank order these negatives associated with e-prescribing, considering only the perspective of Payors/Purchasers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

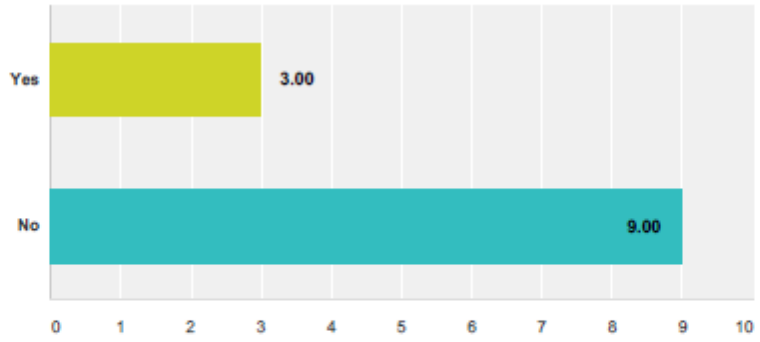
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Interfaces	66.67% 8.00	33.33% 4.00	12	1.00

Q63 Set forth below are a number of positives associated with e-prescribing, from the perspective of entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to Pharmacy Benefit Managers or Prescription Pricing Authorities.• Increased generic/formulary usage• Increased efficiency• Better medication adherence/compliance• Fewer adverse drug events• Reduced costs• Could experience increased value or businessDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



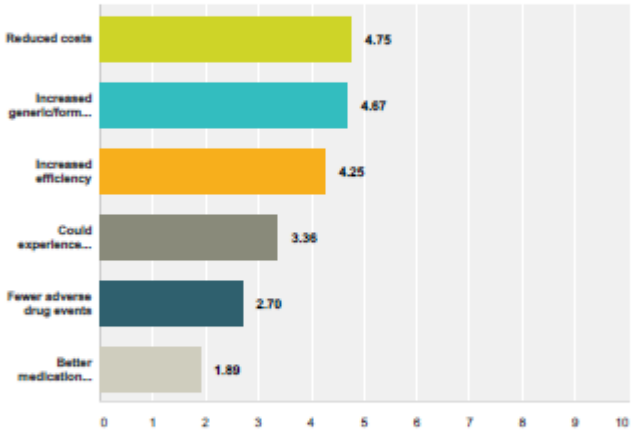
Answer Choices	Responses	
Yes	25.00%	3.00
No	75.00%	9.00
Total		12

Q64 Please describe the positive(s), considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities, you believe should be added to the given list.

Answered: 3 Skipped: 10

Q65 Please rank order these positives associated with e-prescribing, considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

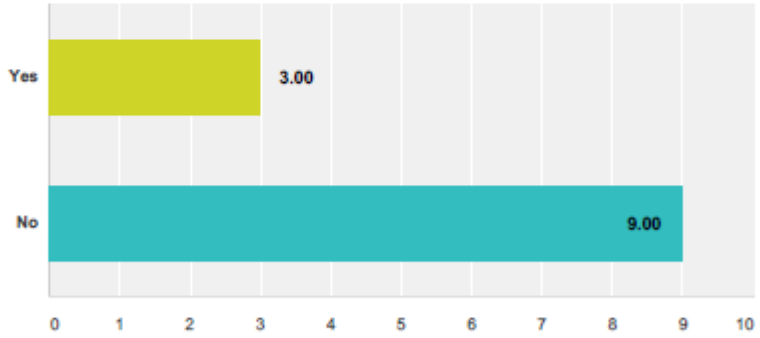
Answered: 12 Skipped: 1



	1	2	3	4	5	6	N/A	Total	Score
Reduced costs	25.00% 3.00	50.00% 6.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	12	4.75
Increased generic/formulary usage	41.67% 5.00	16.67% 2.00	25.00% 3.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	12	4.67
Increased efficiency	16.67% 2.00	16.67% 2.00	41.67% 5.00	25.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12	4.25
Could experience increased value or business	16.67% 2.00	0.00% 0.00	16.67% 2.00	33.33% 4.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	12	3.36
Fewer adverse drug events	0.00% 0.00	16.67% 2.00	0.00% 0.00	25.00% 3.00	25.00% 3.00	16.67% 2.00	16.67% 2.00	12	2.70
Better medication adherence/compliance	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	33.33% 4.00	25.00% 3.00	25.00% 3.00	12	1.89

Q66 Set forth below are a number of negatives associated with e-prescribing, from the perspective of entities which facilitate determining coverage, formulary, co-payments or deductible amounts, including but not limited to Pharmacy Benefit Managers/Prescription Pricing Authorities.• Hardware• Software licensing fees• Implementation costs• Maintenance• Upgrades• Customization• Training• IT Staff• Network and internet accessDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



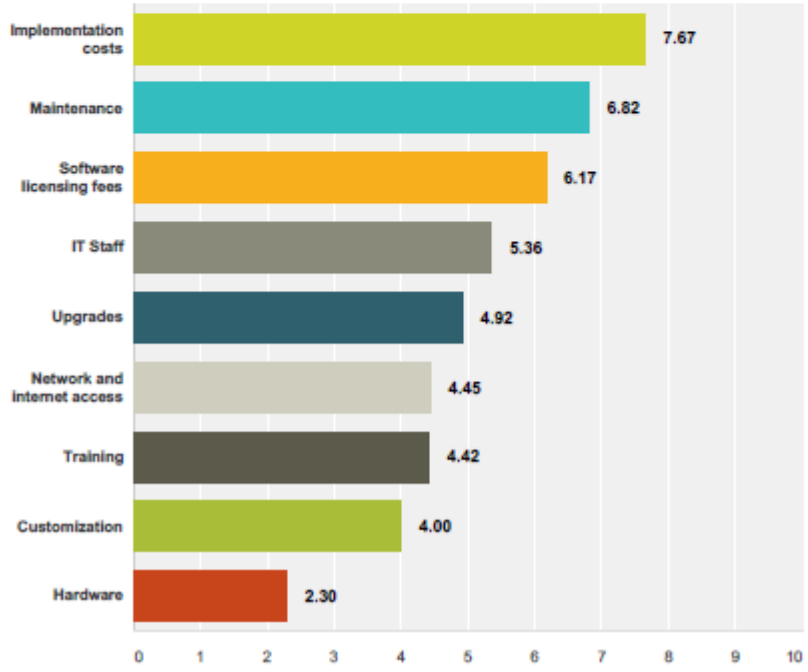
Answer Choices	Responses	
Yes	25.00%	3.00
No	75.00%	9.00
Total		12

Q67 Please describe the negative(s), considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities, you believe should be added to the given list.

Answered: 3 Skipped: 10

Q68 Please rank order these negatives associated with e-prescribing, considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

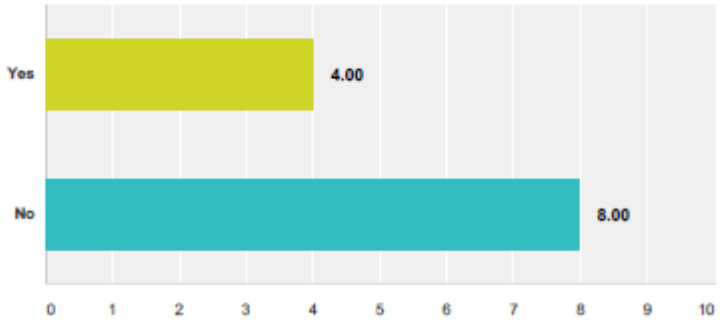
Answered: 12 Skipped: 1



	1	2	3	4	5	6	7	8	9	N/A	Total	Score
Implementation costs	41.67% 5.00	33.33% 4.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	12	7.67
Maintenance	8.33% 1.00	16.67% 2.00	41.67% 5.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	12	6.82
Software licensing fees	33.33% 4.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	12	6.17
IT Staff	0.00% 0.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	25.00% 3.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	12	5.36
Upgrades	8.33% 1.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	25.00% 3.00	25.00% 3.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	12	4.92
Network and internet access	8.33% 1.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	12	4.45
Training	0.00% 0.00	0.00% 0.00	16.67% 2.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	33.33% 4.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	12	4.42
Customization	0.00% 0.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	12	4.00
Hardware	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	33.33% 4.00	16.67% 2.00	12	2.30

Q69 Set forth below are a number of positives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists.• Fewer medication errors• Reduced costs• Time saving (e.g. less faxes, telephone calls, workflow interruptions)• Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)• Fewer fraudulent prescriptions• More time for consultations• Increased generic/formulary usage• Increased efficiency• Improved care and/or health outcomes• Improved patient satisfactionDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



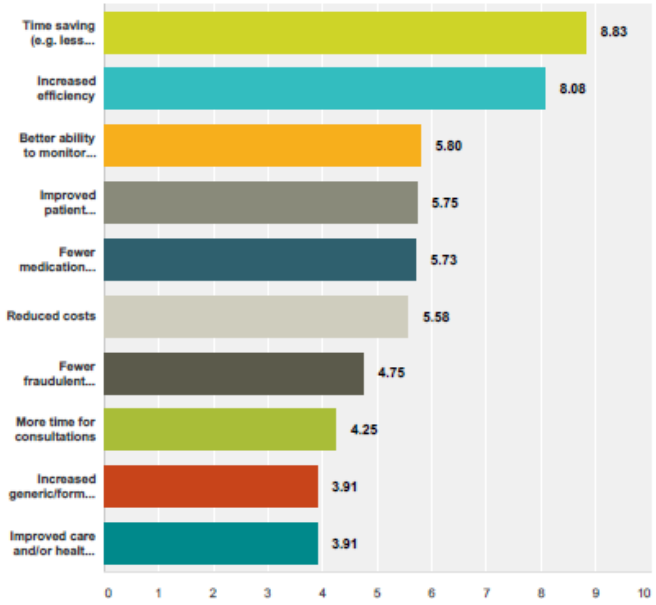
Answer Choices	Responses	
Yes	33.33%	4.00
No	66.67%	8.00
Total		12

Q70 Please describe the positive(s), considering only the perspective of Pharmacies/Dispensers/Pharmacists, you believe should be added to the given list.

Answered: 4 Skipped: 9

Q71 Please rank order these positives associated with e-prescribing, considering only the perspective of Pharmacies/Dispensers/Pharmacists. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

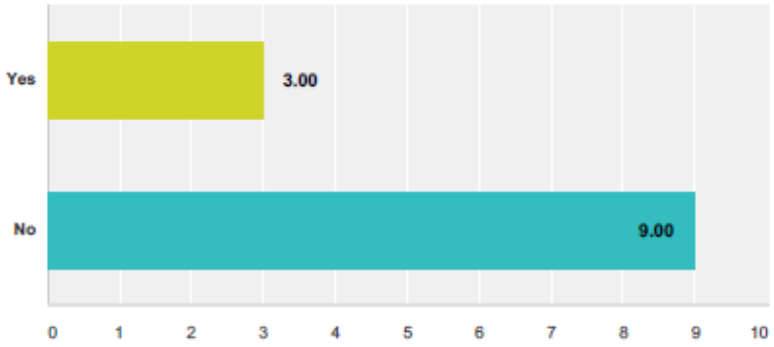
Answered: 12 Skipped: 1



	1	2	3	4	5	6	7	8	9	10	N/A	Total	Score
Time saving (e.g. less faxes, telephone calls, workflow interruptions)	41.67% 5.00	33.33% 4.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12	8.83
Increased efficiency	25.00% 3.00	25.00% 3.00	25.00% 3.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12	8.08
Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)	8.33% 1.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	25.00% 3.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	12	5.80
Improved patient satisfaction	0.00% 0.00	16.67% 2.00	8.33% 1.00	25.00% 3.00	0.00% 0.00	8.33% 1.00	16.67% 2.00	25.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12	5.75
Fewer medication errors	16.67% 2.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	12	5.73
Reduced costs	0.00% 0.00	0.00% 0.00	16.67% 2.00	16.67% 2.00	25.00% 3.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12	5.58
Fewer fraudulent prescriptions	8.33% 1.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	25.00% 3.00	0.00% 0.00	12	4.75
More time for consultations	0.00% 0.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	25.00% 3.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	12	4.25
Increased generic/formulary usage	0.00% 0.00	8.33% 1.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	25.00% 3.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	12	3.91
Improved care and/or health outcomes	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	25.00% 3.00	8.33% 1.00	8.33% 1.00	12	3.91

Q72 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists.• Hardware• Software licensing fees• Implementation costs• Maintenance• Upgrades• Training• Network and internet accessDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



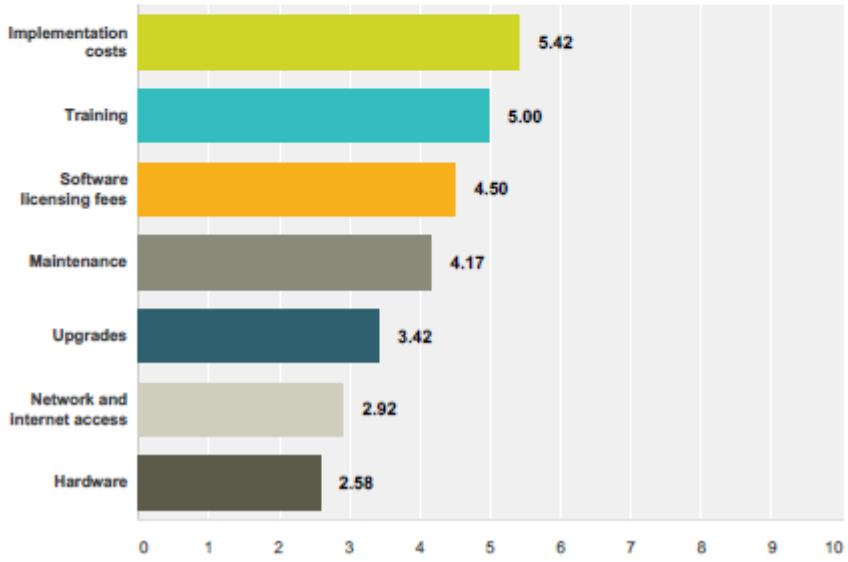
Answer Choices	Responses	
Yes	25.00%	3.00
No	75.00%	9.00
Total		12

Q73 Please describe the negative(s), considering only the perspective of Pharmacies/Dispensers/Pharmacists, you believe should be added to the given list.

Answered: 3 Skipped: 10

Q74 Please rank order these negatives associated with e-prescribing, considering only the perspective of Pharmacies/Dispensers/Pharmacists. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

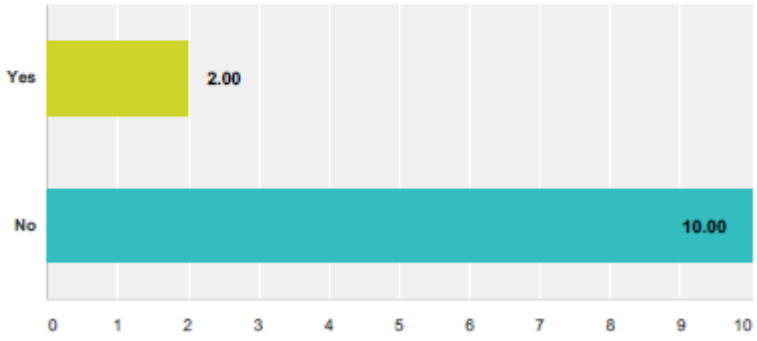
Answered: 12 Skipped: 1



	1	2	3	4	5	6	7	N/A	Total	Score
Implementation costs	33.33% 4.00	25.00% 3.00	16.67% 2.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	12	5.42
Training	25.00% 3.00	25.00% 3.00	16.67% 2.00	0.00% 0.00	25.00% 3.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	12	5.00
Software licensing fees	25.00% 3.00	25.00% 3.00	0.00% 0.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	12	4.50
Maintenance	8.33% 1.00	8.33% 1.00	33.33% 4.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	12	4.17
Upgrades	8.33% 1.00	0.00% 0.00	8.33% 1.00	33.33% 4.00	16.67% 2.00	25.00% 3.00	8.33% 1.00	0.00% 0.00	12	3.42
Network and internet access	0.00% 0.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	33.33% 4.00	0.00% 0.00	12	2.92
Hardware	0.00% 0.00	0.00% 0.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	25.00% 3.00	33.33% 4.00	0.00% 0.00	12	2.58

Q75 Set forth below are a number of positives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities.• Patient medication history is available (electronic record of prescriptions)• Fewer medication errors• Increased efficiency• Reduced costs• Facilitation of quality measurement and reporting• Improved patient satisfaction• Improved care and/or health outcomesDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



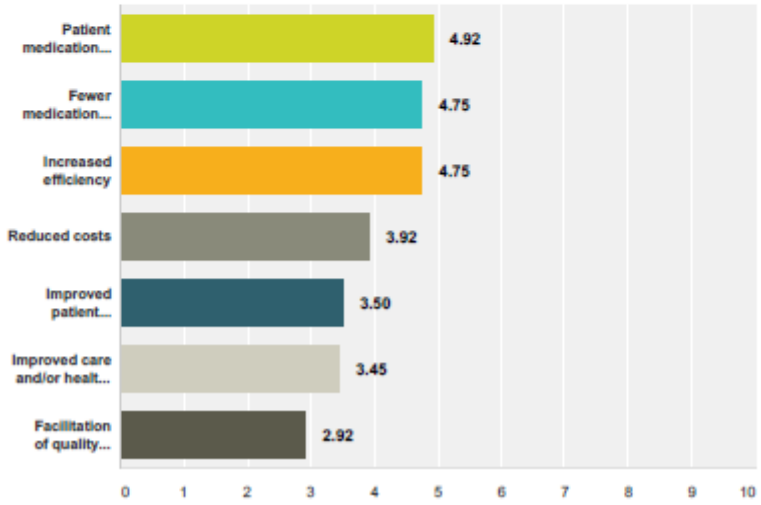
Answer Choices	Responses	
Yes	16.67%	2.00
No	83.33%	10.00
Total		12

Q76 Please describe the positive(s), considering only the perspective of Inpatient or Outpatient Healthcare Entities, you believe should be added to the given list.

Answered: 2 Skipped: 11

Q77 Please rank order these positives associated with e-prescribing, considering only the perspective of Inpatient or Outpatient Healthcare Entities. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

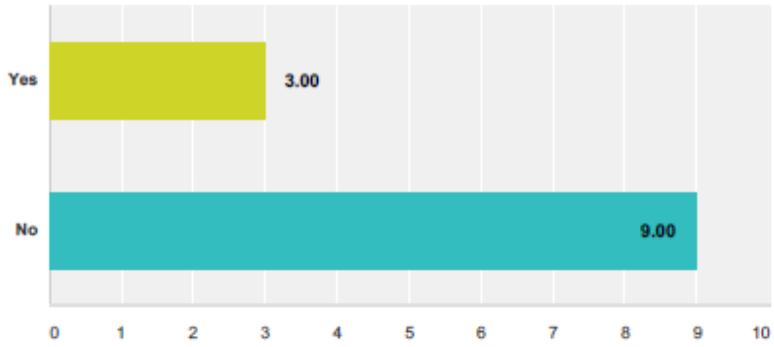
Answered: 12 Skipped: 1



	1	2	3	4	5	6	7	N/A	Total	Score
Patient medication history is available (electronic record of prescriptions)	41.67% 5.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	12	4.92
Fewer medication errors	25.00% 3.00	33.33% 4.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	12	4.75
Increased efficiency	16.67% 2.00	16.67% 2.00	33.33% 4.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	12	4.75
Reduced costs	8.33% 1.00	25.00% 3.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	16.67% 2.00	16.67% 2.00	0.00% 0.00	12	3.92
Improved patient satisfaction	8.33% 1.00	8.33% 1.00	16.67% 2.00	8.33% 1.00	16.67% 2.00	33.33% 4.00	8.33% 1.00	0.00% 0.00	12	3.50
Improved care and/or health outcomes	0.00% 0.00	16.67% 2.00	8.33% 1.00	33.33% 4.00	0.00% 0.00	8.33% 1.00	25.00% 3.00	8.33% 1.00	12	3.45
Facilitation of quality measurement and reporting	0.00% 0.00	0.00% 0.00	16.67% 2.00	16.67% 2.00	33.33% 4.00	8.33% 1.00	25.00% 3.00	0.00% 0.00	12	2.92

Q78 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities.• Hardware• Software licensing fees• Implementation costs• Vendor may go out of business or not support e-prescribing system• Maintenance• Upgrades• Customization• Training• IT staff• Network and internet accessDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



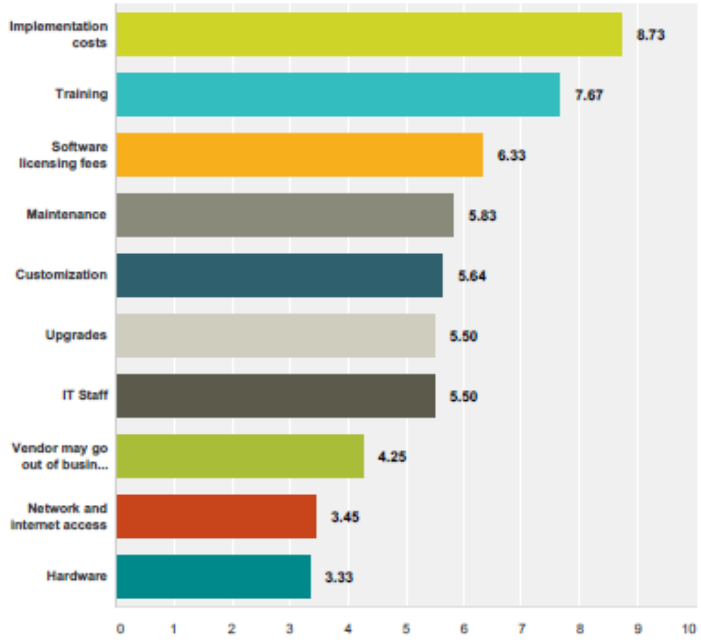
Answer Choices	Responses	
Yes	25.00%	3.00
No	75.00%	9.00
Total		12

Q79 Please describe the negative(s), considering only the perspective of Inpatient or Outpatient Healthcare Entities, you believe should be added to the given list.

Answered: 3 Skipped: 10

Q80 Please rank order these negatives associated with e-prescribing, considering only the perspective of Inpatient or Outpatient Healthcare Entities. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

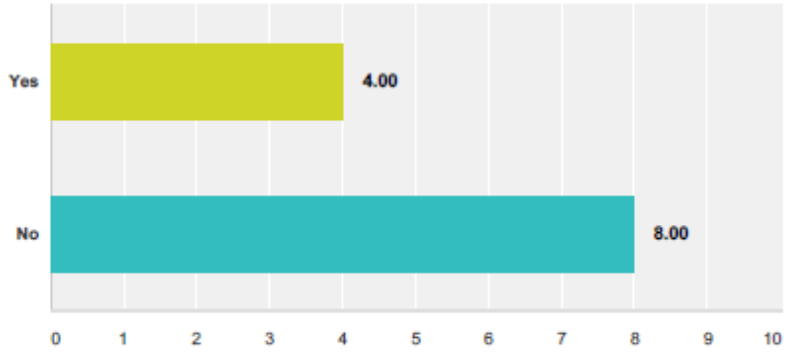
Answered: 12 Skipped: 1



	1	2	3	4	5	6	7	8	9	10	N/A	Total	Score
Implementation costs	41.67% 5.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	12	8.73
Training	25.00% 3.00	25.00% 3.00	8.33% 1.00	25.00% 3.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	12	7.67
Software licensing fees	16.67% 2.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	12	6.33
Maintenance	0.00% 0.00	0.00% 0.00	8.33% 1.00	25.00% 3.00	33.33% 4.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12	5.83
Customization	8.33% 1.00	25.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	12	5.64
Upgrades	0.00% 0.00	0.00% 0.00	25.00% 3.00	8.33% 1.00	8.33% 1.00	16.67% 2.00	33.33% 4.00	8.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12	5.50
IT Staff	0.00% 0.00	16.67% 2.00	8.33% 1.00	8.33% 1.00	33.33% 4.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	12	5.50
Vendor may go out of business or not support e-prescribing system	8.33% 1.00	0.00% 0.00	0.00% 0.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	33.33% 4.00	16.67% 2.00	8.33% 1.00	0.00% 0.00	12	4.25
Network and internet access	0.00% 0.00	0.00% 0.00	16.67% 2.00	0.00% 0.00	8.33% 1.00	0.00% 0.00	8.33% 1.00	8.33% 1.00	25.00% 3.00	25.00% 3.00	8.33% 1.00	12	3.45
Hardware	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8.33% 1.00	25.00% 3.00	0.00% 0.00	33.33% 4.00	25.00% 3.00	8.33% 1.00	0.00% 0.00	12	3.33

Q81 Set forth below are a number of positives associated with e-prescribing, from the perspective of Patients' Families.• Improved care and/or health outcomes• Could reduce families' amount of time spent coordinating care• Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medicationsDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



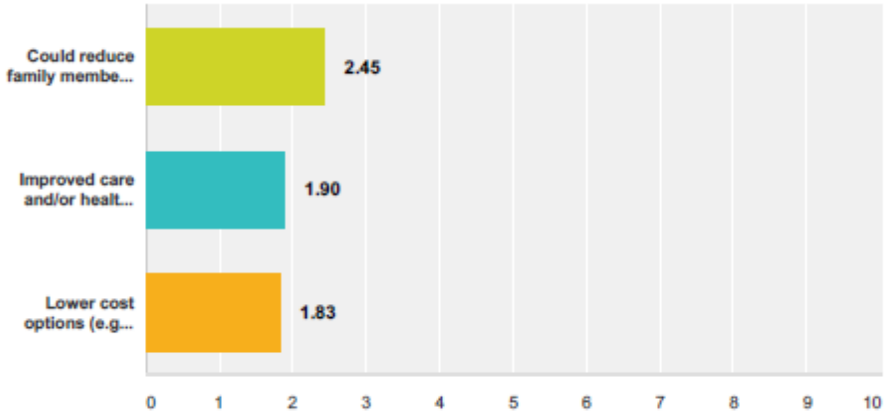
Answer Choices	Responses	
Yes	33.33%	4.00
No	66.67%	8.00
Total		12

Q82 Please describe the positive(s), considering only the perspective of Patients' Families you believe should be added to the given list.

Answered: 4 Skipped: 9

Q83 Please rank order these positives associated with e-prescribing, considering only the perspective of Patients' Families. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

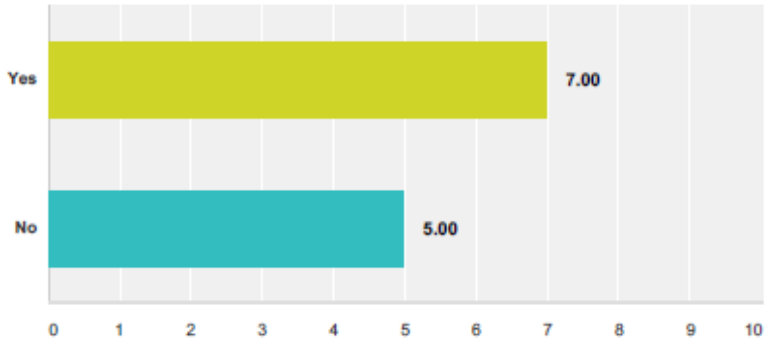
Answered: 12 Skipped: 1



	1	2	3	N/A	Total	Score
Could reduce family members amount of time spent coordinating care	58.33% 7.00	16.67% 2.00	16.67% 2.00	8.33% 1.00	12	2.45
Improved care and/or health outcomes	27.27% 3.00	27.27% 3.00	36.36% 4.00	9.09% 1.00	11	1.90
Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	16.67% 2.00	50.00% 6.00	33.33% 4.00	0.00% 0.00	12	1.83

Q84 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Patients' Families.• Controlled substances may have to be separately prescribed, on paperDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



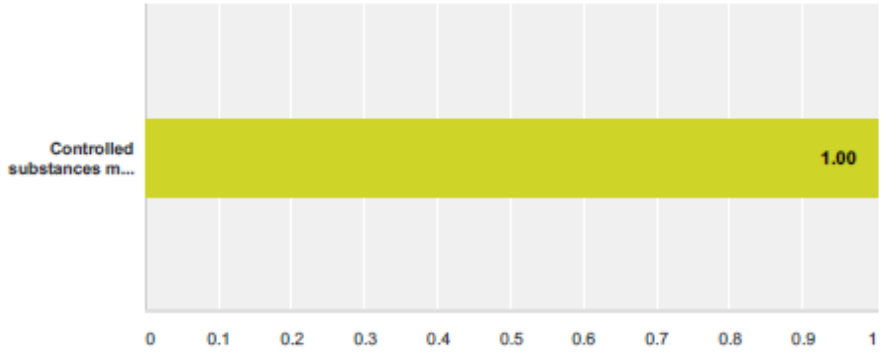
Answer Choices	Responses	
Yes	58.33%	7.00
No	41.67%	5.00
Total		12

Q85 Please describe the negative(s), considering only the perspective of Patients' Families, you believe should be added to the given list.

Answered: 7 Skipped: 6

Q86 Please rank order these negatives associated with e-prescribing, considering only the perspective of Patients' Families.If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

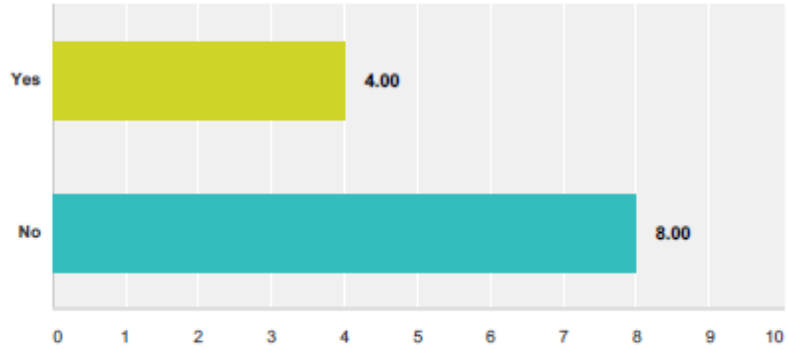
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Controlled substances may have to be separately prescribed, on paper	83.33% 10.00	16.67% 2.00	12	1.00

Q87 Set forth below are a number of positives associated with e-prescribing, from the perspective of Employers.• Improved care and/or health outcomes• Reduced time employees are not workingDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



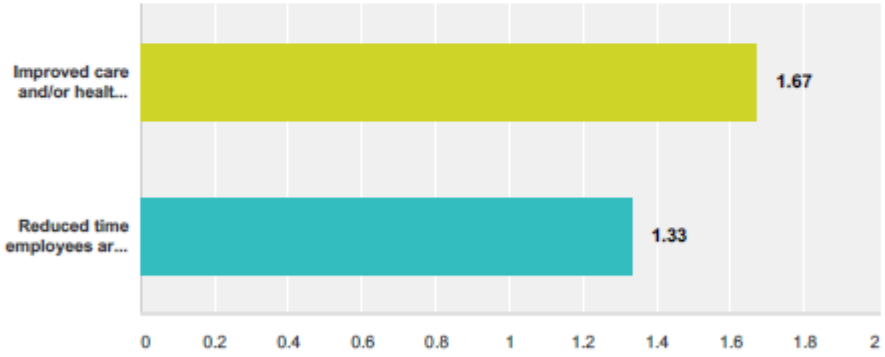
Answer Choices	Responses	
Yes	33.33%	4.00
No	66.67%	8.00
Total		12

Q88 Please describe the positive(s), considering only the perspective of Employers, you believe should be added to the given list.

Answered: 4 Skipped: 9

Q89 Please rank order these positives associated with e-prescribing, considering only the perspective of Employers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

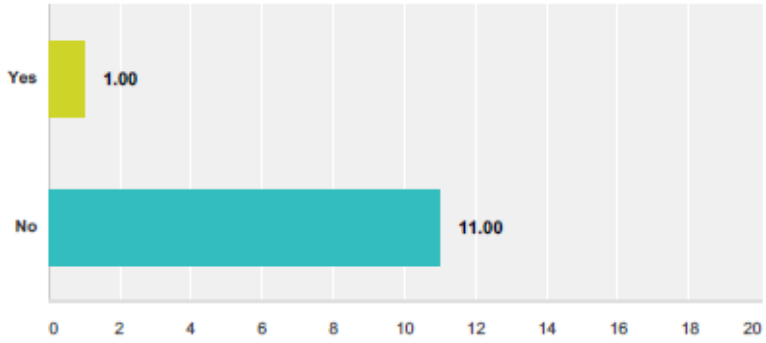
Answered: 12 Skipped: 1



	1	2	N/A	Total	Score
Improved care and/or health outcomes	50.00% 6.00	25.00% 3.00	25.00% 3.00	12	1.67
Reduced time employees are not working	25.00% 3.00	50.00% 6.00	25.00% 3.00	12	1.33

Q90 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Employers.• May result in more costs to providers that are passed on to employersDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



Answer Choices	Responses	
Yes	8.33%	1.00
No	91.67%	11.00
Total		12

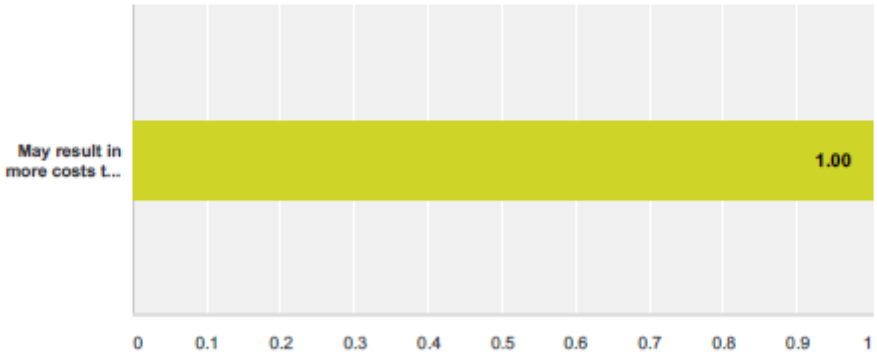
Questionnaire One: Brainstorming

Q91 Please describe the negative(s), considering only the perspective of Employers, you believe should be added to the given list.

Answered: 1 Skipped: 12

Q92 Please rank order these negatives associated with e-prescribing, considering only the perspective of Employers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

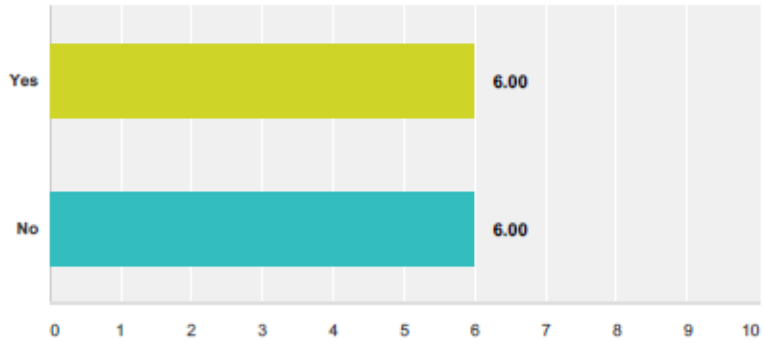
Answered: 12 Skipped: 1



	1	N/A	Total	Score
May result in more costs to providers that are passed on to employers	83.33% 10.00	16.67% 2.00	12	1.00

Q93 Set forth below are a number of positives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers.• Increased sales of generic drugsDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



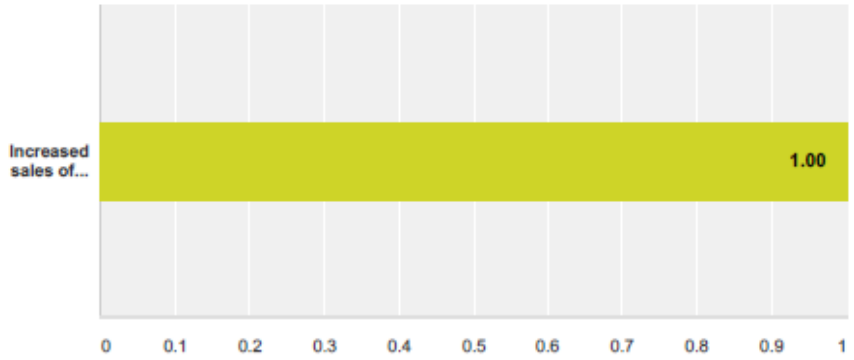
Answer Choices	Responses	
Yes	50.00%	6.00
No	50.00%	6.00
Total		12

Q94 Please describe the positive(s), considering only the perspective of Pharmaceutical Manufacturers, you believe should be added to the given list.

Answered: 6 Skipped: 7

Q95 Please rank order these positives associated with e-prescribing, considering only the perspective of Pharmaceutical Manufacturers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

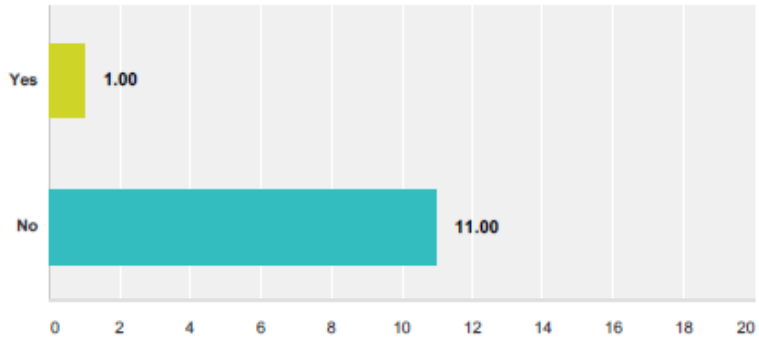
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Increased sales of generic drugs	75.00% 9.00	25.00% 3.00	12	1.00

Q96 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers.• Decreased sales of brand drugsDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



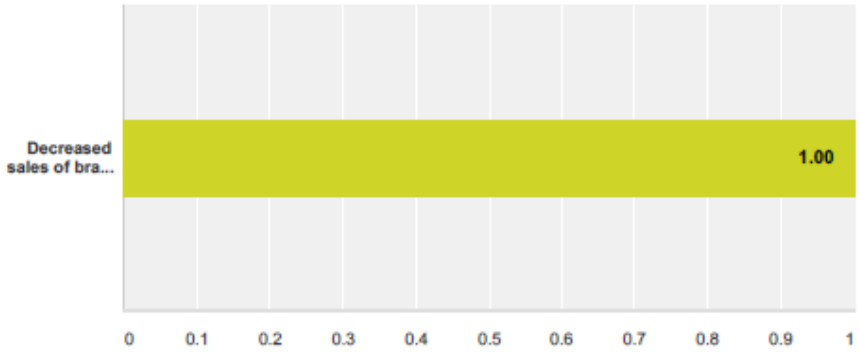
Answer Choices	Responses	
Yes	8.33%	1.00
No	91.67%	11.00
Total		12

Q97 Please describe the negative(s), considering only the perspective of Pharmaceutical Manufacturers, you believe should be added to the given list.

Answered: 1 Skipped: 12

Q98 Please rank order these negatives associated with e-prescribing, considering only the perspective of Pharmaceutical Manufacturers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

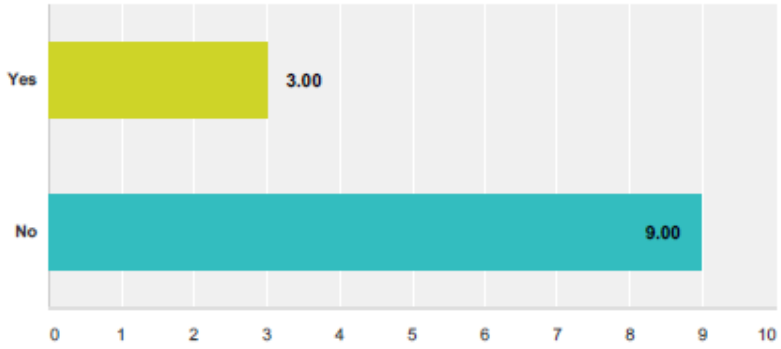
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Decreased sales of brand drugs	**75.00%** 9.00	**25.00%** 3.00	12	1.00

Q99 Set forth below are a number of positives associated with e-prescribing, from the perspective of Vendors of Health Information Technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules.• Could experience increased value or businessDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



Answer Choices	Responses	
Yes	25.00%	3.00
No	75.00%	9.00
Total		12

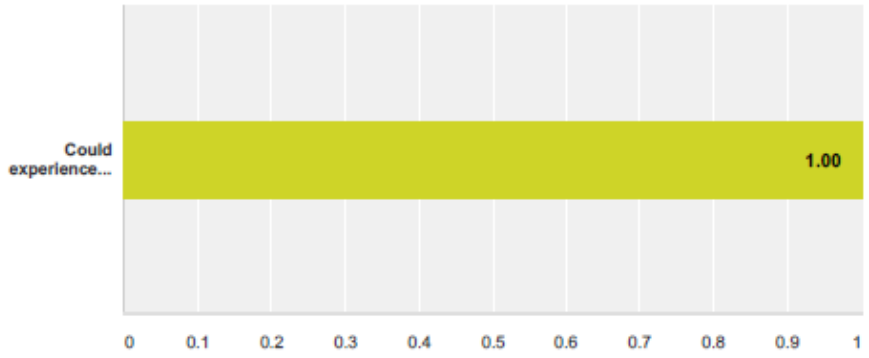
Questionnaire One: Brainstorming

Q100 Please describe the positive(s), considering only the perspective of Vendors of Health Information Technology, you believe should be added to the given list.

Answered: 3 Skipped: 10

Q101 Please rank order these positives associated with e-prescribing, considering only the perspective of Vendors of Health Information Technology. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

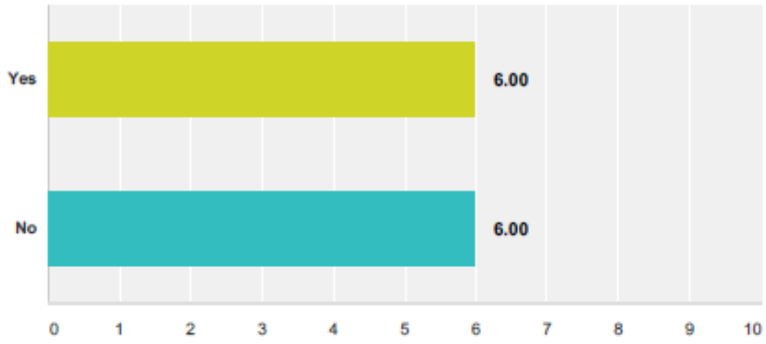
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Could experience increased value or business	**100.00%** 12.00	**0.00%** 0.00	12	1.00

Q102 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Vendors of Health Information Technology, such as e-prescribing systems and computerized physician order entry (CPOE) with e-prescribing modules.• Could experience decreased value or businessDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



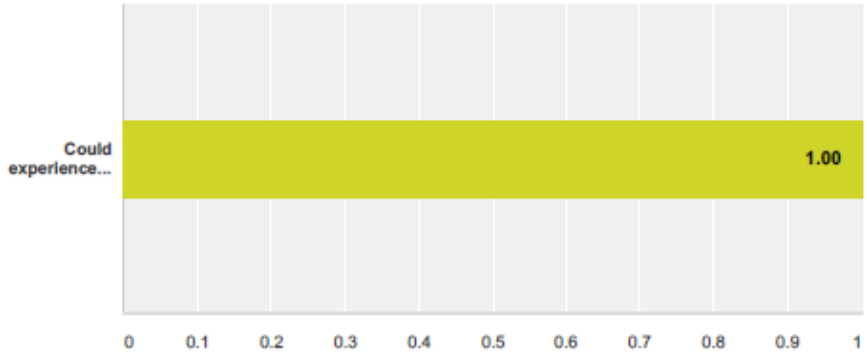
Answer Choices	Responses	
Yes	50.00%	6.00
No	50.00%	6.00
Total		12

Q103 Please describe the negative(s), considering only the perspective of Vendors of Health Information Technology, you believe should be added to the given list.

Answered: 6 Skipped: 7

Q104 Please rank order these negatives associated with e-prescribing, considering only the perspective of Vendors of Health Information Technology. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

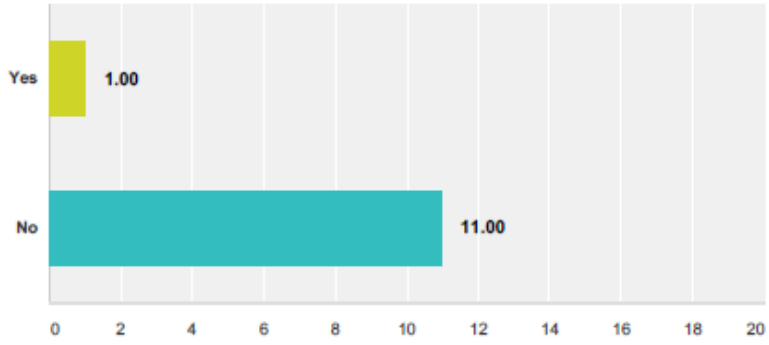
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Could experience decreased value or business	66.67% 8.00	33.33% 4.00	12	1.00

Q105 Set forth below are a number of positives associated with e-prescribing, from the perspective of Suppliers and/or Distributors of Pharmaceuticals.• Could experience increased value or businessDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



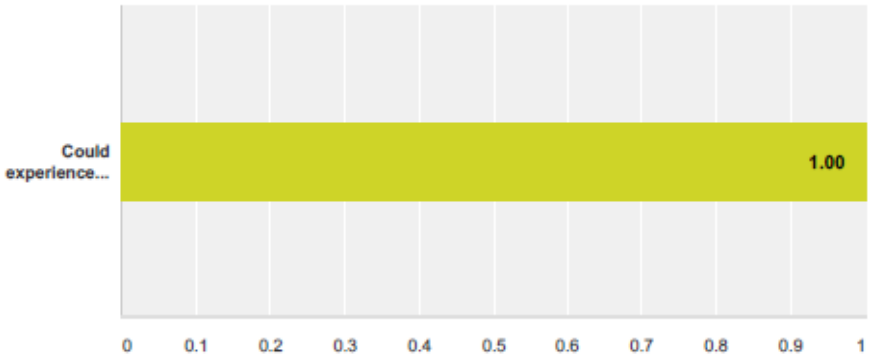
Answer Choices	Responses	
Yes	8.33%	1.00
No	91.67%	11.00
Total		12

Q106 Please describe the positive(s), considering only the perspective of Suppliers/Distributors of Pharmaceuticals, you believe should be added to the given list.

Answered: 1 Skipped: 12

Q107 Please rank order these positives associated with e-prescribing, considering only the perspective of Suppliers/Distributors of Pharmaceuticals. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

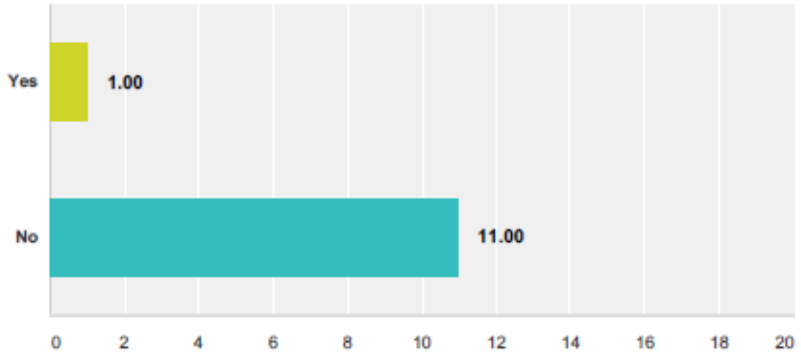
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Could experience increased value or business	66.67% 8.00	33.33% 4.00	12	1.00

Q108 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Suppliers/Distributors of Pharmaceuticals.• Could experience decreased value or businessDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



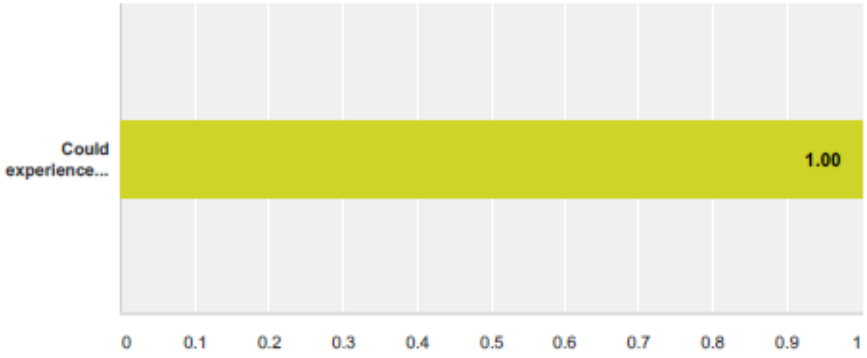
Answer Choices	Responses	
Yes	8.33%	1.00
No	91.67%	11.00
Total		12

Q109 Please describe the negative(s), considering only the perspective of Suppliers/Distributors of Pharmaceuticals, you believe should be added to the given list.

Answered: 1 Skipped: 12

Q110 Please rank order these negatives associated with e-prescribing, considering only the perspective of Suppliers/Distributors of Pharmaceuticals. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

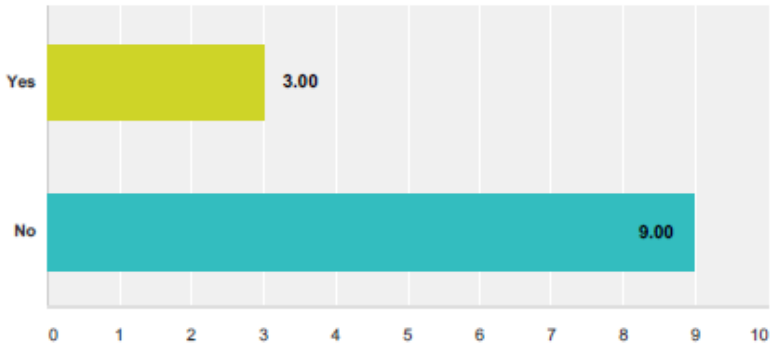
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Could experience decreased value or business	66.67% 8.00	33.33% 4.00	12	1.00

Q111 Set forth below are a number of positives associated with e-prescribing, from the perspective of Consultants.• Could experience increased value or businessDo you believe any other positives should be added to this list?

Answered: 12 Skipped: 1



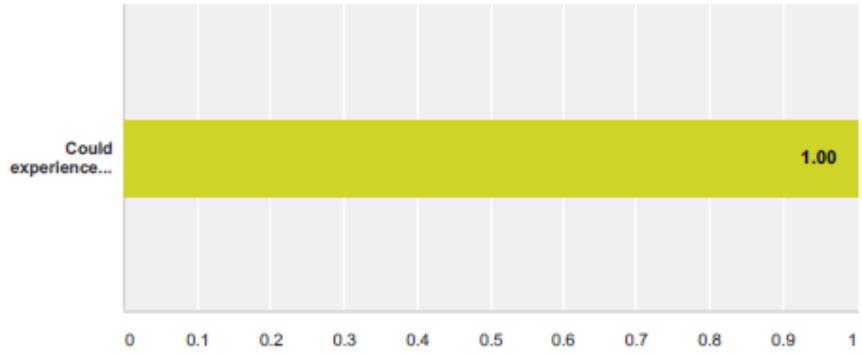
Answer Choices	Responses	
Yes	25.00%	3.00
No	75.00%	9.00
Total		12

Q112 Please describe the positive(s), considering only the perspective of Consultants, you believe should be added to the given list.

Answered: 3 Skipped: 10

Q113 Please rank order these positives associated with e-prescribing, considering only the perspective of Consultants. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

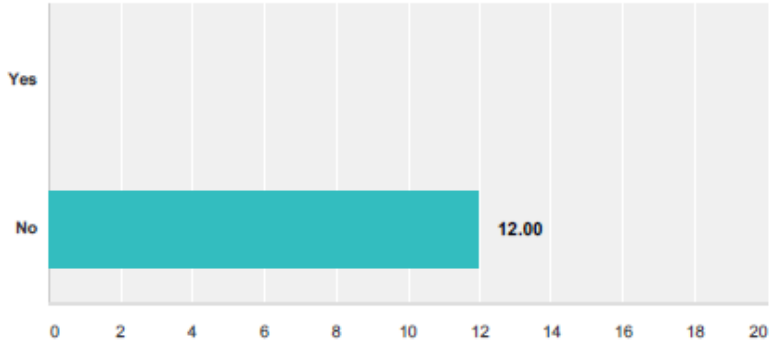
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Could experience increased value or business	91.67% 11.00	8.33% 1.00	12	1.00

Q114 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Consultants.• Could experience decreased value or businessDo you believe any other negatives should be added to this list?

Answered: 12 Skipped: 1



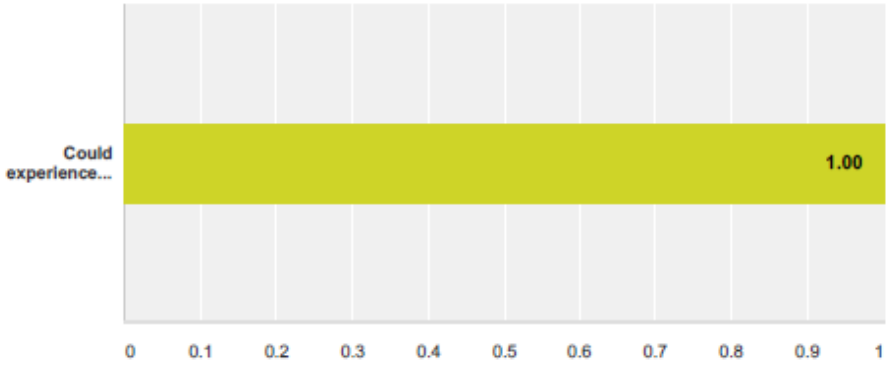
Answer Choices	Responses	
Yes	0.00%	0.00
No	100.00%	12.00
Total		12

Q115 Please describe the negative(s), considering only the perspective of Consultants, you believe should be added to the given list.

Answered: 0 Skipped: 13

Q116 Please rank order these negatives associated with e-prescribing, considering only the perspective of Consultants. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

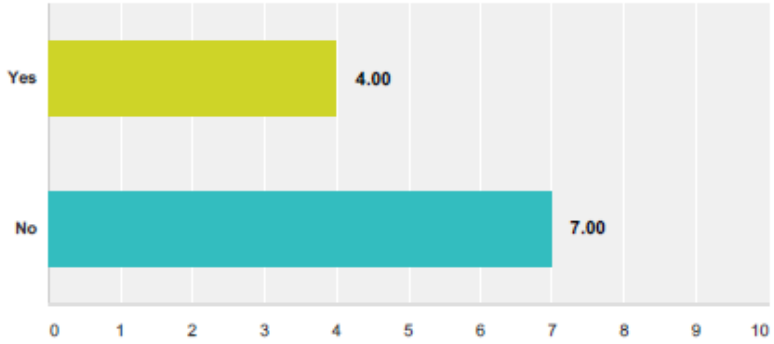
Answered: 12 Skipped: 1



	1	N/A	Total	Score
Could experience decreased value or business	**58.33%** 7.00	**41.67%** 5.00	12	1.00

Q117 Set forth below are a number of positives associated with e-prescribing, from the perspective of Policy-makers/Legislators.• Better data with which to make decisions• Facilitation of aligned incentivesDo you believe any other positives should be added to this list?

Answered: 11 Skipped: 2



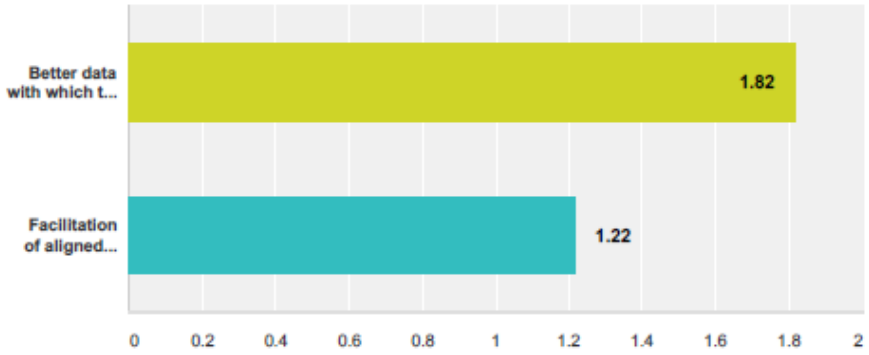
Answer Choices	Responses	
Yes	36.36%	4.00
No	63.64%	7.00
Total		11

Q118 Please describe the positive(s), considering only the perspective of Policy-makers/Legislators, you believe should be added to the given list.

Answered: 4 Skipped: 9

Q119 Please rank order these positives associated with e-prescribing, considering only the perspective of Policy-makers/Legislators. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

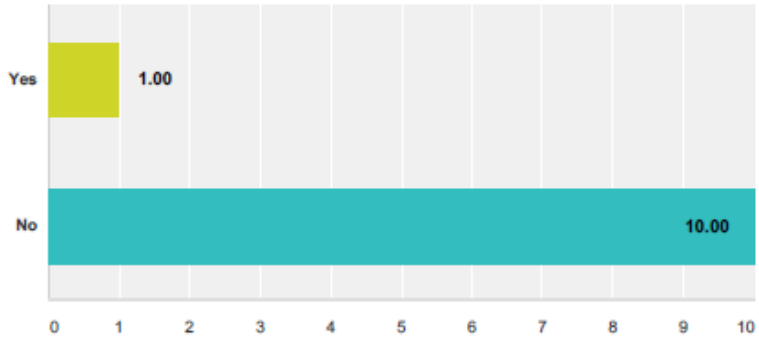
Answered: 11 Skipped: 2



	1	2	N/A	Total	Score
Better data with which to make decisions	**81.82%** 9.00	**18.18%** 2.00	**0.00%** 0.00	11	1.82
Facilitation of aligned incentives	**18.18%** 2.00	**63.64%** 7.00	**18.18%** 2.00	11	1.22

Q120 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Policy-makers/Legislators.• Costs to other stakeholdersDo you believe any other negatives should be added to this list?

Answered: 11 Skipped: 2



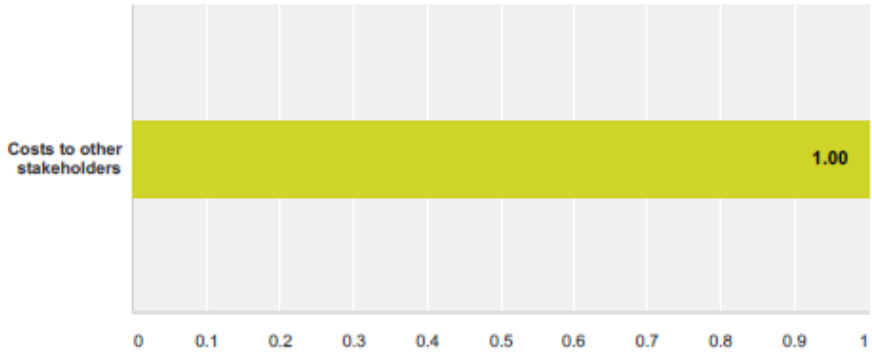
Answer Choices	Responses	
Yes	9.09%	1.00
No	90.91%	10.00
Total		11

Q121 Please describe the negative(s), considering only from the perspective of Policy-makers/Legislators, you believe should be added to the given list.

Answered: 1 Skipped: 12

Q122 Please rank order these negatives associated with e-prescribing, considering only the perspective of Policy-makers/Legislators. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

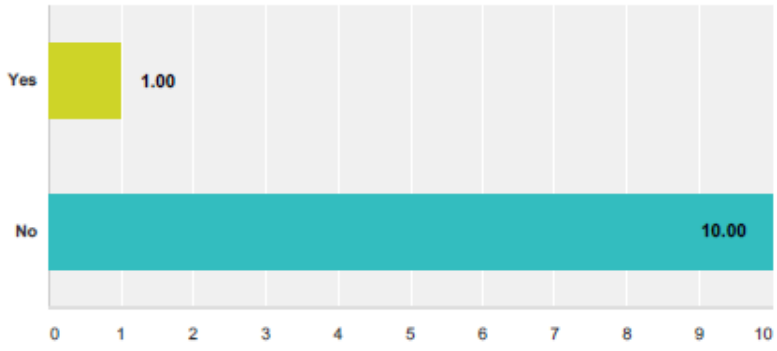
Answered: 11 Skipped: 2



	1	N/A	Total	Score
Costs to other stakeholders	**90.91%** 10.00	**9.09%** 1.00	11	1.00

Q123 Set forth below are a number of positives associated with e-prescribing, from the perspective of Researchers.• Better data that can be used in clinical trials and for comparative-effectivenessDo you believe any other positives should be added to this list?

Answered: 11 Skipped: 2



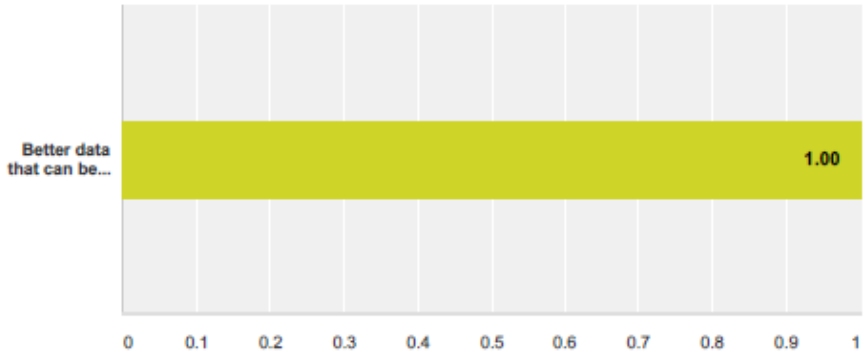
Answer Choices	Responses	
Yes	9.09%	1.00
No	90.91%	10.00
Total		11

Q124 Please describe the positive(s), considering only the perspective of Researchers, you believe should be added to the given list.

Answered: 1 Skipped: 12

Q125 Please rank order these positives associated with e-prescribing, considering only the perspective of Researchers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

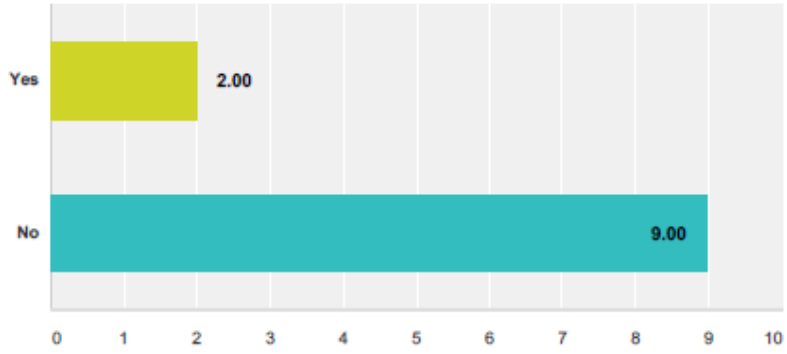
Answered: 11 Skipped: 2



	1	N/A	Total	Score
Better data that can be used in clinical trials and for comparative-effectiveness	100.00% 11.00	0.00% 0.00	11	1.00

Q126 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Researchers.• May make it more difficult to obtain complete data because some will be in electronic format and some in paper formatDo you believe any other negatives should be added to this list?

Answered: 11 Skipped: 2



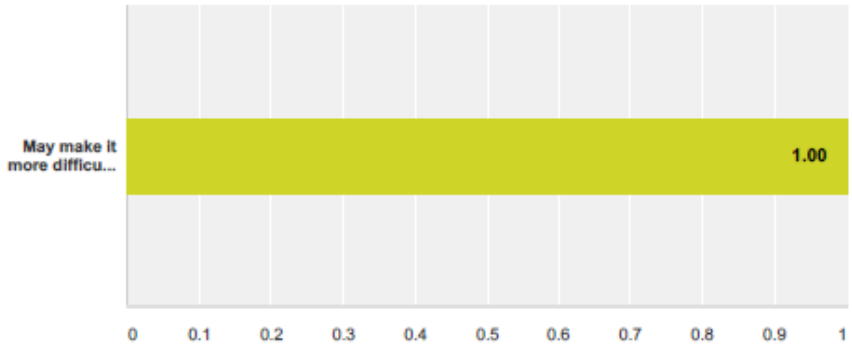
Answer Choices	Responses	
Yes	18.18%	2.00
No	81.82%	9.00
Total		11

Q127 Please describe the negative(s), considering only the perspective of Researchers, you believe should be added to the given list.

Answered: 2 Skipped: 11

Q128 Please rank order these negatives associated with e-prescribing, considering only the perspective of Researchers. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

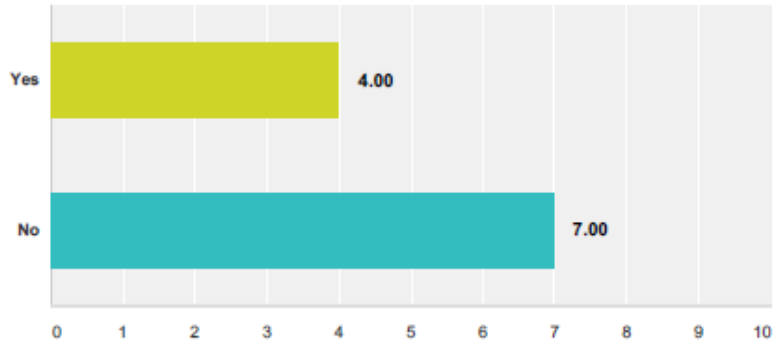
Answered: 11 Skipped: 2



	1	N/A	Total	Score
May make it more difficult to obtain complete data because some will be in electronic format and some in paper format	63.64% 7.00	36.36% 4.00	11	1.00

Q129 Set forth below are a number of positives associated with e-prescribing, from the perspective of Society.• Increased efficiency (reduces consumption of resources by healthcare organizations)Do you believe any other positives should be added to this list?

Answered: 11 Skipped: 2



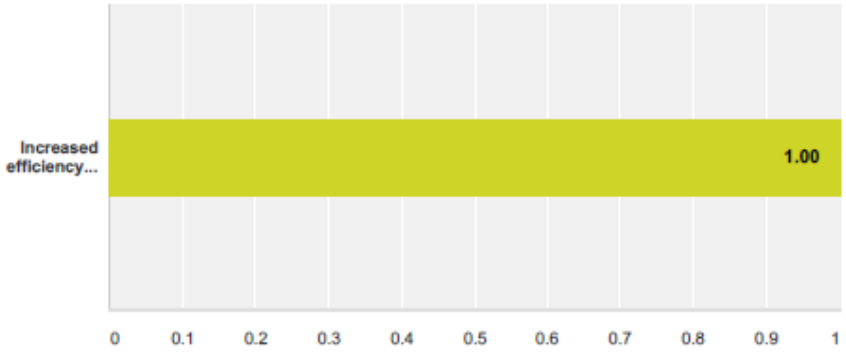
Answer Choices	Responses	
Yes	36.36%	4.00
No	63.64%	7.00
Total		11

Q130 Please describe the positive(s), considering only the perspective of Society, you believe should be added to the given list.

Answered: 4 Skipped: 9

Q131 Please rank order these positives associated with e-prescribing, considering only the perspective of Society. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

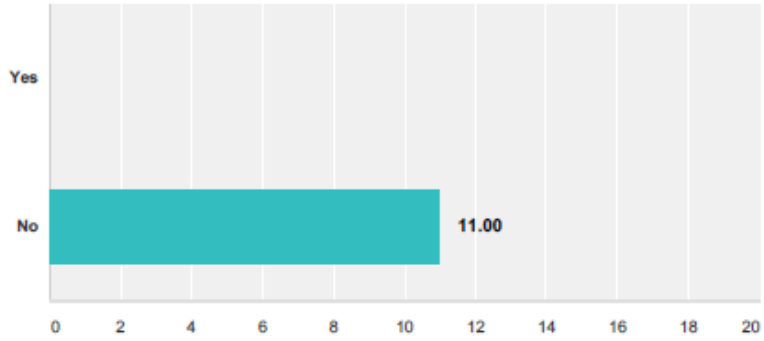
Answered: 11 Skipped: 2



	1	N/A	Total	Score
Increased efficiency (reduces consumption of resources by healthcare organizations)	**90.91%** 10.00	**9.09%** 1.00	11	1.00

Q132 Set forth below are a number of negatives associated with e-prescribing, from the perspective of Society.• Providers may experience more costs which may be passed on to societyDo you believe any other negatives should be added to this list?

Answered: 11 Skipped: 2



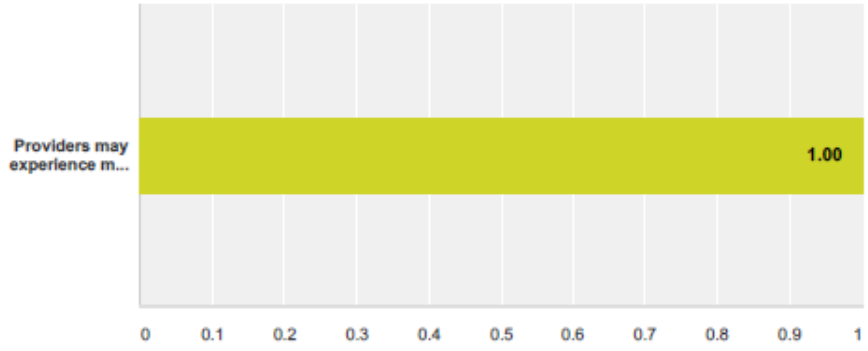
Answer Choices	Responses	
Yes	0.00%	0.00
No	100.00%	11.00
Total		11

Q133 Please describe the negative(s), considering only the perspective of Society, you believe should be added to the given list.

Answered: 0 Skipped: 13

Q134 Please rank order these negatives associated with e-prescribing, considering only the perspective of Society. If you believe any item on the list does not represent a significant impact to the stakeholder, please mark the N/A option. The items on this list appear in a random order.

Answered: 11 Skipped: 2



	1	N/A	Total	Score
Providers may experience more costs which may be passed on to society	**72.73%** 8.00	**27.27%** 3.00	11	1.00

APPENDIX F

Questionnaire Two: Narrowing

Q1 If you participate in all three rounds, a copy of this research summary, the framework, and the evaluation of its usefulness will be forwarded to you after its completion. In addition, your name will be entered into a drawing with the other Delphi Experts and the framework evaluation experts. The winner will have a donation of $2,500 made in his or her name to the American Medical Informatics Association (AMIA) for educational and/or research purposes. Please enter your name as you would like it to appear for the purposes of this drawing and donation.

Answered: 9 Skipped: 0

Questionnaire Two: Narrowing

Q2 Please confirm the email address to which you would like further communications sent, including the links to the final questionnaire.

Answered: 9 Skipped: 0

Questionnaire Two: Narrowing

Q3 Set forth below are positives associated with e-prescribing, from the perspective of Patient Associations/Support Groups. Disease-specific enhancements might be made to e-prescribing process Please describe the positive(s), considering only the perspective of Patient Associations/Support Groups, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

Answered: 8 Skipped: 1

Questionnaire Two: Narrowing

Q4 Set forth below are negatives associated with e-prescribing, from the perspective of Patient Associations/Support Groups. Disease-specific implementations of e-prescribing could be difficult Benefits might not be easily measured Please describe the negative(s), considering only the perspective of Patient Associations/Support Groups, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

Answered: 8 Skipped: 1

Questionnaire Two: Narrowing

Q5 Set forth below are positives associated with e-prescribing, from the perspective of Nonclinical Healthcare Staff. Improved communication Please describe the positive(s), considering only the perspective of Nonclinical Healthcare Staff, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

Answered: 9 Skipped: 0

Questionnaire Two: Narrowing

Q6 Set forth below are negatives associated with e-prescribing, from the perspective of Nonclinical Healthcare Staff. Increased workloads Please describe the negative(s), considering only the perspective of Nonclinical Healthcare Staff, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

Answered: 8 Skipped: 1

Q7 Set forth below are positives associated with e-prescribing, from the perspective of Government Prescription Monitoring Programs. More complete data More readily accessible data Please describe the positive(s), considering only the perspective of Government Prescription Monitoring Programs, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

Answered: 8 Skipped: 1

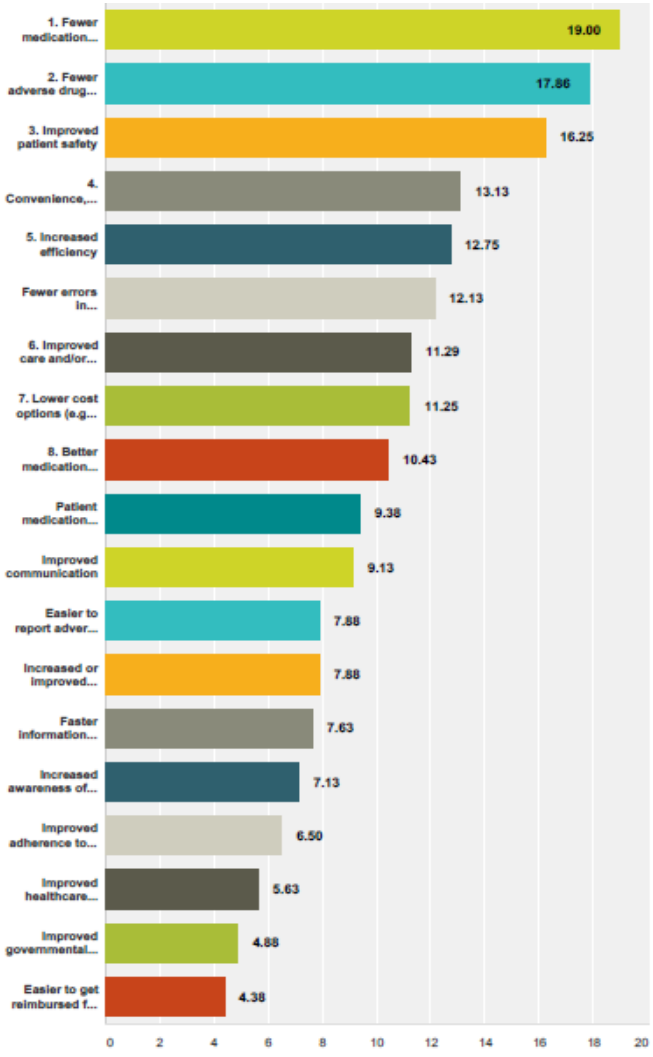
Questionnaire Two: Narrowing

Q8 Set forth below are negatives associated with e-prescribing, from the perspective of Government Prescription Monitoring Programs. Might reduce patient privacy Please describe the negative(s), considering only the perspective of Government Prescription Monitoring Programs, you believe should be added to the given list. If you believe the given list is complete, please so indicate by entering "none."

Answered: 8 Skipped: 1

Q9 Set forth below are positives associated with e-prescribing, from the perspective of Patients. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Patients.

Answered: 8 Skipped: 1



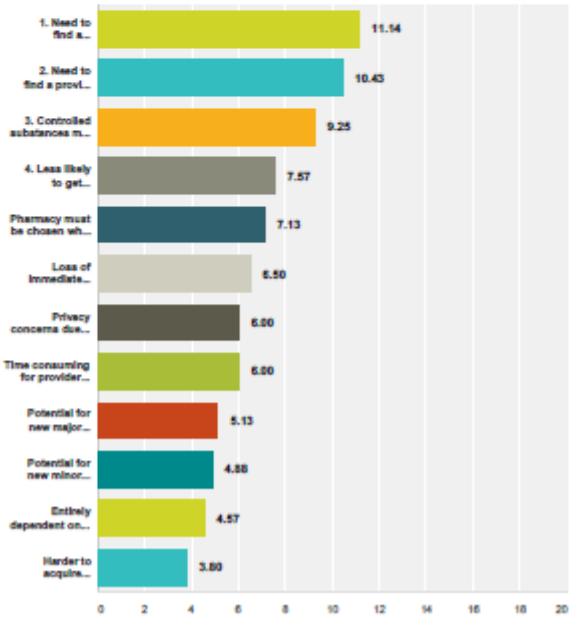
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Fewer medication errors	100.00% 8.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00

Questionnaire Two: Narrowing

2. Fewer adverse drug events	0.00% 0.00	75.00% 6.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
3. Improved patient safety	0.00% 0.00	0.00% 0.00	50.00% 4.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
4. Convenience, e.g. merely pick up medicines at pharmacy or have them delivered	0.00% 0.00	0.00% 0.00	0.00% 0.00	37.50% 3.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
5. Increased efficiency	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage and/or administration errors	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00
6. Improved care and/or health outcomes [8% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
7. Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
8. Better medication adherence/compliance [23% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Patient medication history is available (electronic record of prescriptions)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Improved communication	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00
Easier to report adverse drug events	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00
Increased or improved decision support	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	37.50% 3.00	0.00% 0.00	12.50% 1.00	0.00% 0.00
Faster information transfer	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00
Increased awareness of and (perceived) control over active medications	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00
Improved adherence to guidelines	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	50.00% 4.00	12.50% 1.00
Improved healthcare management (e.g. through reporting and/or audits)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	50.00% 4.00	0.00% 0.00	25.00% 2.00
Improved governmental oversight of controlled substances	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	50.00% 4.00
Easier to get reimbursed for medications	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00

Q10 Set forth below are negatives associated with e-prescribing, from the perspective of Patients. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Patients.

Answered: 8 Skipped: 1



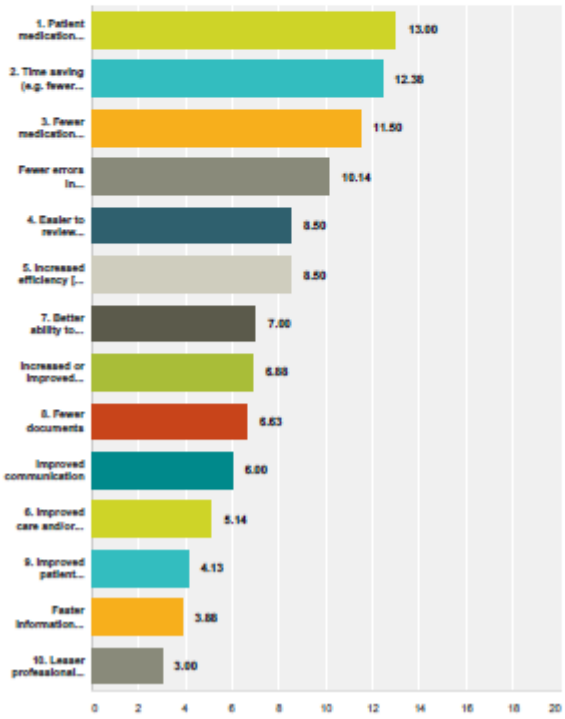
	1	2	3	4	5	6	7	8	9	10	11	12	N/A	Total	Score
1. Need to find a pharmacy/dispenser that e-prescribes [8% N/A]	50.00% 4.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	11.14
2. Need to find a provider who e-prescribes [8% N/A]	12.50% 1.00	50.00% 4.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	10.43
3. Controlled substances may have to be separately prescribed, on paper [8% N/A]	12.50% 1.00	12.50% 1.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	9.25
4. Less likely to get non-formulary medications [15% N/A]	0.00% 0.00	12.50% 1.00	0.00% 0.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	7.57

Questionnaire Two: Narrowing

Pharmacy must be chosen when prescription is made, not when it is filled	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	8	7.13
Loss of immediate physical trail of prescription, including paper reminder to go to pharmacy	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	8	6.50
Privacy concerns due to risk of violations of data security	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	6.00
Time consuming for providers (could reduce face-to-face contact with patients)	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	6.00
Potential for new major errors, creating adverse effects on safety (e.g. wrong medication)	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	8	5.13
Potential for new minor errors, creating inconvenience (e.g. wrong pharmacy)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	8	4.88
Entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natural disaster, accident, or terrorism	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	4.57
Harder to acquire fradulent prescriptions (e.g. extra pain medication to sell on the black market)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	37.50% 3.00	8	3.80

Q11 Set forth below are positives associated with e-prescribing, from the perspective of Clinicians/Prescribers. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Clinicians/Prescribers.

Answered: 8 Skipped: 1



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	N/A	Total	Score
1. Patient medication history is available (electronic record of prescriptions)	75.00% 6.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	13.00
2. Time saving (e.g. fewer faxes, telephone calls, workflow interruptions)	0.00% 0.00	62.50% 5.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	12.38
3. Fewer medication errors	12.50% 1.00	0.00% 0.00	50.00% 4.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	11.50

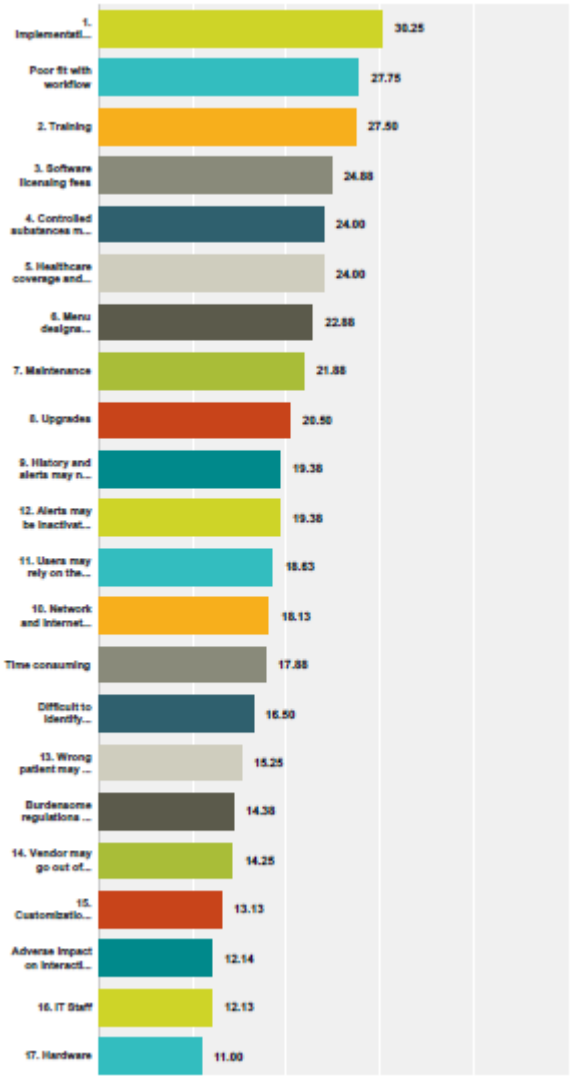
Questionnaire Two: Narrowing

Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage and/or administration errors	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	10.14
4. Easier to review alternative medications on formulary	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	8.50
5. Increased efficiency [8% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	8.50
7. Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	7.00
Increased or improved decision support, including alerts based on patient medication history	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	6.88
8. Fewer documents	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	6.63
Improved communication	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	50.00% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	6.00
6. Improved care and/or health outcomes [8% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	8	5.14
9. Improved patient satisfaction [8% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	8	4.13
Faster information transfer	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	37.50% 3.00	37.50% 3.00	0.00% 0.00	8	3.88
10. Lesser professional liability premiums and malpractice liability [8% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	8	3.00

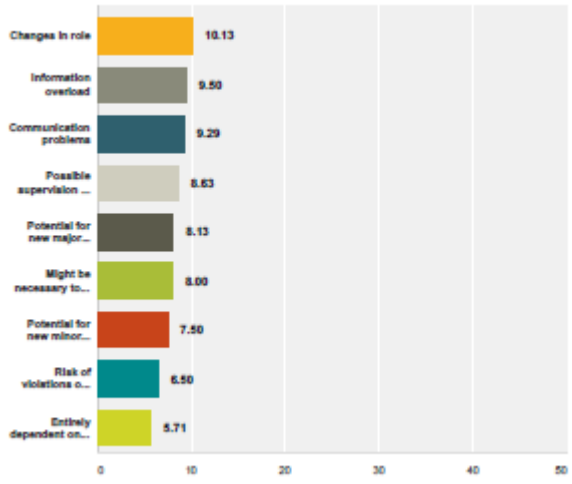
Questionnaire Two: Narrowing

Q12 Set forth below are negatives associated with e-prescribing, from the perspective of Clinicians/Prescribers. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Clinicians/Prescribers.

Answered: 8 Skipped: 1



Questionnaire Two: Narrowing



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Implementation costs	62.50% 5.00	0.00% 0.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Poor fit with workflow	25.00% 2.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00
2. Training	12.50% 1.00	25.00% 2.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
3. Software licensing fees	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00
4. Controlled substances may have to be separately prescribed, on paper	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
5. Healthcare coverage and/or formulary may not be updated	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
6. Menu designs (Graphical User Interfaces) may increase wrong drug choices	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
7. Maintenance	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
8. Upgrades	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
9. History and alerts may not be updates	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00
12. Alerts may be inactivated or ignored	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00
11. Users may rely on the system and be less careful	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00
10. Network and internet access	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00
Time consuming	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00

Questionnaire Two: Narrowing

Difficult to identify patient's preferred pharmacy (patient may not be able to provide precise name or address)	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
13. Wrong patient may be selected	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	12.50% 1.00
Burdensome regulations for e-prescribing controlled substances	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
14. Vendor may go out of business and/or not support e-prescribing system	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	12.50% 1.00
15. Customization [8% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00
Adverse impact on interactions with patients	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
16. IT Staff	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00
17. Hardware	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00
Changes in role	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Information overload	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00
Communication problems	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Possible supervision by third parties, including payors	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00
Potential for new major errors, creating adverse effects on safety (e.g. wrong medication)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Might be necessary to redo e-prescription (e.g. chosen pharmacy was out of stock)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Potential for new minor errors, creating inconvenience (e.g. wrong pharmacy)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
Risk of violations of data security	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00

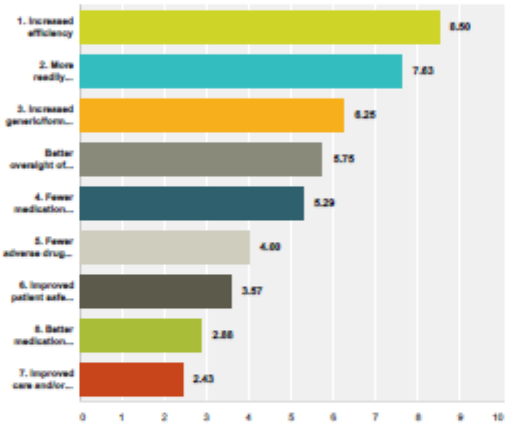
Questionnaire Two: Narrowing

Entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natural disaster, accident, or terrorism	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00

Questionnaire Two: Narrowing

Q13 Set forth below are positives associated with e-prescribing, from the perspective of Payors/Purchasers. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Payors/Purchasers.

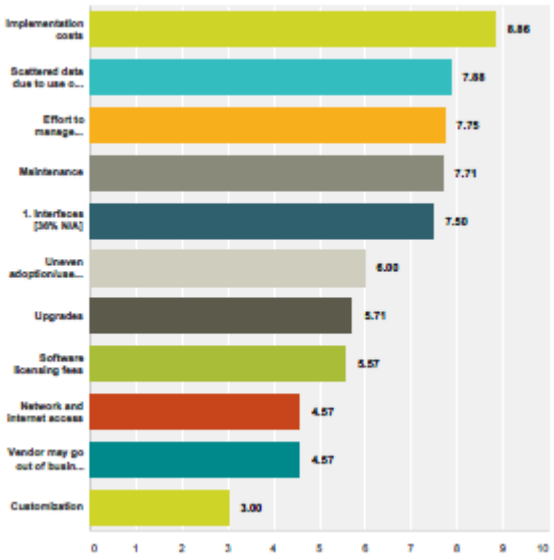
Answered: 8 Skipped: 1



	1	2	3	4	5	6	7	8	9	N/A	Total	Score
1. Increased efficiency	75.00% 6.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	8.50
2. More readily available data	12.50% 1.00	50.00% 4.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	7.63
3. Increased generic/formulary usage	0.00% 0.00	0.00% 0.00	50.00% 4.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	6.25
Better oversight of physician behavior	12.50% 1.00	25.00% 2.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	8	5.75
4. Fewer medication errors [8% N/A]	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	50.00% 4.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	5.29
5. Fewer adverse drug events [9% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	50.00% 4.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	8	4.00
6. Improved patient safety [8% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	8	3.57
8. Better medication adherence/compliance	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	37.50% 3.00	25.00% 2.00	0.00% 0.00	8	2.88
7. Improved care and/or health outcomes [18% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	25.00% 2.00	25.00% 2.00	12.50% 1.00	8	2.43

Q14 Set forth below are negatives associated with e-prescribing, from the perspective of Payors/Purchasers. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Payors/Purchasers.

Answered: 8 Skipped: 1



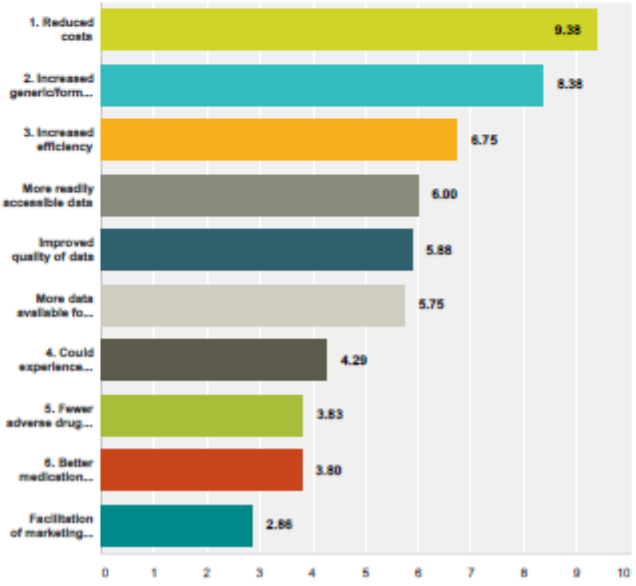
	1	2	3	4	5	6	7	8	9	10	11	N/A	Total	Score
Implementation costs	25.00% 2.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	8.86
Scattered data due to use of multiple different e-prescribing systems	25.00% 2.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	8	7.88
Effort to manage formulary across multiple different e-prescribing systems	12.50% 1.00	12.50% 1.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	7.75
Maintenance	0.00% 0.00	25.00% 2.00	0.00% 0.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	7.71
1. Interfaces [36% N/A]	37.50% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	8	7.50
Uneven adoption/use by clinicians/prescribers	0.00% 0.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	8	6.00
Upgrades	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	8	5.71
Software licensing fees	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	5.57

Questionnaire Two: Narrowing

Network and internet access	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	8	4.57
Vendor may go out of business and/or not support e-prescribing system	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	8	4.57
Customization	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	8	3.00

Q15 Set forth below are positives associated with e-prescribing, from the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

Answered: 8 Skipped: 1



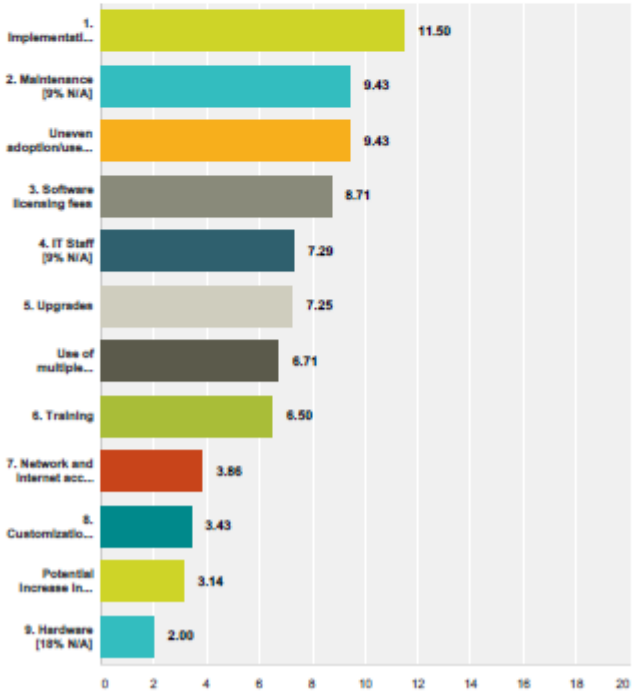
	1	2	3	4	5	6	7	8	9	10	N/A	Total	Score
1. Reduced costs	75.00% 6.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	9.38
2. Increased generic/formulary usage	0.00% 0.00	75.00% 6.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	8.38
3. Increased efficiency	0.00% 0.00	0.00% 0.00	37.50% 3.00	12.50% 1.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	6.75
More readily accessible data	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	6.00
Improved quality of data	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	5.88
More data available for analysis (e.g. expenses, costs, diagnoses and appropriate use)	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	8	5.75
4. Could experience increased value or business [0% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	8	4.29
5. Fewer adverse drug events [16% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	8	3.83

Questionnaire Two: Narrowing

6. Better medication adherence/compliance [27% N/A]	**0.00%** 0.00	**0.00%** 0.00	**12.50%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**12.50%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**37.50%** 3.00	**0.00%** 0.00	**37.50%** 3.00	8	3.80
Facilitation of marketing to payors	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**12.50%** 1.00	**25.00%** 2.00	**12.50%** 1.00	**12.50%** 1.00	**25.00%** 2.00	**12.50%** 1.00	8	2.88

Q16 Set forth below are negatives associated with e-prescribing, from the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

Answered: 8 Skipped: 1



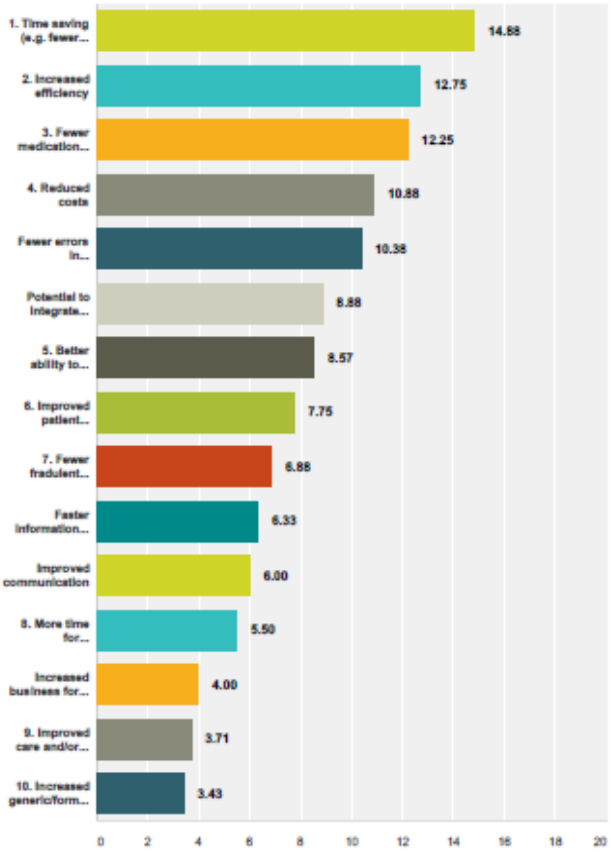
	1	2	3	4	5	6	7	8	9	10	11	12	N/A	Total	Score
1. Implementation costs	75.00% 6.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	11.50
2. Maintenance [9% N/A]	0.00% 0.00	37.50% 3.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	9.43
Uneven adoption/use by clinicians/prescribers	25.00% 2.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	9.43
3. Software licensing fees	0.00% 0.00	0.00% 0.00	37.50% 3.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	6.71
4. IT Staff [9% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	7.29
5. Upgrades	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	25.00% 2.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	7.25
Use of multiple different e-prescribing systems	0.00% 0.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	8	6.71

Questionnaire Two: Narrowing

6. Training	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	6.50
7. Network and Internet access [9% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	8	3.86
8. Customization [9% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	8	3.43
Potential increase in medication spending	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	37.50% 3.00	25.00% 2.00	12.50% 1.00	8	3.14
9. Hardware [18% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	25.00% 2.00	25.00% 2.00	25.00% 2.00	8	2.00

Q17 Set forth below are positives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Pharmacies/Dispensers/Pharmacists.

Answered: 8 Skipped: 1



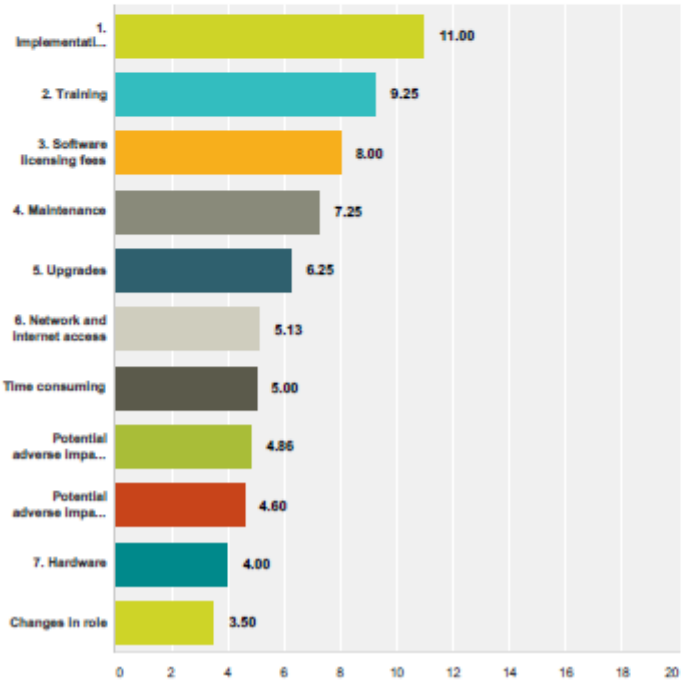
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	N/A	Total	Sc
1. Time saving (e.g. fewer faxes, telephone calls, workflow interruptions)	87.50% 7.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	14.
2. Increased efficiency	0.00% 0.00	75.00% 6.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	12.
3. Fewer medication errors [0% N/A]	0.00% 0.00	12.50% 1.00	37.50% 3.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	12.

Questionnaire Two: Narrowing

4. Reduced costs	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	37.50% 3.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	10.
Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage/administration errors	0.00% 0.00	0.00% 0.00	25.00% 2.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	10.
Potential to integrate e-prescribing system with warehouse system to better manage supply and distribution	12.50% 1.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	8.
5. Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?) [18% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	8.
6. Improved patient satisfaction	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	7.
7. Fewer fradulent prescriptions	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	37.50% 3.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	6.
Faster information transfer	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	8	6.
Improved communication	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	8	6.
8. More time for consultations	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	5.
Increased business for both prescriptions and other purchases	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	50.00% 4.00	0.00% 0.00	8	4.
9. Improved care and/or health outcomes [9% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	8	3.
10. Increased generic/formulary usage [9% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	37.50% 3.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	8	3.

Q18 Set forth below are negatives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Pharmacies/Dispensers/Pharmacists.

Answered: 8 Skipped: 1



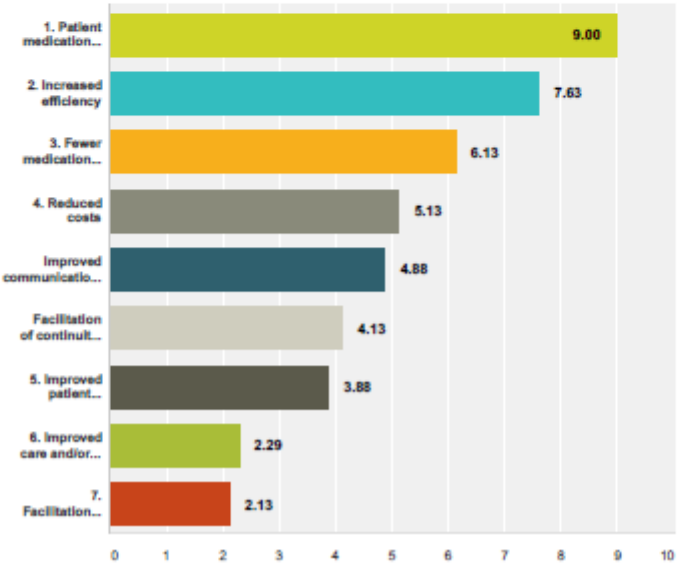
	1	2	3	4	5	6	7	8	9	10	11	N/A	Total	Score
1. Implementation costs	100.00% 8.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	11.00
2. Training	0.00% 0.00	62.50% 5.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	9.25
3. Software licensing fees	0.00% 0.00	0.00% 0.00	62.50% 5.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	8.00
4. Maintenance	0.00% 0.00	0.00% 0.00	0.00% 0.00	62.50% 5.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	7.25
5. Upgrades	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	62.50% 5.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	6.25
6. Network and internet access	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	50.00% 4.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	5.13
Time consuming	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	8	5.00
Potential adverse impact on relationship with patients	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	37.50% 3.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	4.86

Questionnaire Two: Narrowing

Potential adverse impact on safety	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	37.50% 3.00	37.50% 3.00	8	4.60
7. Hardware	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	50.00% 4.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	8	4.00
Changes in role	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	50.00% 4.00	0.00% 0.00	25.00% 2.00	8	3.50

Q19 Set forth below are positives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Inpatient or Outpatient Healthcare Entities.

Answered: 8 Skipped: 1



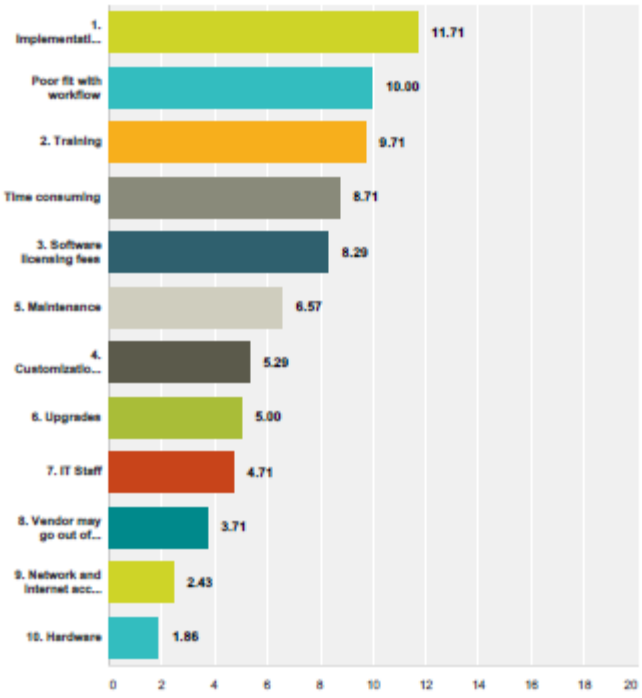
	1	2	3	4	5	6	7	8	9	N/A	Total	Score
1. Patient medication history is available (electronic record of prescriptions)	**100.00%** 8.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	8	9.00
2. Increased efficiency	**0.00%** 0.00	**75.00%** 6.00	**12.50%** 1.00	**12.50%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	8	7.63
3. Fewer medication errors	**0.00%** 0.00	**0.00%** 0.00	**50.00%** 4.00	**12.50%** 1.00	**37.50%** 3.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	8	6.13
4. Reduced costs	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**50.00%** 4.00	**12.50%** 1.00	**37.50%** 3.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	8	5.13
Improved communication (e.g. among healthcare settings)	**0.00%** 0.00	**25.00%** 2.00	**25.00%** 2.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**25.00%** 2.00	**12.50%** 1.00	**12.50%** 1.00	**0.00%** 0.00	8	4.88
Facilitation of continuity of care	**0.00%** 0.00	**0.00%** 0.00	**12.50%** 1.00	**25.00%** 2.00	**12.50%** 1.00	**12.50%** 1.00	**0.00%** 0.00	**25.00%** 2.00	**12.50%** 1.00	**0.00%** 0.00	8	4.13
5. Improved patient satisfaction	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**37.50%** 3.00	**12.50%** 1.00	**50.00%** 4.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	8	3.88

Questionnaire Two: Narrowing

6. Improved care and/or health outcomes [9% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**12.50%** 1.00	**12.50%** 1.00	**50.00%** 4.00	**12.50%** 1.00	**12.50%** 1.00	8	2.29
7. Facilitation of quality measurement and reporting	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**25.00%** 2.00	**12.50%** 1.00	**12.50%** 1.00	**50.00%** 4.00	**0.00%** 0.00	8	2.13

Q20 Set forth below are negatives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Inpatient or Outpatient Healthcare Entities.

Answered: 7 Skipped: 2



	1	2	3	4	5	6	7	8	9	10	11	12	N/A	Total	Score
1. Implementation costs [9% N/A]	85.71% 6.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	11.71
Poor fit with workflow	14.29% 1.00	57.14% 4.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	10.00
2. Training	0.00% 0.00	28.57% 2.00	14.29% 1.00	57.14% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	9.71
Time consuming	0.00% 0.00	14.29% 1.00	42.86% 3.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	8.71
3. Software licensing fees	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	85.71% 6.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	8.29
5. Maintenance	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	6.57
4. Customization [9% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	28.57% 2.00	0.00% 0.00	7	5.29

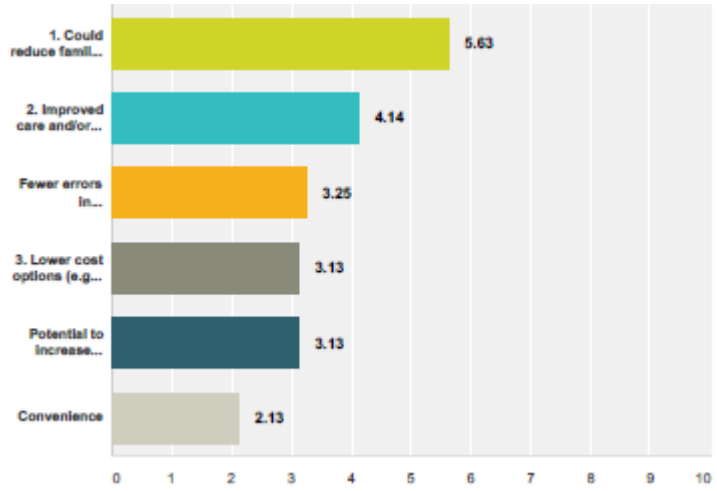
Questionnaire Two: Narrowing

6. Upgrades	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	5.00
7. IT Staff	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	14.29% 1.00	0.00% 0.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	4.71
8. Vendor may go out of business or not support e-prescribing system	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	14.29% 1.00	0.00% 0.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	3.71
9. Network and Internet access [9% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	14.29% 1.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	7	2.43
10. Hardware	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	71.43% 5.00	0.00% 0.00	7	1.86

Questionnaire Two: Narrowing

Q21 Set forth below are positives associated with e-prescribing, from the perspective of Patients' Families. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Patients' Families.

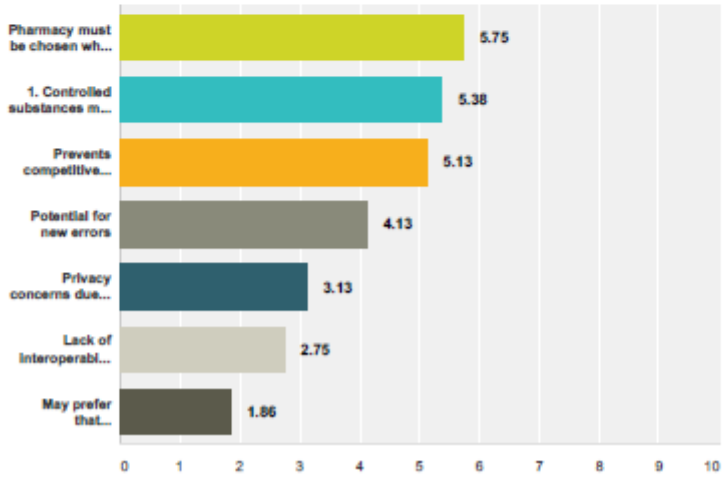
Answered: 8 Skipped: 1



	1	2	3	4	5	6	N/A	Total	Score
1. Could reduce family members' amount of time spent coordinating care (time saving) [9% N/A]	75.00% 6.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	5.63
2. Improved care and/or health outcomes [9% N/A]	0.00% 0.00	37.50% 3.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	8	4.14
Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage and/or administration errors	0.00% 0.00	12.50% 1.00	37.50% 3.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	8	3.25
3. Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	0.00% 0.00	12.50% 1.00	12.50% 1.00	50.00% 4.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	8	3.13
Potential to increase adherence/compliance (e.g. use e-prescription system to create automatic reminders to take medication)	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	37.50% 3.00	25.00% 2.00	0.00% 0.00	8	3.13
Convenience	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	50.00% 4.00	0.00% 0.00	8	2.13

Q22 Set forth below are negatives associated with e-prescribing, from the perspective of Patients' Families. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Patients' Families.

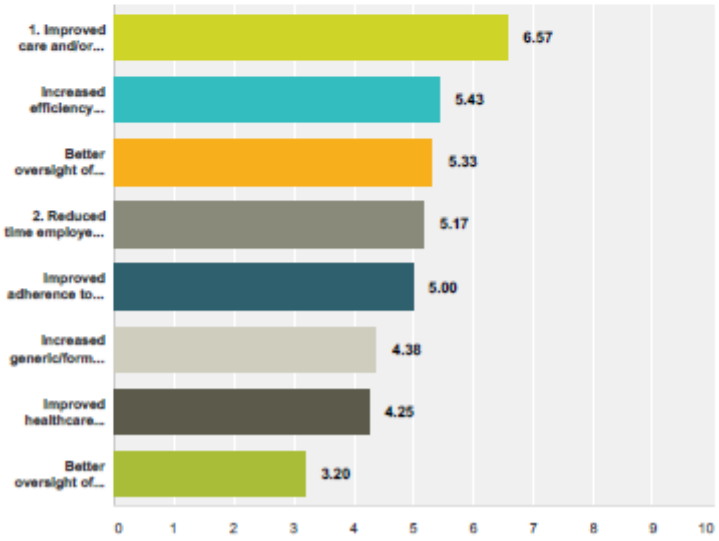
Answered: 8 Skipped: 1



	1	2	3	4	5	6	7	N/A	Total	Score
Pharmacy must be chosen when prescription is made, not when it is filled	50.00% 4.00	0.00% 0.00	25.00% 2.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	5.75
1. Controlled substances may have to be separately prescribed, on paper [18% N/A]	12.50% 1.00	50.00% 4.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	5.38
Prevents competitive shopping for best prescription price	12.50% 1.00	37.50% 3.00	25.00% 2.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	5.13
Potential for new errors	12.50% 1.00	0.00% 0.00	12.50% 1.00	50.00% 4.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	4.13
Privacy concerns due to risk of violations of data security	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	37.50% 3.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	8	3.13
Lack of interoperability between e-prescribing systems and personal health records	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	37.50% 3.00	25.00% 2.00	0.00% 0.00	8	2.75
May prefer that clinician/prescriber not be able to discover non-compliance	0.00% 0.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	50.00% 4.00	12.50% 1.00	8	1.86

Q23 Set forth below are positives associated with e-prescribing, from the perspective of Employers. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Employers.

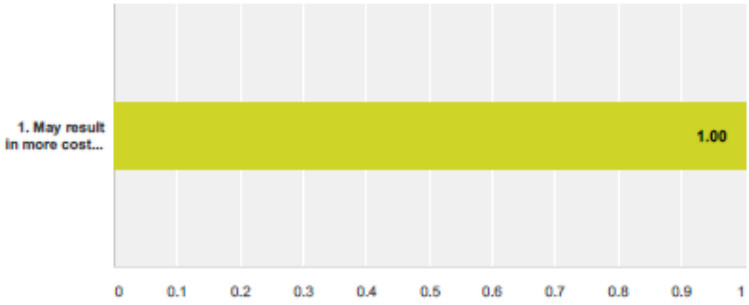
Answered: 8 Skipped: 1



	1	2	3	4	5	6	7	8	N/A	Total	Score
1. Improved care and/or health outcomes [27% N/A]	50.00% 4.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	8	6.57
Increased efficiency (e.g. faster process of receiving justifications, more rapid patient turnaround)	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	8	5.43
Better oversight of employee health	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	8	5.33
2. Reduced time employees are not working [27% N/A]	0.00% 0.00	37.50% 3.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	8	5.17
Improved adherence to guidelines	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	5.00
Increased generic/formulary usage	0.00% 0.00	0.00% 0.00	25.00% 2.00	12.50% 1.00	50.00% 4.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	4.38
Improved healthcare management (e.g. through reporting and/or audits)	0.00% 0.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	8	4.25
Better oversight of clinican behavior	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	37.50% 3.00	8	3.20

Q24 Set forth below are negatives associated with e-prescribing, from the perspective of Employers. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Employers.

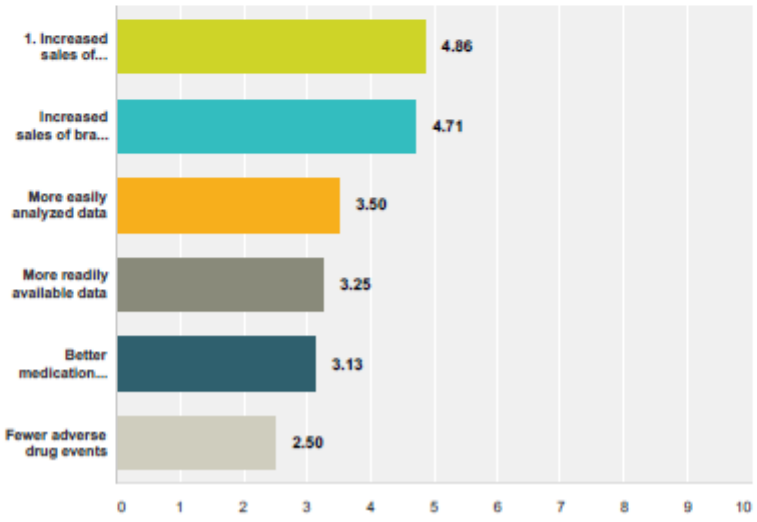
Answered: 5 Skipped: 4



	1	N/A	Total	Score
1. May result in more costs to providers that are passed on to employers [18% N/A]	100.00% 5.00	0.00% 0.00	5	1.00

Q25 Set forth below are positives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Pharmaceutical Manufacturers.

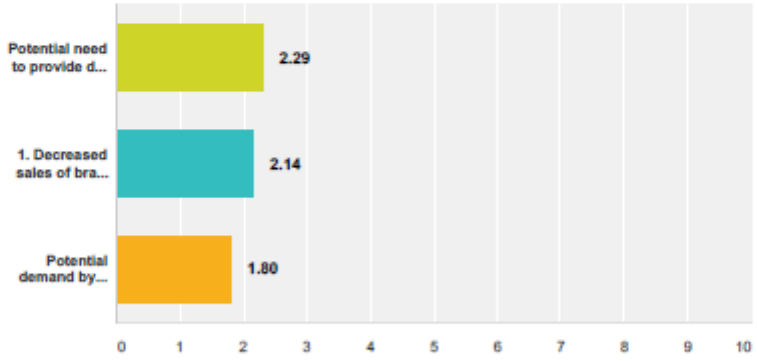
Answered: 8 Skipped: 1



	1	2	3	4	5	6	N/A	Total	Score
1. Increased sales of generic drugs [27% N/A]	50.00% 4.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	8	4.86
Increased sales of brand drugs	37.50% 3.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	8	4.71
More easily analyzed data	12.50% 1.00	0.00% 0.00	50.00% 4.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	8	3.50
More readily available data	0.00% 0.00	37.50% 3.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	0.00% 0.00	8	3.25
Better medication adherence/compliance	0.00% 0.00	25.00% 2.00	12.50% 1.00	37.50% 3.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	8	3.13
Fewer adverse drug events	0.00% 0.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	62.50% 5.00	0.00% 0.00	0.00% 0.00	8	2.50

Q26 Set forth below are negatives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Pharmaceutical Manufacturers.

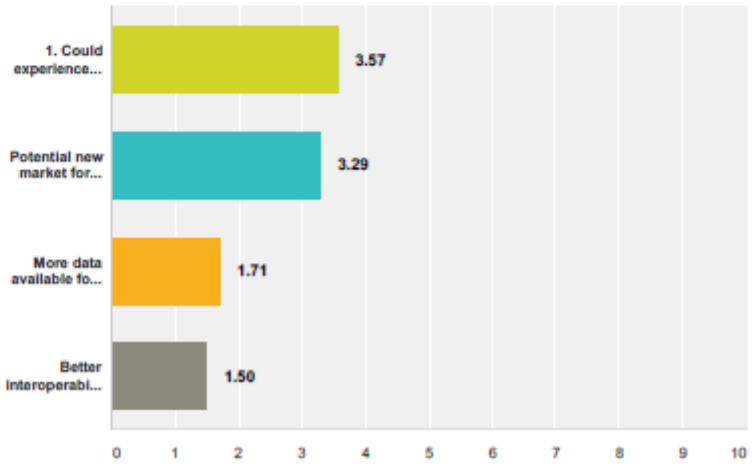
Answered: 7 Skipped: 2



	1	2	3	N/A	Total	Score
Potential need to provide data compatible with multiple different e-prescribing systems	42.86% 3.00	42.86% 3.00	14.29% 1.00	0.00% 0.00	7	2.29
1. Decreased sales of brand drugs [27% N/A]	57.14% 4.00	0.00% 0.00	42.86% 3.00	0.00% 0.00	7	2.14
Potential demand by patients/consumers for more electronic drug information	0.00% 0.00	57.14% 4.00	14.29% 1.00	28.57% 2.00	7	1.80

Q27 Set forth below are positives associated with e-prescribing, from the perspective of Vendors of Health Information Technology. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Vendors of Health Information Technology.

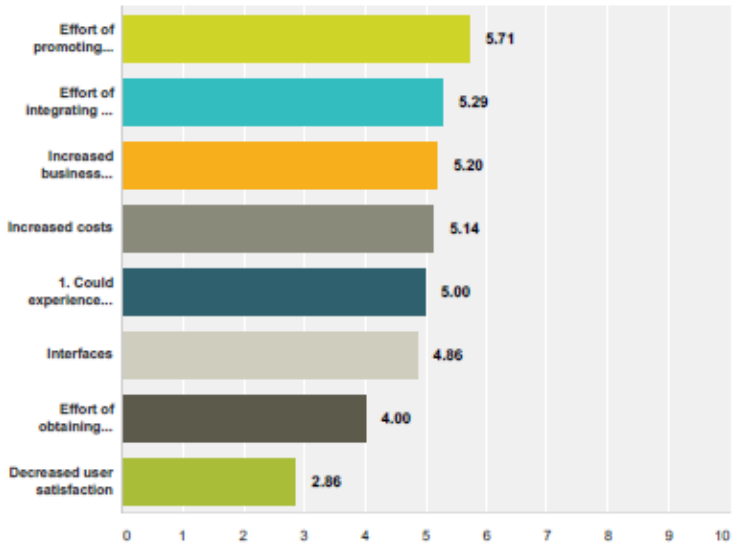
Answered: 7 Skipped: 2



	1	2	3	4	N/A	Total	Score
1. Could experience increased value or business	71.43% 5.00	14.29% 1.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	3.57
Potential new market for electronic systems or tools for patients	28.57% 2.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	3.29
More data available for design/development as systems are used more	0.00% 0.00	0.00% 0.00	71.43% 5.00	28.57% 2.00	0.00% 0.00	7	1.71
Better interoperability between e-prescribing systems and other health information systems	0.00% 0.00	14.29% 1.00	14.29% 1.00	57.14% 4.00	14.29% 1.00	7	1.50

Q28 Set forth below are negatives associated with e-prescribing, from the perspective of Vendors of Health Information Technology. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Vendors of Health Information Technology.

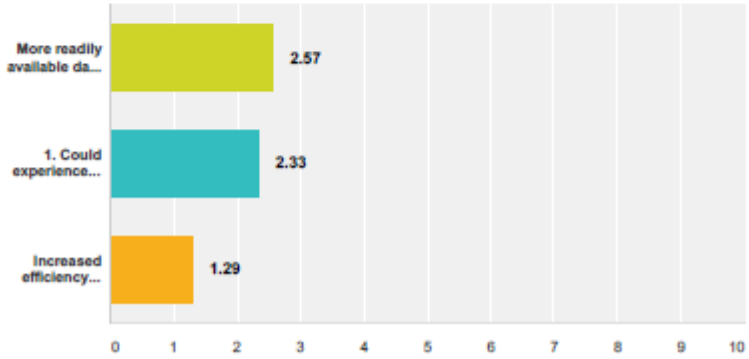
Answered: 7 Skipped: 2



	1	2	3	4	5	6	7	8	N/A	Total	Score
Effort of promoting interoperability between e-prescribing systems and other health information systems	28.57% 2.00	0.00% 0.00	28.57% 2.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	5.71
Effort of integrating new and existing systems	14.29% 1.00	28.57% 2.00	0.00% 0.00	14.29% 1.00	14.29% 1.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	5.29
Increased business competition	14.29% 1.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	28.57% 2.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	28.57% 2.00	7	5.20
Increased costs	0.00% 0.00	28.57% 2.00	14.29% 1.00	28.57% 2.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	5.14
1. Could experience decreased value or business [36% N/A]	42.86% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	28.57% 2.00	14.29% 1.00	7	5.00
Interfaces	0.00% 0.00	28.57% 2.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	28.57% 2.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	4.86
Effort of obtaining access to formularies	0.00% 0.00	0.00% 0.00	14.29% 1.00	28.57% 2.00	14.29% 1.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	14.29% 1.00	7	4.00
Decreased user satisfaction	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	14.29% 1.00	42.86% 3.00	14.29% 1.00	0.00% 0.00	7	2.86

Q29 Set forth below are positives associated with e-prescribing, from the perspective of Suppliers/Distributors of Pharmaceuticals. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Suppliers/Distributors of Pharmaceuticals.

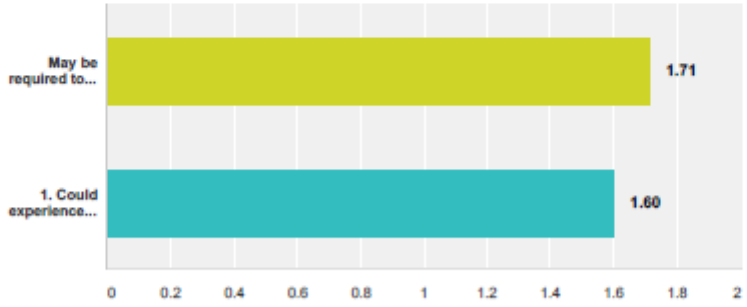
Answered: 7 Skipped: 2



	1	2	3	N/A	Total	Score
More readily available data (e.g. for evaluation of distribution)	57.14% 4.00	42.86% 3.00	0.00% 0.00	0.00% 0.00	7	2.57
1. Could experience increased value or business [36% N/A]	42.86% 3.00	28.57% 2.00	14.29% 1.00	14.29% 1.00	7	2.33
Increased efficiency (e.g. better processes for distribution)	0.00% 0.00	28.57% 2.00	71.43% 5.00	0.00% 0.00	7	1.29

Q30 Set forth below are negatives associated with e-prescribing, from the perspective of Suppliers/Distributors of Pharmaceuticals. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Suppliers/Distributors of Pharmaceuticals.

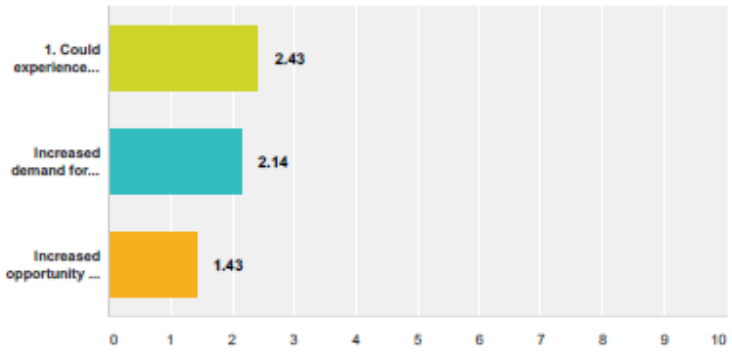
Answered: 8 Skipped: 1



	1	2	N/A	Total	Score
May be required to make their systems interoperable with those used by other stakeholders	62.50% 5.00	25.00% 2.00	12.50% 1.00	8	1.71
1. Could experience decreased value or business [36% N/A]	37.50% 3.00	25.00% 2.00	37.50% 3.00	8	1.60

Q31 Set forth below are positives associated with e-prescribing, from the perspective of Consultants. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Consultants.

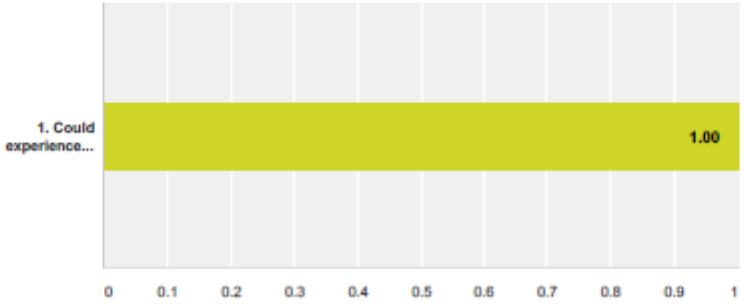
Answered: 7 Skipped: 2



	1	2	3	N/A	Total	Score
1. Could experience increased value or business [9% N/A]	42.86% 3.00	57.14% 4.00	0.00% 0.00	0.00% 0.00	7	2.43
Increased demand for services provided by consultants (e.g. process modeling)	42.86% 3.00	28.57% 2.00	28.57% 2.00	0.00% 0.00	7	2.14
Increased opportunity to gain experience (e.g. in implementation)	14.29% 1.00	14.29% 1.00	71.43% 5.00	0.00% 0.00	7	1.43

Q32 Set forth below are negatives associated with e-prescribing, from the perspective of Consultants. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Consultants.

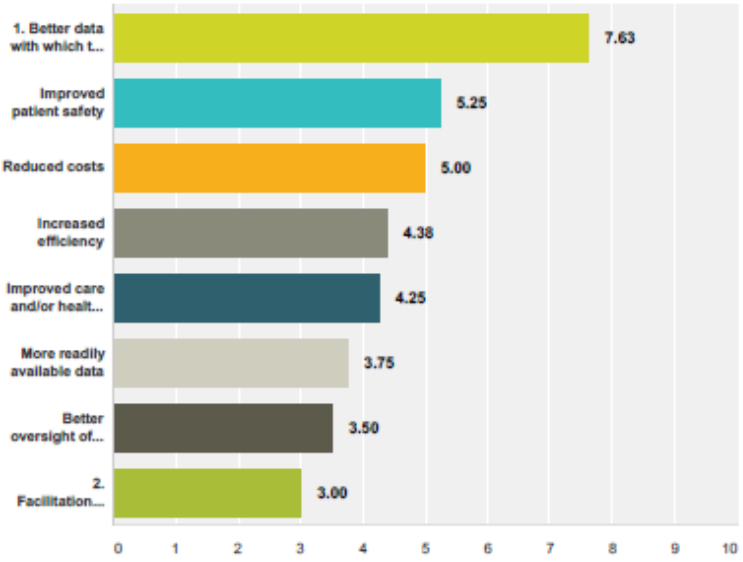
Answered: 7 Skipped: 2



	1	N/A	Total	Score
1. Could experience decreased value or business [45% N/A]	28.57% 2.00	71.43% 5.00	7	1.00

Q33 Set forth below are positives associated with e-prescribing, from the perspective of Policy-makers/Legislators. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Policy-makers/Legislators.

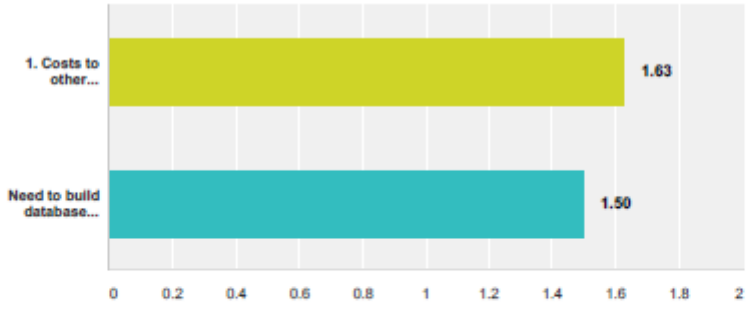
Answered: 8 Skipped: 1



	1	2	3	4	5	6	7	8	N/A	Total	Score
1. Better data with which to make decisions	87.50% 7.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	7.63
Improved patient safety	0.00% 0.00	25.00% 2.00	12.50% 1.00	37.50% 3.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	5.25
Reduced costs	0.00% 0.00	25.00% 2.00	37.50% 3.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	0.00% 0.00	0.00% 0.00	8	5.00
Increased efficiency	0.00% 0.00	0.00% 0.00	37.50% 3.00	12.50% 1.00	12.50% 1.00	25.00% 2.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	8	4.38
Improved care and/or health outcomes	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	37.50% 3.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	8	4.25
More readily available data	0.00% 0.00	12.50% 1.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	25.00% 2.00	37.50% 3.00	0.00% 0.00	0.00% 0.00	8	3.75
Better oversight of medication usage	0.00% 0.00	25.00% 2.00	0.00% 0.00	12.50% 1.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	37.50% 3.00	0.00% 0.00	8	3.50
2. Facilitation of aligned incentives (18% N/A)	0.00% 0.00	12.50% 1.00	0.00% 0.00	0.00% 0.00	12.50% 1.00	0.00% 0.00	12.50% 1.00	25.00% 2.00	37.50% 3.00	8	3.00

Q34 Set forth below are negatives associated with e-prescribing, from the perspective of Policy-makers/Legislators. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Policy-makers/Legislators.

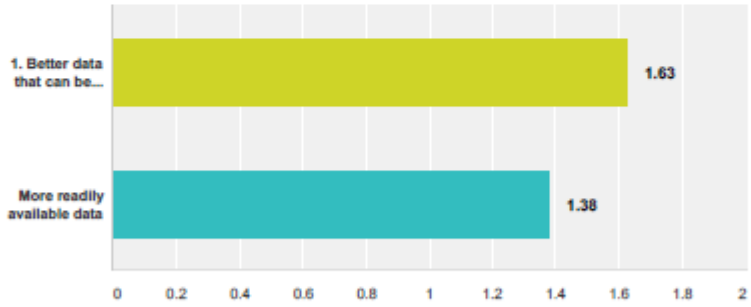
Answered: 8 Skipped: 1



	1	2	N/A	Total	Score
1. Costs to other stakeholders [9% N/A]	62.50% 5.00	37.50% 3.00	0.00% 0.00	8	1.63
Need to build database systems to store and analyze the increased amount of data	37.50% 3.00	37.50% 3.00	25.00% 2.00	8	1.50

Q35 Set forth below are positives associated with e-prescribing, from the perspective of Researchers. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Researchers.

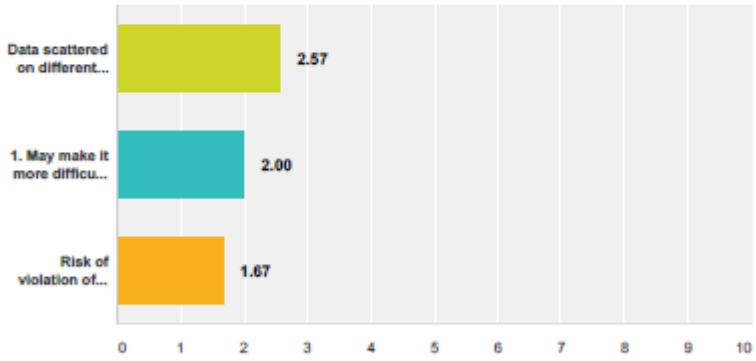
Answered: 8 Skipped: 1



	1	2	N/A	Total	Score
1. Better data that can be used in clinical trials and for comparative-effectiveness	62.50% 5.00	37.50% 3.00	0.00% 0.00	8	1.63
More readily available data	37.50% 3.00	62.50% 5.00	0.00% 0.00	8	1.38

Q36 Set forth below are negatives associated with e-prescribing, from the perspective of Researchers. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Researchers.

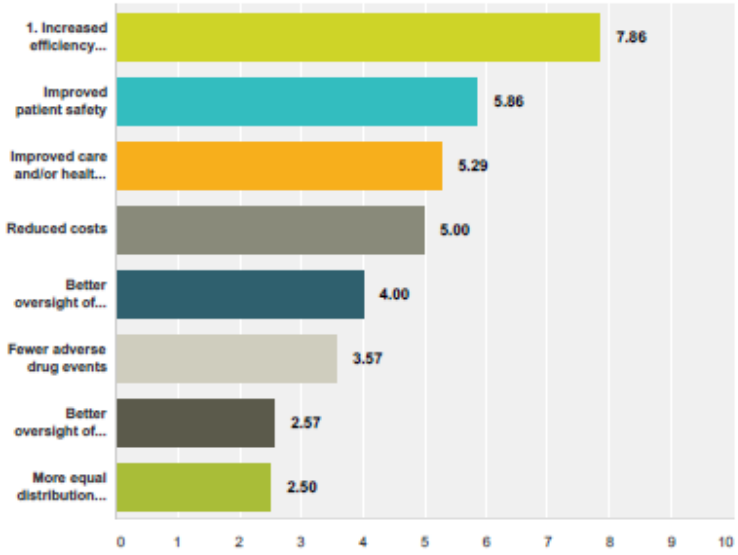
Answered: 8 Skipped: 1



	1	2	3	N/A	Total	Score
Data scattered on different systems that may not be interoperable	50.00% 4.00	37.50% 3.00	0.00% 0.00	12.50% 1.00	8	2.57
1. May make it more difficult to obtain complete data because some will be in electronic format and some in paper format [36% N/A]	25.00% 2.00	25.00% 2.00	25.00% 2.00	25.00% 2.00	8	2.00
Risk of violation of data security	12.50% 1.00	25.00% 2.00	37.50% 3.00	25.00% 2.00	8	1.67

Q37 Set forth below are positives associated with e-prescribing, from the perspective of Society. Those positives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those positives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these positives, considering only the perspective of Society.

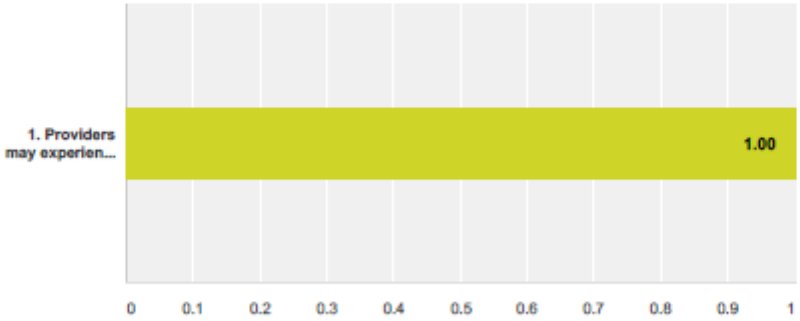
Answered: 7 Skipped: 2



	1	2	3	4	5	6	7	8	N/A	Total	Score
1. Increased efficiency (reduced consumption of resources by healthcare organizations) [9% N/A]	85.71% 6.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	7.86
Improved patient safety	0.00% 0.00	42.86% 3.00	28.57% 2.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	5.86
Improved care and/or health outcomes	0.00% 0.00	14.29% 1.00	42.86% 3.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	5.29
Reduced costs	0.00% 0.00	14.29% 1.00	28.57% 2.00	28.57% 2.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	5.00
Better oversight of medication usage	14.29% 1.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	4.00
Fewer adverse drug events	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	57.14% 4.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	7	3.57
Better oversight of fradulent prescriptions	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	28.57% 2.00	0.00% 0.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	7	2.57
More equal distribution of drug costs	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	42.86% 3.00	42.86% 3.00	7	2.50

Q38 Set forth below are negatives associated with e-prescribing, from the perspective of Society. Those negatives that were added by the Delphi Experts comprise the lower portion of the list and appear in random order. Those negatives that were previously rank ordered by the Delphi Experts are labeled with their resultant rank order. Further, any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please again rank order these negatives, considering only the perspective of Society.

Answered: 6 Skipped: 3



	1	N/A	Total	Score
1. Providers may experience more costs which may be passed on to society [27% N/A]	83.33% 5.00	16.67% 1.00	6	1.00

APPENDIX G

Questionnaire Three: Finalizing

Q1 If you participate in all three rounds, a copy of this research summary, the framework, and the evaluation of its usefulness will be forwarded to you after its completion. In addition, your name will be entered into a drawing with the other Delphi Experts and the framework evaluation experts. The winner will have a donation of $2,500 made in his or her name to the American Medical Informatics Association (AMIA) for educational and/or research purposes. Please enter your name as you would like it to appear for the purposes of this drawing and donation.

Answered: 6 Skipped: 1

Questionnaire Three: Finalizing

Q2 Please confirm the email address to which you would like further communications sent, including the links to the final questionnaire.

Answered: 6 Skipped: 1

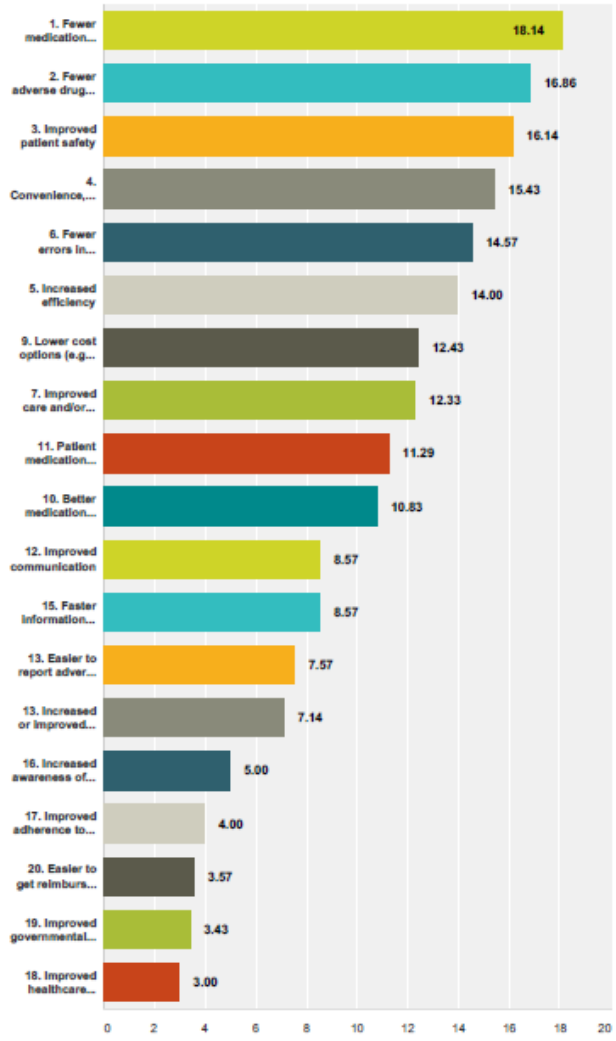
Questionnaire Three: Finalizing

Q3 If you wish, please describe any significant aspects of the relative impact of e-prescribing, as experienced by the different stakeholders, that you believe are particularly important.

Answered: 2 Skipped: 5

Q4 Set forth below are positives associated with e-prescribing, from the perspective of Patients. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Patients.

Answered: 7 Skipped: 0



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Fewer medication errors	85.71% 6.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
2. Fewer adverse drug events [13% N/A]	0.00% 0.00	71.43% 5.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
3. Improved patient safety	0.00% 0.00	0.00% 0.00	85.71% 6.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00

Questionnaire Three: Finalizing

4. Convenience, e.g. merely pick up medicines at pharmacy or have them delivered	14.29% 1.00	0.00% 0.00	0.00% 0.00	42.86% 3.00	14.29% 1.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
6. Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage and/or administration errors	0.00% 0.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	42.86% 3.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
5. Increased efficiency	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	28.57% 2.00	42.86% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
9. Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	42.86% 3.00	42.86% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
7. Improved care and/or health outcomes [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	28.57% 2.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
11. Patient medication history is available (electronic record of prescriptions)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	28.57% 2.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
10. Better medication adherence/compliance [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	28.57% 2.00	28.57% 2.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
12. Improved communication	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	42.86% 3.00	28.57% 2.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
15. Faster information transfer	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	57.14% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
13. Easier to report adverse drug events	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	42.86% 3.00	28.57% 2.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
13. Increased or improved decision support	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	42.86% 3.00	14.29% 1.00	14.29% 1.00	0.00% 0.00	0.00% 0.00
16. Increased awareness of and (perceived) control over active medications	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	71.43% 5.00	14.29% 1.00	0.00% 0.00
17. Improved adherence to guidelines	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	71.43% 5.00	14.29% 1.00
20. Easier to get reimbursed for medications	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00
19. Improved governmental oversight of controlled substances	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
18. Improved healthcare management (e.g. through reporting and/or audits)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	71.43% 5.00

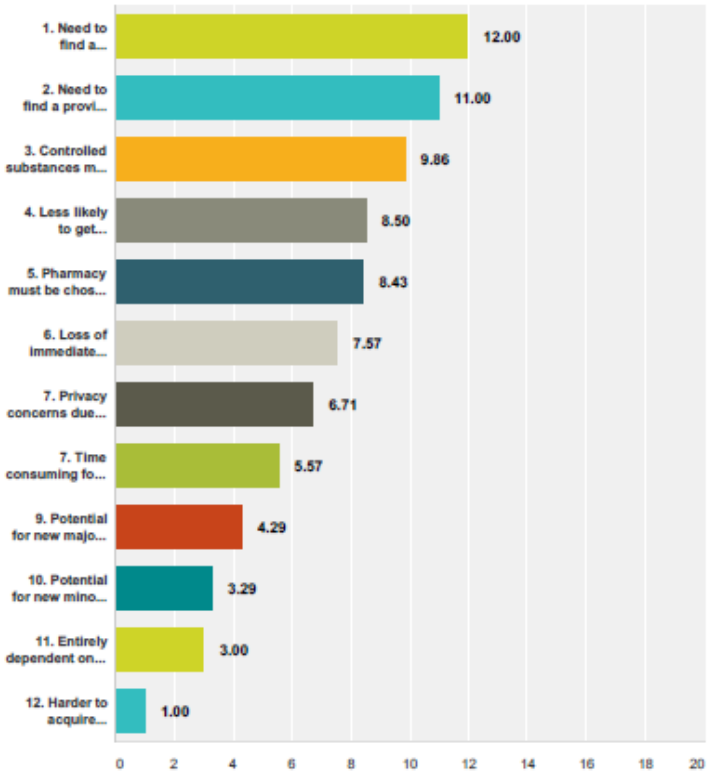
Questionnaire Three: Finalizing

Q5 If you wish, please describe any aspect of e-prescribing's positive impact on Patients that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q6 Set forth below are negatives associated with e-prescribing, from the perspective of Patients. The negatives are labeled with the rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Patients.

Answered: 7 Skipped: 0



	1	2	3	4	5	6	7	8	9	10	11	12	N/A	Total	Score
1. Need to find a pharmacy/dispenser that e-prescribes [13% N/A]	85.71% 6.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	7	12.00
2. Need to find a provider who e-prescribes [13% N/A]	0.00% 0.00	85.71% 6.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	7	11.00
3. Controlled substances may have to be separately prescribed, on paper	14.29% 1.00	0.00% 0.00	71.43% 5.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	9.86
4. Less likely to get non-formulary medications [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	57.14% 4.00	14.29% 1.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	7	8.50
5. Pharmacy must be chosen when prescription is made, not when it is filled	0.00% 0.00	14.29% 1.00	14.29% 1.00	14.29% 1.00	42.86% 3.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	8.43

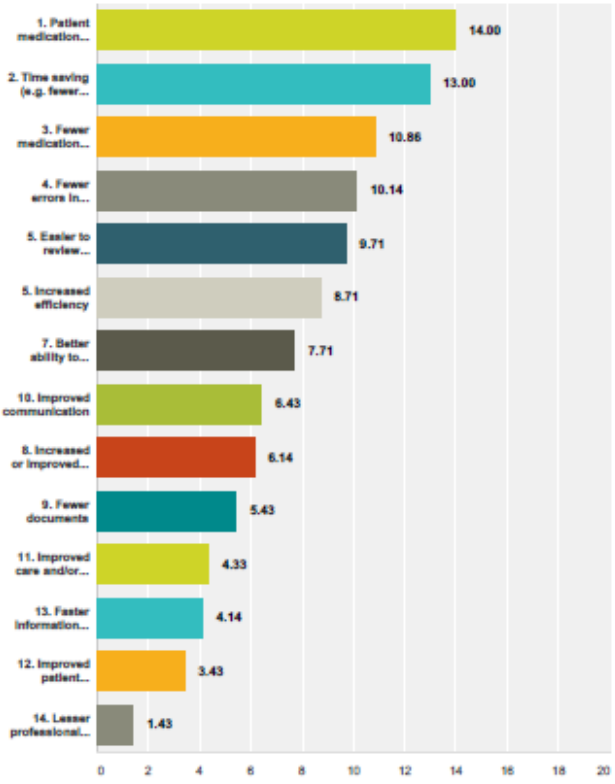
6. Loss of immediate physical trail of prescription, including paper reminder to go to pharmacy	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**14.29%** 1.00	**14.29%** 1.00	**42.86%** 3.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	7	7.57
7. Privacy concerns due to risk of violations of data security	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**14.29%** 1.00	**14.29%** 1.00	**42.86%** 3.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	7	6.71
7. Time consuming for providers (could reduce face-to-face contact with patients) [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**28.57%** 2.00	**42.86%** 3.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	7	5.57
9. Potential for new major errors, creating adverse effects on safety (e.g. wrong medication)	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**71.43%** 5.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	7	4.29
10. Potential for new minor errors, creating inconvenience (e.g. wrong pharmacy)	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**71.43%** 5.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	7	3.29
11. Entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natural disaster, accident, or terrorism [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**71.43%** 5.00	**0.00%** 0.00	**0.00%** 0.00	7	3.00
12. Harder to acquire fraudulent prescriptions (e.g. extra pain medication to sell on the black market) [38% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**57.14%** 4.00	**42.86%** 3.00	7	1.00

Q7 If you wish, please describe any aspect of e-prescribing's negative impact on Patients that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 3 Skipped: 4

Q8 Set forth below are positives associated with e-prescribing, from the perspective of Clinicians/Prescribers. The positives are labeled with the rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Clinicians/Prescribers.

Answered: 7 Skipped: 0



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	N/A	Total	Score
1. Patient medication history is available (electronic record of prescriptions)	100.00% 7.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	14.00
2. Time saving (e.g. fewer faxes, telephone calls, workflow interruptions)	0.00% 0.00	100.00% 7.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	13.00
3. Fewer medication errors	0.00% 0.00	0.00% 0.00	85.71% 6.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	10.86
4. Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage and/or administration errors [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	85.71% 6.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	10.14

Questionnaire Three: Finalizing

5. Easier to review alternative medications on formulary	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**57.14%** 4.00	**14.29%** 1.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	7	9.71
5. Increased efficiency	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**57.14%** 4.00	**14.29%** 1.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	7	8.71
7. Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?)	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**57.14%** 4.00	**14.29%** 1.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	7	7.71
10. Improved communication	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**28.57%** 2.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**57.14%** 4.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	7	6.43
8. Increased or improved decision support, including alerts based on patient medication history	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**42.86%** 3.00	**14.29%** 1.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	7	6.14
9. Fewer documents	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**57.14%** 4.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	7	5.43
11. Improved care and/or health outcomes [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**42.86%** 3.00	**28.57%** 2.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	7	4.33
13. Faster information transfer	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**14.29%** 1.00	**14.29%** 1.00	**42.86%** 3.00	**0.00%** 0.00	**0.00%** 0.00	7	4.14
12. Improved patient satisfaction	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**42.86%** 3.00	**28.57%** 2.00	**0.00%** 0.00	**0.00%** 0.00	7	3.43
14. Lesser professional liability premiums and malpractice liability	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**14.29%** 1.00	**71.43%** 5.00	**0.00%** 0.00	7	1.43

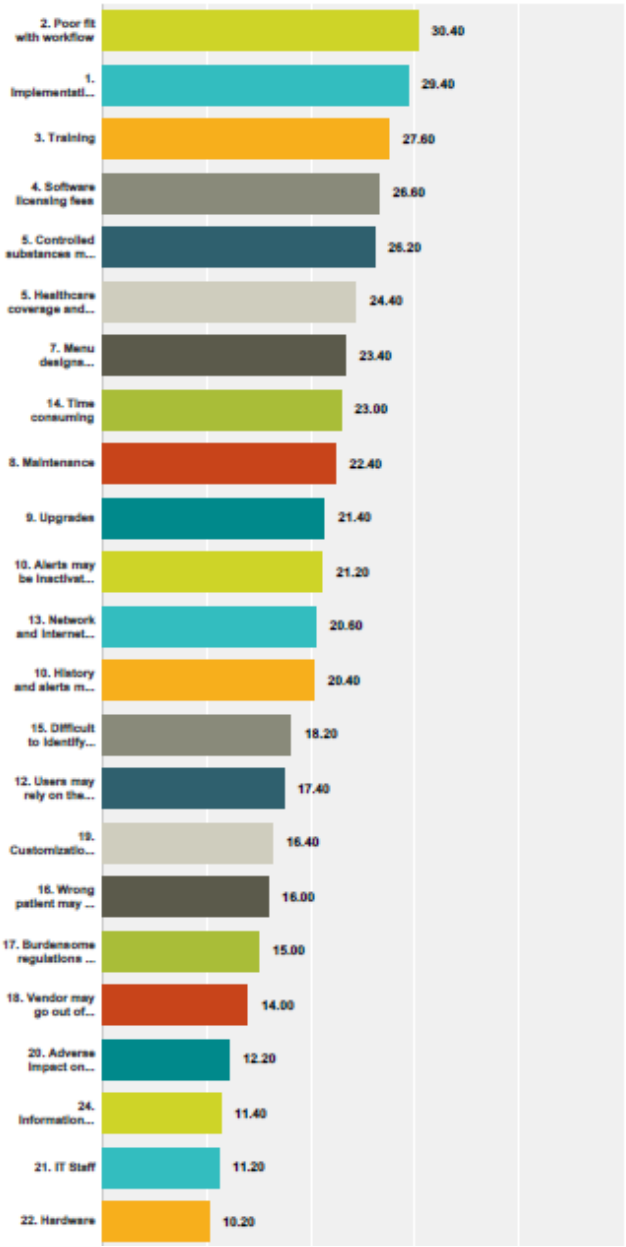
Questionnaire Three: Finalizing

Q9 If you wish, please describe any aspect of e-prescribing's positive impact on Clinicians/Prescribers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

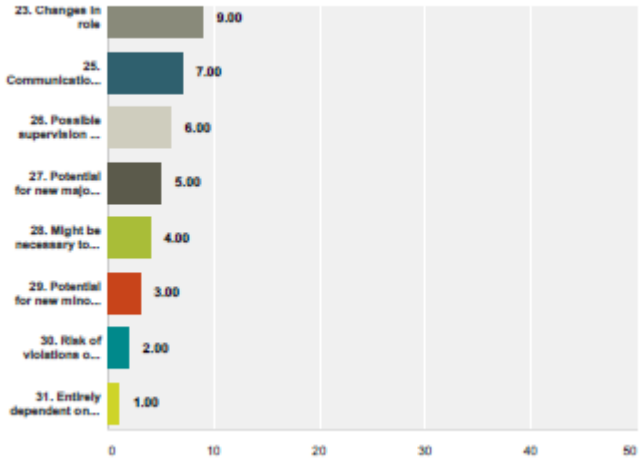
Answered: 1 Skipped: 6

Q10 Set forth below are negatives associated with e-prescribing, from the perspective of Clinicians/Prescribers. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Clinicians/Prescribers.

Answered: 5 Skipped: 2



Questionnaire Three: Finalizing



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2. Poor fit with workflow	40.00% 2.00	60.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
1. Implementation costs	40.00% 2.00	20.00% 1.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
3. Training	0.00% 0.00	0.00% 0.00	40.00% 2.00	40.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
4. Software licensing fees	0.00% 0.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	40.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
5. Controlled substances may have to be separately prescribed, on paper	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	40.00% 2.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
5. Healthcare coverage and/or formulary may not be updated	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	20.00% 1.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
7. Menu designs (Graphical User Interfaces) may increase wrong drug choices	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	20.00% 1.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
14. Time consuming	20.00% 1.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	60.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
8. Maintenance	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	20.00% 1.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
9. Upgrades	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	20.00% 1.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
10. Alerts may be inactivated or ignored	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
13. Network and internet access	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	80.00% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
10. History and alerts may not be updated	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	20.00% 1.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00

Questionnaire Three: Finalizing

15. Difficult to identify patient's preferred pharmacy (patient may not be able to provide precise name or address)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	60.00% 3.00	0.00% 0.00	20.00% 1.00	0.00% 0.00
12. Users may rely on the system and be less careful	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	60.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00
19. Customization (9% N/A)	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00
16. Wrong patient may be selected	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	60.00% 3.00	0.00% 0.00	20.00% 1.00
17. Burdensome regulations for e-prescribing controlled substances	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	60.00% 3.00	0.00% 0.00
18. Vendor may go out of business and/or not support e-prescribing system	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	60.00% 3.00
20. Adverse impact on interactions with patients	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00
24. Information overload	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
21. IT Staff	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
22. Hardware	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
23. Changes in role	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
25. Communication problems	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
26. Possible supervision by third parties, including payors	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
27. Potential for new major errors, creating adverse effects on safety (e.g. wrong medication)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
28. Might be necessary to redo e-prescription (e.g. chosen pharmacy was out of stock)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
29. Potential for new minor errors, creating inconvenience (e.g. wrong pharmacy)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00
30. Risk of violations of data security	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00

Questionnaire Three: Finalizing

31. Entirely dependent on technology and electronic communication infrastructure, which can be disrupted by natural disaster, accident, or terrorism	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00

Questionnaire Three: Finalizing

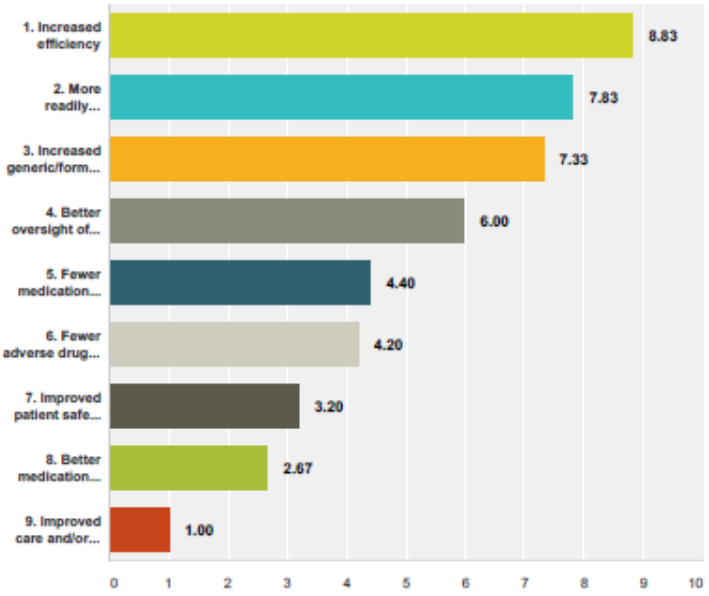
Q11 If you wish, please describe any aspect of e-prescribing's negative impact on Clinicians/Prescribers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Questionnaire Three: Finalizing

Q12 Set forth below are positives associated with e-prescribing, from the perspective of Payors/Purchasers. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Payors/Purchasers.

Answered: 6 Skipped: 1



	1	2	3	4	5	6	7	8	9	N/A	Total	Score
1. Increased efficiency	83.33% 5.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	8.83
2. More readily available data	0.00% 0.00	83.33% 5.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	7.83
3. Increased generic/formulary usage	16.67% 1.00	0.00% 0.00	83.33% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	7.33
4. Better oversight of physician behavior	0.00% 0.00	0.00% 0.00	0.00% 0.00	100.00% 6.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	6.00
5. Fewer medication errors [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	66.67% 4.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	0.00% 0.00	16.67% 1.00	6	4.40
6. Fewer adverse drug events [25% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	66.67% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	6	4.20
7. Improved patient safety [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	66.67% 4.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	6	3.20
8. Better medication adherence/compliance	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	0.00% 0.00	16.67% 1.00	66.67% 4.00	0.00% 0.00	0.00% 0.00	6	2.67
9. Improved care and/or health outcomes [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	83.33% 5.00	16.67% 1.00	6	1.00

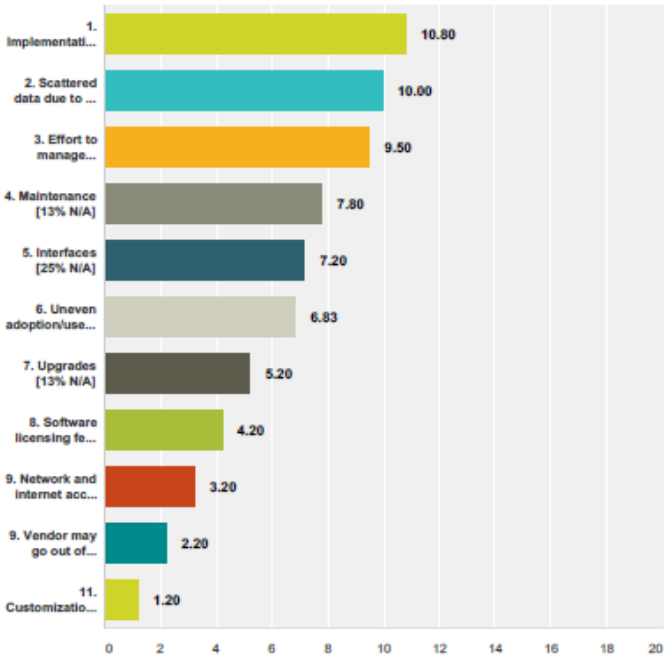
Questionnaire Three: Finalizing

Q13 If you wish, please describe any aspect of e-prescribing's positive impact on Payors/Purchasers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q14 Set forth below are negatives associated with e-prescribing, from the perspective of Payors/Purchasers. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Payors/Purchasers.

Answered: 6 Skipped: 1



	1	2	3	4	5	6	7	8	9	10	11	N/A	Total	Score
1. Implementation costs [13% N/A]	66.67% 4.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	6	10.80
2. Scattered data due to use of multiple different e-prescribing systems	16.67% 1.00	66.67% 4.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	10.00
3. Effort to manage formulary across multiple different e-prescribing systems	16.67% 1.00	16.67% 1.00	66.67% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	9.50
4. Maintenance [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	66.67% 4.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	6	7.80
5. Interfaces [25% N/A]	0.00% 0.00	0.00% 0.00	16.67% 1.00	0.00% 0.00	50.00% 3.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	6	7.20
6. Uneven adoption/use by clinicians/prescribers	0.00% 0.00	0.00% 0.00	0.00% 0.00	33.33% 2.00	16.67% 1.00	50.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	6.83
7. Upgrades [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	66.67% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	6	5.20
8. Software licensing fees [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	66.67% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	6	4.20
9. Network and internet access [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	66.67% 4.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	6	3.20

Questionnaire Three: Finalizing

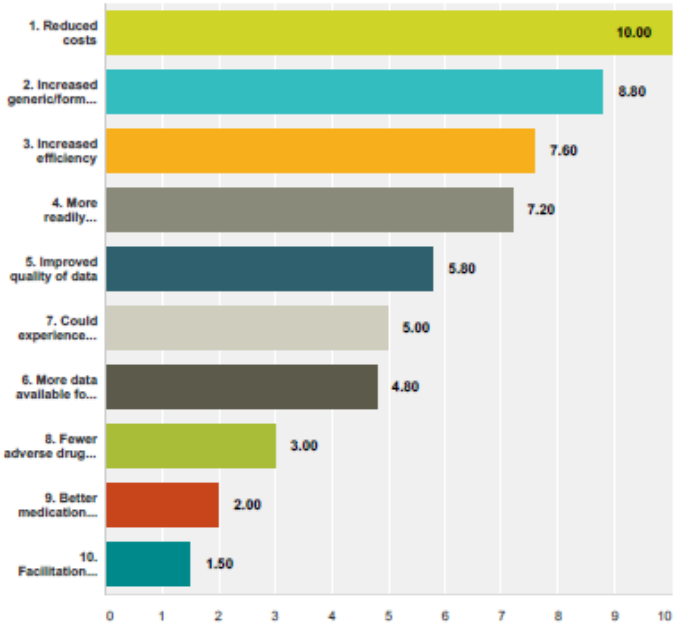
9. Vendor may go out of business and/or not support e-prescribing system [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**66.67%** 4.00	**0.00%** 0.00	**16.67%** 1.00	6	2.20
11. Customization [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**66.67%** 4.00	**16.67%** 1.00	6	1.20

Q15 If you wish, please describe any aspect of e-prescribing's negative impact on Payors/Purchasers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 3 Skipped: 4

Q16 Set forth below are positives associated with e-prescribing, from the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

Answered: 5 Skipped: 2



	1	2	3	4	5	6	7	8	9	10	N/A	Total	Score
1. Reduced costs	100.00% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	10.00
2. Increased generic/formulary usage	0.00% 0.00	80.00% 4.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	8.80
3. Increased efficiency	0.00% 0.00	0.00% 0.00	60.00% 3.00	40.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	7.60
4. More readily accessible data	0.00% 0.00	20.00% 1.00	0.00% 0.00	60.00% 3.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	7.20
5. Improved quality of data	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	80.00% 4.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	5.80
7. Could experience increased value or business [13% N/A]	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	60.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	5	5.00
6. More data available for analysis (e.g. expenses, costs, diagnoses and appropriate use)	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	80.00% 4.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	4.80
8. Fewer adverse drug events [25% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	60.00% 3.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	5	3.00
9. Better medication adherence/compliance [38% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	60.00% 3.00	0.00% 0.00	40.00% 2.00	5	2.00

Questionnaire Three: Finalizing

10. Facilitation of marketing to payors [15% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	60.00% 3.00	20.00% 1.00	5	1.50

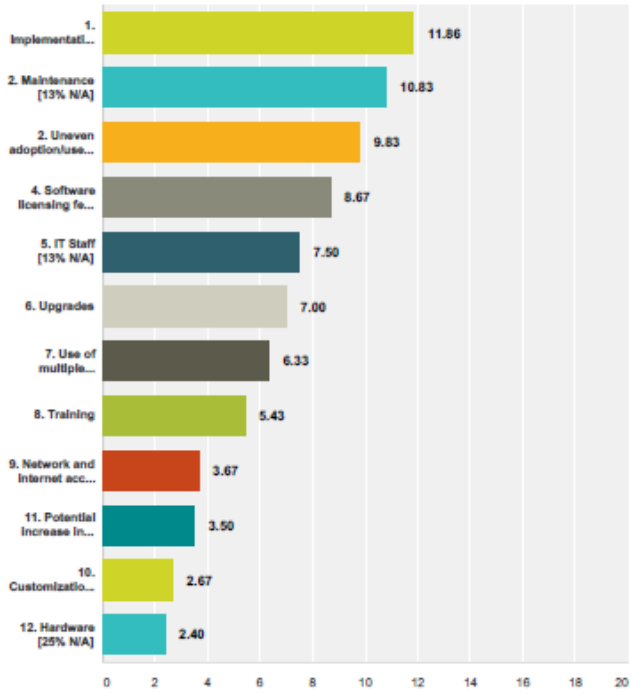
Questionnaire Three: Finalizing

Q17 If you wish, please describe any aspect of e-prescribing's positive impact on Pharmacy Benefit Managers/Prescription Pricing Authorities that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q18 Set forth below are negatives associated with e-prescribing, from the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Pharmacy Benefit Managers/Prescription Pricing Authorities.

Answered: 7 Skipped: 0



	1	2	3	4	5	6	7	8	9	10	11	12	N/A	Total	Score
1. Implementation costs	85.71% 6.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	11.86
2. Maintenance [13% N/A]	0.00% 0.00	71.43% 5.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	7	10.83
2. Uneven adoption/use by clinicians/prescribers [13% N/A]	0.00% 0.00	0.00% 0.00	71.43% 5.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	7	9.83
4. Software licensing fees [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	57.14% 4.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	7	8.67
5. IT Staff [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	42.86% 3.00	42.86% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	7	7.50
6. Upgrades	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	28.57% 2.00	57.14% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	7.00
7. Use of multiple different e-prescribing systems [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	28.57% 2.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	7	6.33
8. Training	0.00% 0.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	57.14% 4.00	28.57% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	5.43

9. Network and internet access [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**57.14%** 4.00	**28.57%** 2.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	7	3.67
11. Potential increase in medication spending [13% N/A]	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**57.14%** 4.00	**14.29%** 1.00	**14.29%** 1.00	7	3.50
10. Customization [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**57.14%** 4.00	**28.57%** 2.00	**0.00%** 0.00	**14.29%** 1.00	7	2.67
12. Hardware [25% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**14.29%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**57.14%** 4.00	**28.57%** 2.00	7	2.40

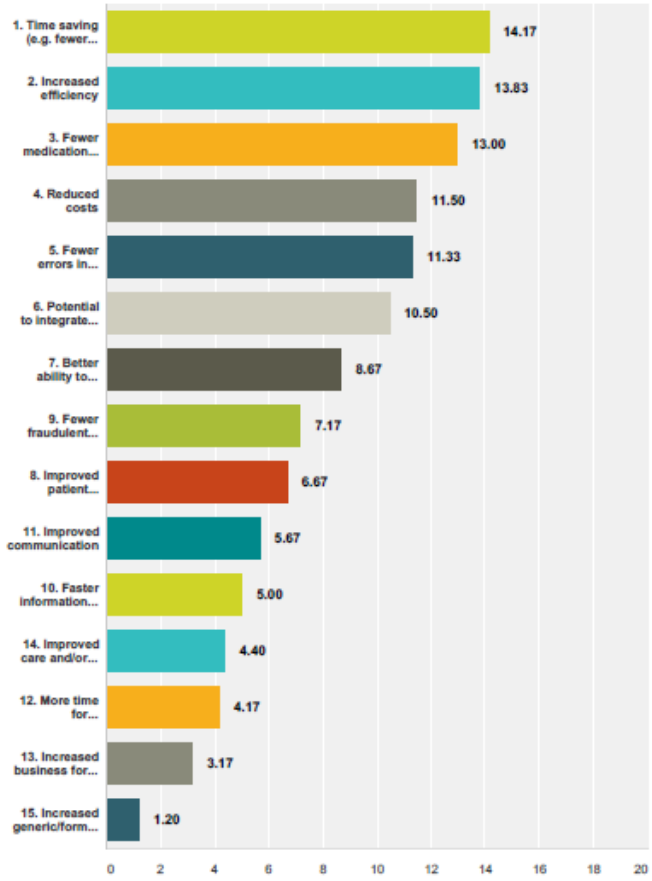
Questionnaire Three: Finalizing

Q19 If you wish, please describe any aspect of e-prescribing's negative impact on Pharmacy Benefit Managers/Prescription Pricing Authorities that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q20 Set forth below are positives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Pharmacies/Dispensers/Pharmacists.

Answered: 6 Skipped: 1



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	N/A	Total	Sc
1. Time saving (e.g. fewer faxes, telephone calls, workflow interruptions)	83.33% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	14
2. Increased efficiency	0.00% 0.00	83.33% 5.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	12
3. Fewer medication errors	16.67% 1.00	0.00% 0.00	50.00% 3.00	33.33% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	12
4. Reduced costs	0.00% 0.00	0.00% 0.00	0.00% 0.00	50.00% 3.00	50.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	11

Questionnaire Three: Finalizing

5. Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage/administration errors	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**16.67%** 1.00	**50.00%** 3.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	6	11
6. Potential to integrate e-prescribing system with warehouse system to better manage supply and distribution	**0.00%** 0.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**66.67%** 4.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	6	10
7. Better ability to monitor patient adherence/compliance (e.g., did the patient pick up the prescription?) [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**66.67%** 4.00	**33.33%** 2.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	6	8
9. Fewer fraudulent prescriptions	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**16.67%** 1.00	**33.33%** 2.00	**33.33%** 2.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	6	7
8. Improved patient satisfaction	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**33.33%** 2.00	**50.00%** 3.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	6	6
11. Improved communication	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**0.00%** 0.00	**33.33%** 2.00	**33.33%** 2.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	6	5
10. Faster information transfer [25% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**33.33%** 2.00	**33.33%** 2.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**0.00%** 0.00	6	5
14. Improved care and/or health outcomes [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**50.00%** 3.00	**0.00%** 0.00	**16.67%** 1.00	6	4
12. More time for consultations	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**33.33%** 2.00	**50.00%** 3.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	6	4
13. Increased business for both prescriptions and other purchases	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**33.33%** 2.00	**50.00%** 3.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	6	3
15. Increased generic/formulary usage [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**66.67%** 4.00	**16.67%** 1.00	6	1

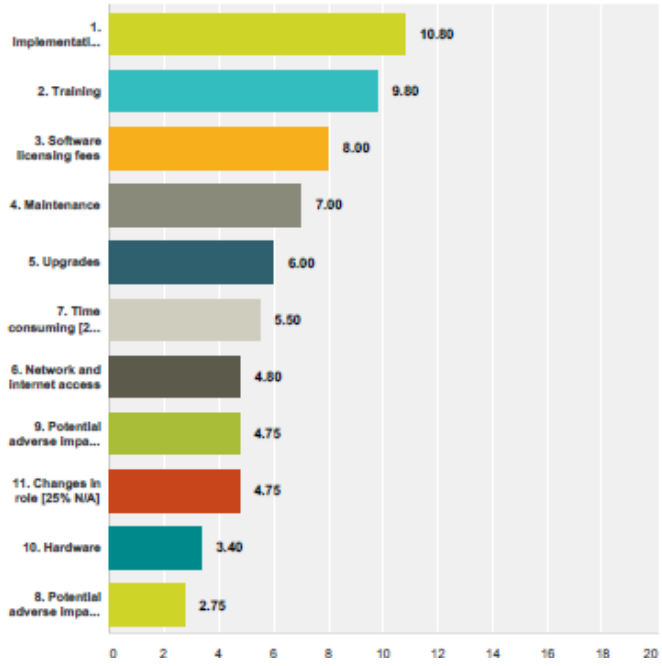
Questionnaire Three: Finalizing

Q21 If you wish, please describe any aspect of e-prescribing's positive impact on Pharmacies/Dispensers/Pharmacists that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q22 Set forth below are negatives associated with e-prescribing, from the perspective of Pharmacies/Dispensers/Pharmacists. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Pharmacies/Dispensers/Pharmacists.

Answered: 5 Skipped: 2



	1	2	3	4	5	6	7	8	9	10	11	N/A	Total	Score
1. Implementation costs	80.00% 4.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	10.80
2. Training	0.00% 0.00	80.00% 4.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	9.80
3. Software licensing fees	0.00% 0.00	0.00% 0.00	60.00% 3.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	8.00
4. Maintenance	0.00% 0.00	0.00% 0.00	0.00% 0.00	60.00% 3.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	7.00
5. Upgrades	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	60.00% 3.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	6.00
7. Time consuming [25% N/A]	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	40.00% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	5	5.50
6. Network and Internet access	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	40.00% 2.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	5	4.80
9. Potential adverse impact on safety [38% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	20.00% 1.00	0.00% 0.00	20.00% 1.00	5	4.75
11. Changes in role [25% N/A]	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	40.00% 2.00	20.00% 1.00	5	4.75

Questionnaire Three: Finalizing

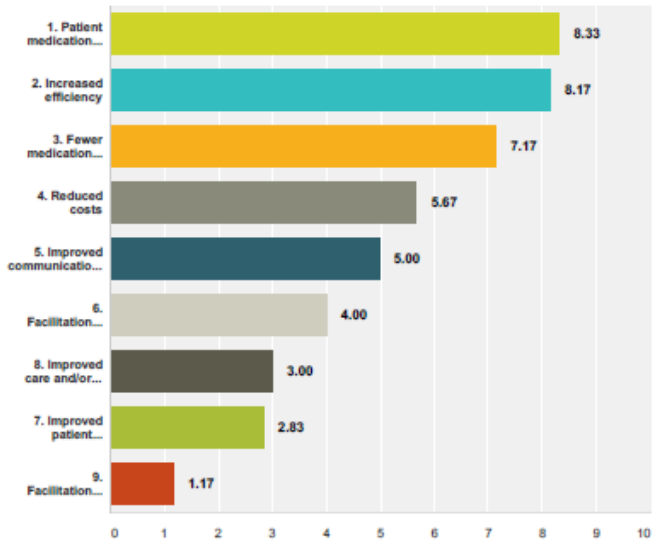
10. Hardware	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**20.00%** 1.00	**0.00%** 0.00	**20.00%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**40.00%** 2.00	**20.00%** 1.00	**0.00%** 0.00	5	3.40
8. Potential adverse impact on relationship with patients [13% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**20.00%** 1.00	**40.00%** 2.00	**0.00%** 0.00	**20.00%** 1.00	**20.00%** 1.00	5	2.75

Q23 If you wish, please describe any aspect of e-prescribing's negative impact on Pharmacies/Dispensers/Pharmacists that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q24 Set forth below are positives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Inpatient or Outpatient Healthcare Entities.

Answered: 6 Skipped: 1



	1	2	3	4	5	6	7	8	9	N/A	Total	Score
1. Patient medication history is available (electronic record of prescriptions)	83.33% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	8.33
2. Increased efficiency	16.67% 1.00	83.33% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	8.17
3. Fewer medication errors	0.00% 0.00	16.67% 1.00	83.33% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	7.17
4. Reduced costs	0.00% 0.00	0.00% 0.00	0.00% 0.00	83.33% 5.00	0.00% 0.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	5.67
5. Improved communication (e.g. among healthcare settings)	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	66.67% 4.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	5.00
6. Facilitation of continuity of care	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	66.67% 4.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	4.00
8. Improved care and/or health outcomes [13% N/A]	0.00% 0.00	0.00% 0.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	66.67% 4.00	0.00% 0.00	16.67% 1.00	6	3.00
7. Improved patient satisfaction	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	83.33% 5.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	6	2.83
9. Facilitation of quality measurement and reporting	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	16.67% 1.00	83.33% 5.00	0.00% 0.00	6	1.17

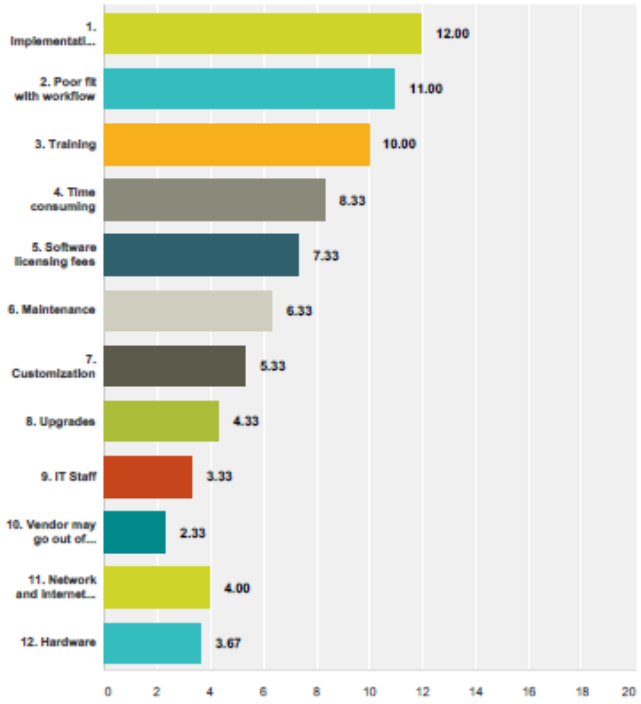
Questionnaire Three: Finalizing

Q25 If you wish, please describe any aspect of e-prescribing's positive impact on Inpatient or Outpatient Healthcare Entities that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q26 Set forth below are negatives associated with e-prescribing, from the perspective of Inpatient or Outpatient Healthcare Entities. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Inpatient or Outpatient Healthcare Entities.

Answered: 3 Skipped: 4



	1	2	3	4	5	6	7	8	9	10	11	12	N/A	Total	Score
1. Implementation costs	100.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	12.00
2. Poor fit with workflow	0.00% 0.00	100.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	11.00
3. Training	0.00% 0.00	0.00% 0.00	100.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	10.00
4. Time consuming	0.00% 0.00	0.00% 0.00	0.00% 0.00	66.67% 2.00	0.00% 0.00	33.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	8.33
5. Software licensing fees	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	66.67% 2.00	0.00% 0.00	33.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	7.33
6. Maintenance	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	66.67% 2.00	0.00% 0.00	33.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	6.33
7. Customization	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	66.67% 2.00	0.00% 0.00	33.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	5.33
8. Upgrades	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	66.67% 2.00	0.00% 0.00	33.33% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	4.33
9. IT Staff	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	66.67% 2.00	0.00% 0.00	33.33% 1.00	0.00% 0.00	0.00% 0.00	3	3.33

Questionnaire Three: Finalizing

10. Vendor may go out of business or not support e-prescribing system	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**66.67%** 2.00	**0.00%** 0.00	**33.33%** 1.00	**0.00%** 0.00	3	2.33
11. Network and internet access	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**33.33%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**66.67%** 2.00	**0.00%** 0.00	**0.00%** 0.00	3	4.00
12. Hardware	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**33.33%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**66.67%** 2.00	**0.00%** 0.00	3	3.67

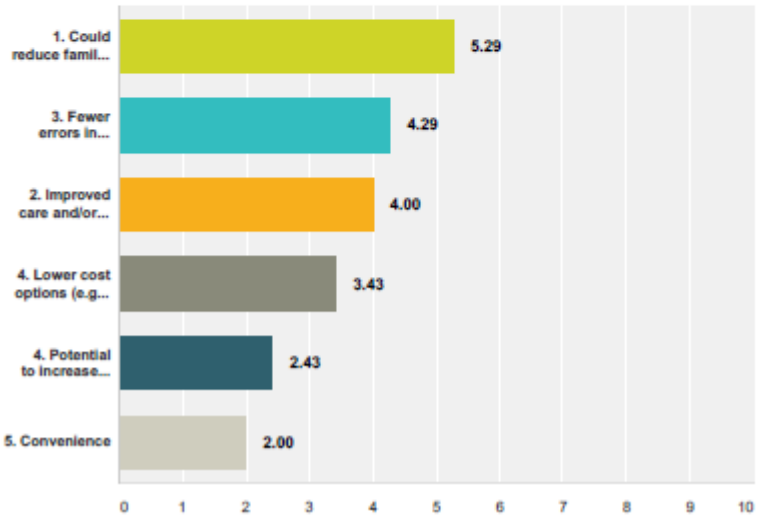
Questionnaire Three: Finalizing

Q27 If you wish, please describe any aspect of e-prescribing's negative impact on Inpatient or Outpatient Healthcare Entities that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q28 Set forth below are positives associated with e-prescribing, from the perspective of Patients' Families. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Patients' Families.

Answered: 7 Skipped: 0



	1	2	3	4	5	6	N/A	Total	Score
1. Could reduce family members' amount of time spent coordinating care (time saving) [9% N/A]	71.43% 5.00	0.00% 0.00	14.29% 1.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	7	5.29
3. Fewer errors in prescriptions due to improved legibility, reduced transcribing errors, reduced lost paperwork, reduced dosage and/or administration errors	14.29% 1.00	28.57% 2.00	42.86% 3.00	0.00% 0.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	4.29
2. Improved care and/or health outcomes [9% N/A]	14.29% 1.00	42.86% 3.00	0.00% 0.00	0.00% 0.00	14.29% 1.00	14.29% 1.00	14.29% 1.00	7	4.00
4. Lower cost options (e.g. decreased cost sharing) due to encouraging use of formulary medications	0.00% 0.00	14.29% 1.00	28.57% 2.00	42.86% 3.00	14.29% 1.00	0.00% 0.00	0.00% 0.00	7	3.43
4. Potential to increase adherence/compliance (e.g. use e-prescription system to create automatic reminders to take medication)	0.00% 0.00	0.00% 0.00	14.29% 1.00	28.57% 2.00	42.86% 3.00	14.29% 1.00	0.00% 0.00	7	2.43
5. Convenience	0.00% 0.00	14.29% 1.00	0.00% 0.00	14.29% 1.00	14.29% 1.00	57.14% 4.00	0.00% 0.00	7	2.00

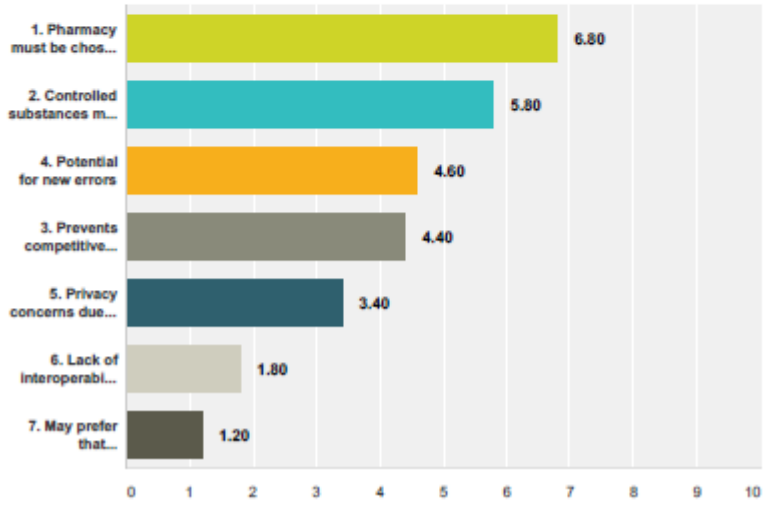
Questionnaire Three: Finalizing

Q29 If you wish, please describe any aspect of e-prescribing's positive impact on Patients' Families that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q30 Set forth below are negatives associated with e-prescribing, from the perspective of Patients' Families. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Patients' Families.

Answered: 5 Skipped: 2



	1	2	3	4	5	6	7	N/A	Total	Score
1. Pharmacy must be chosen when prescription is made, not when it is filled	80.00% 4.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	6.80
2. Controlled substances may have to be separately prescribed, on paper	0.00% 0.00	80.00% 4.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	5.80
4. Potential for new errors	20.00% 1.00	0.00% 0.00	20.00% 1.00	40.00% 2.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	4.60
3. Prevents competitive shopping for best prescription price	0.00% 0.00	0.00% 0.00	40.00% 2.00	60.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	4.40
5. Privacy concerns due to risk of violations of data security	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	80.00% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	3.40
6. Lack of interoperability between e-prescribing systems and personal health records	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	80.00% 4.00	20.00% 1.00	0.00% 0.00	5	1.80
7. May prefer that clinician/prescriber not be able to discover non-compliance [13% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	80.00% 4.00	0.00% 0.00	5	1.20

Questionnaire Three: Finalizing

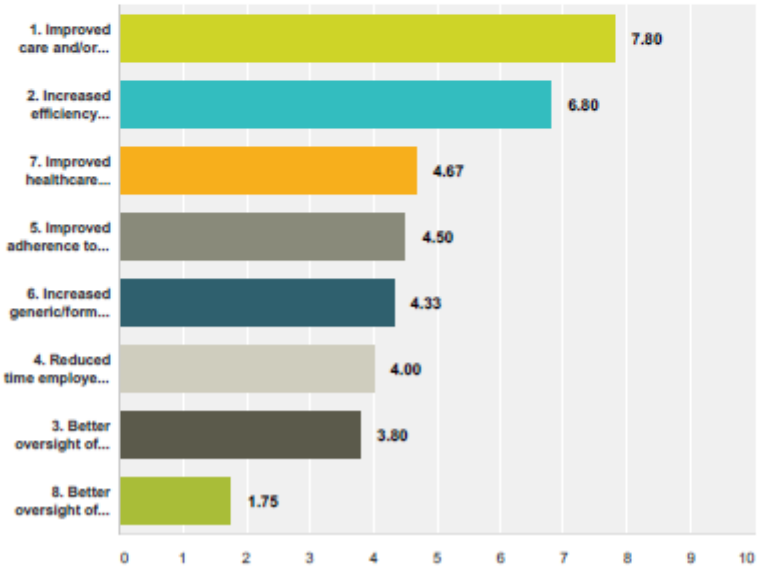
Q31 If you wish, please describe any aspect of e-prescribing's negative impact on Patients' Families that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Questionnaire Three: Finalizing

Q32 Set forth below are positives associated with e-prescribing, from the perspective of Employers. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Employers.

Answered: 6 Skipped: 1



	1	2	3	4	5	6	7	8	N/A	Total	Score
1. Improved care and/or health outcomes [13% N/A]	**66.67%** 4.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	6	7.80
2. Increased efficiency (e.g. faster process of receiving justifications, more rapid patient turnaround) [13% N/A]	**0.00%** 0.00	**66.67%** 4.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	6	6.80
7. Improved healthcare management (e.g. through reporting and/or audits)	**16.67%** 1.00	**0.00%** 0.00	**16.67%** 1.00	**0.00%** 0.00	**50.00%** 3.00	**0.00%** 0.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	6	4.67
5. Improved adherence to guidelines	**16.67%** 1.00	**0.00%** 0.00	**16.67%** 1.00	**16.67%** 1.00	**16.67%** 1.00	**16.67%** 1.00	**0.00%** 0.00	**16.67%** 1.00	**0.00%** 0.00	6	4.50
6. Increased generic/formulary usage	**0.00%** 0.00	**16.67%** 1.00	**0.00%** 0.00	**33.33%** 2.00	**16.67%** 1.00	**16.67%** 1.00	**16.67%** 1.00	**0.00%** 0.00	**0.00%** 0.00	6	4.33
4. Reduced time employees are not working [25% N/A]	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**33.33%** 2.00	**0.00%** 0.00	**0.00%** 0.00	**33.33%** 2.00	**0.00%** 0.00	**16.67%** 1.00	6	4.00
3. Better oversight of employee health [25% N/A]	**0.00%** 0.00	**0.00%** 0.00	**33.33%** 2.00	**0.00%** 0.00	**0.00%** 0.00	**33.33%** 2.00	**0.00%** 0.00	**16.67%** 1.00	**16.67%** 1.00	6	3.80
8. Better oversight of clinician behavior [38% N/A]	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**16.67%** 1.00	**16.67%** 1.00	**33.33%** 2.00	**33.33%** 2.00	6	1.75

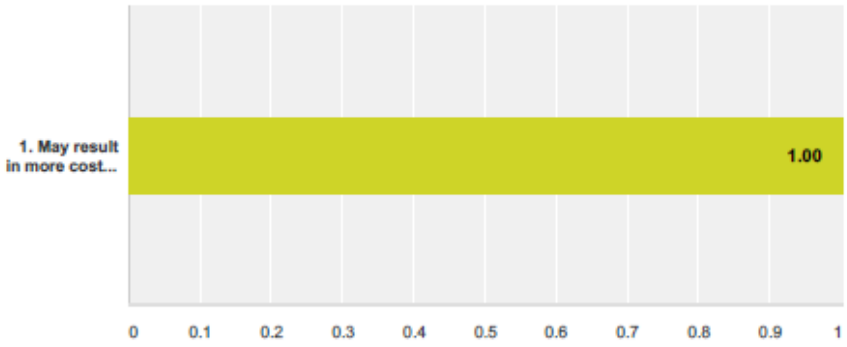
Questionnaire Three: Finalizing

Q33 If you wish, please describe any aspect of e-prescribing's positive impact on Employers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 2 Skipped: 5

Q34 Set forth below are negatives associated with e-prescribing, from the perspective of Employers. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Employers.

Answered: 4 Skipped: 3



	1	N/A	Total	Score
1. May result in more costs to providers that are passed on to employers	100.00% 4.00	0.00% 0.00	4	1.00

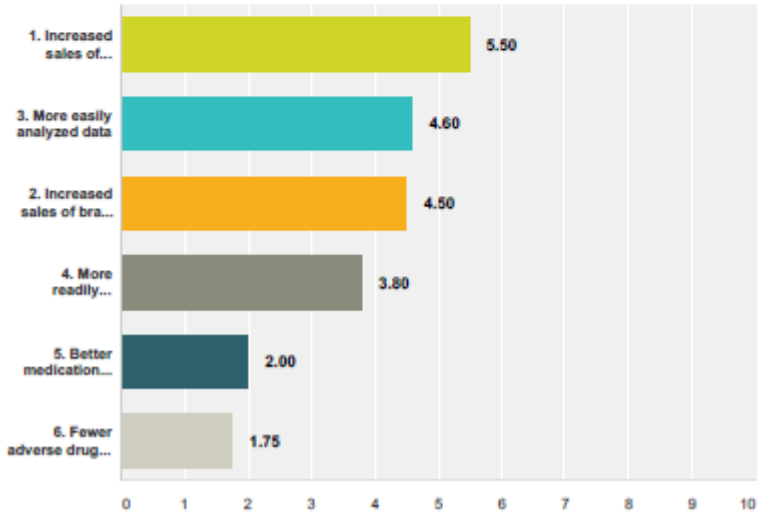
Questionnaire Three: Finalizing

Q35 If you wish, please describe any aspect of e-prescribing's negative impact on Employers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q36 Set forth below are positives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Pharmaceutical Manufacturers.

Answered: 5 Skipped: 2



	1	2	3	4	5	6	N/A	Total	Score
1. Increased sales of generic drugs [13% N/A]	60.00% 3.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	5	5.50
3. More easily analyzed data	20.00% 1.00	20.00% 1.00	60.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	5	4.60
2. Increased sales of brand drugs [13% N/A]	0.00% 0.00	60.00% 3.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	5	4.50
4. More readily available data	20.00% 1.00	20.00% 1.00	0.00% 0.00	40.00% 2.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	5	3.80
5. Better medication adherence/compliance	0.00% 0.00	0.00% 0.00	20.00% 1.00	0.00% 0.00	40.00% 2.00	40.00% 2.00	0.00% 0.00	5	2.00
6. Fewer adverse drug events	0.00% 0.00	0.00% 0.00	0.00% 0.00	20.00% 1.00	20.00% 1.00	40.00% 2.00	20.00% 1.00	5	1.75

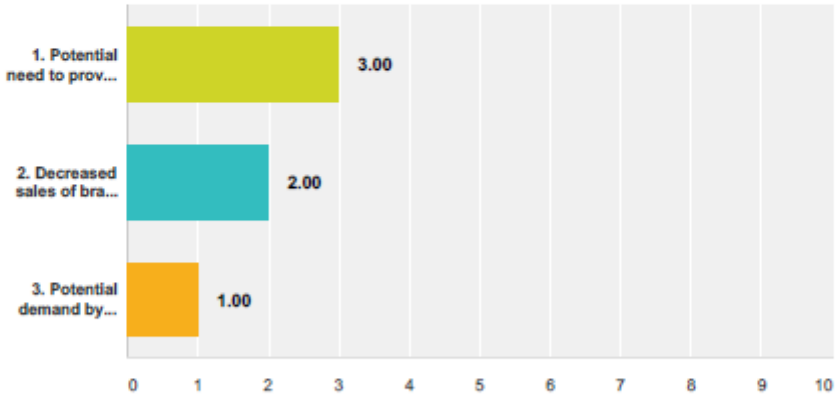
Questionnaire Three: Finalizing

Q37 If you wish, please describe any aspect of e-prescribing's positive impact on Pharmaceutical Manufacturers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q38 Set forth below are negatives associated with e-prescribing, from the perspective of Pharmaceutical Manufacturers. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Pharmaceutical Manufacturers.

Answered: 5 Skipped: 2



	1	2	3	N/A	Total	Score
1. Potential need to provide data compatible with multiple different e-prescribing systems	**100.00%** 5.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	5	3.00
2. Decreased sales of brand drugs	**0.00%** 0.00	**100.00%** 5.00	**0.00%** 0.00	**0.00%** 0.00	5	2.00
3. Potential demand by patients/consumers for more electronic drug information [29% N/A]	**0.00%** 0.00	**0.00%** 0.00	**80.00%** 4.00	**20.00%** 1.00	5	1.00

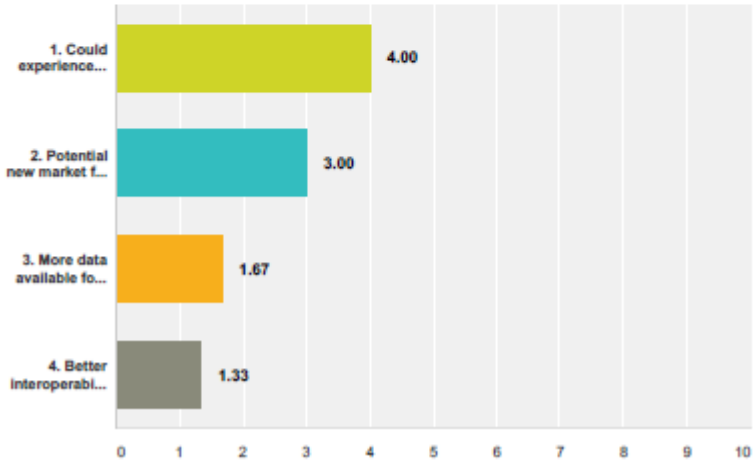
Questionnaire Three: Finalizing

Q39 If you wish, please describe any aspect of e-prescribing's negative impact on Pharmaceutical Manufacturers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q40 Set forth below are positives associated with e-prescribing, from the perspective of Vendors of Health Information Technology. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Vendors of Health Information Technology.

Answered: 3 Skipped: 4



	1	2	3	4	N/A	Total	Score
1. Could experience increased value or business	**100.00%** 3.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	3	4.00
2. Potential new market for electronic systems or tools for patients	**0.00%** 0.00	**100.00%** 3.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	3	3.00
3. More data available for design/development as systems are used more	**0.00%** 0.00	**0.00%** 0.00	**66.67%** 2.00	**33.33%** 1.00	**0.00%** 0.00	3	1.67
4. Better interoperability between e-prescribing systems and other health information systems [14%N/A]	**0.00%** 0.00	**0.00%** 0.00	**33.33%** 1.00	**66.67%** 2.00	**0.00%** 0.00	3	1.33

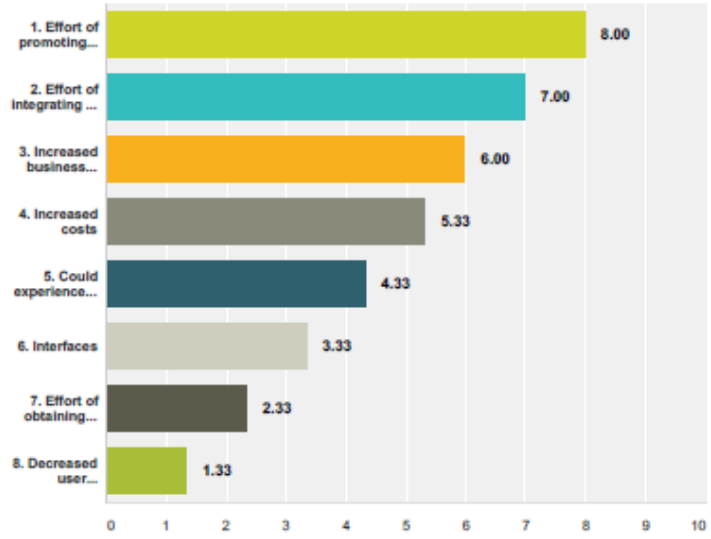
Questionnaire Three: Finalizing

Q41 If you wish, please describe any aspect of e-prescribing's positive impact on Vendors of Health Information Technology that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q42 Set forth below are negatives associated with e-prescribing, from the perspective of Vendors of Health Information Technology. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Vendors of Health Information Technology.

Answered: 3 Skipped: 4



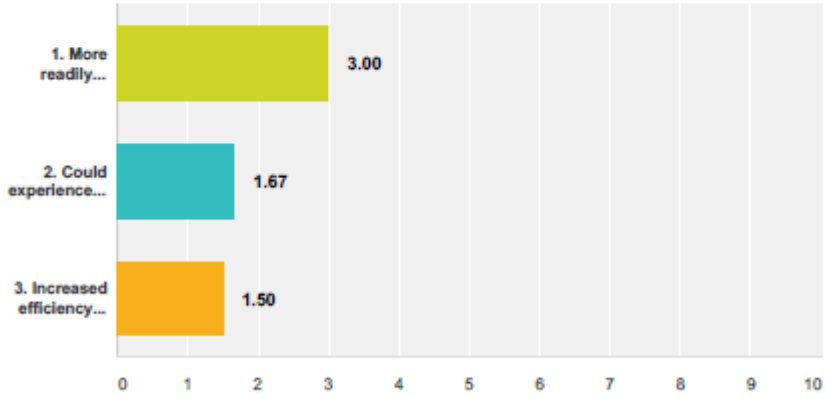
	1	2	3	4	5	6	7	8	N/A	Total	Score
1. Effort of promoting interoperability between e-prescribing systems and other health information systems	100.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	8.00
2. Effort of integrating new and existing systems	0.00% 0.00	100.00% 3.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	7.00
3. Increased business competition [29% N/A]	0.00% 0.00	0.00% 0.00	66.67% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	33.33% 1.00	3	6.00
4. Increased costs	0.00% 0.00	0.00% 0.00	33.33% 1.00	66.67% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	5.33
5. Could experience decreased value or business [14% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	33.33% 1.00	66.67% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	4.33
6. Interfaces	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	33.33% 1.00	66.67% 2.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	3	3.33
7. Effort of obtaining access to formularies [14% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	33.33% 1.00	66.67% 2.00	0.00% 0.00	0.00% 0.00	3	2.33
8. Decreased user satisfaction	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	33.33% 1.00	66.67% 2.00	0.00% 0.00	3	1.33

Q43 If you wish, please describe any aspect of e-prescribing's negative impact on Vendors of Health Information Technology that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q44 Set forth below are positives associated with e-prescribing, from the perspective of Suppliers/Distributors of Pharmaceuticals. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Suppliers/Distributors of Pharmaceuticals.

Answered: 4 Skipped: 3



	1	2	3	N/A	Total	Score
1. More readily available data (e.g. for evaluation of distribution)	**100.00%** 4.00	**0.00%** 0.00	**0.00%** 0.00	**0.00%** 0.00	4	3.00
2. Could experience increased value or business [14% N/A]	**0.00%** 0.00	**50.00%** 2.00	**25.00%** 1.00	**25.00%** 1.00	4	1.67
3. Increased efficiency (e.g. better processes for distribution)	**0.00%** 0.00	**50.00%** 2.00	**50.00%** 2.00	**0.00%** 0.00	4	1.50

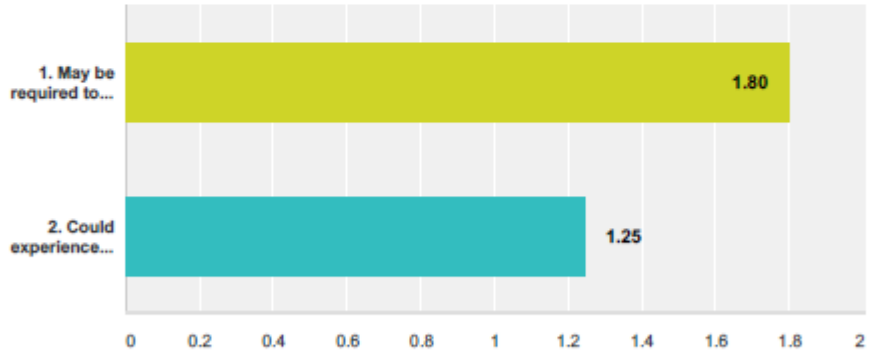
Questionnaire Three: Finalizing

Q45 If you wish, please describe any aspect of e-prescribing's positive impact on Suppliers/Distributors of Pharmaceuticals that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q46 Set forth below are negatives associated with e-prescribing, from the perspective of Suppliers/Distributors of Pharmaceuticals. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Suppliers/Distributors of Pharmaceuticals.

Answered: 5 Skipped: 2



	1	2	N/A	Total	Score
1. May be required to make their systems interoperable with those used by other stakeholders [13% N/A]	80.00% 4.00	20.00% 1.00	0.00% 0.00	5	1.80
2. Could experience decreased value or business [38% N/A]	20.00% 1.00	60.00% 3.00	20.00% 1.00	5	1.25

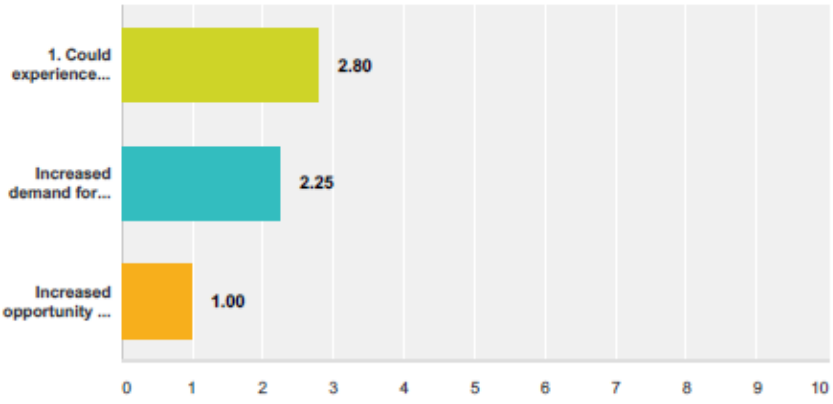
Questionnaire Three: Finalizing

Q47 If you wish, please describe any aspect of e-prescribing's negative impact on Suppliers/Distributors of Pharmaceuticals that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q48 Set forth below are positives associated with e-prescribing, from the perspective of Consultants. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Consultants.

Answered: 5 Skipped: 2



	1	2	3	N/A	Total	Score
1. Could experience increased value or business	80.00% 4.00	20.00% 1.00	0.00% 0.00	0.00% 0.00	5	2.80
Increased demand for services provided by consultants (e.g. process modeling)	20.00% 1.00	60.00% 3.00	0.00% 0.00	20.00% 1.00	5	2.25
Increased opportunity to gain experience (e.g. in implementation)	0.00% 0.00	0.00% 0.00	80.00% 4.00	20.00% 1.00	5	1.00

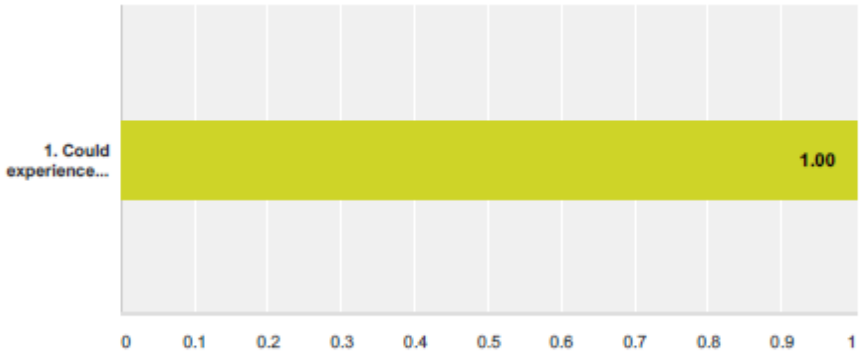
Questionnaire Three: Finalizing

Q49 If you wish, please describe any aspect of e-prescribing's positive impact on Consultants that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q50 Set forth below are negatives associated with e-prescribing, from the perspective of Consultants. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Consultants.

Answered: 5 Skipped: 2



	1	N/A	Total	Score
1. Could experience decreased value or business [71% N/A]	**40.00%** 2.00	**60.00%** 3.00	5	1.00

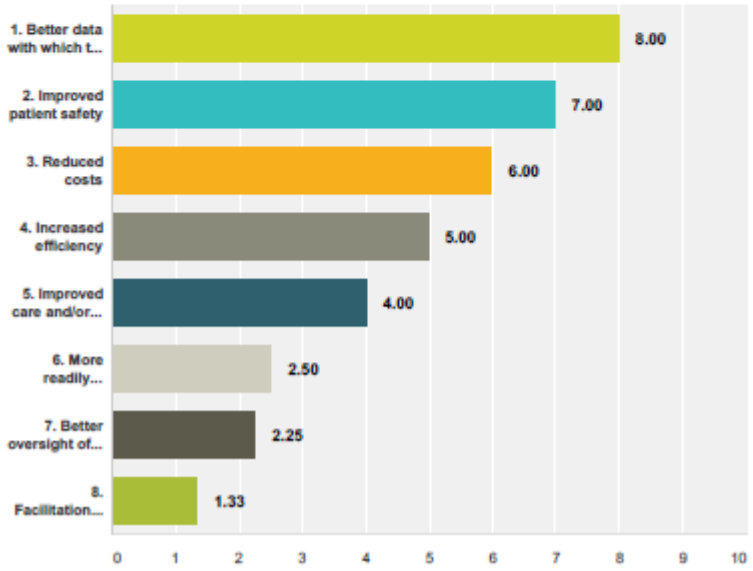
Questionnaire Three: Finalizing

Q51 If you wish, please describe any aspect of e-prescribing's negative impact on Consultants that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q52 Set forth below are positives associated with e-prescribing, from the perspective of Policy-makers/Legislators. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Policy-makers/Legislators.

Answered: 4 Skipped: 3



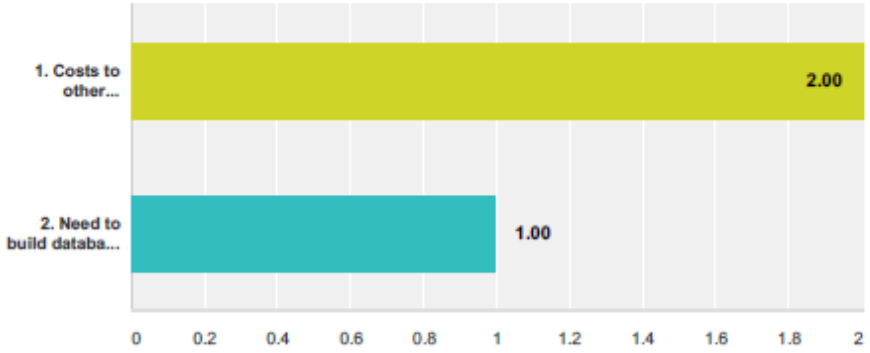
	1	2	3	4	5	6	7	8	N/A	Total	Score
1. Better data with which to make decisions	100.00% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	4	8.00
2. Improved patient safety	0.00% 0.00	100.00% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	4	7.00
3. Reduced costs	0.00% 0.00	0.00% 0.00	100.00% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	4	6.00
4. Increased efficiency	0.00% 0.00	0.00% 0.00	0.00% 0.00	100.00% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	4	5.00
5. Improved care and/or health outcomes	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	100.00% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	4	4.00
6. More readily available data	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	75.00% 3.00	0.00% 0.00	25.00% 1.00	0.00% 0.00	4	2.50
7. Better oversight of medication usage	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 1.00	75.00% 3.00	0.00% 0.00	0.00% 0.00	4	2.25
8. Facilitation of aligned incentives [38% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	25.00% 1.00	50.00% 2.00	25.00% 1.00	4	1.33

Q53 If you wish, please describe any aspect of e-prescribing's positive impact on Policy-makers/Legislators that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 2 Skipped: 5

Q54 Set forth below are negatives associated with e-prescribing, from the perspective of Policy-makers/Legislators. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Policy-makers/Legislators.

Answered: 5 Skipped: 2



	1	2	N/A	Total	Score
1. Costs to other stakeholders	100.00% 5.00	0.00% 0.00	0.00% 0.00	5	2.00
2. Need to build database systems to store and analyze the increased amount of data [25% N/A]	0.00% 0.00	60.00% 3.00	40.00% 2.00	5	1.00

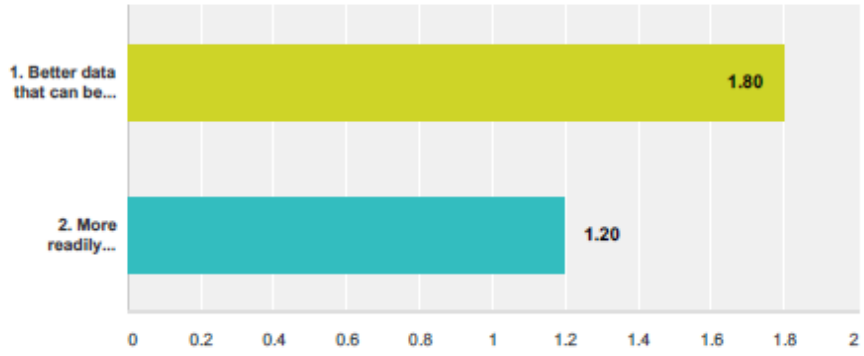
Questionnaire Three: Finalizing

Q55 If you wish, please describe any aspect of e-prescribing's negative impact on Policy-makers/Legislators that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q56 Set forth below are positives associated with e-prescribing, from the perspective of Researchers. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Researchers.

Answered: 5 Skipped: 2



	1	2	N/A	Total	Score
1. Better data that can be used in clinical trials and for comparative-effectiveness	80.00% 4.00	20.00% 1.00	0.00% 0.00	5	1.80
2. More readily available data	20.00% 1.00	80.00% 4.00	0.00% 0.00	5	1.20

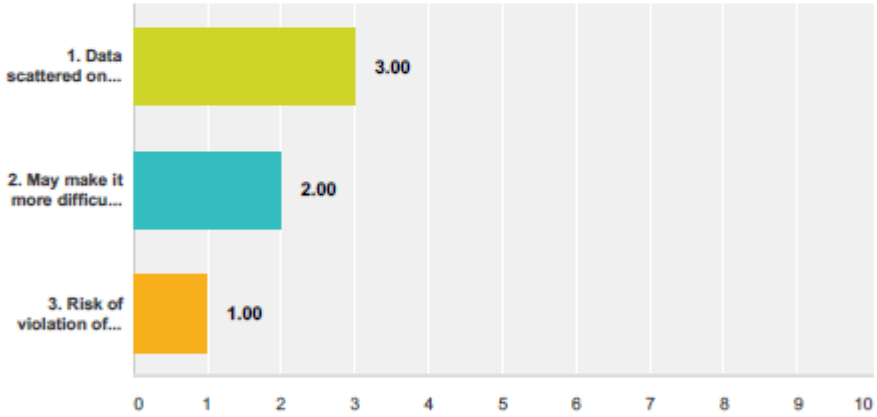
Questionnaire Three: Finalizing

Q57 If you wish, please describe any aspect of e-prescribing's positive impact on Researchers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q58 Set forth below are negatives associated with e-prescribing, from the perspective of Researchers. Those negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Researchers.

Answered: 4 Skipped: 3



	1	2	3	N/A	Total	Score
1. Data scattered on different systems that may not be interoperable [13% N/A]	100.00% 4.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	4	3.00
2. May make it more difficult to obtain complete data because some will be in electronic format and some in paper format [25% N/A]	0.00% 0.00	75.00% 3.00	0.00% 0.00	25.00% 1.00	4	2.00
3. Risk of violation of data security [25% N/A]	0.00% 0.00	0.00% 0.00	75.00% 3.00	25.00% 1.00	4	1.00

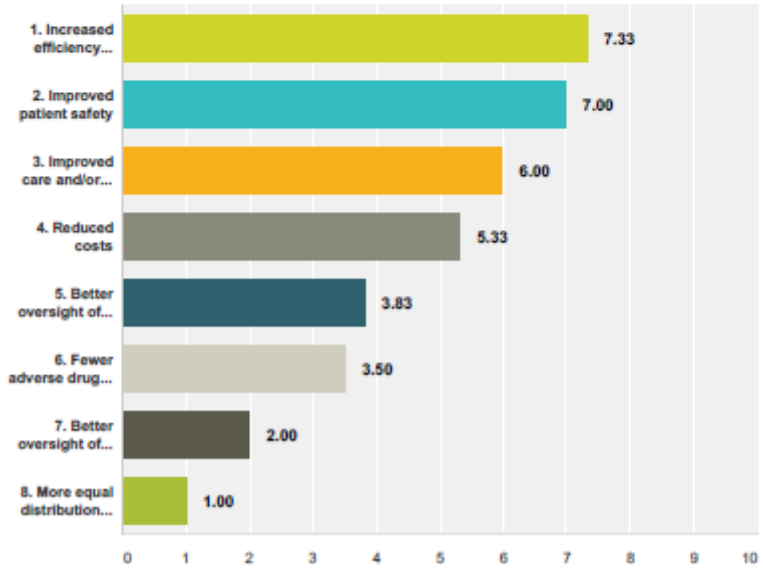
Questionnaire Three: Finalizing

Q59 If you wish, please describe any aspect of e-prescribing's negative impact on Researchers that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

Q60 Set forth below are positives associated with e-prescribing, from the perspective of Society. The positives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these positives, considering only the perspective of Society.

Answered: 6 Skipped: 1



	1	2	3	4	5	6	7	8	N/A	Total	Score
1. Increased efficiency (reduced consumption of resources by healthcare organizations)	66.67% 4.00	16.67% 1.00	0.00% 0.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	7.33
2. Improved patient safety	16.67% 1.00	66.67% 4.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	7.00
3. Improved care and/or health outcomes	0.00% 0.00	16.67% 1.00	66.67% 4.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	6.00
4. Reduced costs	16.67% 1.00	0.00% 0.00	0.00% 0.00	66.67% 4.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	5.33
5. Better oversight of medication usage	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	83.33% 5.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	3.83
6. Fewer adverse drug events	0.00% 0.00	0.00% 0.00	16.67% 1.00	0.00% 0.00	0.00% 0.00	83.33% 5.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	6	3.50
7. Better oversight of fraudulent prescriptions	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	100.00% 6.00	0.00% 0.00	0.00% 0.00	6	2.00
8. More equal distribution of drug costs [43% N/A]	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	0.00% 0.00	50.00% 3.00	50.00% 3.00	6	1.00

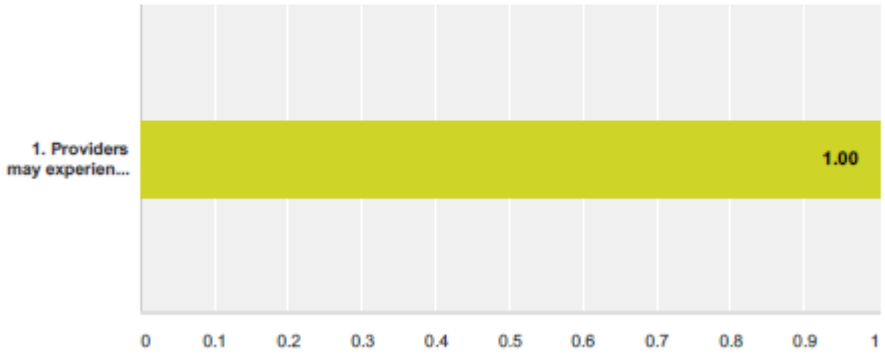
Questionnaire Three: Finalizing

Q61 If you wish, please describe any aspect of e-prescribing's positive impact on Society that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 0 Skipped: 7

Q62 Set forth below are negatives associated with e-prescribing, from the perspective of Society. The negatives are labeled with their rank order determined previously by the Delphi Experts, and any non-zero incidence of being labeled "not applicable (N/A)" is indicated.Please finalize the rank order of these negatives, considering only the perspective of Society.

Answered: 4 Skipped: 3



	1	N/A	Total	Score
1. Providers may experience more costs which may be passed on to society [17% N/A]	**100.00%** 4.00	**0.00%** 0.00	4	1.00

Questionnaire Three: Finalizing

Q63 If you wish, please describe any aspect of e-prescribing's negative impact on Society that you feel is either particularly important/significant or particularly misunderstood/over-rated.

Answered: 1 Skipped: 6

APPENDIX H

APPENDIX H-1

Interview of Framework Expert No. 1

The interview of Framework Expert No. 1, an expert in Accountable Care Organizations (ACOs) and in-house counsel at a major teaching hospital, was conducted by telephone from approximately 3:15 to 4:00 pm EDT, on Tuesday, April 7, 2015.

Expert No. 1 thought that identifying the different stakeholders was useful, particularly looking at the positives and negatives from their perspective. She generally viewed those stakeholders which were identified as primary to be particularly important, but noted that perhaps pharmaceutical companies and Pharmacy Benefit Managers might be secondary stakeholders and policy makers might be a primary stakeholder. Expert No. 1 did not identify any new stakeholders that she thought it would be important to include, but noted that she might call some of them by different names. She stated that she believed that vendors and consultants were of much less significance than the other stakeholders, apparently because they have no direct involvement in the e-prescribing process.

She did not believe that there were any important positives or negatives for a particular stakeholder that were missed, but she did note that sometimes clinicians like to hide information from other clinicians about what they might have prescribed, e.g. for the patient's personal privacy reasons. The results of the Delphi Study did not differ substantially from what Expert No. 1 would have expected.

Expert No. 1 identified the Meaningful Use financial incentives and the Shared Savings Program under the Affordable Care Act for ACOs as incentives for the use of e-prescribing. She

noted that employers, payors, and pharmacy benefit managers can experience lower costs where e-prescribing is employed. They have a better idea of what is being prescribed, there can be greater use of generics, and they and the process can inform clinicians on how to reduce costs and better manage patient care, particularly in addressing cross reactions and drug side effects. Expert No. 1 cited the example of ACOs and how e-prescribing makes it easier to address the measures for population health, by keeping costs down, and achieving shared savings. She stated that in her experience with an Independent Physician Association almost ten years ago, where the physicians incorporated a pharmacist and e-prescribing into their primary care mode, that very good results were achieved. In that situation, the IPA provided financial incentives for the software needed to link the IPA physicians to the main office with the Health Information Exchange (HIE). Expert No. 1 noted that the potential value and extent of incentives for e-prescribing are that they result in better care, pride in the care provided, and better value to employers and payors.

She thought that the biggest barrier to the implementation of stakeholder incentives was patient privacy concerns. For example, a patient might not want his or her information about alcohol consumption or certain pharmaceuticals that he or she might be taking to be accessible by other clinicians. Expert No. 1 suggested that certain state laws are more restrictive on the sharing of data and privacy and one might need to obtain permission from a patient to share his or her information and this might also be a further barrier to the implementation of stakeholder incentives. Further barriers include the cost of the investment in e-prescribing technology, the costs of workflow changes, the need to keep current with the technology, and the cost of Information Technology support.

Expert No. 1 noted that it is important to focus on the return on investment (ROI) from the perspective of multiple stakeholders, not merely one stakeholder. She said positives or benefits, such as better health and population management, and better productivity should be accounted for in the ROI calculation. She also noted that having the United States government incentivize providers through Meaningful Use was probably the right thing to do. She noted that there are now negative incentives for not using certain information technologies. She declared that one might not spend the money on certain information technologies if the ROI was being considered from the perspective of only one stakeholder.

She believed that the Framework developed for e-prescribing would be generalizable to other health information technologies, whether they involved medication management, Health Information Exchange (HIE) software, or technology investments in super servers.

APPENDIX H-2

Interview of Framework Expert No. 2

The interview of Framework Expert No. 2, the CEO of a major regional health plan, was conducted via telephone from 10:50 am to 11:35 am EDT on Thursday, April 16, 2015.

Expert No. 2 believes that the aspect of the Framework which he found most useful was its flexibility and that it would be helpful in analyzing many different health information technologies. He viewed the patients/consumers as particularly important stakeholders, along with their families. He did not identify any stakeholders that were not identified. He believes that employers are stakeholders which would be of much less significance than the others. He noted that they would be primarily interested in the money and the cost of the drugs, and that there is no evidence that e-prescribing will decrease the cost of drugs. It may lead to better decision making, but he did not envision pharmaceutical companies reducing their prices as a result of the implementation of e-prescribing.

He noted that the positives and negatives with respect to certain of the stakeholders might include the economic sustainability of the current healthcare system and the need for patient focus. He said that the positives and negatives identified were more around the tactical areas, not economics. Although he did not believe that the results of the Delphi Study differed substantially from what he would have expected, he did note that it was interesting that so many negatives were identified from the perspective of the physicians, and this appeared consistent with the culture in healthcare, including physician resistance to change. He did not think that any particular incentives for the use of e-prescribing might be viewed as particularly important, noting that a decision not to use a technology as important as e-prescribing should be made

painful and immediate. He thought that e-prescribing should be mandated, along with certain other health information technologies, but not necessarily all of them. He thought that the main barrier to the implementation of stakeholder incentives was physician reluctance.

Expert No. 2 suggested that physicians do not really get any real returns from using e-prescribing. They may save on pens and paper, but that is an insignificant saving. He said physicians need to spend time training their staff, and thus, and paying for the e-prescribing system, and thus, it is a cost to them. He said the potential for a positive ROI resides with pharmacies. He further noted that the reason to implement e-prescribing is the benefit to society. There will be increase speed and efficiencies and much better accuracy. Expert No. 2 noted that it is unclear whether health information technologies get at all the fundamental drivers of healthcare costs. In some instances, such technology might accelerate bad practices. This Framework should include a consideration of the economic sustainability and patient focus for any health system. He said that the Framework generated by the Study is generalizable to other health information technologies, is flexible, and useful.

APPENDIX H-3

The interview of Framework Expert No. 3

The interview of Framework Expert No. 3, a Senior Analyst with the Department of Health and Human Services, Office of the National Coordinator, was conducted by telephone from approximately 12:15 to 12:50 pm CDT, on Monday, April 6, 2015.

Expert No. 3 thought that the Framework should have distinguished between e-prescribing technology used in the outpatient setting, such as Surescripts, and that used in the inpatient setting, such as EPIC, Cerner, and McKesson. She noted that the answers to the questions in the interview might be different depending upon the technology employed. Specifically, she noted that in the ambulatory setting the biggest negative is diagnostic errors, but in the inpatient setting, the biggest negative is medication errors. She stated that patients in an inpatient setting are generally older patients. She suggested that the stakeholders that she viewed as particularly important were the patients, clinicians/prescribers, and pharmacists. She noted that with e-prescribing patients do not have to carry a piece of paper, but they are not looking at an electronic health record (EHR), whereas clinicians/prescriber are looking at a screen and responding to many different things. She noted that one tends to think of the clinician at the front end of e-prescribing, but e-prescribing is really a medication process which involved not just ordering, but also a pharmacist. Another reason that Expert No. 3 believed that the clinician/prescribers were important is that they have the responsibility for patient safety, but they are totally dependent on technology for which someone else is responsible. They assume that e-prescribing is safe and this reliance on e-prescribing as being safe is not totally justified.

She did not identify any stakeholders that she thought it would be important to also include beyond the list presented, nor did she identify any positives and negatives for a particular stakeholder that she thought was missed, but she did stress the negative from the perspective of the clinicians/prescribers that people are over relying on these systems, and there needs to be a better focus on the feedback loop. She did think the results of the Delphi Study would differ if there were separate focuses on the ambulatory and inpatient settings, as noted above. In her opinion, the single most important issue is bad communication. She noted there is confusion due to certain socio-technical considerations such as human computer interaction, the failure to support workflow, and the inadequacy of clinical content, e.g. the difference between what the clinician expected and what was there. Many clinicians believe that e-prescribing systems will catch their mistakes or prompt them when they are about to make a mistake.

With respect to incentives, Expert No. 3 noted that Meaningful Use is an incentive to adopt certain health information technologies, such as e-prescribing. She noted that the single most important thing one can do to have an effective e-prescribing system is to adopt an electronic health record (EHR) in conjunction with e-prescribing. She noted that one study suggested that e-prescribing resulted in medication errors being reduced by 30%. She did not identify any barriers to the implementation of stakeholder incentives.

Expert No. 3 noted that in characterizing the return on investment (ROI), given the positives and negatives accruing to multiple stakeholders, and not merely one stakeholder, that one should consider the Institute for Healthcare Improvement (IHI) Global Trigger Tool (GTT) for Measuring Adverse Events. She cited an article, entitled: "Impact of Inpatient Harms on Hospital Finances and Patient Clinical Outcomes," (128) by Adler and colleagues. The authors note: "The GTT is a standardized, 2-stage review process refined from the Harvard Medical

Practice Study's methodology to identify and measure the rate of all-cause harm over time in a variety of settings." (128) Her suggestion was that not only do we need to look at the positives and negatives accruing to multiple stakeholders in determining ROI, but also the costs of harms' impact on numerous hospital financial measures and clinical outcome measures, such as readmission rates and lengths of stay, which are reduced by identifying and avoiding more medication errors through e-prescribing. This broadening of factors considered should result in a determination of a positive ROI in many more instances. She did note that typically one looks at who is making the investment and what it means to them from an ROI perspective. She noted that it is easier to demonstrate a positive ROI in a hospital setting than in a free-standing physician's office. She noted much of the true benefits that should be in an ROI calculation is keeping people out of hospitals, and the attendant harm that they might experience there.

APPENDIX H-4

Interview of Framework Expert No. 4

The interview of Framework Expert No. 4, the Senior Vice President, Chief Financial Officer & Treasurer of a major clinically integrated healthcare system, was conducted in person at his office from approximately 10:00 am to 10:30 am CDT, on Monday, April 6, 2015.

Expert No. 4 thought that the identification and rank ordering of the positives and negatives from the perspective of each stakeholder was the most useful aspect of the Framework. He noted that such recognition could help one understand what incentives might facilitate the implementation and use of e-prescribing and any funds flows. His initial reaction was that the positives associated with e-prescribing should outweigh the negatives. He considered the stakeholders that were identified as primary stakeholders to be the most important, but particularly the patients and clinicians. He then noted that perhaps the payors were next in importance, particularly if they were going to be at risk for the costs of health care. He observed that other entities that might assume risk and/or be payor-like are important. He noted the blurring of the lines between providers and payors. He also thought that policy makers were important stakeholders. He thought that consultants were less important, particularly if this group included attorneys. He did note that consultants and attorneys were likely to have more business in the area of advising medical practices.

He did not identify any stakeholders that were not identified and thought the list was rather exhaustive. He did not note any new positives or negatives for a particular stakeholder that might have been missed, but he stressed one negative associated with e-prescribing from the perspective of the clinicians: that they might select the wrong patient. Expert No. 4 said the

results of the Delphi Study that differed substantially from what he would have expected were the large number of negatives from the perspective of the clinicians. He said that the list seemed rather long and thought that training on software and the possibility of having to separately prescribe controlled substance were not that significant.

Expert No. 4 noted that he viewed the Meaningful Use program as an incentive for the use of e-prescribing by clinicians. He also noted that his systems' single contracting entity required all physicians to use electronic health records and related technology, and the first specific technology required was e-prescribing. He noted that the use of e-prescribing started as a financial incentive, that is—if one did not use it, it affected that individual's financial distribution. However, later, the use of e-prescribing was required if one wanted to participate in the managed care contracting network. He had no comment on the potential value and extent of any such incentives, except to note there were legal considerations. He did not identify any particular barriers to the implementation of stakeholder incentives, suggesting that if there were any, they were basically legal in nature.

He noted that the return on investment (ROI) from the perspective of the patient is that e-prescribing results in improved health outcomes and quality of life. He suggested that the total cost of health care for society should be less and there should be a positive ROI, when all the stakeholders and all the positives and negatives are considered. Finally, he thought that the Framework was a good one, and that it is generalizable to other health information technologies.

APPENDIX H-5

Interview of Framework Expert No. 5

The interview of Framework Expert No. 5, an expert in e-prescribing with the National Health Service, England, UK, was conducted via Skype from approximately 12 noon to 12:30 pm EDT on Monday, April 13, 2015.

Expert No. 5 stated that the bulk of the Framework is incredibly helpful, particularly from the policy research perspective. She noted that in the UK there were differences in e-prescribing in the ambulatory side compared to the acute side, and the Framework appeared to be constructed with more of the ambulatory side in mind. Further, she declared that the expectations of patients are growing substantially as they do many more things online.

She thought that the stakeholders that were particularly important were the patients and the clinicians. She did not identify any stakeholders that were not already identified. She did believe that in the UK, suppliers, distributors, and the pharmaceutical industry were probably of less significance than the other stakeholders. She did note that the data that the UK would have from e-prescribing would not be available to the drug companies.

Expert No. 5 believed that there did not appear to be any important positives or negatives for a particular stakeholder that were missed, but she stressed that from a patients' point of view, if a patient has problems accessing/or using information technology, then that would be a negative. It would be a form of information technology illiteracy. She did not think that the results of the Delphi Study differed substantially from what she would have expected, but she did note that there were a few cultural differences.

With respect to incentives for the use of e-prescribing for the stakeholders, financial or otherwise, Expert No. 5 noted that the only incentive needed was clinician-buy in. She also noted that there were local considerations. She stated that there needs to be better communication and a cultural change among the physicians. Thus, these appeared to be barriers to implementation.

Given that the UK cannot sustain its rate of growth in healthcare spending, it will be necessary to adopt health information technologies to improve quality and reduce costs. Clinicians will still have to have the data and if they do not use information technologies, they will have to do much additional work to obtain it. The prospect of this additional work should cause them to adopt information technologies. She believes much of the potential value of the incentives is that they should result in more data being available and better quality care provided in a more cost-effective manner. In addition, she noted that patients are driving much of the change with their desire for additional information and their familiarity with all things online.

With respect to the characterization of ROI, given the positives and negatives accruing to multiple stakeholders, and not merely one stakeholder, Expert No. 5 noted that the NHS is poor. Although it traditionally has been handed the necessary funding, this is changing and it will be necessary to have the expertise required to consider the ROI from the perspective of multiple stakeholders, not just the NHS itself. Major considerations in any ROI calculations should be the applicable benefits of the information technology, it safety, and it contribution to quality. These might be viewed as higher level benefits.

Finally, Expert No. 5 did believe that although the Delphi Study used e-prescribing as an example of a Health Information Technology, that the Framework would be generalizable to other health information technologies, noting, however, that other technologies might be

somewhat more difficult to study. She did note that the focus is shifting, e.g. to payment for quality and cost-effectiveness, and thus, these types of analyses are quite valuable.