

UPGRADING TO EPIC '10 AT
OREGON HEALTH AND SCIENCE UNIVERSITY:
MONITORING AND ASSESSING
THE ELECTRONIC HEALTH RECORD UPGRADE PROCESS

By

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CERTIFICATE OF APPROVAL

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Abstract

The Oregon Health and Science University (OHSU) has been using the EpicCare Electronic Medical Record system (Epic for short) since 2006. Every year, new system upgrades are released by Epic. Each upgrade includes a vast number of new features, functionality fixes, and compatibility updates; some optional, some required by federal government mandate. This capstone report discusses and assesses the 2011 Epic '10 upgrade process at OHSU from the first planning meeting, through the process of system building, testing and dress rehearsals, to the final training sessions and organization-wide *go-live*. Epic system upgrades at other organizations are also discussed and compared to OHSU's experiences.

Following each system upgrade at OHSU, a thematic list of *Lessons Learned* is compiled. These Lessons Learned influence and guide the upgrade process in the following year. This report includes an analysis and comparison of OHSU's *Lessons Learned* from 2010 and 2011. Across the board, the major conclusions of OHSU's and other organizations' upgrade experiences were the importance of and need for increased:

- user involvement in training, testing and implementation;
- pre-*go-live* testing of system elements and workflows;
- frequent communication of upgrade features, expected changes and dates;
- super users and other on-site support; and
- attention to specific system element functionality and interoperability.

A user survey results analysis and Epic support center call-ticket analysis for the 2011 upgrade support these conclusions, and suggest future upgrade methodologies for OHSU to address these issues. OHSU is already planning to increase end-user involvement in the system testing process in future upgrades, and conduct more thorough workflow-oriented testing based on the needs of each clinic/location involved in the *go-live*. Future post-upgrade user surveys are also planned to assess the results of these changes in OHSU's upgrade process.

Introduction

The EpicCare Electronic Medical Record system (Epic for short) is considered a leader in electronic healthcare management. Epic provides a comprehensive software suite of clinical applications, messaging and medication administration services, as well as patient databases which can be shared across institutions.

Dr. Chin, who was in charge of Epic implementation at Kaiser Permanente Northwest, eloquently described the EpicCare system as follows: “EpicCare is not only an electronic version of the outpatient medical record; it also automates all information transmission processes in the outpatient setting. Health care providers use this system to document, order, refer, and message other health care staff. EpicCare has a two-way interface for order and results transmittal to [labs] and pharmacy systems, giving [...] clinicians a complete and accurate picture of the laboratory and medication status of a patient” (Chin, 2004, p. 43). Many benefits from using the Epic system have been noted in medical and trade journals. In her analysis of the implementation at JKL Healthcare Systems, O’Brien (2006) noted that “Employees also have found that the EPIC system makes their jobs more efficient. Nurses and other healthcare professionals are not searching for charts, calling for results, or begging physicians for a written order. Everything they need is in the system, and it is all paperless” (p. 338).

This capstone report will discuss and assess the Epic ‘10 upgrade process at Oregon Health Science University (OHSU) from the first planning meeting, through the process of system building, testing and dress rehearsals, to the final training sessions and organization-wide *go-live*. Lessons learned from previous Epic upgrades at OHSU will be reviewed, as well

as those from case studies of other institutions' Epic upgrade experiences. The review will identify successes and barriers to the application of these lessons. Anticipated versus unanticipated challenges in the upgrade process will be identified, along with OHSU's expectations compared to the actual outcomes of the upgrade. The reviews and analysis in this report provide insights useful not only to OHSU, but also to other organizations planning to upgrade Epic or implement it for the first time.

Epic at OHSU

The Oregon Health and Science University (OHSU) has been using Epic as its electronic health record (EHR) system since 2006. OHSU's Epic system is maintained and upgraded by the Information Technology Group (ITG), which employs teams of Epic-trained programmers, system analysts, trainers and support personnel. Glaser and Salzberg (2011) have noted that "Information technology is a critical factor in the success of strategic planning for health care organizations." (p. 33).

Every year, new system upgrades are released by Epic. Each upgrade includes a vast number of new features, functionality fixes, and compatibility updates; some optional, some required by federal government mandate. OHSU, like many organizations that use Epic, has a well established upgrade process. This process, lasting approximately four months, leads up to *go-live*, when the new system is activated across the entire institution, and old system features are retired. During this process, decisions are made on what system functions are most important; which ones are necessary or unnecessary; what changes in hardware equipment, software or staffing will be needed; and what training resources will be expected.

Upgrade Protocol as Suggested by Epic

Epic provides application-specific documentation for the various system components and features in the upgrade, including pre- and post-upgrade steps for testing and implementation. For the 2010 Upgrade, Epic has created a new website called NOVA, where users and developers can access a database of all the Release Notes describing new features that have been added to the Epic system. The total number of new features is literally in the thousands, with over 2,600 release notes available for review in NOVA. The goal of the organization in implementing an Epic upgrade is to choose the features most relevant to their business, rather than attempting to implement every new feature available. Epic's NOVA Workflow documentation specifically notes that an organization's goals are NOT to:

- Test every release note.
- Implement a lot of new functionality.

Instead, Epic defines the upgrade testing goals as follows:

- Identify areas of the application that need more extensive workflow testing
- Identify workflows or new functionality that may need training or communication
- Identify new functionality we may want to implement. Look for easy wins.
- Identify functionality that is broken because of the change.

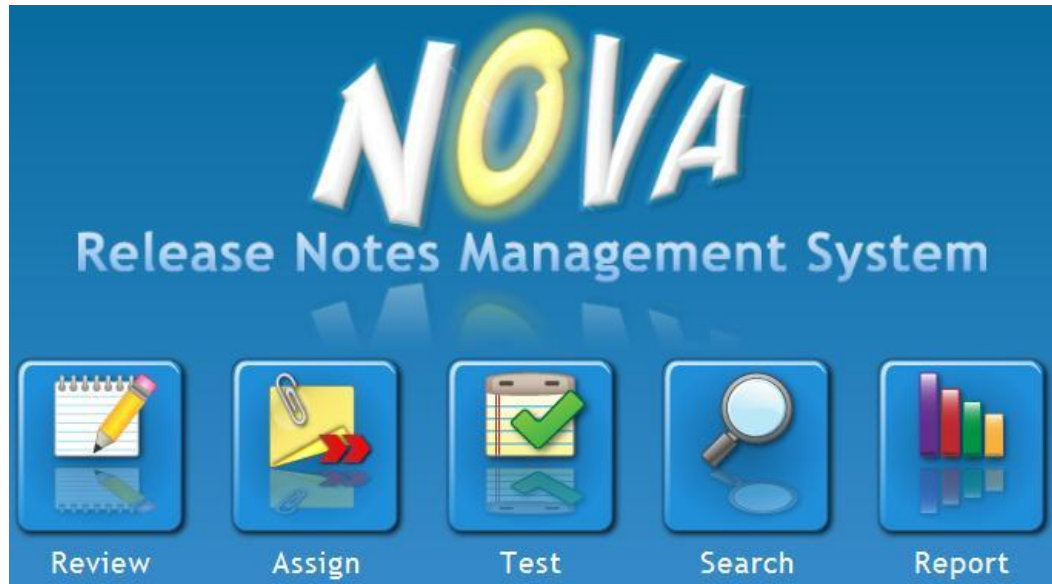


Figure 1: NOVA's main menu screen

NOVA divides the new features available in the Epic '10 upgrade into three categories of Release Notes: Essential, Optimization and FYI. Essential Release Notes include high-priority changes or potentially disruptive automatic changes. Epic advises that these notes “should be reviewed first as they have the biggest impact on end users. These are the most significant changes in the release.” Although they are termed “Essential”, many of the features are still optional and only will be included if relevant to the organization.

Optimization Release Notes are optional features or “enhancements” that will require build and testing work on the part of the organization, and also includes automatic fixes that will require setup per the organization’s needs. Epic suggests that these features be reviewed only after the Essential Release Notes have been analyzed and accounted for, “and if you have some extra time to do so.” [see Appendix 1: EpicCare Upgrade ‘2010 – NOVA Workflow]

Hospital informaticists outside of the ITG team will also review these optional features to assess whether any of them would be specifically desired by hospital staff, MDs, departments, etc. The FYI Release Notes are described as “small changes [the organization] will test as part of workflow testing. For these changes, you do not need to plan or make decisions.” These are automatic changes to the Epic system that are not particularly disruptive or complicated, although they still need to be accounted for during the Testing phase.

OHSU engages the NOVA website by having the ITG teams review all of the Essential Release Notes, as well as the Optimization and FYI Notes as time allows, and assess whether each feature is appropriate or desired for the upgrade. Each Release Note presents the user with options to approve or deny the feature by clicking “Yes” or “No” buttons and allowing users to comment on the specifics of how this feature will affect the Build, Testing and Training phases of the upgrade process. In the Build section, the user selects the complexity of build for the feature, and when build will need to be completed. The Testing field allows the user to include comments about what testing will need to be done on the feature, if appropriate. The Training and Security sections hold notes on what specific considerations will need to be scheduled and acted on for Training on this feature, and the related Security implications. The ITG teams work through this review process for each Release Note, finally clicking the “Finish And Next” button to move on to the next Note. Reviewed and approved Release Notes are then moved to the To Do tab for the rest of the team to see in NOVA. [see Appendix 2: Screenshot of example Release Note]

Once the desired features are collected in the To Do section of NOVA, the ITG teams begin work on testing and implementing them. Features that are found to be broken but

fixable by the ITG team have Service Tickets created in our Service Center utility, which are then assigned to ITG technicians along with the regular service requests received every day. If a feature is found to be broken and will need Epic's assistance to resolve, a Sherlock Ticket is created and submitted to Epic. New features that will specifically require Training or further Testing/Build work were submitted to the ITG Epic '10 Upgrade SharePoint site and included in the issue Upgrade Issues List, which I maintained as part of my work role. By the end of the upgrade planning process, there were over 250 Issues in the list.

Overview of OHSU's Upgrade Protocol, Process and Schedule

OHSU's upgrade process follows the Phased Implementation approach described by Bieber (2005) as a "stepwise introduction of EHR functionality through a series of phases, each with its own analysis, training and *go-live* schedule. A phased approach spreads the users' learning over time, producing [...] manageable peaks in cognitive load." (p. 111).

The previous Epic upgrade process to Epic version Summer 2009 IU3 at OHSU took place in the spring of 2010, with the system going live the weekend of April 8-10, 2010. For several months prior to the upgrade, project progress tracking was managed on OHSU's SharePoint website, which served as a document library for release notes from Epic, data environment schematics and graphic timelines for the upgrade teams (see Figure 2). In addition to the minutes from each team meeting, the SharePoint site also became a repository for documentation on unexpected system errors; delays or complications with data conversions; frustrations expressed by team members regarding the communication, scheduling or training process of the upgrade; and simple reminders of useful steps to include in the process for the next upgrade. All of these notes, observations, comments and

suggestions were compiled and organized into a nine-page in-house document entitled *Lessons Learned*. This document is now used as a central starting-point for the planning process of each new upgrade at OHSU.

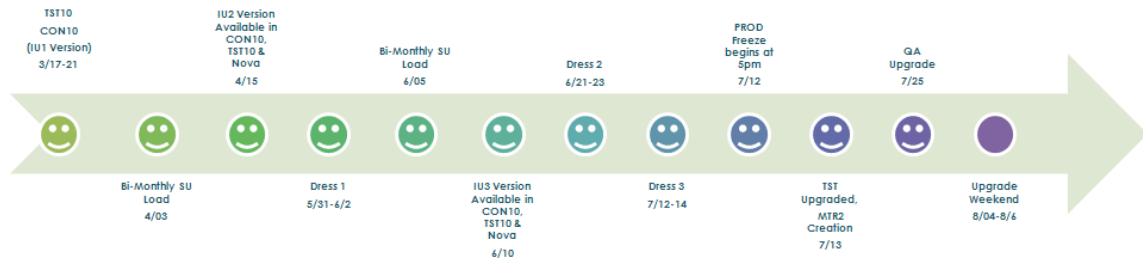


Figure 2: OHSU's Epic '10 Upgrade graphic timeline, from the SharePoint site

In 2011, OHSU upgraded the Epic system to Epic version Summer 2010 IU3 over a period of approximately three months beginning in May with *go-live* set for the weekend of August 5-8, 2011. The upgrade this year was significantly different from previous years, due to a need for widespread hardware replacement and internal upgrades at OHSU to support the new features within Epic '10. The Kick-Off planning meeting was held in early May 2011, with status-update meetings scheduled every two weeks through June and July as the upgrade process moved from system building to training to *go-live* planning. The Upgrade process involved a series of Dress Rehearsals, in which new functionality was loaded from the Epic Test environments into a Dress version of Epic meant to replicate how the system would look and behave at *go-live*. Following the success of each rehearsal, further upgrading and implementation would continue, through a total of three Dress Rehearsals, leading up to a release of the new functionality to the *PROD* (or Production) version of Epic, the version used every day by OHSU providers and hospital staff. The process of implementing new functionality involved a very complex series of transfers of data from one Epic environment or database to another; the specific flow of data and the

behind-the-scenes technical process of the upgrade could easily entail a lengthy paper unto itself, and is beyond the scope of this report. A very informative diagram detailing this data flow is included in Appendix 3: Epic Environments at OHSU.

In my role as a student worker at the ITG during the upgrade process, I took the minutes at each planning meeting and updated the Upgrade SharePoint site with new documentation as it came in. I was also tasked with compiling NOVA release notes that were deemed to require special attention, additional build, testing or training by the upgrade team leaders, assembling an “issues tracking list” with over 250 entries. Following completion of the upgrade, analysis of successes and limitations was conducted through discussions with team leaders, a user survey for physicians and hospital staff, and the compilation of a new *Lessons Learned* document.

Review of Previous Upgrades

Organizations using the Epic EHR system are encouraged to share their experiences via presentations and in-house documentation on the Epic UserWeb website, where they can be accessed by all institutions using Epic. Journal articles produced in-house by Epic, such as Hajra’s *Lessons learned from electronic medical record implementations* (1998), as well as real-life experiences shared in post-upgrade presentations by other institutions, provide insight into the Epic upgrade process. In this section, we will analyze and compare these experiences to OHSU’s own *lessons learned*.

Lessons Learned during Implementation/Upgrade at Other Facilities

In analyzing the upgrade experiences of other organizations, as well as OHSU, a number of common themes emerged. The common themes expressed in other organizations' presentations were:

- The need for:
 - o comprehensive system testing;
 - o extensive training plans;
- The importance of communication in the process of change management;
- Frequent reference to the need for:
 - o additional *go-live* support staff and super users; and
 - o greater physician involvement leading up to the upgrade;
- Issues related to specific system elements such as complications in data migration and system downtime;

Rady Children's Hospital of San Diego noted that across their organization, from end users to trainers to the build and implementation team, the common theme was the need for improved communication and testing of new system features, as well as *training, training and more training*. (Mavrakos & Redmond, 2010)

Allina Hospitals & Clinics of Minnesota found that their training curriculum, which had been decided prior to the commencement of the upgrade process, needed to be redesigned as system building progressed, resulting in a need to re-train users (Lund, 2006). Allina also realized the need for dedicated *super user* support at the *go-live* sites, each covering their own specific site or department, rather than covering all areas. Requiring staff to

practice with the new Epic system in the playground environment was noted as a success, however acceptance of the new Epic was described as quite varied among the medical staff. It was also noted that nurses found that their productivity levels were negatively affected by the upgrade.

Sisters of Mercy Health System of St. Louis described their upgrade process in previous years as *horrible* in 2008, *better* in 2009, and *meh* (slang for mediocre) in 2010, christening the Medication Reconciliation functionality introduced in 2008 as *med-wreck functionality* (Hunt, Jackson & Vaughn, 2010). Users were found to be overwhelmed by too many changes, and a focus was placed on improving physician acceptance in future upgrades. There was found to be a significant resistance to using the new Epic functionality, as well as an expectation for other users to do the work when providers were too busy, or as noted in the presentation: *Make the nurse do it and if it's wrong it's her fault*. Providers described the situation, particularly in the ED, as having a difficult choice between *fast and imprecise, or slow and accurate*. *Super users* (*pharmacy technologists* in Sisters of Mercy's terminology), rounding and providing support at the *go-live* sites, were found to be a helpful solution.

Fallon Clinic of Massachusetts noted the importance of communication and user involvement in their upgrade process, which they described as a success (Garber & Nazzaro, 2007). Their successful communication and training process included many presentations, early and often with Senior Management involvement; demonstrations tailored to the audience; and also a post-upgrade user survey to let MDs and staff know you're listening.

Talbert Medical Group of L.A./Orange County stressed involving users in the testing process, as well as training focused on a review of user's roles and responsibilities (Journet, 2009). Workflows were tested from beginning to end (described as *real scenario testing*), which Talbert noted as a success. Training material focused on major functional changes in the upgrade, although users noted that they would have liked a more thorough *menu button review* as well as better guidance on user settings customization.

Methodist Hospitals of Indiana described their upgrade as extensive and working on a very limited timeframe, thus not allowing them the time to do the extensive testing they would have desired (Janis, 2010). Still, they concluded that, no matter how much testing is done, there are always unplanned problems due to undocumented workflows and external factors. Methodist also concluded that workflow-specific testing would be the ideal way to approach an upgrade, and that integrated testing between all applications was vital.

Lessons Learned during Previous Upgrades at OHSU

OHSU's 2010 *Lessons Learned* documentation identified over 60 specific lessons based on issues that arose during the planning, *go-live*, and post-upgrade support phases of the upgrade.

In communicating with team leaders at OHSU's ITG department, it became clear that many of the lessons learned from the previous upgrade were not directly relevant to this year's upgrade; many system errors and data transfer issues were resolved simply by changes in the new system version or upgrades in hardware. In some cases, issues identified during the previous upgrade could not be avoided, but instead were accounted and planned for to minimize disruption as much as possible.

However, there were many relevant issues that fell into several of the over-arching themes listed in the previous section. As with other institutions, the most significant lessons learned from previous OHSU upgrades were:

- greater user involvement in system testing;
- attention to *pre-go-live* testing of system elements and workflows;
- improved upgrade training and communication;
- better scheduling/upgrade timing and support; and
- increased attention to specific system element functionality.

User involvement in system testing

The need to define user testing roles and involvement in the pre-upgrade workflow testing process of new system functionality was indicated. More thorough user testing at the individual department/clinic level was suggested for future upgrades, as well as encouraging users to access the Sandbox testing environment to become familiar with new functionality prior to *go-live*.

***Pre-go-live* testing of system elements and workflows**

There were also lessons learned related to system testing that needed to be taken into consideration and incorporated into this year's upgrade process. In particular, it was clear that extra attention should be paid to testing Special Updates from Epic, as well as user Smartlinks, although unexpected problems still arose with both of these system elements.

Upgrade training and communication

The most relevant lessons learned from previous upgrades were those related to training and communication. These aspects of the upgrade need to be directly acted upon and taken into consideration for the following year's upgrade, since a failure to account for the time needed for user training deemed necessary could have catastrophic results.

In addition, communicating known issues before and during the upgrade was found to be a challenge. It was found that support teams and *super users* at the *go-live* sites were not updated on already-reported system issues that were known to be causing problems.

Scheduling/upgrade timing and support

A point often repeated in the *Lessons Learned* was to avoid scheduling any major development projects coincident with the upgrade, and to allow as much time as possible for coding and build work. It was also suggested to undertake a *spring cleaning* before the upgrade, including clearing out obsolete databases. This proved to be especially relevant to this year's upgrade, as OHSU's entire database infrastructure was replaced and upgraded with new equipment and software. Critiques of phone and on-site support were also highly relevant to this year's upgrade, leading to increased support staffing and improved issue tracking via an upgrade of the SharePoint software.

Attention to specific system element functionality

Insufficient testing was also noted in several areas of the previous upgrade, for example, there was a lack of testing of pagers, print groups, smartlinks and medication reconciliation

workflow led to widespread issues during the upgrade. Other specific system issues included:

- last-minute special updates (SUs) implementation, occurring just four days before upgrade, led to the conclusion that Dress Rehearsal 3 would be the cut-off for any new SUs;
- pre- and post-upgrade issue tracking via SharePoint, rather than *email chaos*;
- system downtimes and corresponding user notifications; and
- individual application issues (for example, Citrix, and also Data Courier, a major new application in this upgrade).

Comparisons and Ideals from Previous Efforts

Across the board, the major conclusions of OHSU's and other organizations' upgrade experiences were the importance of and need for increased testing, training, communication, user involvement, and *super user* on-site support. Testing of all user workflows was found to be critical, with user involvement at the departmental/clinic level, to make sure that all aspects of the upgrade that would affect the day-to-day workflow of each user were accounted for. These aspects also needed thorough, and perhaps repeated, communication to users, to prepare users for the change and decrease incidents of *unpleasant surprises* over workflow interruptions or changes in interface design.

Workflow-oriented training for users was also found to be vital, as opposed to more generalized *overview-style* training, so that each department or clinic would feel as though they were specifically prepared for changes and not be put in a position of having to *just figure it out* on *go-live* day.

To provide even better on-site support it was important to include *super users* or champions at each *go-live* location, who could act as team leaders or first-tier support for users, with specific knowledge of that location's workflow and the system changes that would present challenges. These *super users* would ideally be continuously updated with known issues being reported, which would prevent multiple instances of users reporting the same issues to support staff, as well as being able to assure users that the issue was already known to the technical team and was in the process of being fixed.

These upgrade practices represent ideal scenarios without consideration of scheduling constraints and deadlines, which are typically very limiting. Therefore, due to time and staffing limitations, it is inevitable that some of these aspects of the upgrade will not receive adequate attention.

Monitoring and Assessment of the OHSU Epic '10 Upgrade

This year's upgrade to Epic '10 was a significantly different process than previous years. This was due to the necessity of upgrading and replacement of all the hardware and much of the software involved in running Epic. This included new internal data server hardware, in the form of Oracle M5000 servers, running an updated Windows Server 2008 operating system. These new servers were required to run the latest version of InterSystems Caché object database management system which underlies Epic's data functionality. Several new data-transfer applications were also introduced with the upgrade, including Citrix XenApp 6, and the Data Courier application which Epic describes as a "Data Environment Propagation Utility". Citrix is used to allow remote access to Epic applications for off-site workers, as well as support connectivity to all workstations running Epic. Data Courier is

used to transfer data from one Epic environment to another (for example, from a Test environment to the main Production environment). All of these new elements in the upgrade process resulted in significantly redesigned workflows and strategies for the upgrade, and all needed to happen within a very limited time-frame.

OHSU and other organizations using Electronic Health Records systems such as Epic are motivated by the incentives of meeting Federal government “Meaningful Use” guidelines, as defined by the 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act. However, the current upgrade to Epic ‘10 and the extensive hardware replacement were not directly intended to achieve Meaningful Use goals, but rather to lay the groundwork for future functionality and system features.

Monitoring the Epic ‘10 Upgrade Process

The 2011 Epic ‘10 upgrade process took place over a period of approximately 3 months from May-July 2011, with the *go-live* in the first weekend in August. The upgrade process was subjected to continuous monitoring over that period.

While some initial development work was done on the TST10 Testing Environment in March 2011, along with the regular *Special Updates* which OHSU receives from Epic bi-monthly, and upgrades to the Testing and Development applications, the main work of the upgrade began in early May, with the first Dress Rehearsal occurring at the end of May. Two additional Dress Rehearsals occurred in June and July, with the third and final Dress Rehearsal immediately following the *PROD Freeze* in July, at which point the developers finalized (or *froze*) the new functionality of the Epic system and prepared for *go-live*.

As described in the Upgrade Protocol section of this paper, the ITG teams were granted access to the Nova release notes website, where new features were reviewed and assessed for relevance to OHSU and inclusion in the upgrade. Issues that arose with new features were logged on the SharePoint site for the upgrade, which I maintained as part of my student worker role. Altogether, 15 different teams worked on different aspects of the Epic system in preparation for the upgrade. [See Appendix 4: OHSU Upgrade Lead Responsibilities.]

The OHSU Epic upgrade process is structured around a series of phases, with some overlap and continual adaptation based on issues that arise:

- Planning phase
- Implementation building and testing phase
- Training and *go-live* preparation phase
- Facility-wide *go-live* and ongoing support phase

The planning phase commenced almost immediately following the previous upgrade, as the lessons learned were reviewed and requirements for the next upgrade were taken into consideration. The implementation building and testing phase began with the March and April 2011 upgrades to the new Testing environment. Implementation progress was monitored in the monthly Dress Rehearsals beginning in May 2011.

Following the first Dress Rehearsal, a number of system implementation problems were identified. These issues were discussed in planning meetings with the ITG teams and used to guide the subsequent Dress Rehearsals, which were deemed successful. On the hospital side of things, Clinical Champion meetings were scheduled in June and July to discuss

clinicians' desired features in the upgrade, along with known issues and training needs. A total of four planning meetings were held from May through July, in which upgrade progress was monitored and timeframes/deadlines were reviewed with the ITG team leaders. Prior to the upgrade, several announcements were sent via email and posted on the Epic Homepage to alert users of the coming system changes. A one-sheet description of the upgrade, which was made available to users on the OHSU O-Zone website, explained "the upgrade is essential for the future implementation of additional Epic modules and will also allow us to take advantage of enhancements that will improve current workflows." [See Appendices 5 and 6 for the Epic '10 Upgrade one-sheet and August 4th-6th Upgrade – Communication Plan.]

Following the third Dress Rehearsal in early July, the Training and *go-live* preparation phase became the focus for the final month leading up to *go-live* in August 2011, marking the Facility-wide *go-live* and ongoing support phase of the upgrade. The upgrade to Epic '10 took place over the weekend of August 4 through 6, 2011 with organization-wide *go-live* beginning on Monday the 7th.

Assessing the Epic '10 Upgrade process at OHSU

The *go-live* was assessed using the Support Desk call logs and service tickets and an Epic User Survey, as described in the following sections.

Epic Support Desk calls / service tickets

After *go-live*, the Epic Support Desk fielded calls from system users experiencing issues with their initial interactions with the upgraded system, whether from changes in workflow or from system malfunctions and technical failures.

The first two weeks following upgrade *go-live* have traditionally seen significantly increased call volumes at the Epic Support Desk, and this year was no exception. The support desk typically handles between 100 and 130 calls per day, with 20 to 30 of those calls usually being MyChart support calls from patients. In the first two days of the week following the *go-live*, total call volume was nearly double the usual number of calls received per week by the Support Desk. The Support Desk received 330 Epic-related support calls on Monday and 243 Epic calls on Tuesday, with numbers steadily decreasing but remaining over 150 on most days for the duration of the two weeks. These numbers do not include MyChart support calls, which maintained their typical volume throughout the upgrade. An analysis of the content of these calls was generated for the first two weeks, after which most of the upgrade-specific issues had been accounted for and call volumes began to return to normal levels. [See Appendix 7: Epic Support Desk calls & service tickets analysis.]

Epic User Survey

Later in August, a link to an Epic User Survey was posted on the Epic Homepage and provider websites requesting feedback from providers on their experiences and feelings on the new system. This survey was available from week 3 through week 6 following the *go-live*, and received a total of 133 responses: 39 Physicians/Practitioners, 44 Nurses, 10

Clinical Staff, 24 Administrative Staff, and 10 Other. The responders were relatively evenly divided between Inpatient and Ambulatory users, with the latter having a slightly higher total number. The survey queried users on their satisfaction with the upgrade based on the following six criteria: Communication, Downtime, Changes in New System, Benefits > Inconvenience, Educational Materials Useful/Timely, Bugs Tolerable. [See Appendix 8: User Survey Results.]

The analysis of the support desk call / service tickets as well as the Epic User Survey results provided the basis for the following lessons learned from the 2011 Upgrade.

New lessons learned from the 2011 Upgrade

While for the most part this year's upgrade to Epic '10 was a success, there were a variety of challenges that arose during the process. As a result of the analysis of Epic Support Desk calls, Epic Support Desk service tickets, and User Survey, six pages of *Lessons Learned* were compiled in a new document shared on the Upgrade SharePoint site following this year's upgrade. [See Appendix 9: Epic '10 Upgrade Lessons Learned.]

Based on this analysis, the main lessons learned from this year's upgrade to Epic '10 were the importance of:

- better scheduling/upgrade timing and support;
- attention to pre-*go-live* testing of system elements;
- improved upgrade training and communication;
- greater end-user involvement in the upgrade process;

It is notable that these lessons are, generally speaking, a repeat of the lessons learned from the last Epic upgrade. While these issues were taken into account, they were not sufficiently addressed to eliminate similar problems arising during the 2011 upgrade. Due to scheduling constraints, it was found to be difficult to include end-users in the testing process of much of the new system functionality. In addition, the issues that arose had a great deal to do with the complexity of a new upgrade, where many new features had to be accounted for without knowing how well they would function together prior to the Dress Rehearsals. There also were unpredictable reactions of users to the training and communication that was provided. A greater emphasis is being placed on these issues for the next upgrade at OHSU.

Timing and scheduling and support

Because of the timing of other OHSU system upgrades required to accommodate the functionality of the new version of Epic, Epic's own release schedule, as well as future timeframes for implementation of new system features that would require Epic '10, the upgrade was essentially forced to occur during the summer.

The Epic '10 upgrade was particularly complicated due to the necessity of upgrading/replacing much of the hardware and software systems required to run the new version. Luckily, all of the hardware and software upgrades were a success, with the exception of the new Citrix XenApp software, which was found to be crash-prone and presented many problems with printer mapping. These problems created some initial turmoil during the *go-live* and have continued to present occasional problems throughout the Fall that mainly affected the support staff's ability to remotely access users' machines,

and there have been frequent issues with users being unable to connect with their printers. Unfortunately, it was realized too late that the latest version of XenApp was not, in fact, required for the new version of Epic, and may have been better left for implementation at a later date, with more thorough testing. At this point, however, most of the problems have been resolved.

In retrospect, having the upgrade occur during the summer was found to be the most inopportune time (along with the November-December holiday season), as many providers and ITG staff took their vacations during the summer months, and many new residents were starting in their positions at OHSU within weeks of the go-live in August. This posed scheduling problems for training as well as support for the new users.

Based on this year's upgrade, it was determined that the ideal time of year for an upgrade would be in Winter-Spring, with initial ITG work beginning in December and upgrade go-live in April/May. Ideally, the Epic Quarterly Planning group would analyze all current projects at OHSU, as well as vacation times of key personnel, to come up with the recommended go-live date, plus an alternate date in case of unseen changes in schedule/staffing. Longer communication timeframes were also indicated to give users more advanced notice of the upgrade; specifically, announcing the go-live date to users at least 4 months prior.

The rest of the system functionality has seen the improvements expected from the implementation of the new hardware, including significantly decreased data transfer times. In the future, the ITG team would like to minimize any major infrastructure upgrade work occurring 6 months prior to the Epic upgrade, and to have all hardware upgrades complete

at least 3 months prior to the upgrade (hardware upgrades this year occurred within 2 months prior to the go-live in August).

To help facilitate project management, all projects are now being tracked on the SharePoint website in project lists similar to the one created for issue tracking of the Epic '10 upgrade. This year, the issue tracking list logged over 230 issues requiring in-house testing, rebuilding or communication/training to users. This was deemed significantly more useful and better organized than the previous method of issue tracking, which was done via email. [see Appendix 10: Upgrade Issue List Screenshot]

Improved project planning will be emphasized for the next Epic upgrade, with more frequent communication between team leaders and training leads with regard to upgrade progress and training needs. Upgrade leaders will be expected to communicate status updates and upgrade information to their teams on a weekly basis. Milestone checkpoints will be defined to ensure technical and application teams are on track with the upgrade schedule. There will also be increased emphasis on end-to-end workflow testing for each application in Epic.

Testing of system elements

On the technical side of things, improved Quality Assurance testing of interfaces and assessment of differences between current and upgrade message structures were indicated to better identify preventable system errors. A seemingly small issue involving mixed upper/lower case letters used in patient names was found to have widespread effects, necessitating testing and review of provider lists, patient headers, census logs and reports to assure data compatibility. It was found that data feeds coming from the Rhapsody system

did not match up correctly when loaded into the Epic Production environment, which led to significant errors in the Pharmacy system. In future upgrades, a spreadsheet will be created to list all the differences in functionality of system features between the previous and new version of Epic. There will also be more thorough results checking via testing in each system element where results can be viewed: Chart Review, Results Review, In Basket, MyChart, OHSU Connect, Haiku/Canto, etc.

This year's upgrade validated the importance of having three Dress Rehearsals spread out over a period of two to three months, as the first dress rehearsal was actually found to be unsuccessful and brought to light a number of system issues. These were resolved and fine-tuned in the following two Dress Rehearsals.

Training and communication

While training and communication were considered successfully handled from the ITG perspective, the results of the user survey and feedback received at the Epic Support Desk showed that many users felt unprepared and confused by the upgrade changes. It was concluded that clinical users were not communicated to in a timely manner. To improve communication, ITG will focus on getting specific timelines out to users earlier in the upgrade process, including expectations on when more information will be available. An upgrade information package will be presented at management meetings with a consistent message on the expected changes of the upgrade, as well as ways users can get involved.

It was also determined that improved communication with the Epic home office in Madison, Wisconsin would be useful. The ITG EpicCare team specifically noted that it would like Epic to spend more time looking at issues that other customers had reported in

their own upgrades, which could help OHSU know what to expect in their own upgrade process. It was also found that some of the Nova release notes did not apply to OHSU and could have been more efficiently weeded out to save ITG team leaders time in reviewing the notes.

The upgrade teams were slightly overwhelmed by the volume of automatic changes coming from Epic and would have preferred a lighter load in this area. Additionally, it was found that it was difficult to keep training materials updated as new changes and fixes came in from Epic, or to notify users that materials they had already studied had been updated and would need to be reviewed. This may have contributed to user confusion and lack of satisfaction with pre-upgrade training.

End-user involvement in the upgrade process

In future upgrades, users will be encouraged to use the Sandbox environment of Epic to get hands-on experience well in advance of the upgrade. It will also be recommended that clinical chairs allow a 4 hour period for providers to test out their department-specific workflows in the new system environment. This will help the ITG teams to more specifically address the needs of clinicians on a location- and workflow-specific basis, and to ensure that users are “ready” for the upgrade and not surprised by it. Having *super users* who were more thoroughly acquainted with new system functionality in each department was also recommended to give users an on-site support person to answer workflow-specific questions.

Summary and Conclusion

The 2011 Epic '10 upgrade was deemed a success by OHSU's ITG teams. Considering the limited timeframe and fundamental replacement of all hardware, the upgrade process went relatively smoothly from a technical point of view. Some significant system failures discovered in the first Dress Rehearsal were quickly addressed and resolved such that the second and third Dress Rehearsals were conducted without major error. The weekend *go-live* process was implemented without a hitch, and the majority of new system elements were found to operate as expected, with the exception of Citrix XenApp functionality which was largely resolved within the first few weeks following *go-live*. Unfortunately the technical success of the upgrade did not translate into user satisfaction, which was distinctly split with a modest majority of dissatisfied users. Repeated user complaints centered on a perceived lack of communication and training preparation for the upgrade. Many users expressed the sentiment that the upgrade did not feature enough noticeable improvements but rather just made workflows more complicated.

Implications for OHSU and other institutions

The general themes of the *Lessons Learned* from 2010 and 2011 are very similar, and suggest that insufficient attention was paid to resolving issues of:

- user training and communication;
- user involvement in system testing;
- super user on-site support; and
- to a lesser degree, increased attention to specific system functionality issues.

Considering that similar issues were reported across the board by other organizations in their own Epic upgrades, it can be assumed that these issues are relatively universal and may continue to be the focal difficulties of future upgrades. Consequently, these issues will require the most attention. System functionality issues can most likely be expected to remain a consistent issue, as new specific functionality and features are introduced with each upgrade and always involve unexpected incompatibilities, bugs and system failures.

The ITG team leaders are planning to better involve end-users in the system testing process in future upgrades, and conduct more thorough workflow-oriented testing based on the needs of each clinic/location involved in the *go-live*. Future upgrades will be scheduled in the Winter-Spring months to avoid complications with staff being absent for holidays or new residents being introduced to the system concurrent to the upgrade. A more expanded timeframe of 4 or more months will also be allowed for pre-upgrade build and testing work, with an emphasis on having all other major projects completed or on hold during the pre-upgrade period.

Both OHSU's experiences as well as the upgrade experiences of other organizations confirm the following suggestions for ideal upgrade conditions:

- Super users in each department should be trained specifically on the workflow needs of their respective team of providers, and should be available as an additional layer of on-site support during the *go-live*.
- More frequent communication, including constant repetition of the upgrade dates and new features, to prevent users from being "surprised."

- Workflow-focused training, rather than general overviews or email announcements of new system features, would help users feel better prepared for the upgrade.
- Encouragement of users to experiment with the Sandbox environment of Epic in the weeks leading up to the *go-live* would make the upgrade less abrupt.

Whether these ideal conditions can be met by OHSU will depend to a great degree on factors such as staffing availability and upgrade timeframes, which may not be directly controllable or may change unexpectedly.

Potential further research and/or development

Future research and development should focus on addressing the lessons learned from previous Epic upgrades at OHSU and elsewhere. For example, the user survey was especially useful in gauging the outcomes of the upgrade from a non-technical (or non-ITG) perspective, as well as providing critiques of the effectiveness, or lack thereof, of user communication and training. Future post-upgrade surveys would be strongly advised to assess the effectiveness of changes and improvements in communication, training, user involvement in system testing, and over-all effect of the upgrade on user workflows.

It will also be worthwhile to analyze the new upgrade timeframes to see if there is a noticeable improvement from extending the upgrade process over a greater number of months, and starting in the Winter rather than late Spring/Summer. As noted from the 2010 upgrade *Lessons Learned*, while many lessons are specific to that year's upgrade and not directly applicable to the next, there are several distinct themes that seem to recur across upgrades and institutions; it will be of interest to observe if these themes expressed in

OHSU's and other organizations' upgrades continue to be the main focus of future Epic upgrade *Lessons Learned*.

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APPENDICES

Appendix 1: EpicCare Upgrade '2010 – NOVA Workflow

Appendix 2: Screenshot of example Release Note

Appendix 3: Epic Environments at OHSU

Appendix 4: OHSU Upgrade Lead Responsibilities

Appendix 5: Epic 2010 Upgrade one-sheet

Appendix 6: August 4th-6th Upgrade – Communication Plan

Appendix 7: Epic Support Desk calls & service tickets analysis

Appendix 8: User Survey Results

Appendix 9: Epic '10 Upgrade Lessons Learned

Appendix 10: Upgrade issues list screenshot

EPIC CARE UPGRADE '2010 - NOVA WORKFLOW

EPIC CARE UPGRADE TESTING GOALS

- Identify areas of the application that need more extensive workflow testing
- Identify workflows or new functionality that may need training or communication
- Identify new functionality we may want to implement. Look for easy wins.
- Identify functionality that is broken because of a change

Our goals are not to:

- Test every release note
- Implement a lot of new functionality

ESSENTIAL RELEASE NOTES

- **The release notes under this tab should be reviewed first as they have the biggest impact on the end users. These are the most significant changes in the release.**
- Includes high-priority changes or potentially disruptive automatic changes

WORKFLOW TO FOLLOW

1. REVIEW TAB

- Review the release note and if you are in need of additional information expand the metadata at the bottom of the release note.
- Determine if the change affects your product and your organization.
- If the change doesn't affect you, click **NO**. Then click **Finish and Next** to move on to the next release note. This release note now moves to the Finished Tab.
- If the change does affect you, click **YES**. Enter information about the **change and your comments**. See the **Tips and Tricks section** of this document for a better understanding of the effort definitions below.
 - In the **Build** section, select the complexity of build for this change, and indicate when the build should be completed. **(Required)**
 - In the **Testing** section, enter comments about testing. If you are using Nova's Testing Feature, you can also attach a test script to use when testing this change. **(Optional)**
 - In the **Training** section, specify the best training method for this change. **(Required)**
 - In the **Security** section, indicate security implications related to this change. **(Required)**
 - When your review is complete, click **FINISH AND NEXT** to move to the next release note. **The release note you reviewed moves to the To Do tab.**

2. TO DO TAB

- Shows the essential release notes that you decided affect your organization and product
- Release notes here require build, testing, training, or security changes
- Use this tab to record when all tasks are complete and you are ready to finalize the note. This is done by reviewing the info you selected earlier in the review process for build, testing, training, and security. **If the tasks described in a section are completed, select the Finished? Check box**
- After all the tasks are marked as complete, click **Finish and Next** to complete the release note and move to the **Finished** tab.

Appendix 1: EpicCare Upgrade '2010 – NOVA Workflow

WHAT TO DO IF?

- If the functionality defined in a release note is broken and is something that can be fixed by us, create a **Change ticket** in Service Center. You can also email Timothy Gray with the issue details and can get a Change ticket created through him.
- If the functionality defined in a release note is broken and needs Epic's attention or help, create a **Sherlock ticket**.
- If the release note has to be marked for **training**, email Timothy Gray. Tim is an assigned resource in Nova and you can send him an email from Nova with the attached release note.
- If the release note has to be marked for testing purposes for the workflow team, email Timothy Gray with the attached release note. Also specify in the email why do you think the functionality defined needs further workflow testing.

3. FINISHED TAB

- **DONE!!!**

OPTIMIZATION RELEASE NOTES

- These notes describe optional enhancements that typically need some setup, and automatic fixes with optional setup. **Review these notes once you have finished reviewing all the notes under the Essential tab and if you have some extra time to do so.**
- The MD and RN Informativists will also be looking at these notes.

WORKFLOW TO FOLLOW

1. PRIORITIZE TAB

- Review the release note and determine whether the change affects your product or your organization
- If it doesn't, click **NO**. Click **Finish and Next** to move on to the next release note. **This release note now moves to the Finished Tab.**
- If it does, click **YES**. Additional fields appear. Continue with the next step and enter information about the priority of the change.
 - In the **Project Team Interest** section, indicate how strongly you support using this feature by selecting your level of interest.
 - In the **Build** section, select the level of effort needed to set up and build the change
 - In the **Testing** section, select the level of effort needed to test the change
 - In the **Training** section, select the level of effort needed to train the change
 - In the **End User Priority** section, indicate the priority you think users would give this change. How important would it be to them?
- After you **finish prioritizing**, click **Finish and Next** to send the note to be sequenced and move on to the next release note. **Your project lead and project teams will sequence these changes based on your input.**

2. SEQUENCE TAB

- Only users with appropriate security have access to the Sequence tab. **You don't have to do anything on this tab, but you can see notes that are waiting to be sequenced.**

Appendix 1: EpicCare Upgrade '2010 – NOVA Workflow

3. REVIEW TAB

- The list of optimization changes OHSU identified as changes you want to implement appears on the Review tab.
- Review the release note and determine whether the change affects your product or your organization
- If the change doesn't affect your product, click **No**. You're done. Click **Finish and Next** to move on to the next release note.
- If the change does affect your product, click **Yes** and move on to the next step. Enter information about the change and your comments.
 - Specify how **complex the build** is for this change **(Required)**
 - Specify a **testing script** for this change **(Optional)**
 - Specify the best **training** method for this change **(Required)**
 - Indicate any **security** impact for the change **(Required)**
- Click **Finish and Next**. Release note moves to the Build tab.

4. TO DO TAB

- Release notes here require build, testing, training, or security changes
- Use this tab to record when all tasks are complete and you are ready to finalize the note. This is done by reviewing the info you selected earlier in the review process for build, testing, training, and security. **If the tasks described in a section are completed, select the Finished? Check box**
- After all the tasks are marked as complete, click **Finish and Next** to complete the release note and move to the **Finished** tab.

5. FINISHED TAB

- **DONE!!!**

FYI RELEASE NOTES

- The FYI queue includes all release notes that describe small changes you will test as part of workflow testing. For these changes, you do not need to plan or make decisions.
- **Review the release notes under this tab only if you have extra time.**

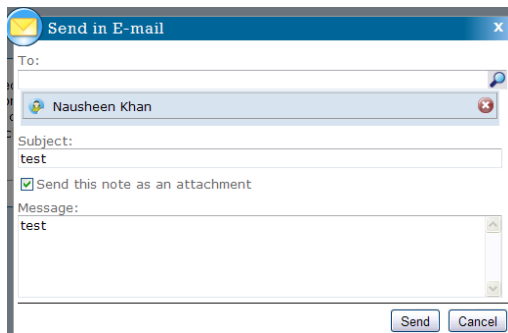
WORKFLOW TO FOLLOW

1. REVIEW TAB

- Double click the release note you want to review. Read the release note.
- Enter a comment, if needed.
- Click **Finish and Next** to complete your review and move on to the next release note. The release note moves to the **Finished** tab. **DONE!!!**

FAQS

1. What do I need to do, if I have been assigned a release note which I shouldn't have been assigned to?
 - **Before unassigning yourself from a note, make sure that someone else from your team is assigned to the note.** If you are the sole reviewer for the note, try to assign it to the appropriate person in the team. If you are not sure who this note should be assigned to, assign it back to the SU lead with an email with the attached note. The email option is available under the **Take Another Action** hyperlink
 - You can unassign yourself from the note by selecting the **Unassign Me** option under the **Take Another Action** hyperlink
2. How do I notify someone from the training department about a release note he/she needs to review or needs their attention?
 - If the release note has to be marked for **training**, email Timothy Gray. Tim is an assigned resource in Nova and you can send him an email from Nova with the attached release note.
3. How do I notify an Informaticist if I think a review note needs their attention?
 - The best way to communicate to an informaticist is sending in an email from Nova with the release note attached. The email option is available under the **Take another action** hyperlink.



4. Do I need to review all the release notes under all the tabs?
 - The release notes under the Essential tab should be reviewed first. **The release notes under the Optimization and FYI tabs should be reviewed only if you have extra time to do so.**
 - **Essential Tab > Optimization Tab > FYI Tab**
5. How much time do you want us to spend on writing and testing a test script for the build defined in a release note?
 - Remember our goal is not to test each and every release note.
 - Our goal is to **identify areas for more extensive workflow testing, identify areas that need training and communication, identify areas of implementation for new functionality, and identify functionality that is broken because of a change**
6. How many people will be assigned to a release note?
 - Only the primary person responsible for a release note will be assigned to it by the SU lead.
 - If you want someone else from the team to take a look at the note, you can add that person as an assignee to the note.

TIPS AND TRICKS

UNDERSTAND EFFORT DEFINITIONS

RELEASE NOTE COMPLEXITY AND IMPACT ITEM DEFINITIONS

All Nova users can see the information that you enter during release note review, including the work effort/complexity you enter for a given change. Since other people use the information that you enter for reference or for project planning purposes, you'll want to make sure that everyone means the same thing when they use the same items. (For example, when Susan uses Build = Minimal, it means the same thing as when Mark uses Build = Minimal.)

Here are definitions of the impact items, to help keep your team on the same page.

BUILD (REQUIRED)

- **None:** Automatic Change. No build.
- **Minimal:** Build can be completed in less than a week.
- **Moderate:** Build can be completed in more than a week, but less than a month.
- **Considerable:** Build and workflow redesign take more than a month.
- **Major:** Build and workflow redesign take several months. For example, implementing a new interface.

Provide Clinicians with Feedback About Their Electronic Prescriptions As They Are Ordering [193481]

Release Highlight flag applies only to EpicCare Ambulatory

You can now provide clinicians with more timely feedback when they order prescriptions that will be sent electronically. The system can now show clinicians warnings directly in the Order Composer when their orders do not match the requirements for electronic prescriptions. Without these warnings, clinicians had to wait until they signed their prescriptions to find out whether the prescriptions could be sent electronically.

Along with the warnings within the Order Composer, a summary of the validation messages also appears below the Summary Sentence in the following locations:

- In Basket
- Medications & Orders navigator section (outpatient)
- New Orders for Discharge section in medication reconciliation navigators
- Order Entry
- Orders navigator sections (inpatient)
- SmartSets
- Treatment Plan Manager and Simple Treatment Plan Manager
- Treatment Plan navigator sections

You can configure the checks that are performed on prescriptions in the Order Composer using new settings in EMR System Definitions. These settings are located on the new In-Line Validation for E-Prescribing screens, and you can use them to perform the same checks that are available in extension record 6420-Order Validation - EPrescribing Validation.

We've also updated order transmittal property 153-E-Prescribing Medication so you can print prescriptions or send them by fax if they do not meet the requirements for sig and comment length.

Note that inline order validation is not supported in EpicWeb, so clinicians who use EpicWeb receive order validation warnings when signing prescriptions as they have in the past. However, these warnings can be based on either the new settings in EMR System Definitions or the order validation extension records you already have set up.

Setup Instructions
Refer to the Validate That Prescriptions Can Be Sent to Surescripts topic in your online documentation for setup information.

Testing Instructions
1. In Hyperspace, open a patient encounter or hospital chart.

Currently viewing: My Review

Context **Affected?**

EpicCare Ambulatory

Build
Complexity: [dropdown]
Timing: [dropdown]
Comments: [text area]

Testing
Test script: [dropdown]
Comments: [text area]

Training
Method: [dropdown]
Comments: [text area]

Security
Impact: [dropdown]
Comments: [text area]

Is this note helpful? Yes No

or

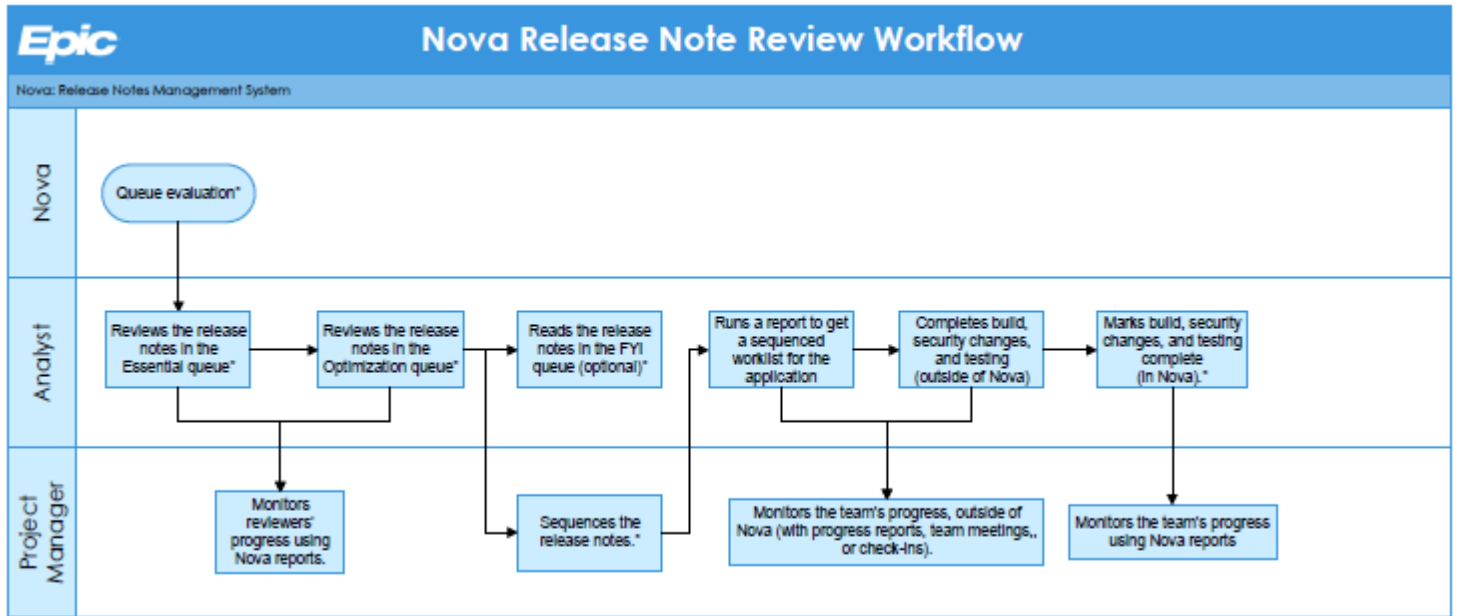
TRAINING (REQUIRED)

- **None:** No end-user training.
- **Minimal:** Very minor end-user training, like an e-mail or quick announcement at a meeting.
- **Moderate:** More complex end-user training, for example a demo or a handout.
- **Considerable:** Classroom training or creation of e-learning materials.

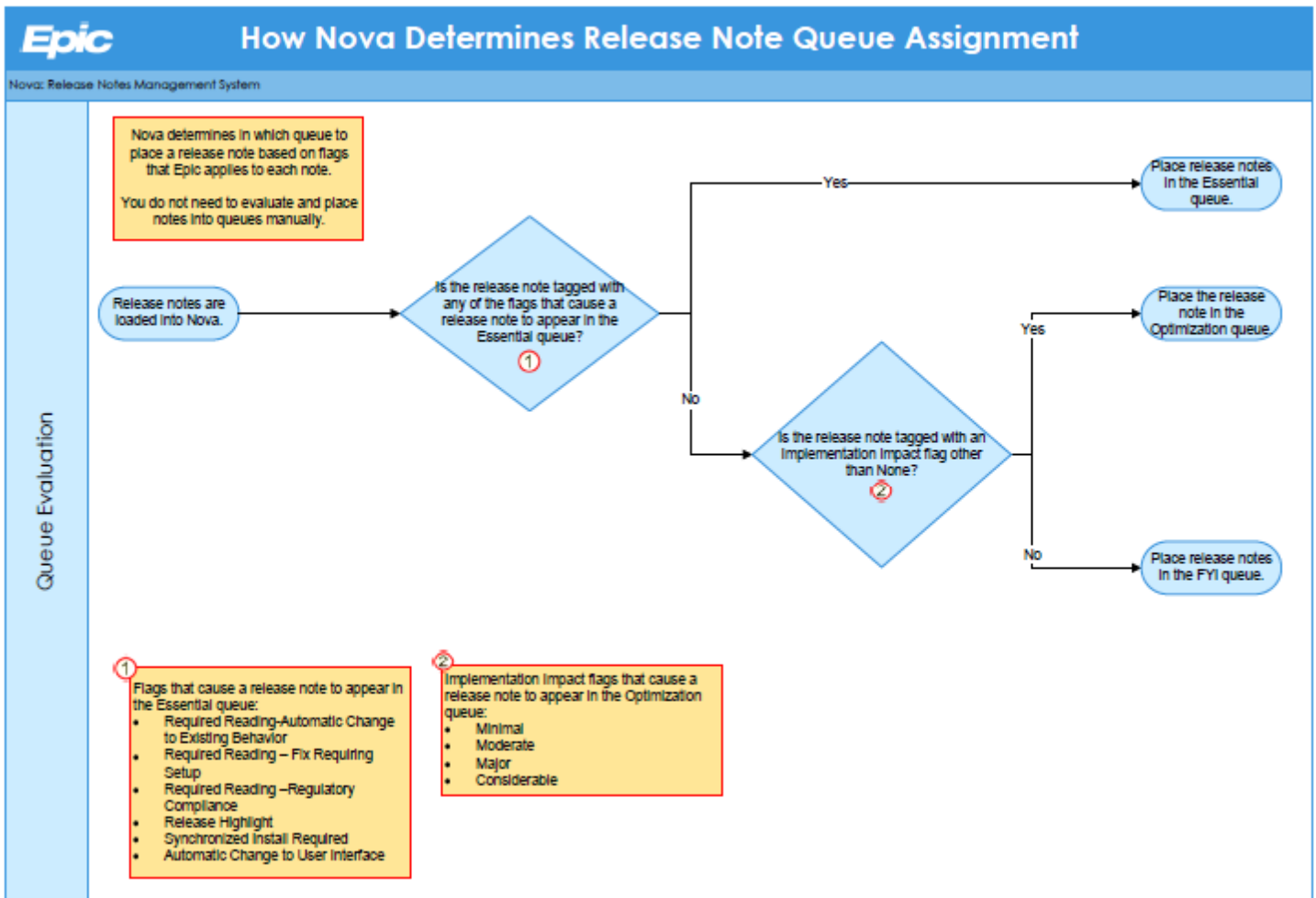
SECURITY (REQUIRED)

- **None:** No security change.
- **Minimal:** Very minor security assessment and testing. For example, verify that the appropriate users can access an activity.
- **Moderate:** Change needs security assessment and testing. For example, add a new security point to roles.
- **Considerable:** Change needs considerable security assessment and testing. For example, create new roles.
- **Major:** Change needs major security assessment and testing. For example, determine security for an entirely new workflow that involves new user roles or security classifications.

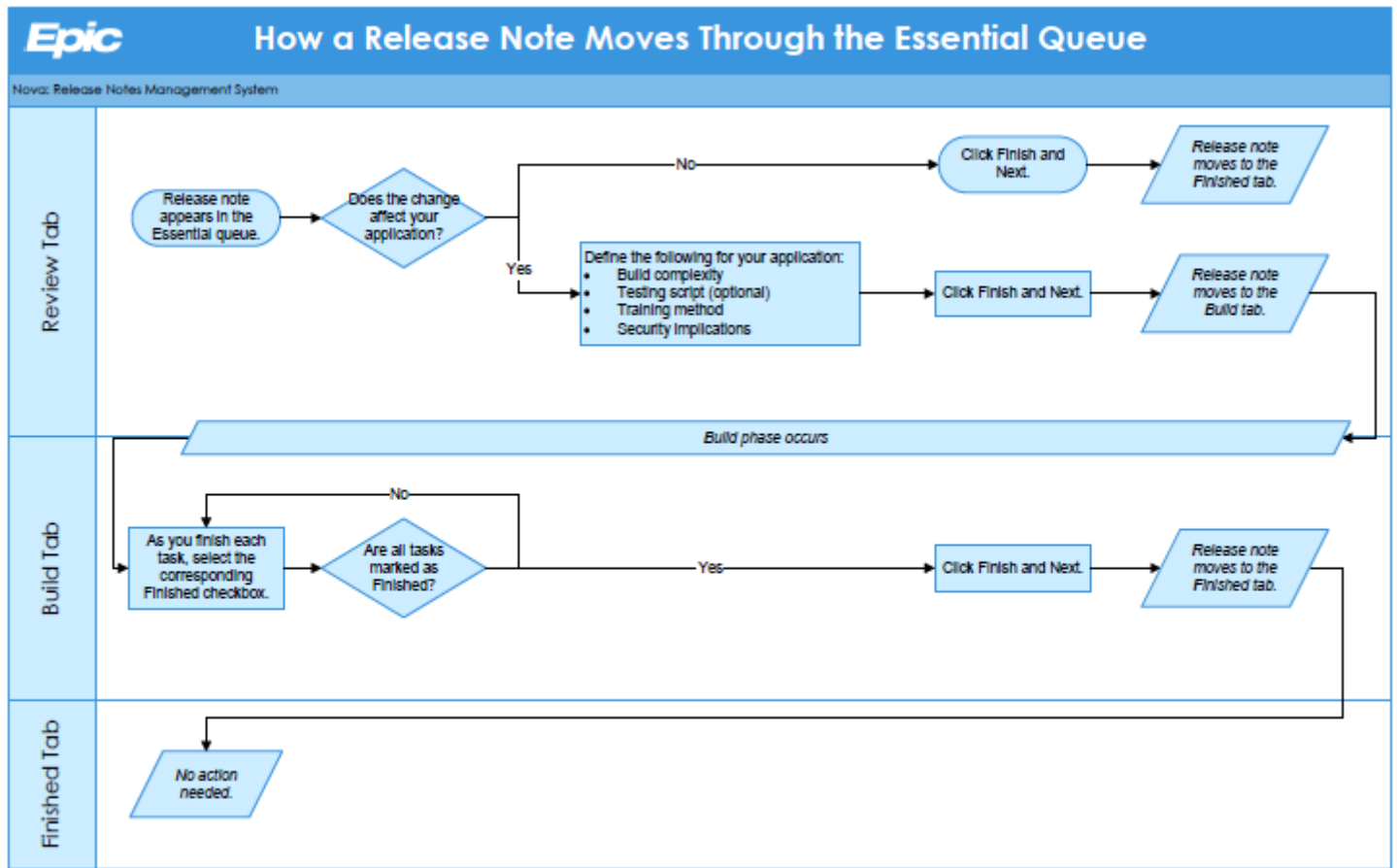
APPENDIX – RELEASE NOTE MOVEMENT THROUGH NOVA



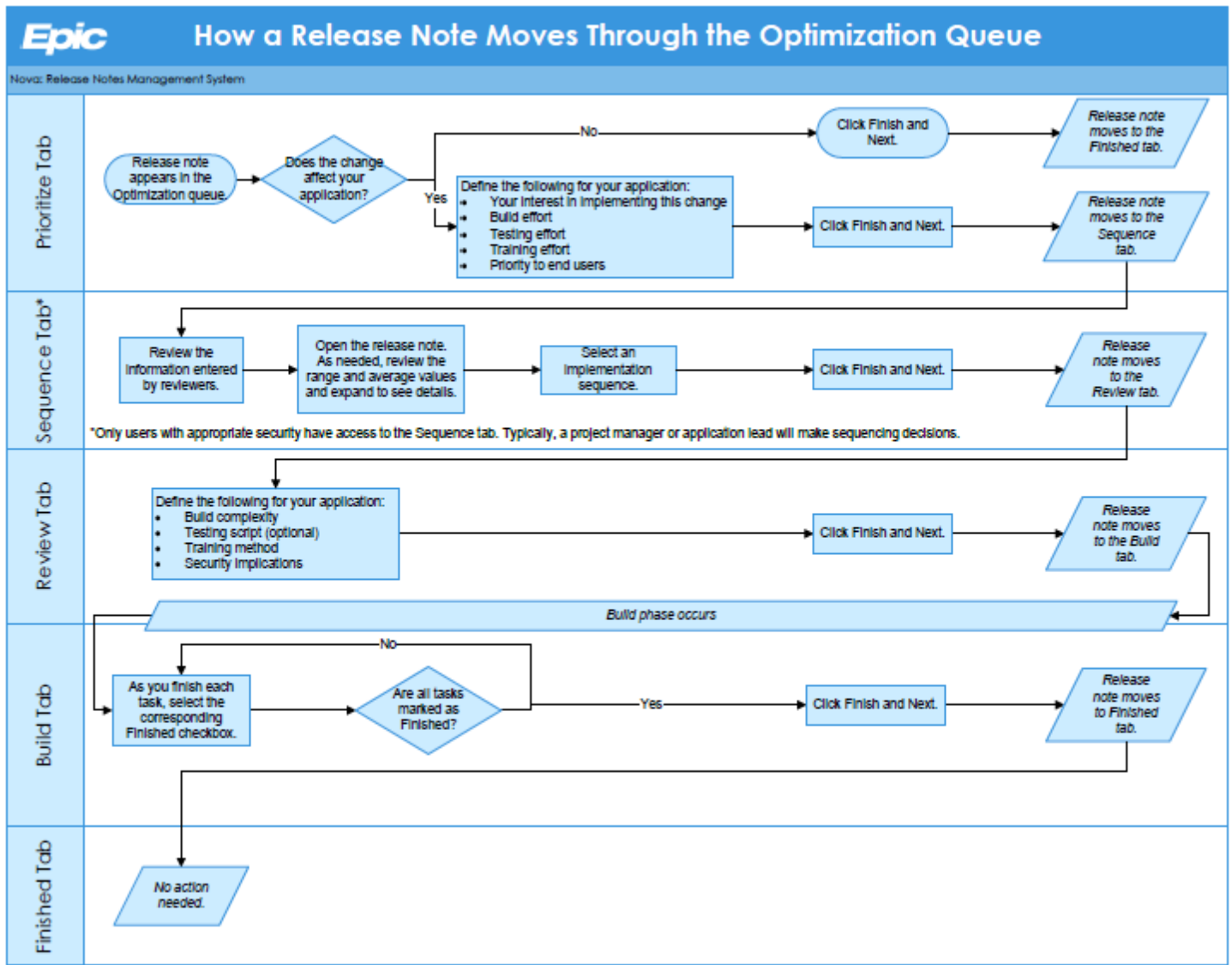
*Refer to the Nova Quick Start Guides and the other tabs in this Visio diagram for more details about each step of the evaluation process.



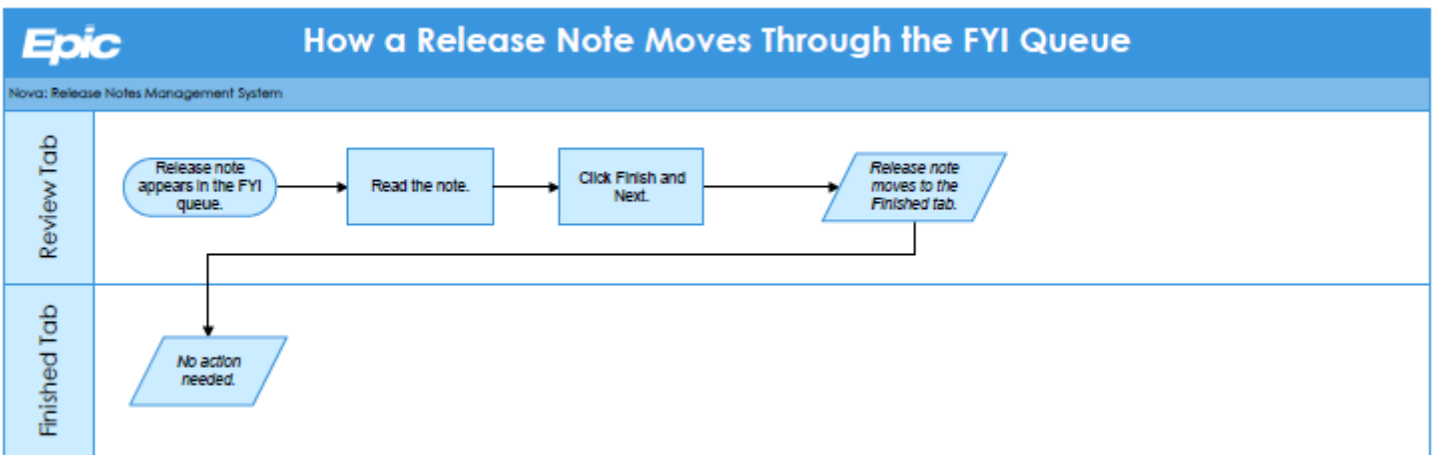
Appendix 1: EpicCare Upgrade '2010 – NOVA Workflow



Appendix 1: EpicCare Upgrade '2010 – NOVA Workflow





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Appendix 2: Screenshot of example Release Note

Home Log Out
 Review Search Nova:

Set an Interval for Collection Date and Time to Carry Over from Parent Order to Child Orders [224037]

Future and standing orders, which are orders that are released at an interval after they were signed, have two components: The parent order, which is the order signed by a clinician, and the child order, which is the order released at a later time. In Epic 2010, we fixed an issue in which the collection date and time entered for the parent order were automatically copied to each child order. See release note 224043-Collection Date and Time for Parent Orders Are No Longer Copied to Child Orders for details about this issue and its fix.

Previously, due to the fix described above, the collection date and time entered for parent orders were not copied to child orders. In most cases, this was the expected behavior. However, there were some workflows in which the carryover of the collection date and time from the parent order to the child order might have been preferred. For example, consider the following workflow:

1. During an encounter, a clinician selected a future order for a CBC lab. The patient was going straight from the office to the lab for the test, so the clinician entered a collection date of today and a collection time of now.
2. The clinician signed the order and the patient went to the lab for the test.
3. When the patient arrived at the lab, a lab technician released the CBC order. The lab technician assumed that the collection date and time that the ordering clinician entered for the parent order were automatically applied to the child order, so he entered nothing in these fields.

If you didn't use an extension record to automatically populate the collection date and time for child orders when they were released, these fields remained blank when the lab technician released the order. As a result, the order report didn't contain information about the collection date or time, so clinicians couldn't tell what date or time the results of the test represented.

Now, you can specify an interval in which the collection date and time entered for a parent order are copied to the child order (for standing orders, this change applies only to the first child order that is released). This interval, which is set in EMR System Definitions, allows the collection date and time to appear automatically for a child order that is released shortly after the parent order is signed, saving time and possible confusion for the clinician releasing the child order.

Be aware that if you do not specify an interval for this behavior, the collection date and time of parent orders are never copied into child orders. Note that for outpatient orders signed in an outpatient encounter and released in an inpatient encounter, such as a hospital outpatient visit, the collection date and time from the parent order do not appear for child orders.

Currently viewing: My Organization

ASAP

Robert McIntosh	
Affected?	No

EpicCare Ambulatory



Kelly Bradway Parrett	
Affected?	No response
Su-Lin Wilkinson	
Affected?	No
Comment:	We don't use collection date and time in the child order report.


EpicCare Inpatient

Scott Sallay	
Affected?	No response
Erin Kaehuaea	
Affected?	No
Jessica Alexander	
Affected?	No

EpicWeb

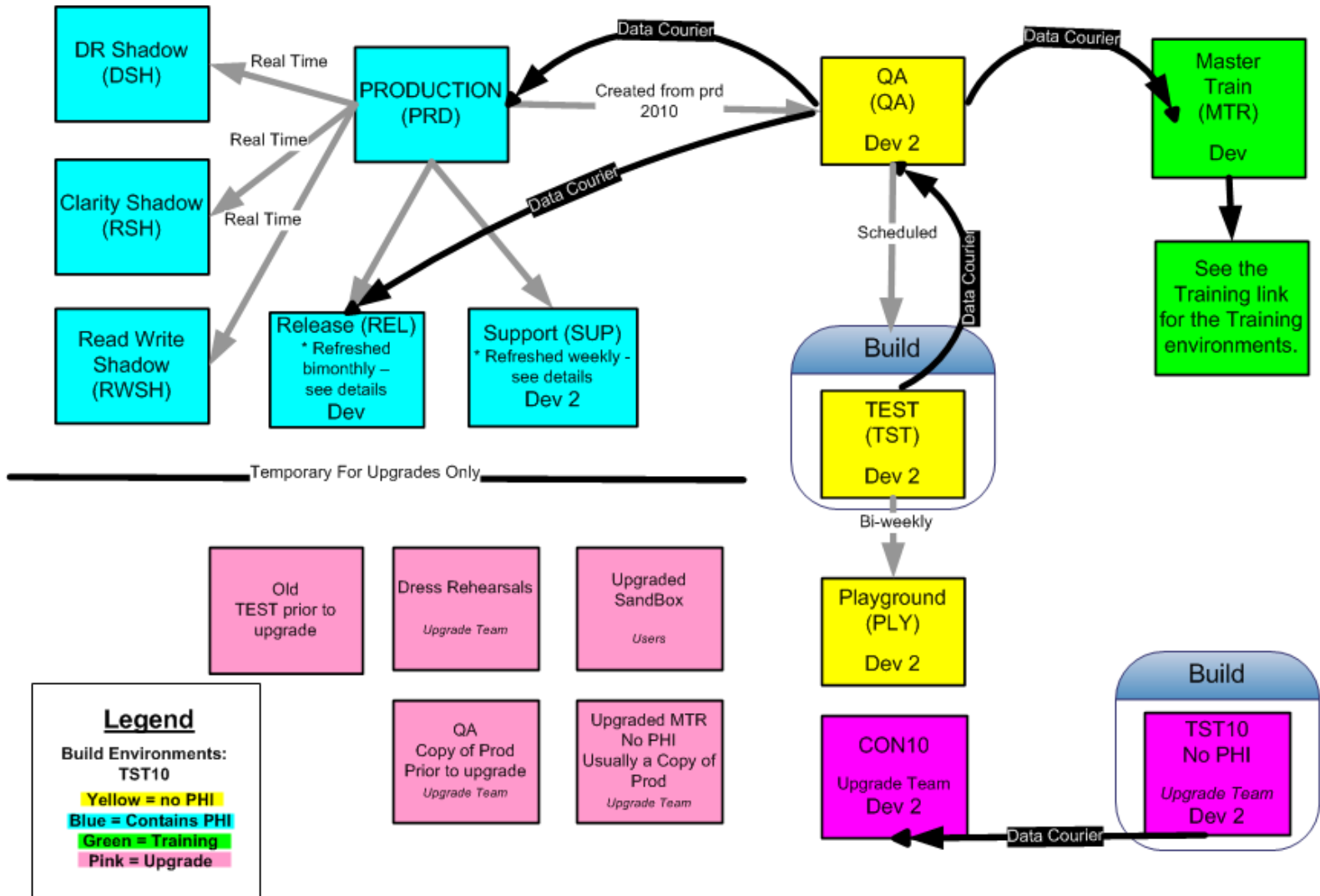
Christopher Leland	
Affected?	No response

Is this note helpful?  

 or [Take another action](#)

Epic Environments at OHSU

Updated: March, 2011





OHSU Upgrade Lead Responsibilities

Upgrade August 4-6th 2011

Upgrade Team Representatives

- EpicCare Nausheen Khan, Erin Kaehuaea
- HCTS Paul Vasko, Sue Vincent
- Clarity Tina Dong, James Lancaster
- ADT Amy Morrow
- Prelude Joan Sellers
- PB Barb Duncan
- HB Yvonne Vordestrasse
- HIM Ken Gridley
- Pharmacy Tae Kim
- eHealth Jeff Jensen
- Cadence Cassie Perkins
- Security Jill Hallidy
- CID Corey Na'um
- ESD Jeannie Trojak

Training Upgrade Leads

- ADT Margarita Skeels
- Prelude Robin O'Rourke
- HES Cassandra Adams, Gretchen Scholl
- PB Amy Bor
- HB Aileen Safford
- HIM Margaret Darling
- Pharmacy Angela Irish
- Cadence/Referrals Stephanie Sperring

Key Responsibilities for Upgrade Team Representatives

- ***Communicate all upgrade information to your team members***

- **Review Upgrade Documents**
 - [Application](#) Team DR Shadow Overall Process
 - [Application](#) Team DR Shadow MDR Upgrade Steps
- **Working with Epic TS Counterpart**
 - Determine what pre or post steps are necessary to perform (both for Epic and OHSU) during the dress rehearsals and upgrades. Define MDR Compatible steps and non MDR Compatible steps
 - Communicate with Epic TS counterpart regarding changes that come automatically with the upgrade. Determine which Release Notes TS recommends that you focus on.
 - In conjunction with your manager/operational partners and Epic TS, determine which features will be turned on at the time of the upgrade, and 3-6 months after.
 - Review Installed RA's, Change Orders, Custom Code with Epic TS
- **Nova**
 - Responsible for using Nova to review Release Notes
 - Understanding Essential Review, Optimization Review and FYI's
 - Work with your manager to determine the process in which your specific team will prepare for the upgrade.(Release Note review, workflow testing, coordinate application specific upgrade meetings, etc)
- **Dress Rehearsal Participation**
 - Participate in three scheduled dress rehearsals to prepare for the upgrade.
 - Coordinate involvement from your team members
- **Validation of Epic 10 Environment**
 - Responsible for executing application test scripts to ensure that workflows have not been broken with the upgrade.
 - Work with operational partners/trainers to conduct end user break it testing
- **Significant system Changes-**
 - Responsible for documenting and communicating any significant changes that our users may experience as a result of the upgrade. These changes will be communicated to your training partners.

Key Responsibilities for Training Upgrade Leads

- **Significant System Changes**
 - Responsible for using Nova to review Release Notes identified by # by the Upgrade Application Lead relating to specific training environment issues relevant to the OHSU upgrade.

Appendix 4: OHSU Upgrade Lead Responsibilities

- **Training Materials –**
 - Responsible for developing training materials based on significant changes to the system and distributing changes to the users
 - Responsible for updating training materials to reflect new version of Epic as appropriate (timeline TBD)

- **Communication –**
 - Responsible for working with operational partners to develop or understand communication plan to users regarding the upgrade.

- **Training Environments –**
 - Responsible for coordinating MTR wipe/rebuild with all application trainers
 - Work with HCTS to verify MTR wipe/rebuild dates and to coordinate/verify MTR, RMT and Train refresh cycles.



Epic 2010 Upgrade

Upgrading from Epic 2009 to Epic 2010

On Saturday August 6th OHSU will upgrade to a new version of Epic. The upgrade is essential for the future implementation of additional Epic modules and will also allow us to take advantage of enhancements that will improve current workflows. It will also allow OHSU to continue to support efforts towards Meaningful Use. ITG, Clinical Informatics, Healthcare Operations Support and Healthcare Education Services are working together to ensure your transition to the most recent version of Epic is as seamless as possible.

Downtime

- Thursday August 4th 3:15 AM (15 minutes)
- Saturday August 6th 3:15 AM (3 hours) Read Only will be available

Technical Infrastructure

In order for us to prepare for the upgraded platform of Epic, the following improvements needed to occur:

- Upgrade Cache Database for 32 environments (Complete)
- Replace Epic Database Servers (Complete)
- Replace Storage Area Network (Complete)
- Upgrade Citrix environment (In Process)
- Replace 12 Windows/Web servers with new hardware and new OS (Complete)

Upgrade Features

At Upgrade

- Improved identification of Research Patients
- Confirmation records for schedulers when documents need to be signed
- Use of Referral Work Queues
- Updated CPM Content
- Enhanced clinical documentation flowsheets
- Enhanced ability to see and release orders
- New pended medication workflow for BCMA (Barcode Medication Administration)
- Enhanced verification tools for Pharmacy use

Future

- Implementation of OpTime/Anesthesia Fall 2011
- Implementation of Beaker Fall 2012

For More Information

To learn more about the upgrade, visit Epic@OHSU and log in to the New Sandbox to check out the new version of Epic.

August 4th-6th Upgrade – Communication Plan

Date	Method of Communication	Detailed Information	Responsible Party
6/10-6/24	Clinical Workflow Testing	IP Nurse Testing	CID
6/10-ongoing	Clinical Workflow Testing	CID Workflow Analysts	CID
6/21/11	ACMG	Ambulatory Care Manager Group Steph to announce upgrade date and build freeze	Stephanie Winchester
6/27/11	IDAC Meeting	Jessica to announce upgrade plans at Interdisciplinary Advisory Council Jessica to discuss CPM content upgrade, constant communication at each IDAC meeting	Jessica Alexander
7/5/11 – Meeting cxd	Healthcare IT Steering Committee	Reminder of upgrade date	John Dunn
7/5/11	Monthly Management Meeting	Announce upgrade Reminder of build freeze Log in to New Sandbox 7/13	Nancy Kallem
7/11/11	Physician Advisory Council	Announce Upgrade Encourage Users to log in to New Sandbox	CID
7/13/11	New Sandbox	New Sandbox pushed out to all users	Deanna Smith

August 4th-6th Upgrade – Communication Plan

7/13/11	Message of the Day – New Sandbox	<p>Welcome to the new version of Epic! Please navigate and explore the new look and feel. It is not necessary to report issues to the ESD, this environment is not what you will see when we do the actual upgrade on August 6th, 2011. We are providing this to users simply to get everyone used to the new look, feel, and navigation changes prior to the upgrade. Happy Playing!</p> <p>Message will display at each login</p>	Deanna Smith
7/18/11	Updated Home Page - PROD	New Upgrade Portlet will announce Upgrade and direct users to Epic@OHSU for log in information to New Sandbox	Deanna Smith
7/18/11	Epic Message of the Day - PROD	<p>Epic Upgrade coming August 6th!</p> <p>Have you logged into the NEW Sandbox yet? Check out Epic@OHSU on the Ozone for log in details</p> <p>Message will display once per week</p>	Deanna Smith
7/18/11	Email Communication to Pharmacy Users	<p>Epic Rx 10 upgrade Captivate with competency</p> <p>All pharmacy staff will be required to go through the training and take the assessment</p>	Angela Irish
7/19/11	ACMG	<p>Ambulatory Care Management Group</p> <p>Steph to review upgrade plan and changes</p>	Stephanie Winchester
7/18/11	HIM – UCN Impact Statement	E-mail communication regarding expected impact of UCN conversion for HIM staff.	HIM
7/18/11	HIM – Epic Upgrade Highlights	E-mail communication including links to SharePoint content for all HIM staff regarding upcoming changes with Epic 2010.	HIM

August 4th-6th Upgrade – Communication Plan

7/20/11	Prelude/ADT Meeting	Review Communication Plan	Deanna Smith
7/21/11	IPUG	Inpatient User Group Announce Upgrade and Build Freeze	Scott Sallay
7/25/11	Communication to all Cadence Users	<ul style="list-style-type: none"> • Captivate Training available in Trainingforce • Workflow Testing groups begin 	Stephanie Winchester
7/27/11	Cadence Upgrade Drop-In Training	11:30-12:30 Register in trainingforce under the name: Cadence Upgrade Drop-In Training	Stephanie Sperring
8/1/11	Healthcare IT Steering Committee	Review presentation for MMM	Deanna Smith
8/1/11	Cadence Upgrade Drop-In Training	3:00-4:00 Register in trainingforce under the name: Cadence Upgrade Drop-In Training	Stephanie Sperring
8/3/11	Pharmacy Training Complete	Captivate and Competencies complete	Angela Irish
8/4/11	Cadence Upgrade Drop-In Training	9:00-10:00 Register in trainingforce under the name: Cadence Upgrade Drop-In Training	Stephanie Sperring
8/6/11	Monthly Management Meeting	Encourage Users to log in to New Sandbox Epic@OHSU Website Downtime Information Upgrade Information	Deanna Smith

August 4th-6th Upgrade – Communication Plan

TBD	HIM – ROI review with reception staff	Review changes in ROI work flow with reception desk staff after coordinating with Cathy Schroth.	HIM
?	Clinical Workflow Testing	Ambulatory Nurse Testing	CID/HES Stacy January
7/11/11	Email Communication to Prelude Users	PowerPoint and New Sandbox Instructions	Robin O'Rourke
7/5/11	New Features & Functionality email to EpicCare Users	1 st message to users via NFF regarding upgrade Message directing users to Epic@OHSU and instructions for Sandbox	HES
7/8/11	Major changes identified for training	Tier 1, 2, and 3 changes to HES	Editorial Board?
N/A	Faculty Practice Plan Board	Inform FPP members about upgrade Review Communication Plan	Tom Yackel/Scott Fields
7/12/11	Email Communication to Admitting Users	Email informing of upgrade and instructions to New Sandbox	Bridget Schrader/Margarita Skeels
7/7/11	ADT Workflow Testing	Admitting and Bed Planning Workflows	Margarita Skeels
7/13/11	Ozone	Let users know upgrade is coming Direct them to Epic@OHSU and encourage them to use New Sandbox Brycie to craft – leave for two weeks	Brycie Jones

August 4th-6th Upgrade – Communication Plan

7/25/11	EpicCare Drop In Training Sessions (2 hours)	Information of date/time/location on Epic@OHSU website: Monday 7/25/2011 10:00 Tuesday 7/26/2011 10:00 Wednesday 7/27/2011 5:00 Wednesday 7/27/2011 1:00 Thursday 7/28/2011 1:00 Wednesday 8/3/2011 5:00 Thursday 8/4/2011 1:00 Friday 8/5/2011 Upgrade Drop in Training 10:00	HES
	EpicCare Tips & Tricks email	Cassandra to craft - Reminder about Upgrade, the New Sandbox and Tier 1 upgrade changes/information on the Epic@OHSU site	Learning & Change Management
7/19/11	Revenue Cycle Leadership	Review Communication Plan	Deanna Smith
7/28/11	Epic@OHSU Site	Each app will provide their upgrade training materials to Armando to be posted on Epic@OHSU site.	All Training Leads
7/15/11	Email Communication to HB Users	<ul style="list-style-type: none"> • “PBS” HB Users—PBS, IVS/FMS, Qualink, PacificEDI,—focused on HB Acct Mtn and Account WQs, biller/claims, payment poster and customer service functionality • “Hill/Rev Cycle” HB Users—Department Charge Capture/Entry, Billing/Revenue Managers—focused on changes to charging mechanisms, revenue reporting, Charge Router and HB Charge Review WQs 	Aileen Safford
	PCO	Jessica to announce upgrade plans at Patient Care Operations	Jessica Alexander
7/21/11	Hospital Admin	Presentation	Deanna Smith

August 4th-6th Upgrade – Communication Plan

TBD	Ozone	Tile on Ozone Brycie to craft message Remind users of upgrade Refer users to Epic@OHSU	Brycie Jones
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Legend
All Users
Clinical Users
Cadence Users
HIM Users
HB Users
RX Users
PB Users
Prelude Users
ADT Users
Task Complete

Appendix 7: Epic Support Desk calls & service tickets analysis

Epic Support Desk calls & service tickets analysis

The Epic Support Desk fields calls from users reporting problems encountered in Epic, with a wide range of issues being reported each day. Issues that are not immediately resolvable by phone technicians are written up in service tickets, which are then assigned to their respective ITG team for in-depth analysis and resolution. In the first week following the upgrade, a total of 332 service tickets were generated, with 144 of those being noted as Upgrade Issues (although 28 of these were later concluded to be “Not Upgrade” related). The vast majority of these tickets were related to Charting Tools (12%), In basket (15%) and Notes (13%) issues, with the rest being divided among 16 other categories. An additional 70 Upgrade Issue tickets were logged in the second week (with 18 being later determined as “Not Upgrade” related). During this period Notes issues comprised 19% of the tickets, while In basket tickets accounted for 10%. The remaining tickets were again spread out relatively evenly among the remaining 16 categories.

These numbers reflect many of the user comments related to dissatisfaction and difficulties experienced with the new system. Many of the reported issues were due to unexpected system glitches/failures and were not immediately solvable by the Epic Support team. In most cases, ITG teams were able to resolve these system failures within the first two weeks following upgrade, although some commonly reported issues have required Special Updates or custom fixes directly from Epic; in some cases, such as flowsheet formatting issues, we are still awaiting these fixes. Interface changes to the Charting Tools and Notes, including new or missing buttons, layout/formatting changes, and new workflows, as well as significant changes in the visual style and layout of the In basket were frequently cited as sources of confusion and frustration for users. Many users also reported that their personal Smartphrases were missing, the result of a technical glitch during the upgrade which was resolved within the second week. There were also

Appendix 7: Epic Support Desk calls & service tickets analysis

widespread problems reported with printing and remote access by Citrix, which have continued to come up as commonly reported issues throughout the Fall.

As the weeks progressed, many of the issues reported were found to have already been logged in service tickets, hence the significant decrease in logged tickets in the second week. Commonly reported issues were also communicated from user to user in their affected departments, encouraging users to wait for a resolution rather than call to report another incident of a known issue. A common request was to have support personnel on-site in the departments to keep users apprised of known issues, or to have some sort of centralized issue tracking bulletin board for users; this has also been taken into consideration for future upgrades, although considering the varied and lengthy list of issues collected in the Upgrade Call Stats spreadsheets, such a list might prove to be overwhelming for end-users. Again, a department-specific *super user* or champion seems indicated to help users with their specific workflows and needs, and to keep them updated on known issues during the upgrade.

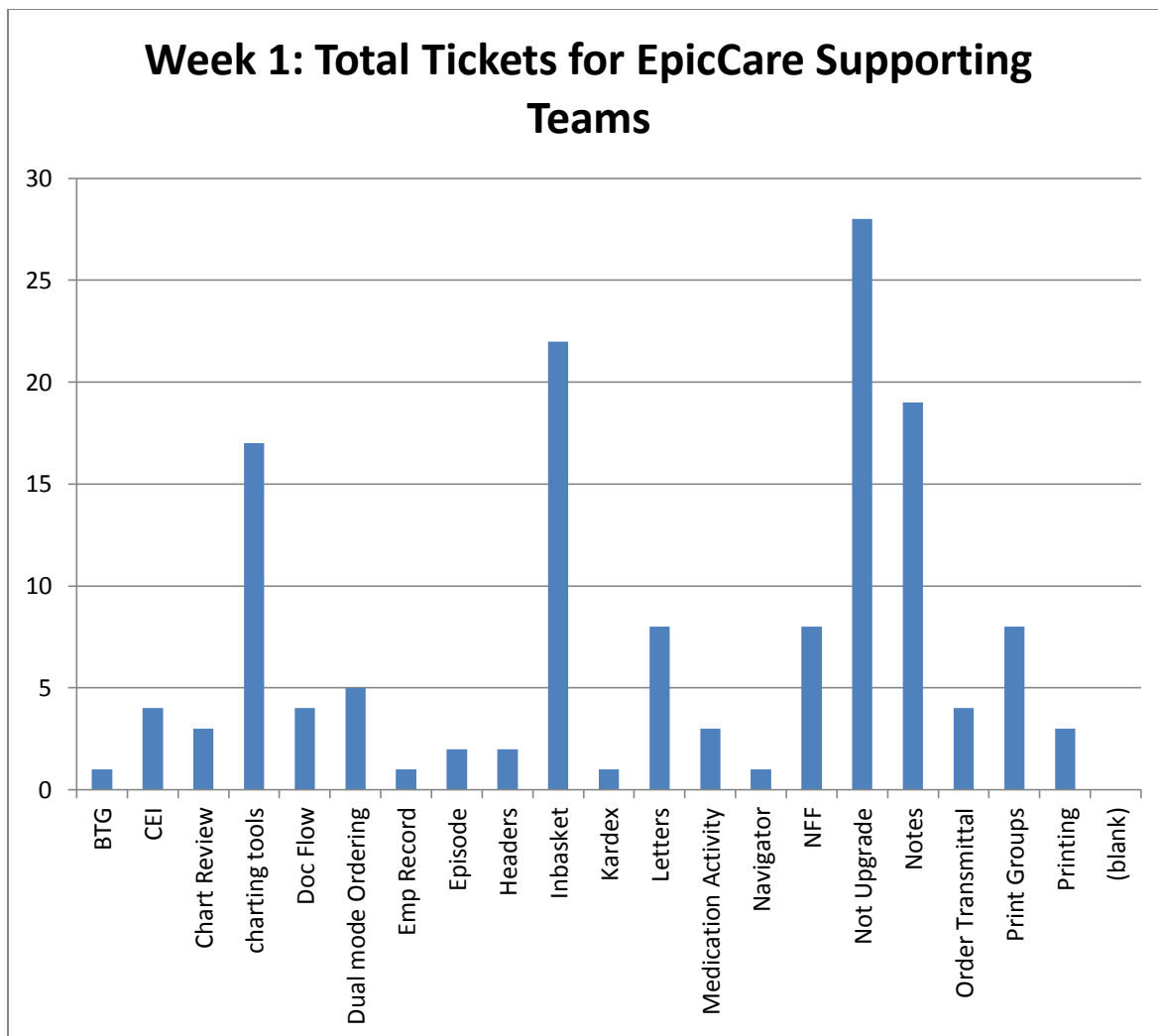
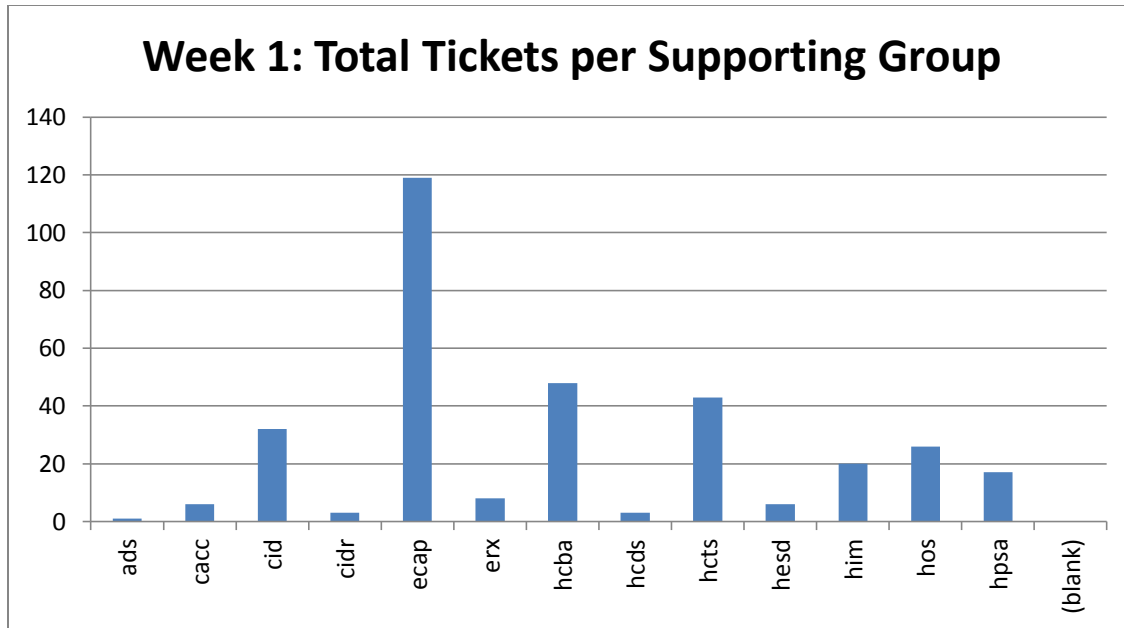
Appendix 7: Epic Support Desk calls & service tickets analysis

Upgrade Call Stats Week 1:

Row Labels	Count of Supporting Group
ads	1
cacc	6
cid	32
cidr	3
ecap	119
erx	8
hcba	48
hcds	3
hcts	43
hesd	6
him	20
hos	26
hpsa	17
Grand Total	332

Row Labels	Count of EpicCare Upgrade Issue
BTG	1
CEI	4
Chart Review	3
charting tools	17
Doc Flow	4
Dual mode	
Ordering	5
Emp Record	1
Episode	2
Headers	2
Inbasket	22
Kardex	1
Letters	8
Medication	
Activity	3
Navigator	1
NFF	8
Not Upgrade	28
Notes	19
Order Transmittal	4
Print Groups	8
Printing	3
Grand Total	144

Appendix 7: Epic Support Desk calls & service tickets analysis



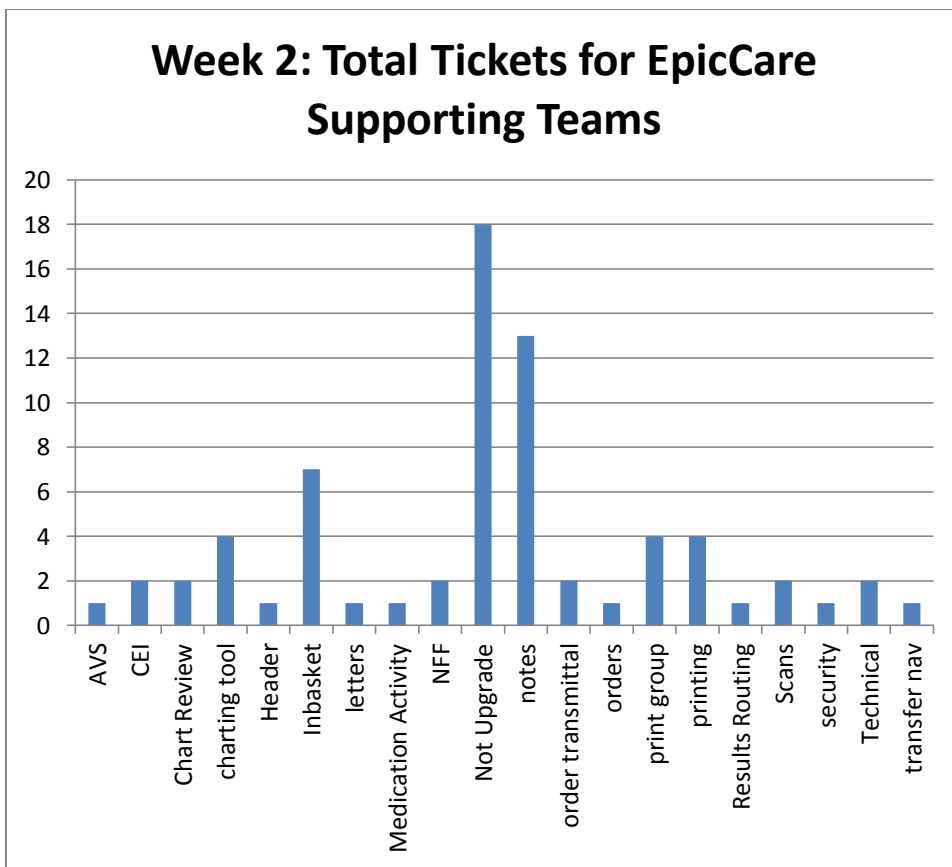
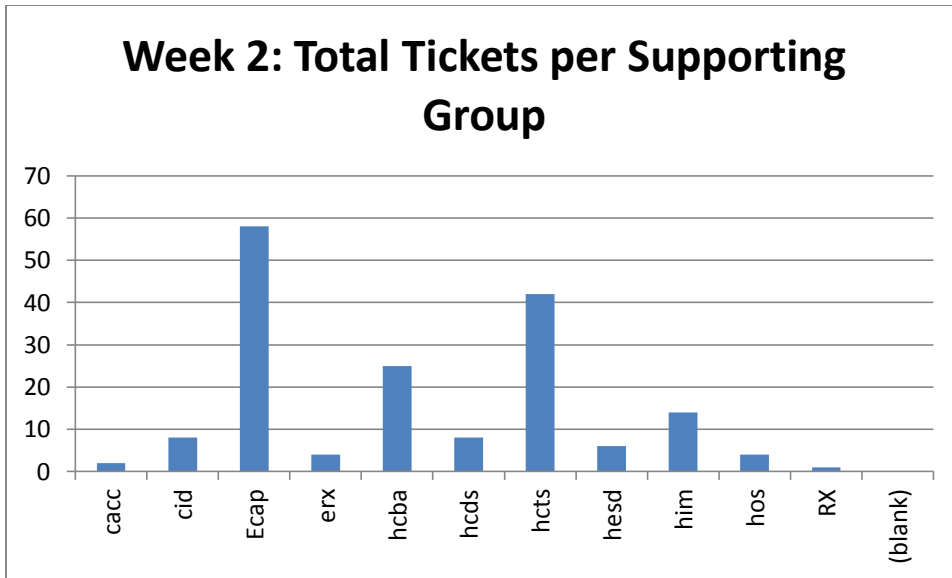
Appendix 7: Epic Support Desk calls & service tickets analysis

Upgrade Call Stats Week 2:

Row Labels	Count of Supporting Group
cacc	2
cid	8
Ecap	58
erx	4
hcba	25
hcds	8
hcts	42
hesd	6
him	14
hos	4
RX	1
(blank)	
Grand Total	172

Row Labels	Count of Upgrade Issue
AVS	1
CEI	2
Chart Review	2
charting tool	4
Header	1
Inbasket	7
letters	1
Medication Activity	1
NFF	2
Not Upgrade	18
notes	13
order	
transmittal	2
orders	1
print group	4
printing	4
Results Routing	1
Scans	2
security	1
Technical	2
transfer nav	1
Grand Total	70

Appendix 7: Epic Support Desk calls & service tickets analysis



Appendix 8: User Survey Results

User survey results

Following the initial two weeks of the Epic 2010 upgrade *go-live*, a link to a user survey was posted on the Epic Homepage and provider websites requesting feedback from providers on their experiences and feelings on the new system. This survey was available from week 3 through week 6 following the *go-live*, and received a total of 133 responses: 39 Physicians/Practitioners, 44 Nurses, 10 Clinical Staff, 24 Administrative Staff, and 10 “Other”. The responders were relatively evenly divided between Inpatient and Ambulatory users, with the latter having a slightly higher total number.

The survey queried users on their satisfaction with the upgrade based on the following six criteria: Communication, Downtime, Changes in New System, Benefits > Inconvenience, Educational Materials Useful/Timely, Bugs Tolerable. Physician/Provider responses were almost uniformly divided between positive and negative in their satisfaction with the upgrade, with the exception of Downtime, which 57% responded to as Satisfied vs. 8% Unsatisfied.

Communication also received a majority of Satisfied responses (49%) vs. Unsatisfied responses (31%) The other four criteria were almost evenly split, with unsatisfied users slightly outweighing satisfied users in regards to Changes in the New System (43% Unsatisfied vs. 34% Satisfied) and Benefits > Inconvenience (39% Unsatisfied vs. 33% Satisfied), while 33% of responders were satisfied with Education Materials Usefulness/Timeliness vs. 29% unsatisfied. Bugs Tolerable was evenly divided with 41% Satisfied and 41% Unsatisfied.

In contrast, Nurse responses were predominantly negative, with 60% unsatisfied vs. 16% satisfied with Changes in New System, 54% unsatisfied vs. 19% satisfied with the Benefits > Inconvenience of the upgrade, and 58% unsatisfied vs. 11% satisfied with the Education

Appendix 8: User Survey Results

Materials. Nurses were slightly more evenly divided on Communication (48% Unsatisfied vs. 32% Satisfied) and Bugs Tolerable (40% Unsatisfied vs. 23% Satisfied). Nurses' responses were comparable to Physicians' regarding their general satisfaction with system Downtime (14% Unsatisfied vs. 33% Satisfied).

Nurses also gave more in-depth commentary on both shortcomings and positive aspects of the upgrade, with a wide range of responses both positive and negative. Many nurses remarked positively on the improved documentation flowsheets, and also appreciate the new visual themes in the upgrade, while a total of 11 users specifically commented on the need for improved communication and training. 7 Nurses responded that the new upgrade had reduced their efficiency, while an additional 5 stated that they preferred the old system. Several physicians commented on their appreciation of the improved personalization options in the new system, but many noted that there were too many bugs, more clicks, not enough communication/training, and that the upgrade had not included changes that they had desired or expected.

Following the assessment of Satisfaction versus Dissatisfaction with the upgrade, the survey presented some optional free-text questions, asking the users to describe "The best thing about the EpicCare 2010 upgrade" and "Things I would recommend to be changed during future upgrades". The first question received 76 responses total, while 97 responders shared their opinions on what should be changed. Notably, out of the 76 responses regarding the "best thing" about the upgrade, 35 responders (46%) simply said "nothing"; a positive change was not noticed. While many users responded with a simple "nothing", some were more creative: "Zippo", "Haven't really found any yet. I miss the old Epic!!!", "It feels about the same only worse", "Nothing. Congratulations – you have made Epic even more convoluted, inefficient and user unfriendly.", and "THERE IS NOTHING I LIKE". One user expressed relief that "I can rest

Appendix 8: User Survey Results

assured that there will not be another Epic upgrade for 6-12 months.” Additionally, 7 of the 76 responders (9%) only had positive things to say about superficial changes in the appearance of the upgrade, including the new “polished” look of the buttons or the colorful “bamboo” visual theme. Many users only cited one specific element of the system, probably directly related to their own workflows, such as improvements to the referral work queue, in basket functionality, documentation flowsheets, medication ordering and notes. Some users acknowledged the overall value of the upgrade with comments like “staying with the most current version of Epic is a smart move”, “more flexibility”, “better user configurations”, “easier access – less time consuming steps” and “it seems to make some things easier”. One user acknowledged “change is always a challenge.”

Responders were much more verbose in their suggestions on how things should be changed in future upgrades. Unfortunately, users were divided in their opinions on the new look and colors of the upgrade, with 6 comments expressing dissatisfaction with the loss of color in the in basket, notes and documentation flowsheets, as well as requests for more varied visual themes. Many users expressed frustration with system features that “used to work and now don’t,” while others felt that their efficiency had been reduced by “too many clicks.” Some notable responses in this section included:

- Need to be sure things are EASIER for providers and not harder – this has more clicks, more buttons, etc... Strongly recommend beta-testing with real users!!!!!!
- Consider having a blog where individuals could provide feedback on glitches encountered and advertise this to the users.

Appendix 8: User Survey Results

- Better pre- and post-education. I feel like I need someone to come and work with me for an hour or two to get an idea of what the changes were and how I can better use them.
- Please test display with a focus group – we are having a lot of trouble with the look of data now with the new display, particularly for viewing results.
- Try not to break things that work. It took us 5 years to work around the problems with the prior system. Now we just have new problems.
- More direct user testing.
- Email is not a good mode of communication for floor RNs – we do not have time to check email routinely during our shift. Somehow, the managers need to do a better job of socializing these changes with the unit staff (huddles, bulletin board?) – or maybe there should be a nurse champion.
- Poor communication about the changes. More than just a “Tips & Tricks” was warranted. Maybe planning some update classes would help.
- More education to staff on a unit level.
- Better testing of workflow changes (and more communication to end users) ahead of the upgrade.
- I was unaware of any prior communication about the upgrade and how we’d be impacted. Very few RNs that I work with were.
- Notify us sooner of the upgrade. Make it more clear how inpatient nurses would be affected. Just noting it in the Epic “Tips & Tricks” was not enough. Most of the time I ignore those because they don’t apply to me or I don’t care.

Appendix 8: User Survey Results

- Was there communication with nurses who work at the bedside before the upgrade?!
Were we informed of the changes? I sure wish we felt a bit more a part of the process and a bit more considered when change occurs.
- I never heard about the upgrade. I came to work one morning and signed in only to find EVERYTHING different and hard to access.
- So many little things changed and it's hard to figure out what's what. I was not aware of any education for nurses or any information on the changes that were coming.
- We were told there would be an upgrade. I don't recall any other communication about what would change. I just showed up at work one day and it was different. This upgrade made me work harder and I wish that was different.
- STOP making changes that change the look and feel without any appreciable benefit to us.
- Communicate to the nurses please. We are on Epic all the time (real-time) and are greatly affected by the change.
- Go back to the old Epic.

Clearly, improvements in communication and user training have been indicated by these comments, as well as increased user-testing. Some users suggested that OHSU not feel required to upgrade with each new version “until all the bugs have been worked out”, or to leave previous functionality alone since it was working previously and was now found to be broken. However, these suggestions are most likely not possible given the requirements for new functionality planned for the immediate future. The ITG team has taken these comments into account and plans to increase the quality and frequency of user communication in future upgrades, as well as increased end-user involvement in the upgrade testing process.

Slide 1

OHSU 2010 Upgrade Experience

User Survey Results

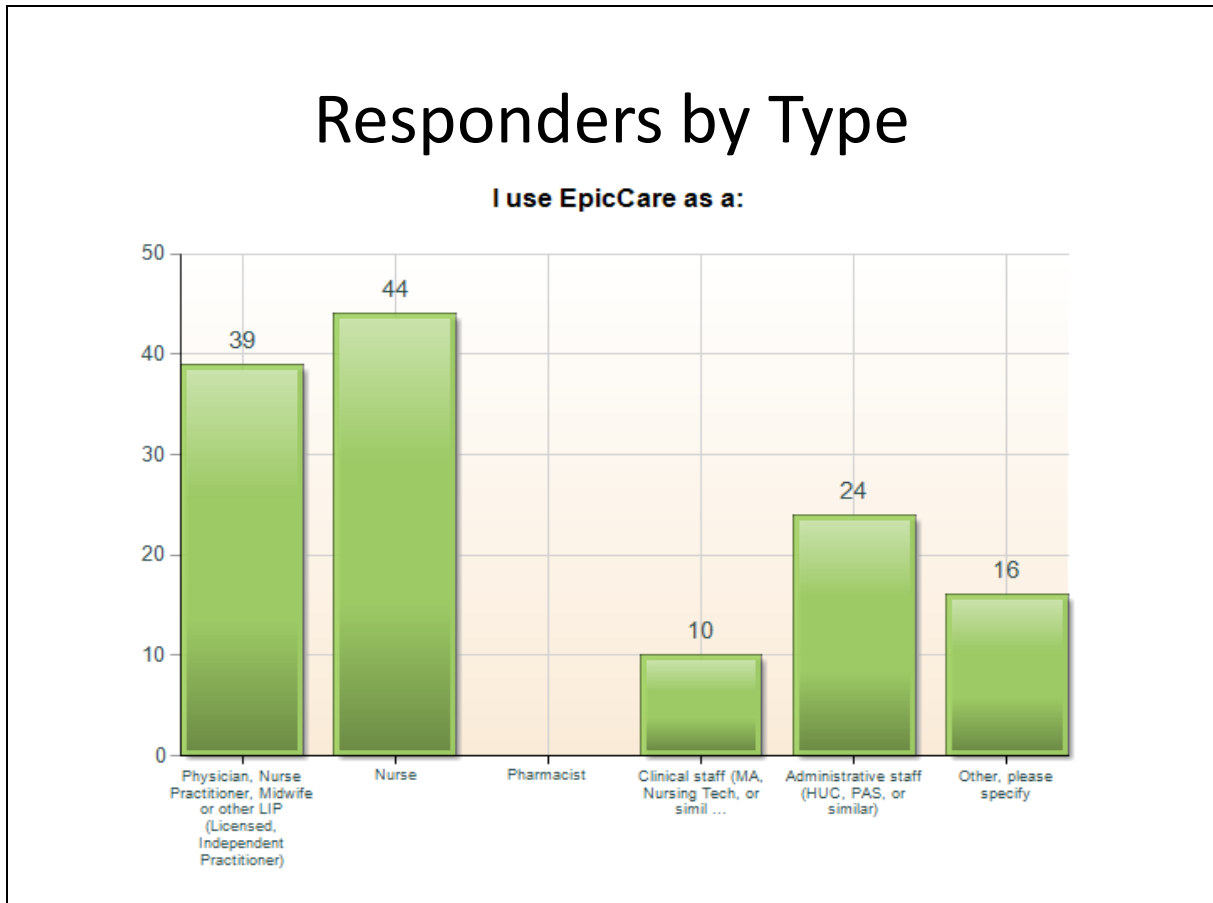
Slide 2

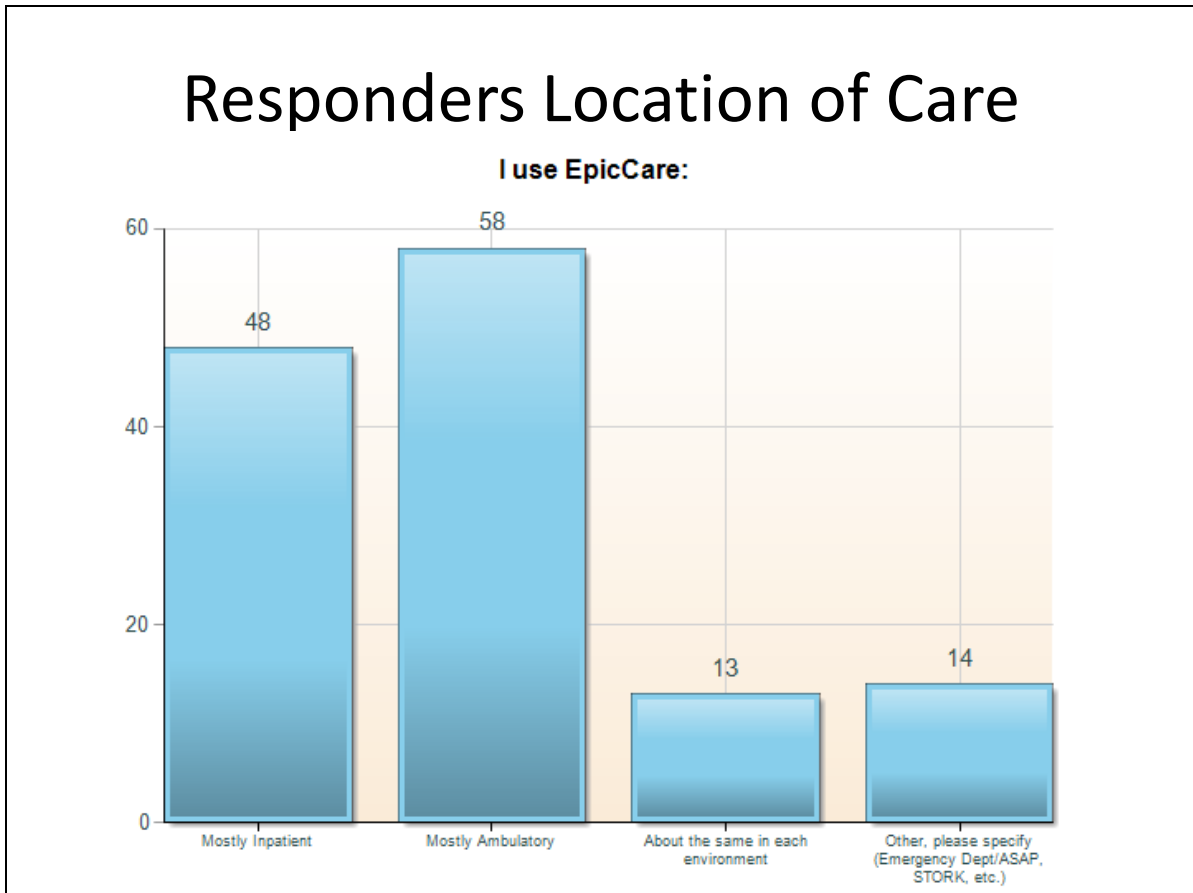
Survey Details

- Administered via web
- Links posted on e-Stat, provider blog, Epic Homepage
- Administered 3-6 weeks post-upgrade

Appendix 8: User Survey Results

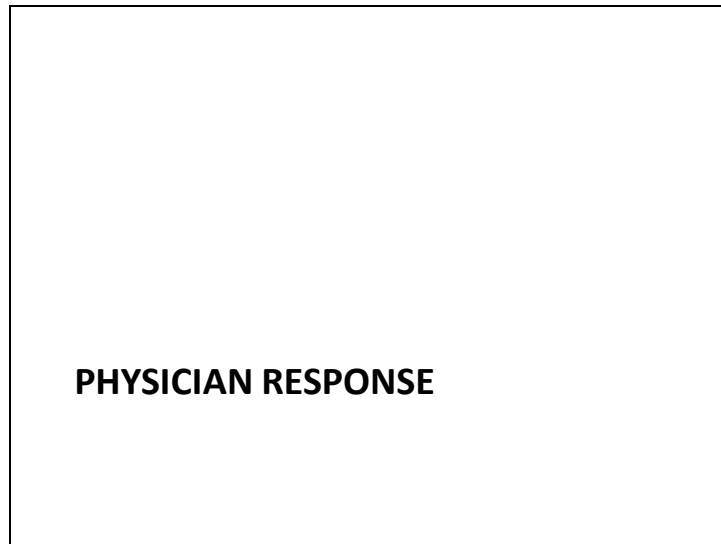
Slide 3



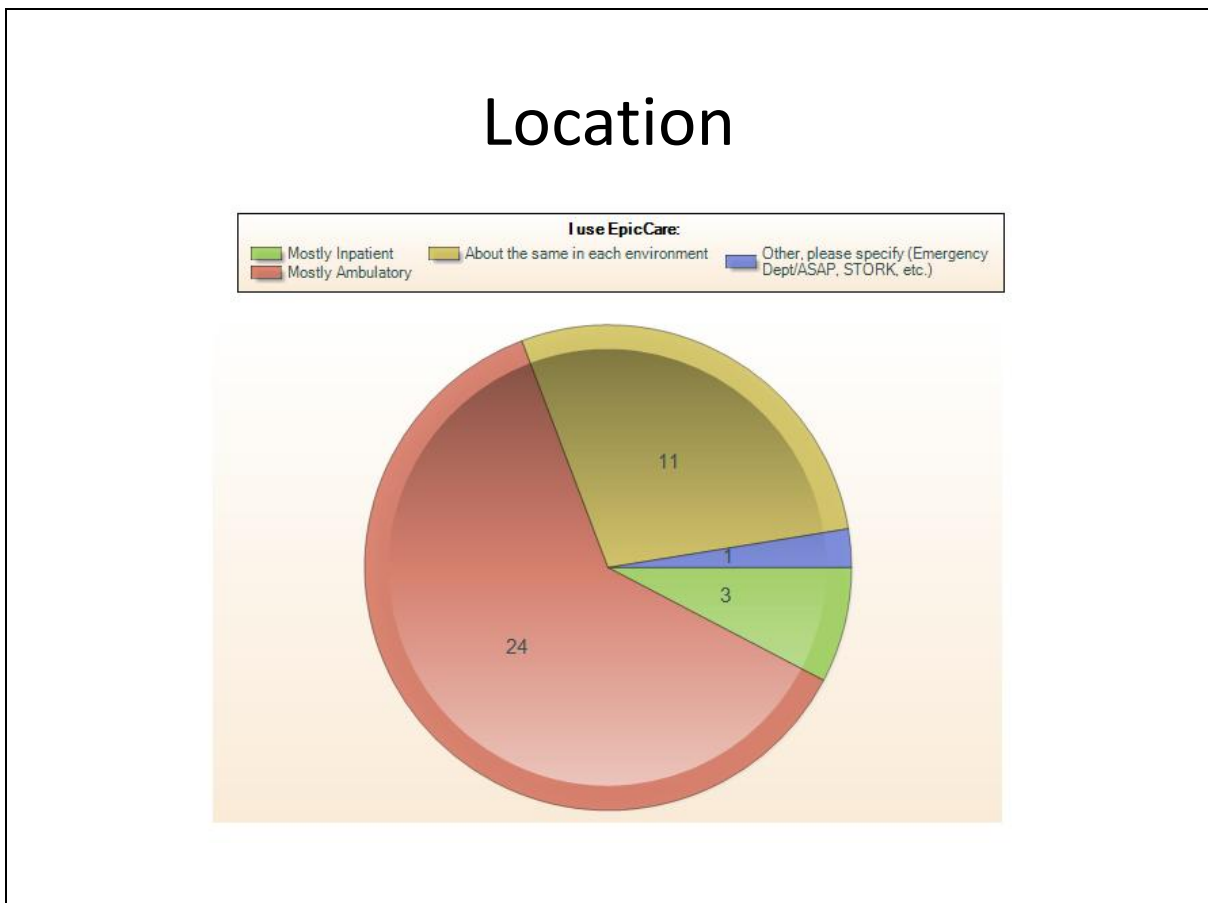


Appendix 8: User Survey Results

Slide 5

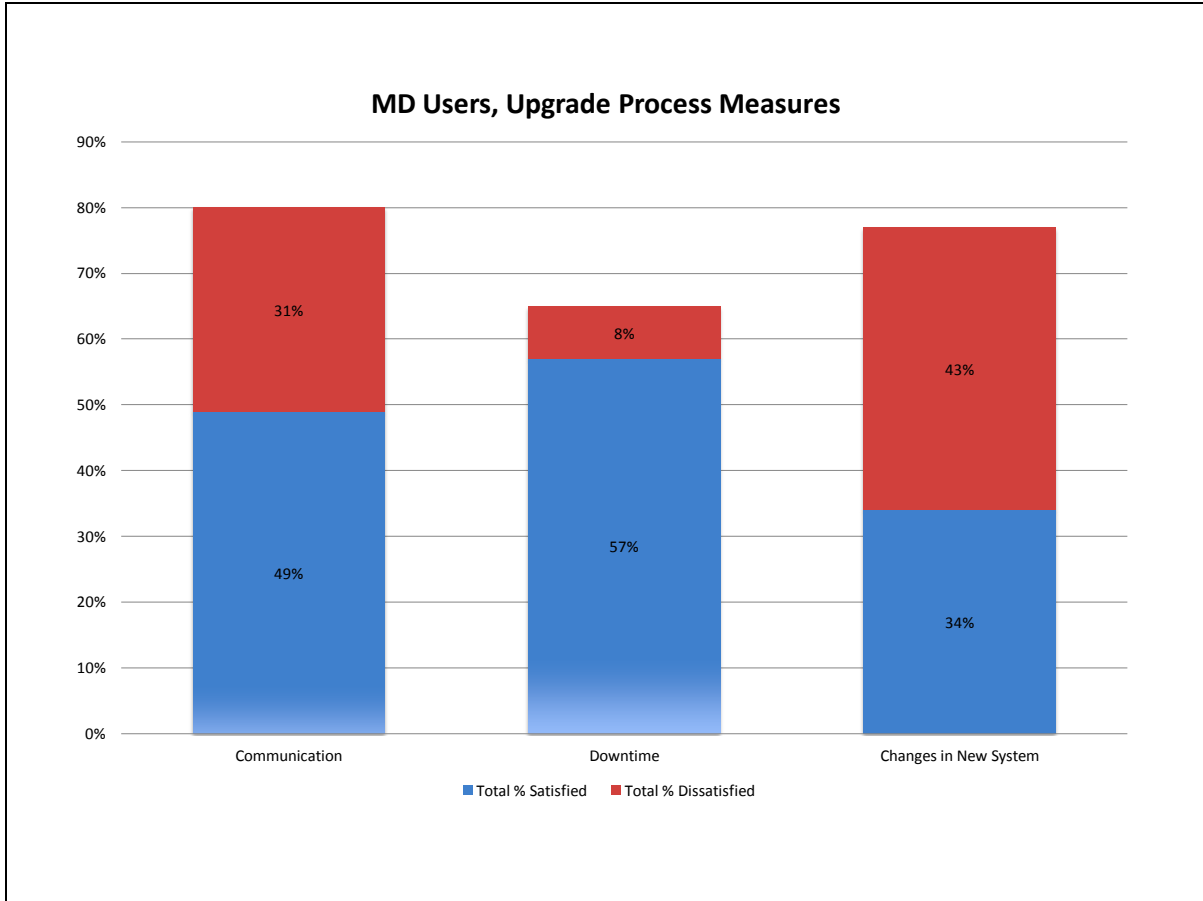


Slide 6



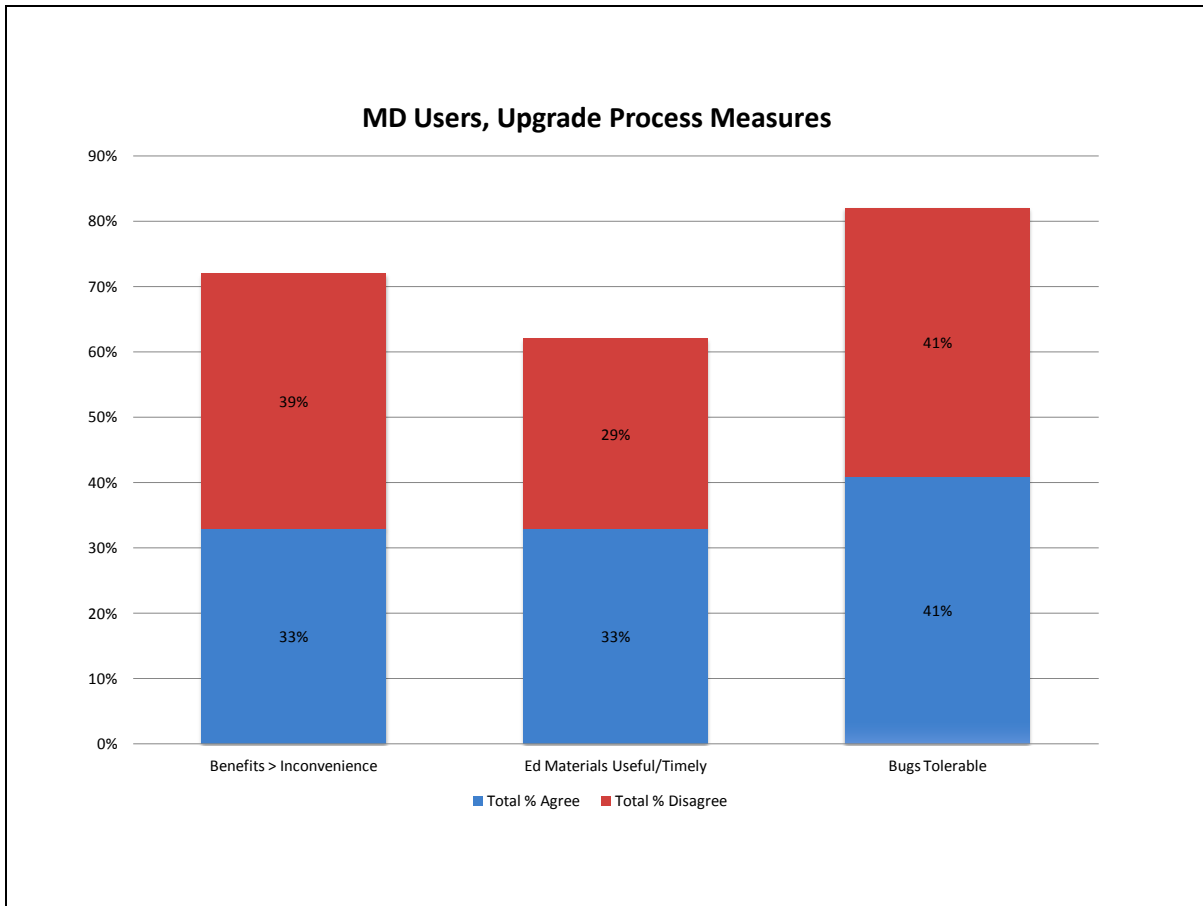
Appendix 8: User Survey Results

Slide 7



Appendix 8: User Survey Results

Slide 8



Slide 9

+ Physician Comments by Theme

- Personalization helpful (3)
- Sidebar feature helpful (3)
- Order entry frequently ordered feature helpful (2)
- Time savings (1)
- Less Clicks (1)

Slide 10

- Physician Comments by Theme

- Too many bugs (8)
- Didn't include things I wanted changed/fixed (6)
- More clicks (4)
- Not enough communication/training (3)
- Don't like non-upgrade related changes (2)
- New display is confusing (2)
- Harder to use (1)
- Decreased productivity (1)

Slide 11

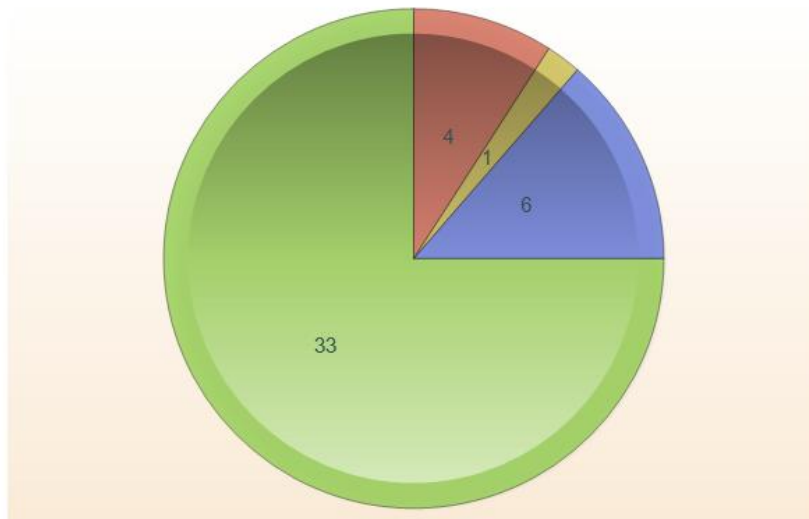
Summary Physician Response

- Physicians are generally satisfied with the amount of downtime
- Most are satisfied with upgrade communication
- Physicians ambivalent about the changes in the new version and whether it is “worth it”
- Upgrade is perceived as reducing productivity, creating bugs, and not solving problems for users.

Slide 12

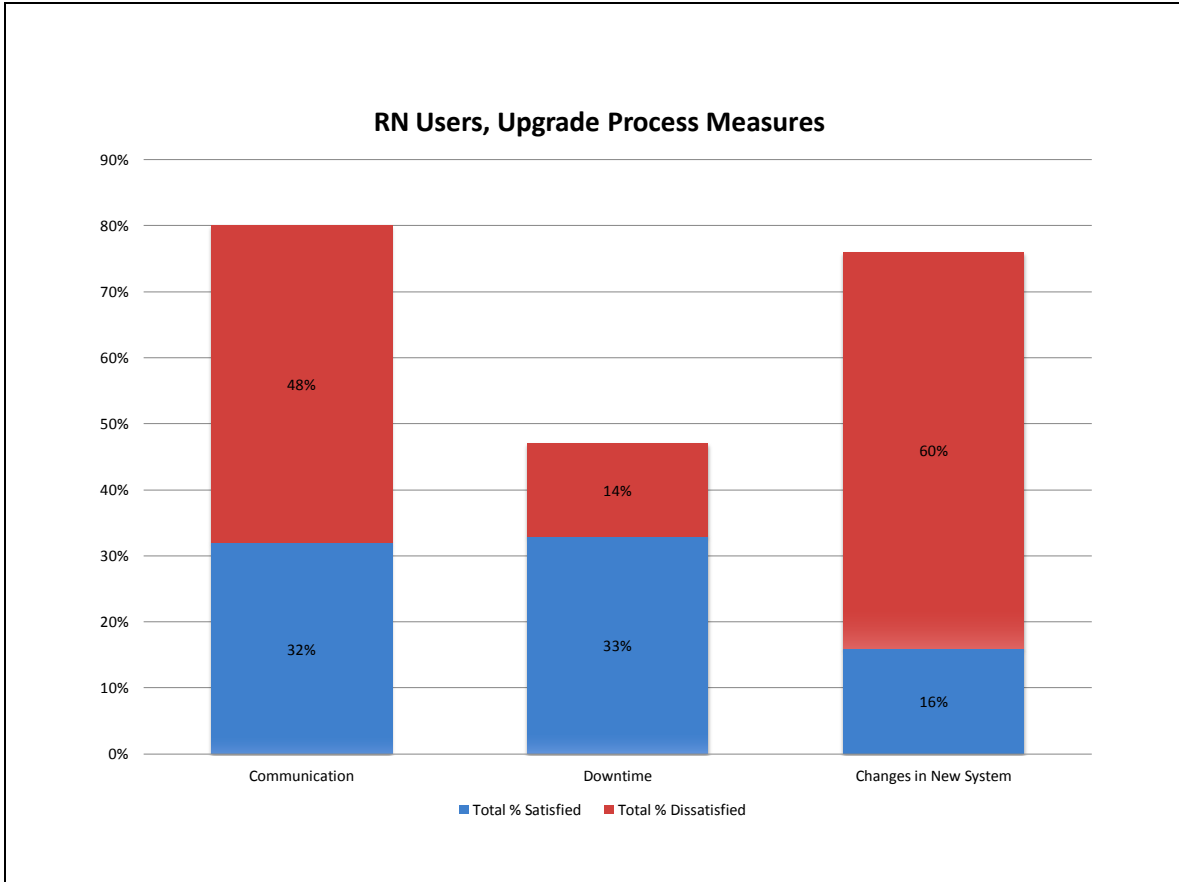
NURSE RESPONSE

Location



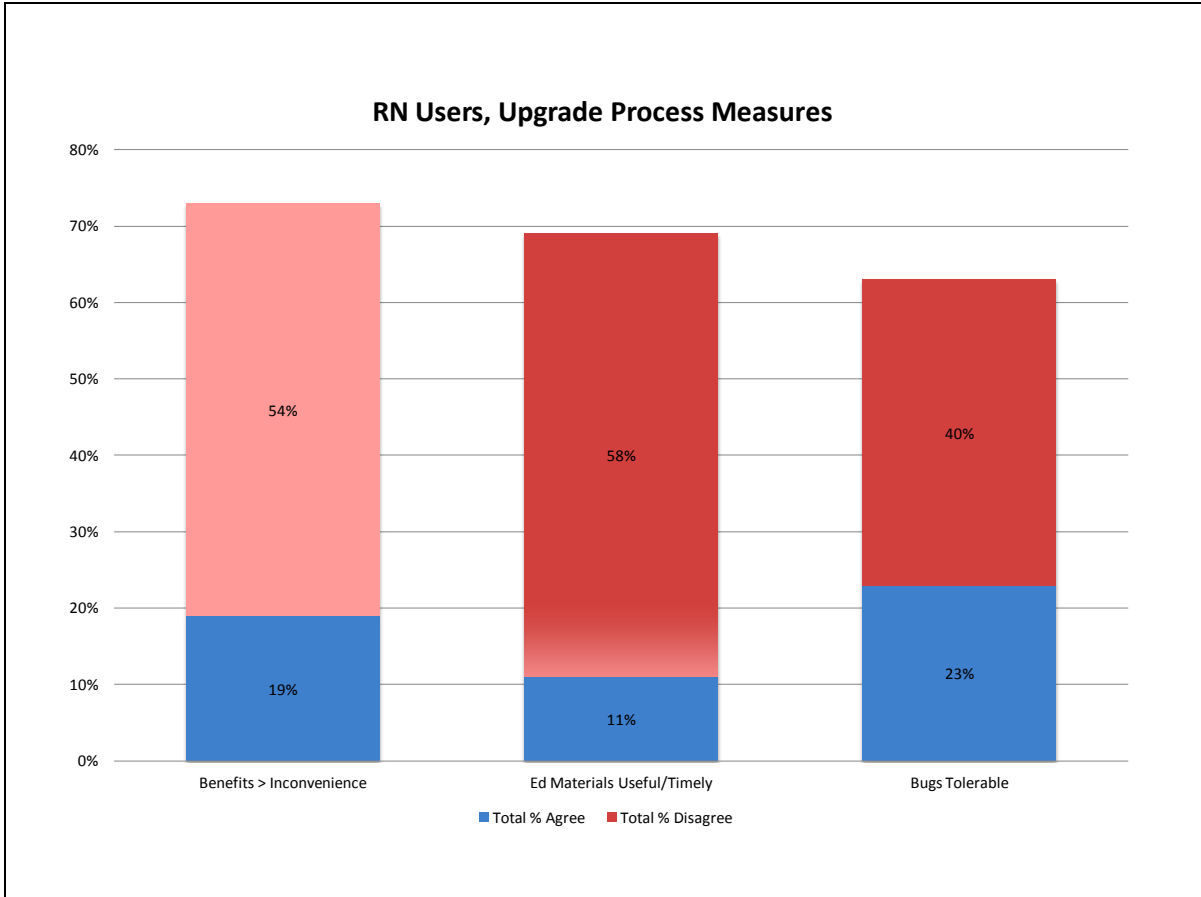
Appendix 8: User Survey Results

Slide 14



Appendix 8: User Survey Results

Slide 15



Slide 16

+ Nurse Comments by Theme

- Documentation flowsheets improved (6)
- New themes (4)
- Improves efficiency (1)
- Improves communication with pharmacy (1)
- Accordion options in flowsheets (1)
- Improved header (1)
- MAR improvements (1)
- Downtime was short (1)

Slide 17

- Nurse Comments by Theme

- Need better communication/education (11)
- Reduced efficiency (7)
- Preferred old system (5)
- Too many clicks (2)
- Data validation (import) in flowsheets (2)
- Too many bugs (1)
- Didn't include things I wanted changed/fixed (1)

Slide 18

Summary Nurse Response

- Overall, nurses are dissatisfied with the upgrade changes, educational materials, communication, and the number of bugs
- Nurses are less satisfied with the upgrade than physicians

Slide 19 [Implications]

Slide 20

Implications of this survey

- Change user expectations around system “updates”
- Improve communication and education, especially to nurses
- Reduction in bugs would improve user experience
- Others???

Appendix 8: User Survey Results

Zoomerang Survey Results

OHSU EpicCare 2010 Upgrade
Survey

Response Status: Completes

Filter: No filter applied

Sep 28, 2011 11:39 AM PST

On August 6, 2011 OHSU upgraded to the latest version of EpicCare. We would like to get your feedback on the upgrade process via a short (less than 5 minutes) survey.

1. I use EpicCare:

Mostly Inpatient	53	38%
Mostly Ambulatory	58	41%
About the same in each environment	13	9%
Other, please specify (Emergency Dept/ASAP, STORK, etc.)	16	11%
Total	140	100%

2. I use EpicCare as a:

Physician, Nurse Practitioner, Midwife or other LIP (Licensed, Independent Practitioner)	39	28%
Nurse	51	36%
Pharmacist	0	0%
Clinical staff (MA, Nursing Tech, or similar)	10	7%
Administrative staff (HUC, PAS, or similar)	24	17%
Other, please specify	16	11%
Total	140	100%

3. Please indicate your satisfaction with the upgrade process using the scale below:

Appendix 8: User Survey Results

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Very dissatisfied	Dissatisfied	Neutral
Regarding communication about the upgrade, I was:	24 17%	29 21%	33 24%
Regarding the amount of time the system was unavailable to me (downtime), I was:	2 1%	14 10%	57 42%
Regarding the changes in the new version, I am:	28 20%	44 32%	33 24%

4. Please indicate your level of agreement with the following statements about the upgrade using the scale below:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Strongly disagree	Disagree	Neither disagree nor agree
The benefits of the upgrade for OHSU outweigh the inconveniences I experienced.	21 15%	40 29%	39 28%
The educational materials provided to me (tips & Tricks, etc.) prior to the upgrade were useful and timely.	23 17%	33 24%	42 30%
The bugs/interruptions I experienced after the upgrade were tolerable.	20 14%	32 23%	36 26%

5. The best thing about the EpicCare 2010 upgrade is:

76 Responses

6. Things I would recommend be changed during future upgrades would be:

97 Responses

7. May we contact you to clarify your responses to this questionnaire? If, so please enter you OHSU email address:

51 Responses

Appendix 8: User Survey Results

1. I use EpicCare:

Respondent #	Response
1	Emergency Department ASAP
2	Quality Audits
3	Gresham
4	ICU
5	cmicu
6	CMICU - 12K
7	Emergency Dept/ASAP
8	ICU RN
9	ICU Nurse
10	IT SUPPORT
11	For telephone encounters in non clinic setting
12	PBS
13	billing
14	icu rn
15	icu
16	RN in ICU

2. I use EpicCare as a:

Respondent #	Response
1	Pharmacy Technician
2	Quality Management
3	manager
4	Coder
5	Social Worker
6	Clinical Research Coordinator
7	Room Service inputs the I/O's into Epic
8	Research Staff
9	END Technologist
10	manager
11	CNA
12	Please include better choices for categories in the future - professional services is not represented at all; it sends a message you probably don't wish to be sending.
13	IT Support
14	PBS
15	sonographer

Appendix 8: User Survey Results

16 Hospital Administration - Audits

5. The best thing about the EpicCare 2010 upgrade is:

Respondent #	Response
1	not much
2	lots- many time saving things- new key strokes, better viewing options, the "birthday warning" in snap shot,
3	better user configurations
4	nothing
5	There were no radical changes in the program
6	I didn't use the S2009IU3 upgrade enough to judge a comparison, and I only use Chart Review and Patient Inquiry in Prelude on a regular basis.
7	THERE IS NOTHING THAT I LIKE
8	I don't know what the benefits were; I do not think I received enough education about changes either before or after.
9	More flexibility
10	immunization tool that populates immunizations from outside providers
11	don't notice a difference
12	?
13	referral workqueues are easy to use and make our workflow so much easier to see at a glance. we can call on referrals and then defer a day for a workable to do list each day.
14	ability to split screen
15	I can rest assured that there will not be another Epic upgrade for 6-12 months.
16	The detailed list of what some of the drop downs are indicating(ie-the restraint documentation area has more specific interventions listed) But the Falls area I use most does not have the details listed
17	No longer having to remove a sent letter from our InBasket after utilizing Comm Mgmt.
18	The minor changes to fonts
19	Nothing
20	That it is over.
21	Ease at rearranging columns to personalize displays (Note: this is the ONLY thing that seems to work better for me about the upgrade)
22	nothing
23	The refresh buttons
24	I LOVE how when writing a note I can use the little black door (?) button to move the note to the right side of the screen and continue to browse information (lab results etc..) while writing my notes. I believe it has saved me alot of time. I've been telling others to use this feature as well.

Appendix 8: User Survey Results

- 25 Faster charting with the new side panel in doc flowsheets.
- 26 n/a
- 27 I like the updated Clinical Research registration system, but I was not well informed how to use it before the upgrade.
- 28 not having to upload VS2 data. the details box in the doc flowsheet showing up on the right
- 29 It is very colorful and pleasant to look at.
- 30 It seems to make some things easier.
- 31 being able to see pharmacy responses
- 32 nothing
- 33 * the accordion option in the vitals/I&O flowsheets - if you can get it to work right * code status is highlighted on top bar * place on top bar that shows if they have a POLST or not
- 34 I haven't noticed improvements. Many things seem to require more clicks. The ideal upgrade would markedly reduce the number of clicks required to accomplish tasks. Luckily, an Epic physician champion sits next to me in clinic and could personally help me figure out the things that no longer worked- and even he was puzzled often.
- 35 The new bamboo background.
- 36 The ability to change the size of windows and tabs in docflowsheets
- 37 being able to see all previous enteries for more than one entry prior
- 38 Staying with the most current version of Epic is a smart move
- 39 Easier access - less time consuming steps
- 40 the kyoto theme
- 41 i see no operational benefits.
- 42 Haven't really found any yet. I miss the old epic!!!!
- 43 new way of validating vitals is useful now (confusing at first)
- 44 I do like how the MAR now tells you when the last doses of medications were given under the orders. Very nice.
- 45 i have pretty bamboo shoots as a background on the side of my screen now.
- 46 I was hired July 25th so I had my initial Epic training about this upgrade so I didn't experience any changes. Seems like it's working well, though.
- 47 The downtime for the upgrade was very short, which was very much appreciated by nightshift working that night.
- 48 Didn't notice much of a difference, to be honest.
- 49 I haven't noticed any beneficial changes

Appendix 8: User Survey Results

50 Medication ordering
51 Haven't noticed any improvements.
52 Nothing.
53 It looks prettier.
54 Nothing.
55 It's prettier
56 Allowing us to move fwd with OpTime.
57 it feels about the same only worse
58 being able to scroll!!! Fantastic!! Love this!
59 nothing
60 I feel that the upgrade makes everything much more cumbersome and hard to see birthdate.
61 not having to open accounts if I needed to print an itemized bill.
62 Split screen with note anchoring is awesome Customizable toolbars - awesome
63 Nothing
64 absolutely NOTHING!!!!
65 I still can't even print anything from Epic since the "change" I can't really call it an "upgrade" it's more of a "downgrade"
66 labs appear as you order them
67 nothing
68 Desktop is improved.
69 Change is always a challenge. Find the upgrade has slowed down the charting.
70 No perceived advantage.
71 nothing
72 Nothing. Congratulations -- you have made Epic even more convoluted, inefficient, and user unfriendly. You upgraded nothing. You left the previous bug-ridden and fugazied version of Epic intact, and merely overlayed another version of Epic that has different bugs and is fugazied in different ways. You've compounded one disaster with another.
73 nothing i'm aware of
74 easier flow. many options to get charting done in timely manner. I really like that the boxes I uncheck stay unchecked.
75 I don't know yet--I feel it's likely I have yet to discover a lot of what's new. So far, I like that I can see what unit the patient is on/has been on within the Doc Flowsheets.
76 zippo.

6. Things I would recommend be changed during future upgrades would be:

Respondent # Response

Appendix 8: User Survey Results

- 1 Need to be sure things are EASIER for providers and not harder - this has more clicks, more buttons, etc.. Strongly recommend beta-testing with real users!!!!!!
- 2 many- I'll organize this and try to return to the survey- still waiting for several post-upgrade bugs to get worked out- have tickets on all.
- 3 consider having a blog where individuals could provide feedback on glitches encountered and advertise this to the users
- 4 Better warning about the changes, and better anticipation of the bugs.
- 5 The system continues to decrease not increase attending physician productivity
- 6 Ability to look at inpatient data easily while in outpatient settings
- 7 Allow for inpatient billing as part of the system
- 8 I would love to be able to print orders not received by the pharmacy in a format similar to how fax class prescriptions appear, as well as have one-click access to move over to Prelude for insurance information rather than opening Patient Inquiry and going to Open/Recent patients.
- 9 Why are you guys reinventing the wheel here? I am just taking a wild guess that there are lots and lots of big hospitals that has epic fine tuned, why don't you go and ask them what works and what doesn't or does that mean you computer folks can't tinker. It sucks to do patient care and have your day dictated by someone sitting at a desk.
- 10 Better pre- and post- education. I feel like I need someone to come and work with me for an hour or two to get an idea of what the changes were and how I can better use them.
- 11 still needs some adjustment to get number of clicks back to previous as it is taking longer and some of the short cuts have disappeared.
- 12 color back in the in-box messages. all the black and white makes it hard to keep track of pt messages and whats been already handled.
- 13 the information bar at the top is way too crowded and everything is smashed together. Difficult to read. Go back to the old information bar.
- 14 Address issues brought up months before the upgrade, like MRI instructions being quadruple-spaced on AVS printouts.
- 15 Pop out schedule window- or- ability to have 2 (two) epic hyperspace sessions open at a time
- 16 Until this upgrade I didn't have as many problems with limits on hyperspace. Now when I have the workques open and 3 charts and my daily schedule, I can reach hyperspace limit fairly quickly. I don't know if it's the workqueue using that much more juice or what but I never had this happen this much prior. the notification I get is "Hyperspace is reaching resource limits. Please close unused activities or workspaces before accessing this activity."

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- 17 Please test display with a focus group--we are having a lot of trouble with the look of data now with new display. Particularly for viewing results.
- 18 I am a CNA. When recording vitals or I&Os: if I am away from the workstation a few minutes, the programs turns off. (This is good.) When I log in again, it indicated that I had not logged out properly and the information, although saved, was not recorded, and I must log out properly. (I forget exactly the wording used.) I would prefer that the information is SAVED so that the nurse can view the information from another workstation even if the computer had timed out and turned off the program.
- 19 The freeze negatively impacted hospital improvement projects and there is still a thaw backlog.
- 20 Change color scheme or font to make messages in InBox easier to read/ distinguish, please! Hard to read and hard on eyes. :(
- 21 Try not to break things that work. It took us 5 years to work around the problems with the prior system. Now we just have new problems.
- 22 more direct user training
- 23 Bring back the arrow function for inpatient charting, I am not able to indicate a number value then arrow to accept it, I have to click it with the mouse. Slows down charting. See more direct care nurse input regarding actual workflow, sometimes the upgrades look better on paper than in function.
- 24 Put the schedule searching flexibility back into Cadence please.
- 25 PRN labs do not populate the kardex anymore, you have to search for them in order history, once selected they may then populate the kardex but not always. This makes it difficult to find several days out and results in multiple duplicated orders.
- 26 ability to see the changes in the sandbox environment as they relate to a specific clinic
- 27 Color Schemes
- 28 I honestly see no improvements at all aside from the small improvement listed above. I find the new displays harder to read, smaller text, and generally changed unnecessarily.
- 29 make sure they really are "upgrades..."

Appendix 8: User Survey Results

- 30 I'm frequently interrupted when writing lengthy notes and hate it when I'm timed-out of EPIC and have to create an addendum. Any way to circumvent that process would be great. Also think it would be more useful to clinical staff to have patient's primary language listed prominently in Snapshot Also wish there was a way to create a template for social history that is not in danger of being deleted by anyone who chooses to do so. It is very tedious to have to read through multiple provider notes to gather psychosocial information about the patient. Presently, most of the ambulatory care social work notes are embedded in the medical providers notes and are impossible to identify quickly. This results in duplication of services when inpatient staff can't easily access AC SW notes that would help them get the patient discharged more efficiently without having to duplicate MSW and Financial and Medicaid Specialist group services. Finally, social work notes aren't protected, which means if I meet with a victim of domestic violence and document the true circumstances the victim encounters at home I'm potentially endangering her life because the abuser can easily coerce the victim into signing an authorization to release all information to the abuser. Sadly, victims are often very much under the psychological control of the abuser. Can EPIC team create a process to increase protection of domestic violence notes?
- 31 I really think there needs to be a better diabetes flow sheet with food, insulin time etc... Often meals aren't charted well, the time options (1hr, 8hr, 24hr) often don't provide include all information (e.g. 8 hour) or are too difficult to visualize (1hr and 24hr) particularly for postprandial checks.
- 32 Make tables work again when documenting notes. Have font sizes be accurate when printing notes. Improve latency when refreshing flowsheets. Eliminate lockout issues. Create a field for future labs that says "next visit".
- 33 The automatic transfer from our vital signs machines still does not work properly. This is very frustrating.
- 34 Go back to the old EPIC
- 35 Add an Appt button for the MyChart - Pt Med Advice Request.
- 36 n/a
- 37 In my role, the only changes I've really noticed are negative. I need to click a lot more than I used to, and the notes that appear gray or gaudy yellow are difficult to read.
- 38 Please communicate with research staff, also the CRBO analysts seem to always be annoyed if a subject hasn't been added, even if they were consented prior to the upgrade. I would like some customer service training in the CRBO.
- 39 Email is not a good mode of communication for floor RNs -- we do not have time to check email routinely during our shift and I will not check it at home on my personal time. Somehow, the managers need to do a better job of socializing these changes with the unit staff (huddles, bulletin board, something) -- or maybe there should be a nurse champion.
- 40 Deletion of a table is no longer available. I was having to do it row by row till I discovered it now needs to be done by column deletion. The help desk was unable to help me and no instructions were given.

Appendix 8: User Survey Results

- 41 Poor communication about the changes. This was a big change from the previous version when it comes to inpatient documentation. More than just a "Tips & tricks" was warranted. Kind of wondering if I'm missing some of the benefits of the new version. Maybe planning some update classes would help, now or in the future. Just don't feel like I received the level of educational support usually associated with Epic.
- 42 Please change the charting back so we can see the first and last name of who charted what.
- 43 less clicking, able to scroll more
- 44 (1) you can't see who charted what in the flowsheets, difficult to follow up on issues or questions (2) the unvalidated data (i.e. vitals) that show up in your vital flowsheet but really aren't validated or viewable to all? its confusing b/c they look the same you can only see the difference if you hover over them (3) the coloring and distinction between fields/lines is not clear (4) the PRN labs dropping off the Kardex and having to be found on the Order history ...very difficult/combersome in an ICU setting
- 45 Need to be many fewer clicks. Need to be able to figure things out on my own rather than being completely non-self-explanatory.
- 46 Op reports need to be posted under proper dates of service and physicians. The new upgrade changed all of this around so reports are being posted under filing dates and wrong MDs making billing and coding difficult.
- 47 REDUCE the redundancy of charting. Auto populate redunadant charting. Fix the discharge bug so we don't have to print two copies of the AVS. Have unvalidated vitals show in ONE column - not 10. Have the Mar for insulin auto populate the amount of insulin in the docflowsheet for CBG intervention.
- 48 its harder to type and hit the down button to scroll to the next section to chart in. you have to actually click the mouse in order to lock in your choice before moving to the next box below... that doubles my time in charting
- 49 Better communication about what was upgraded. My dot phrases were deleted, I had to call the help desk to submit a ticket for repair.
- 50 Better testing of workflow changes (and more communication to end users) ahead of the upgrade. I feel like this was handled very well on the Cadence side - we received lots of information and communication about changes to expect, how to prepare for them, etc. But, I feel like we, and Epic support, were caught off guard by a number of changes from existing workflows no longer being possible due to security changes to SmartSets not working, and staff being unsure of how to change their InBasket view. They are all address-able and fix-able, of course, but is much more stressful and inefficient to do it in the moment instead of preparing ahead of time.
- 51 please include more aesthetically pleasing themes. it makes my days a little brighter.

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- 52 as a new employee starting 7/11/11, i received no direct information about what was changing. having just learned epic only to have the environment change 3 weeks later with no direction was frustrating! as a leader for nursing staff, i would have liked to have been better informed.
- 53 how much I can type in the comments under hygiene, and activity sections.
- 54 More education to staff on a unit level (maybe from PPL or staff educator).
- 55 It used to be that if you hovered over a charted value that you got a little message box telling you when/WHO charted that value. I would like the WHO portion back! Having the PRN lab draws only accessible from the order hx is very inconvenient. It seems very inefficient to move things from one corner of the screen to the other, such as the file button and the wrench button. It makes us have to relearn our rythm with no obvious benefit. Please don't!
- 56 I really don't know if the upgrade benefited OHSU. It doesn't seem to help me at the bedside. I was unaware of any prior communication about the upgrade and how we'd be impacted. very few RNs that I work with were. where did VS-2 vitals go? where did our access to all our PRN labs go? it is unsafe (not timely) and a hassle to go have to review previously ordered items to find PRN labs. i know it's been reported - for weeks - yet there's not be a correction. this really makes RNs (who are incredibly heavy users of this system) feel not valued! Communication of a timeline to corrections would be helpful. i'm interested in LESS clicks to do my job!! Not more.
- 57
- 58 Ensure PRN lab orders still show up on the Kardex rather than having to go through order history to release the orders each time, it's a huge hassle and we end up paging the MDs thinking that PRN aPTTs, Heparin levels, ABGs, etc are not in the system when they have already been ordered.
- 59 Pop ups are annoying in Assessment window when filling out new ones. Remove all places where double charting takes place. Get rid of "interventions performed--yes or no" line in assessments, as it's redundant (shown or not shown elsewhere).
- 60 at time when an order is written it does not fall onto the kardex. For example, I had an ill patient with 2 to 4 nurses in the room for several hours to work on him. many orders were aknowledged by several people who verbally noted urgent items including an emergent blood transfusion. after aknowledging no one could find the order to release the blood, or that blood was ever ordered. it ended up in the order history where it had to be released. I felt this was dangerous and posibly missed if I had not heard the other nurse say there was a blood transfusion order. also, when coming on shift and checking for serial labs to be done, at times it is not in the kardex but in order history. In report we review order history but only the last shift orders, if the serial labs are infrequent and ordered before the last shift they are missed.....that has actually happened. this is dangerous
- 61 Not changing the phone calls/communication regarding telephone calls and routing.

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- 62 Every time a patient is transferred that I've written an order on at any time, I get a request to continue or discontinue that order -- even if I haven't cared for that patient in the last several days. This happens on a daily basis now since the upgrade and it's very annoying.
- 63 when upgrades occur, it's quite difficult to adjust when buttons/icons move around. I know that's not an OHSU thing, but communicating with the vendor that this is difficult is challenging. Also, I had smart phrases that were unavailable to me for greater than 1 week, which was a bit frustrating.
- 64 Notify us sooner of the upgrade. Make it more clear how inpatient nurses would be affected. Just noting it in the Epic Tips and Tricks was not enough. Most of the time I ignore those because they don't apply to me or I don't care. Epic has downtimes all the time for little upgrades that don't affect many of us. Most of us were not aware it was going to completely change the look. I understand wanting to stay with a current version, but the new version did not make anything easier or clearer. The change did not seem necessary. It seems that maybe a select few people got what they wanted changed at the expense of the rest of us who were perfectly fine with the way it was. The upgrade didn't feel like an upgrade. Normally it makes things easier to document or there's some good change. Changing whether I hit the down key vs. the enter key is not an upgrade. Obviously I am very dissatisfied with the "upgrade".
- 65 Not everyone fits the cookie cutter clinic. And if you are different from the "average" clinic no one is willing to work with you to try and make changes work for your clinic, you're just told you have to figure it out yourself and follow the rules, no exceptions.
- 66 Was there communication with nurses who work at the bedside before the upgrade?! Were we informed of the changes? Who is this benefitting? The changes so far have only seemed like more work for us and we are on EPIC constantly!! YIKES. I sure wish we felt a bit more a part of the process and a bit more considered when changes occur.
- 67 Having to break the glass multiple times on the same patient when checking them in.
- 68 The upgrade has taken away the ability to use hot keys in Earlie for new notes and accepting the notes. Also when I go to view referrals I have to constantly manually click on the Flip button to view referrals.
- 69 Spend less time on cosmetics and actually improve functionality and usability. The system is failing more often now and regularly refuses input into patient charts randomly, so having the system not crash while taking patient care reports would be nice.
- 70 notify the nursing staff of future upgrades
- 71 Education re: changes. Please take nursing into consideration when making changes. We use EPIC all day long and are impacted with changes we don't know about! And, what's up with the PRN labs disappearing from the Kardex. Why hasn't that been fixed??!!!

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- 72 It drives me crazy that I can not validate my vitals in one step anymore!! It takes so long to go to 'data validate' each time I want to record vitals! Please help make things easier for us - not harder. It was better before the 'upgrade'. It's also harder to find PRN labs sometimes.
- 73 Stop breaking things
- 74 Don't upgrade Citrix infrastructure
- 75 I never heard about the upgrade. I came to work one morning and signed in only to find EVERYTHING different and hard to access. No file button on the right lower corner of the doc flowsheets. Having to use a different process to validate vital signs on some units. The time intervals on the doc flowsheets. All different and none of it good. And now I am also finding that when I chart my assessment if I find something that I need to change or remove a row, it will automatically file for me which I hate. All in all I dont like it and I dont see what the improvement was.
- 76 running time error all the time, and scanner issues.
- 77 Can't thisnk of anything off hand
- 78 Get 2ndry bills for PBS within a normal amount time not 8 weeks later. no need to change colors in the screens, make it so you can read the different ins plans better
- 79 being able to transfer notes instead of copying and pasting the same note in numerous hars
- 80 Bugs - Certain keystrokes (i.e delete/backspace) become non functional when using in split screen mode I would really appreciate the ability to customize displays and graphs in the graphing tab or in the view flowsheet tab. I use clinical trends alot and find it to be a useful assessment, so having the ability to create my own customizable displays would be great. Although this ability is somewhat available in the Doc Flowsheet tab, I find it cumbersome and not visually friendly for reviewing data.
- 81 Pharmacy issues i.e. all of the clicking and dragging involved in hourly rate documentation, specifically heparin, even when there aren't rate changes.
- 82 so many little things changed and it's hard to figure out what's what. i was not aware of any education for nurses or any information on the changes that were coming. now, i can't find prn labs. now i can't find the initials of who documented something last. now, i can't validate my vitals easily or efficiently. i don't like the big box on the right side of the screen. this upgrade was definitely NOT helpful to the nurses in my unit. Nor were we informed of the changes. NOR were problems (like the missing prn labs) fixed when it got reported weeks ago! i do not understand. it's nice to fill out a survey. it'd be nicer to actually be taken seriously.
- 83 In Doc flowsheets, specifically in the ICU/Adult assessment portion, the "details" function used to list our WDL definitions. I would like that function back.
- 84 there needs to be better communication about big changes. the mychart flow changed drastically and no one here at CWH seemed to be aware of this (not just me). several patients received negative lab results by mychart auto releasing things via the new work flow. very unsatisfactory.

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- 85 I have been trying for over 3 weeks to just get the printing issue fixed and that isn't happening. I don't have time to trouble shoot over the phone etc. during my work day so sending someone over to just fix something would be really helpful. "See first hand some of the work flow problems these "upgrades" create for the end user.
- 86 i have reported previously that medication reconciliation is faulty. the list handed to the pt does not go in the same order (i.e alphabetical) as the on screen list.
- 87 I would not accept/purchase each upgrade from Epic as a given. I would be willing to refuse an upgrade until all the bugs have been worked out.
- 88 there is now more scrolling up and down to get a letter to referring provider after a patient visit (all of ours are consultations) and it adds significant minutes over the course of the day. other suggestion- if eprescriptions are recommended, why is print the default? many of us miss this periodically and have to re-do prescriptions.
- 89 the doc flow sheet is way too busy, liked the older, cleaner version better.
- 90 I don't like the sidebar on the side; makes the interface feel crowded and doesn't provide me with any information that I didn't have before the upgrade.
- 91 bring our lines back so we can see where our cursor is on the page.
- 92 I've charted on Epic in hospitals all around the country. In those hospitals Epic actually made sense, unlike here at OHSU. The problem is not with the brandname of Epic, it is with the people who have implemented it. In order to chart successfully, the skill learned is not how to use OHSU's implementation of EPIC, the skill learned is how to work around it. If the people responsible for the implementatin of EPIC at OHSU were instead responsible for patient care, most of our patients would be dead.
- 93 we were told there would be an upgrade. i don't recall any other communication about what would change. i just showed up at work one day and it was different. the flow sheet does not work as well. hard to see who last documented something. it takes longer to document vitals (i used VS2 vitals all the time! and now it's gone) and our PRN labs are a complete hassle and often missing and we have to go to the orders to release them. this upgrade made me work harder and i wish that was different. i'm on epic all day as an inpatient RN. it's also surprising that some of these changes weren't corrected by now (ie: prn labs!) this upgrade did not help me at all!!
- 94 We only see minimal flow screen shot when we are in the doc flow portion. Need to see wider range of times. This is particularly needed for Pt assessment section.
- 95 STOP making changes that change the look and feel without any appreciable benefit to us. JUST creates another obstacle for entering/finding data quickly. A GOOD installation of EPIC would not require a person to double/triple/quadruple enter data and have to look in multiple places, because not everybody enters data in every possible place. A good upgrade would eliminate this. A good rule of thumb: If you add a place for data to be input, eliminate it having to be entered someplace else. Thanks.

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- 96 The flowsheet for pain assessment and interventions should be linked into the MAR, and the I&O for PCAs and epidurals should be linked to the MAR entry for those items (much like the blood administration MAR is linked with the vitals signs doc flowsheet). This way, we could eliminate some double and triple charting, as well as make our pain intervention charting more accurate, timely and thorough. Please, please do this. It also seems I can look at flowsheets from previous admissions, which might come in handy... but there should be some visual indicator to mark that documentation as a previous admission.
- 97 communicate to the nurses please. we are on epic all the time (real-time) and are greatly affected by change.

7. May we contact you to clarify your responses to this questionnaire?

If, so please enter you OHSU email address:

Respondent #	Response
1	[email addresses deleted]



Upgrade Lessons Learned

Upgrade Planning

Upgrade Date:

1. Epic upgrade weekend (downtime Thursday and Saturday)
2. Schedule a primary and alternate go-live date
3. Work with Epic Quarterly Planning group to outline current projects, key personnel planned vacation time, etc. to come up with recommended date
4. Obtain approval for date from Hospital Admin
5. Least ideal times:
 - a. Summer (vacations, residents, etc)
 - b. Christmas time (November through the first of the year)
6. Most ideal time: (depending on projects i.e. ICD10)
 - a. Start project in December, upgrade in April/May
7. Communicate date to all users at least 4 months prior

System Requirements: (Can start now)

1. Work with Epic to determine mandatory system requirements
 - a. DB Servers
 - b. Shadow servers
 - c. Unix OS
 - d. Cache
 - e. SAN
 - f. Windows/Web
 - g. Citrix
2. Collaborate with TESD to review Epic's recommendations and determine course of action for OHSU
 - a. Allow adequate time for hardware review and for acquisition and installation
3. Workstation Target Platform
 - a. Screen size +
4. Minimize major infrastructure upgrade work 6 months prior to Application Upgrade. Must be completed 3 months prior to upgrade.

Appendix 9: Epic '10 Upgrade Lessons Learned

Application Teams:

1. Ensure that upgrade team has schedules cleared to focus on the upgrade prep early
2. Determine early how Nova will be used by your team to prep for the upgrade
3. Designate upgrade lead to communicate all upgrade related info to your teams on a weekly basis
4. Ensure that application upgrade leads communicate with training leads and meet frequently
5. Work with Epic TS to identify major system or design changes well in advance (ie rx and tx interface changes)
6. Ensure that workflows are tested adequately

Environments:

1. Do we need two environments? Can we have all ancillary systems and interfaces connected to TUP and have full patient data?

Access:

1. CSMenu updates need to be done for staff who have special security to certain text utilities.
2. Identify staff who have access to Test before the upgrade and ensuring their access is preserved
3. Identify staff who had special access in a development env before the upgrade, and ensure prod copy over doesn't wipe out access

Upgrade Process

Master Check List:

1. Master sign off check list to be signed off by each Application Manager
 - a. Application workflow testing
 - b. Interfaces (sign off for each interface to ensure that interface receives and stores data)
 - c. Hardware and Infrastructure (Cache, DB Servers, Shadow servers, OS, SAN, Windows/Web, Citrix)
 - d. Integrated workflow testing with interfaces (How will we accomplish this?)
2. Milestone checkpoints to ensure we are on track with technical and application teams

Dress Rehearsals:

1. Ensure that MDRV has post copy down steps performed
2. Application teams must be prepared for Dress Rehearsals.
 - a. Pre and post steps, and upgrade build should be determined before DRESS1.
 - b. Application participation is mandatory
3. Allow for flexibility in the Dress Rehearsal schedules
4. Ensure that MDR Journaling occurs correctly and that recompiling occurs
5. Ensure that Epic has access to Restricted Environments
6. Ensure that the ENV file used for TUP (TST10) isn't missing the MDRP section for EpicComm.env (DC)

Appendix 9: Epic '10 Upgrade Lessons Learned

7. Review reports, patient headers, census logs, etc to determine if there is an issue with mixture of upper/lower case letters.
8. 3 Dress Rehearsals work well (as long as everyone prepared)
9. Appointments worked well

Issue Tracking:

1. Application issues discovered during testing or Dress Rehearsals need to be communicated to appropriate Epic TS.
 - a. Each application is responsible for tracking and communicating their own issues
2. If issue is deemed a "system" not application issue, HCTS will document and monitor issue resolution
3. All issues, both technical and application should be posted on Bridge

Testing and Validation

1. Involve end-users
2. Validate end to end workflows for each application
3. Coordinate integrated testing with all applications and interfaces
4. Validation lab?

Upgrade

Moving to RWSH (First downtime):

1. Ensure that the BLOB web.config is modified for RWSH
2. Issues with interfaces. Unable to start interfaces because locked files, had to be started manually
3. ADT recovery staff needs to be trained (not typically the same staff that works on the weekends)
4. If there is a delay in published downtime, notify users frequently with Citrix pop up messages
5. Need to have two HCTS team members, one to run the downtime script, the other to troubleshoot issues

During Upgrade:

1. Any user who will be performing build during the cutover will need access to the Prod Tech icon
2. RWB will need to be pointed to PROD (and queues restarted) while RSH is being upgraded.
3. Keep ADT (ED Reg) on the line while they are doing the recovery
4. HCTS needs to run the commands and own script
5. Communicate with AOD off of bridgeline if issues occur or AOD calls in with concerns
6. Ensure MDRV is pointed to the Gold Image

Post Upgrade:

1. Do not refresh TST, QA, MTR, REL on a weekday
 - a. Perhaps a no build Friday

Communication

Appendix 9: Epic '10 Upgrade Lessons Learned

Clinical End-Users

1. Clinical users were not communicated to in a timely manner
2. Involve end users more in testing departmental workflows
 - a. Recommendation: ask clinical chairs for 4 hours of provider assistance to test departmental workflows.
3. Encourage users to use Sandbox well in advance of upgrade

Clinical Communication Plan

1. Get the high level timelines out earlier, with expectations on when more information will become available.
2. Have a package that we and others could use at management meetings and the like to disseminate a clear and consistent message as well as include ways to get involved (testing, etc.)
3. Work with HES on comprehensive plan that will outline changes at LEAST 3 weeks in advance

Applications

Technical

1. Need to start preparing for upgrade earlier. 4 months rather than 2. Need to stop ALL other work to focus on upgrade.
2. Thorough collaborative hardware review and identify hardware components very early on
3. Re-acquiring Certs
4. Load Testing
5. Client Side Readiness

Interfaces

1. 2 interfaces AIP's came up scrambled after de-journaling. We had ETAN's ready this time. However, we found that MDRV was still accessible, so even without ETAN's ready, we could have ETAN's from MDRV
2. We really have to do a better job of QA'ing the differences between current and upgrade message structure.
3. Next time we upgrade we will split the prod incoming feeds from Rhapsody and run them into a prod copy upgraded environment. We will also create outbound messages for all outbound Bridges interfaces and
4. Compare them side by side with prod. We could have caught some big errors that way (like the pharmacy RXE/RXC debacle)
5. Documentation: Update the prod definitions of all our interfaces on the OHSU_PV spreadsheet to show the differences from the upgrade by adding another row and highlight it with a comment that this is new or changed in Epic 2010.....
6. Check results in Chart Review, Results Review, InBasket, MyChart, OHSU Connect, Haiku, Canto etc
7. Had to remove EAR 603 from E2G again. Next time let's check E2G right after the upgrade to make sure it isn't in there.

Appendix 9: Epic '10 Upgrade Lessons Learned

ESD

1. Set up two 2-hour demo sessions the week before the Upgrade for the ESD to be shown changes by EpicCare, HCBA, and HES.
2. Identify non-ESD staff to be responsible for InBasket, Email, and RightFax work (non-phone) the first 3 weekdays of post go-live support

EpicCare

1. Need to start preparing for upgrade earlier. 4 months rather than 2.
2. Need to stop ALL other work to focus on upgrade.
3. Weed out Nova tickets that don't belong to OHSU (radiant, Netherlands...)
3. ESD meeting before upgrade was really helpful
4. Would like Epic to spend more time looking at issues that other customers have faced with the upgrade.
5. Too many automatic changes
6. Need more user testing (amb, CEI, Stork, Beacon Provider, Infusion RN). Need power users from all of these areas.
7. There is a need to change training (communication) material even once it is posted due to fixes and changes we receive from Epic. And because that training material was likely read by some, flag it on the intranet as "Updated".
8. Add "New" as documents are added to the sharepoint site.
9. EpicCare team did not know what and when communication was going out to users.
10. Have upgrade meeting with PAC a month or more before upgrade. Team found their feedback very helpful.
11. Upgrade coordinator to track issues between OHSU teams and Epic. It was difficult for everyone to track where issues were both before and after the upgrade.
12. Improve Nova workflow.
13. Need to be able to mark release notes for review later after the upgrade.
14. Interface testing (transcription, surescripts)

HB

1. Need more detailed testing of claims focused on secondary claim types and if claim makes it to output files
2. Appts to team members were very helpful for keeping track of downtimes and which environments to build in
3. Check extracted PAF columns used in extracts to be sure that output same as prior to upgrade (some logic and items changed to pull different data as automatic change)
4. Some batch job files did not run in correct order after system up plus ftp issues due to timing changes. HB should stop affected jobs and turn back on in correct order and monitor each file makes it to vendor and does not get overlaid.
5. Split out claim runs if more than 3 days to alleviate processing issues.
6. Review error log in Epic to identify any HB issues.

Appendix 9: Epic '10 Upgrade Lessons Learned

HCDS

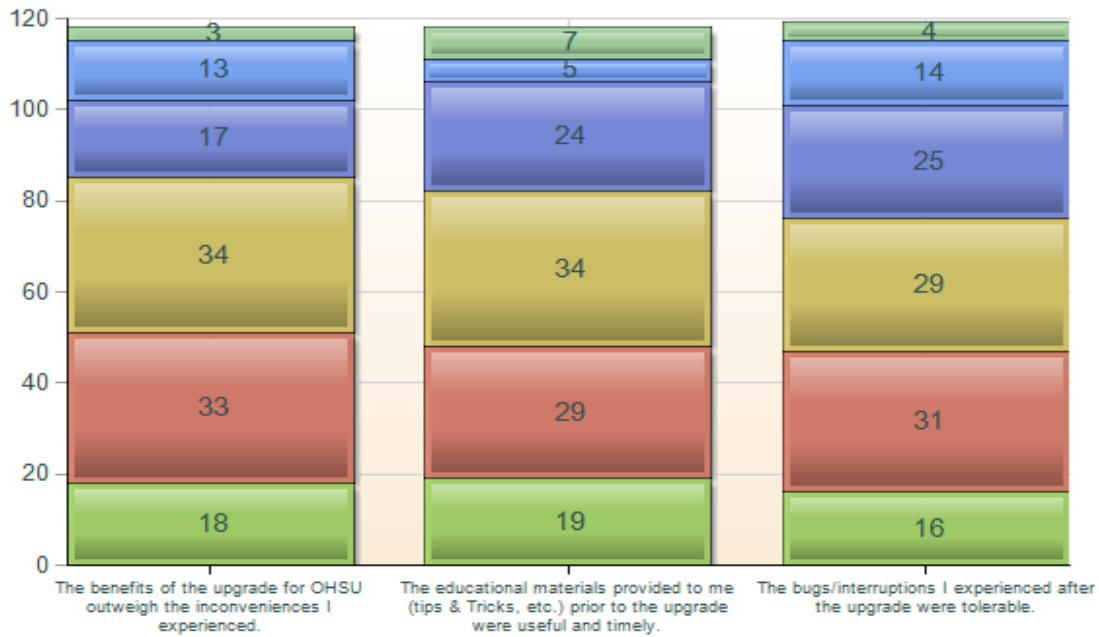
1. Servers were up 24 hours later than expected and had cascading impact on when data could be available. As a workaround, we ran ETL for 3 days straight to address. Recommend – plan on using production as our source rather than the shadow server if resources can support or if the shadow server delay is a normative experience.
 - a. We had to shift to this approach after nearly a week of attempting to use shadow. (then had 3 day further impact / load).
2. Clarity 2010 incremental strategy had unknown bugs on conversion records that caused failures as a result. These were not revealed prior to go-live despite testing. Legacy EPIC data (nulls) contributed to failures that EPIC had not accounted for (ID issues).
 - a. Need option to test incremental updates with “new” data to confirm that the incremental is working as expected.
3. Test shadow server data may have data that is too old for adequate testing of the upgrade to confirm that issues are known/resolved.
4. Performance is difficult to determine due to sizing of non-production servers. Recommend options to execute performance testing where possible. CTST can benefit from HW upgrade to better determine ETL load performance.
5. Infosphere ETL will play a new/much bigger role in next upgrade; need to test accordingly.
6. We need better approach for implementing crystal report changes (security/login) for production. Currently discussing options.
7. We continue to have conversions after production that are loading and these take too long to complete tests prior to go-live and are in some cases unknown as to which will be converted. As a result, potential impacts such as ETL failures due to bad characters and missing ID.s in the source EPIC data are revealed during the data loads.

Survey Feedback

Appendix 9: Epic '10 Upgrade Lessons Learned

Please indicate your level of agreement with the following statements about the upgrade using the scale below:

■ Strongly disagree
 ■ Neither disagree nor agree
 ■ Agree
 ■ Strongly agree
 ■ N/A
■ Disagree



Please indicate your satisfaction with the upgrade process using the scale below:

■ Very dissatisfied
 ■ Dissatisfied
 ■ Neutral
 ■ Satisfied
 ■ Very Satisfied



Implications:

Appendix 9: Epic '10 Upgrade Lessons Learned

- Change user expectations around system “updates”
- Improve communication and education, especially to nurses
- Reduction in bugs would improve user experience
- Others???

Appendix 10: Upgrade Issue List Screenshot

BRIDGE
EPIC Upgrade 10 ▸ EpicCare Upgrade Issues ▸ All Issues

I Like It
 Tags & Notes

ITG
Committees
Work Units
Projects
Tools & Services

This List: EpicCare Upgrade ▾

Pictures

Images

Libraries

Site Pages

Shared Documents

Lists

Calendar

Tasks

EpicCare Upgrade Issues

Issue Tracking

HCBA Pre-2010 Upgrade Issues

Discussions

Team Discussion

Recycle Bin

All Site Content

OREGON HEALTH & SCIENCE UNIVERSITY

<input type="checkbox"/>	@	Issue ID	Release Note	Title	Reporting Analyst	Issue Status	Priority	Implementation	Effected Group	Assigned To	Approving Bo
<input type="checkbox"/>	@	2		Inbasket Column Wrapping	Coriwyn Na'um	Assigned	(2) Normal	Automatic	Build, Testing, Communication	David Asaro Nausheen Khan	Automatic Change - No Approval Nee
	@	3	226639	Fix to Order Collection Dates and Times	Su-Lin Wilkinson	Resolved		No Plans to Implement	Testing		
	@	4	221693	Copy Answers for Order-Specific Questions to Preference Lists	Su-Lin Wilkinson	New		Automatic	Testing		
	@	6	212753	Status of Child Orders Can No Longer Be Modified from the Order Composer	Lindsay Chan	New		Automatic	Testing		
	@	7	224037	Set an Interval for Collection Date and Time to Carry Over from Parent Order to Child Orders	Su-Lin Wilkinson	Resolved	(3) Low	No Plans to Implement	Build, Testing		
		8	211949	Identify and Sort Results Messages by Priority	Mindy Saechao Nausheen Khan	New		Automatic	Build, Testing, Training		Automatic Change - No Approval Nee
	@	9	222024	Therapy Plan: Automatic Changes End Users Might Notice	Su-Lin Wilkinson	New		Automatic	Testing, Training		
	@	10	195077	SmartSets and Orders Can Be Open At the Same Time	Claire Swanson	New		Automatic	Testing		
	@	11	206400	Visual Changes to the Order Composer	Mindy Saechao Jessica Alexander	New		Automatic	Build, Testing, Training		Automatic Change - No Approval Nee
	@	12	210409	Improved Format of Information About Pending Orders	Mindy Saechao	New		Automatic	Build, Testing		