The Impact of Verbal Orders on Clinical Work Processes: An Exploratory Study

A Thesis

By

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CERTIFICATE OF APPROVAL

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ABSTRACT

OBJECTIVE: To describe the nature of verbal orders and to gain insights into the positive and negative consequences of verbal orders and how they impacted individuals in the health care team.

DESIGN: A qualitative study that used the critical incident technique with nine semi-standardized questions and an optional section of four open-ended questions.

RESULTS: Eight major themes and four sub-themes emerged from the data. These were: 1) no waiting, 2) accuracy (*sub-theme*: clarifications/corrections), 3) interpersonal relations, 4) policy, 5) communication (*sub-theme*: process), 6) risks/potential for errors, 7) work process (*sub-themes*: pressure and trust) and 8) other orders.

CONCLUSION: Verbal orders were found to be complex in nature and difficult to identify at times. The two major impacts discovered were time/efficiency factors and interpersonal relations with the health care team. The extent of the JCAHO safety impacts (e.g., JCAHO standardized abbreviations) is not yet known. Overall verbal orders were found to be an important and integral part of patient care despite the potential for errors. There was insufficient evidence in this study to demonstrate that verbal orders increased patient risk or that verbal orders were a major cause of medical errors. Instead, the communication process enhanced and improved the working relationship in most cases.

INTRODUCTION

Background and Significance [1]

In 1995 the United States Pharmacopeia (USP) established the National Coordinating Council for Medication Error Reporting and Prevention (Council) to address the interdisciplinary causes of errors and to promote the safe use of medications [2]. USP serves as the Secretariat for the Council and oversees the Medication Errors Reporting (MER) program with the Institute for Safe Medication Practices. This nationwide program allows for the reporting of actual or potential medication errors such as misinterpretations, miscalculations, misadministrations, difficulty in interpreting handwritten orders and misunderstanding of verbal orders [3]. The MER program found 25% of all reports pertain to confusion over the similarity of drug names. Recommendations have been developed in order to reduce confusion relating to verbal medication orders. For the MER program, verbal orders are defined as "prescriptions or medication orders that are communicated as oral, spoken communications between senders and receivers face to face, by telephone, or by other auditory device [4]." This does not specify how many senders/originators and receivers are directly or indirectly involved. Furthermore, it excludes non-medication orders that can be communicated in conjunction with verbal medication orders.

The Council, individual health care institutions and regulatory agencies such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), believe there is a potential for errors in the use of verbal orders. This concern is supported by many anonymously reported errors including cases of verbal orders that were not heard correctly (e.g., dosage and sound alike names) and orders that were incomplete or ambiguous. Four individual errors were reported to the journal *Hospital Pharmacy* and reprinted in Davis and Cohen's first edition of *Medication Errors: Causes and Prevention* [5]. Subsequently, sixteen individual errors were reported to *Hospital Pharmacy* between 1980 and 1990 [6-18]. The reports of errors (numbered consecutively from March 1975) are in

addition to the legal cases on verbal orders that were published in medicolegal and nursing law literature [19-21].

Consequently, the Council recommended on 20 February 2001 that health care systems and organizations establish policies and procedures to help reduce medication errors associated with verbal medication orders and prescriptions. Such policies include a repeating the order back to the prescriber and immediately recording the order in writing; policies that preclude any verbal orders of anticancer medicines; and policies that describe situations in which verbal orders may be used [22]. It is not known whether health care systems and institutions are in compliance with these recommendations or whether clinicians take precautionary steps toward the safe use of verbal orders. The most relevant published data on policies stem from two nationwide surveys conducted by Dahl and Davis in 1989. Of the 874 hospitals in the surveys, 100 hospitals were randomly selected for the Director of Nursing Services (DONS) and Director of Pharmacy Services (DOPS) Surveys. The DONS survey results indicated that 91.9% of hospitals attempted to regulate the use of verbal medication orders and 90.3% of hospitals attempted to regulate the use of telephone orders. The DOPS survey specified that 100% of institutions controlled the use of both verbal and telephone orders. However, only 35.5% of the hospitals surveyed had any policies that prohibited the use of non-emergency and non-bedside verbal orders, (e.g., when the physician is present on the ward where the order is given.) According to the directors of nursing, this policy was followed 41.1% of the time, while directors of pharmacy stated that the policy was adhered to 11.1% of the time [23].

Because of the Council's recommendations to reduce medication errors, hospital policies are being reviewed and revised. Hospital policies vary as to when and where verbal orders are permitted. For example, at Alfred I. DuPont Hospital for Children the policy, as published in the 1994 West, et. al. study, permitted verbal orders only in the emergency department (E.D.) and operating room (O.R.), or under certain specified conditions. This included when clinical harm would come to the patient if

there were a delay in the medication administration caused by review. Still, verbal orders were used in non-specified and unapproved situations.

It is not known whether the full compliance and enforcement of current verbal order policies will necessarily improve medication safety. In fact, aside from anecdotal reports, there is little published evidence of increased patient risk or that verbal orders are a major cause of medication errors. Shojania made this point in an editorial calling for an evidence-based approach to patient safety practices. As noted by Shojania, "pending additional data, strategies targeted at reducing verbal orders would be deemed to be non-evidence-based patient safety practices, analogous to the way unproven clinical practices would be characterized [24]."

Previous Studies

Based on a literature review with the assistance of three librarians, the researcher used different search strategies and search terms to identify peer-reviewed articles in the MEDLINE, CINAHL and EMBASE Drugs & Pharmacology databases. These databases were found to be excellent resources when searching for "verbal orders" as a phrase and not as terms "verbal" and "order." Other searches included Dissertation Abstracts International, WorldCat, search engines (LookSmart's FindArticles, Medscape, MDConsult Core Collection and Google) and the Lewis & Clark College's Northwestern School of Law databases and indexes. In addition, the researcher subscribed to Ovid AutoAlert searches in order to stay abreast of any current literature published on verbal orders.

For easier reference, the most recent ensuing studies have been divided into three categories: 1) nature and accuracy of verbal orders, 2) systems approach to verbal orders and 3) effective communication and documentation.

Nature and Accuracy of Verbal Orders

A 1994 study by West, et. al. in the *Archives of Pediatrics & Adolescent Medicine* indicates that verbal orders were used for over one-fifth of all orders given in the acute-care pediatric hospital. In this study verbal orders had a significantly lower rate of dosage errors than handwritten or computer-entered orders. The dosage errors were attributed to physicians with less clinical experience, (i.e., residents and fellows), while transcription errors were due to attending physicians' illegible writing [25]. Attending physicians were nearly twice (32%) as likely as residents (17%) to use verbal orders. This was largely due to the fact that attending physicians were not supposed to write orders and, thus, it was expected that more verbally communicated orders would occur. For this study, there was no attempt to differentiate between verbal orders given to nurses and those given to respiratory therapists or others.

A widened CINAHL (nursing) database search, using the search terms "telephone orders," revealed additional studies. Such studies included the 1999 Randolph, et. al. study on the accuracy of telephone orders at seven skilled nursing facilities (SNF) in southern California. This study had shown that the telephone order significant error rate of 6.1 per 1000 did not exceed the error rates as cited in the West, et. al. study. In addition, California regulations (Section 73353, Title 22, California Code of Regulations) mandated that nursing homes have physicians sign orders prior to their next visit to the facility (within no more than 30 days). Because the physicians were not located at these SNFs, the telephone treatment orders for their signature were sent to them via the mail within five days. Findings show this method of mailing telephone treatment orders did not appear to identify any non-significant or significant errors. However, certain types of orders and facilities seemed more prone to error, (e.g., the total amount of water via a percutaneous endoscopic gastrostomy tube.) Moreover, in an informal survey of long-term care physicians, researchers found these physicians routinely did not read the telephone orders that they were asked to sign [26].

Systems Approach to Verbal Orders

A systems approach was undertaken in Fournier's master's thesis study on the use of speech recognition technology for order entry of handwritten orders. The goal of the study was to use a computer script written in PERL to categorize orders into groups, which included the number of verbal and telephone orders. These orders were collected from several Intensive Care Units (ICU) at Oregon Health & Science University (OHSU) Hospital. Of 1,230 randomly selected orders (derived from 34 randomly selected patients), 625 of these orders were used in the test set. In this test set, 69 were verbal orders (11%) and 44 were telephone orders (7%) [27]. The test set provided some insights into how often verbal orders occurred and how difficult it was to categorize orders.

In 2002 Mekhjian, et. al. conducted a time and motion study at the Ohio State University Medical Center to evaluate the benefits of an integrated electronic medication administration record (eMAR) with a computerized physician order entry (CPOE) system. Researchers measured numerous factors including medication turn-around time, the number of countersignatures of verbal orders and physician time spent on orders. They discovered reductions in medication turn-around times following the implementation of CPOE and reductions in transcription errors with CPOE combined with eMAR [28]. It can be argued that turn-around time would decrease with the use of CPOE. Nevertheless, this takes into account only the data entry process time, and not the time spent on information seeking/gathering and other activities (in conjunction with the patient's order) that occur before the clinician begins the data entry process. Further, new types of errors generated by information technology have been reported by Bates, et. al. in the *Journal of the American Medical Informatics Association* [29]. CPOE has brought about other communication problems such as changes with interpersonal communication and impact on medication orders, as noted by Dykstra in the *Proceedings/AMIA Annual Symposium* [30].

Effective Communication and Documentation

Florence Nightingale, a 19th century British nurse, laid the foundation for what was to become modern nursing documentation. In her book, *Notes on Nursing*, Nightingale accentuated the importance of "training nurses to gather patient information in a clear, concise, and organized manner [31]." This point was further emphasized in Carelock and Innerarity's article that a logical and organized plan is needed for nurses to communicate more effectively over the telephone. Specifically, for nurses to clarify what the orders are and to always focus on patient safety [32]. Although verbal and telephone orders are in essence verbally communicated orders, they also require clear documentation on the patient's chart to record what was communicated.

Other matters regarding effective communication with orders were found in Pervin-Dixon's doctoral dissertation on communication and conflict between the nurse physician relationship. This study dealt with a scenario in which a nurse disagreed with a verbal or written order concerning patient care that was initiated by the physician [33]. Also, in a 1995 study, Beebe required nurses to complete beeper logs for all calls made to physicians. Of the 849 beeper calls, 211 (35%) resulted in verbal orders given over the telephone. Unless nurses and physicians' perceptions of the urgency of beeper calls are similar, it would not be safe to delay response to routine calls in an effort to decrease interruptions to resident activities [34]. Again, the importance of effective communication for patient safety was stressed.

As seen in the above studies, each focused on a particular aspect of verbal orders such as the nature and accuracy of verbal orders; a systems approach to verbal orders (in the context of order entry); and communication and documentation of verbal orders. However, no study has provided a basis for what verbal orders are; what their processes include; or what their impacts are on health professionals giving and receiving verbal orders. These are crucial points that need to be studied in greater depth in light of the many policies and empirical data on verbal orders as they are used in practice. For this

reason, the study outlined in the next section, focused on these points in an attempt to better understand the intricacies of verbal orders.

Research Study

This study sought to answer the research questions: "What is the nature of verbal orders and how do verbal orders impact health professionals in hospital care?"

Definition

For the purpose of this study, verbal orders were defined as *"non-written orders (verbally communicated) that physicians or others communicate either over the telephone or in-person to an authorized designee, who, in turn, will document and process the order."* The term "others" can refer to the nurse practitioner or physician assistant in some states. The term "authorized designee" can refer to the nurse, pharmacist or respiratory therapist who is legally allowed to receive a verbal order. Note, however, other health care team members may be involved in the verbal order process. Examples of these members include the physical therapist, occupational therapist, registered dietician and emergency medical technician. Also, this includes cases in which the physician initiates the medication or non-medication verbal order, as well as those in which the nurse initiates the order but asks for clarification or approval from the physician. Therefore, this definition of verbal orders may vary from what is stated in hospital policies and procedures.

Purpose of Study

It is important to note that only 9.6% of medical centers have implemented CPOE [35]. Therefore, what needs to be known is how the number of verbal orders affects the day-to-day activities of members of the multi-disciplinary health care team *without* an integrated or CPOE system. The verbal order process involves not only the physician time, but also the time of the nurse, pharmacist and

sometimes a respiratory therapist. To this end, the researcher decided to investigate the nature of verbal orders and how their use impacts in positive or negative ways the individual members of the health care team. As medical informaticians and patient safety researchers, we need to understand more about the verbal order work processes and organizational factors before we build systems to address what we think is a potential problem [36-37]. For instance, the dialogue which occurs during verbal ordering may improve the working relationship between physicians and other health care team members. Thus, it may not be in the best interest of patient care and the workflow to eliminate verbal orders. According to Foster at Advancing Health in America, eliminating verbal orders may not have an impact on patient safety. Instead, it may "consume quality improvement resources, draw providers away from other duties and possibly delay important orders [38]."

Hence, the researcher's primary goal was to conduct an exploratory study on the nature and impact of verbal orders. The objectives of this study were 1) to describe the nature of verbal orders: when, where, and how many occur in an acute-care hospital and 2) to gain insights into the positive and consequences of verbal orders, and how they impact individuals in the health care team.

METHODS

Design

The design was a qualitative study using critical incident interviews with semi-standardized questions and an optional section of open-ended questions [39]. A qualitative research method was selected, as it was "optimally suited to understand a phenomenon 'from the points of view of the participants and in its particular social and institutional context'" [40].

Setting

Providence Portland Medical Center (PPMC) is a university-affiliated, community teaching hospital with 3,311 employees, 985 medical staff members, 483 licensed beds and 21,365 admissions per year in Portland, Oregon [41]. It is one of seven Oregon hospitals within the Providence Health System (PHS). PHS was founded in 1843 in Montreal, Quebec, and has since evolved into a network of hospitals, health plans, physicians, clinics, home health and affiliated health services that serve Alaska, Washington, Oregon and California [42].

Sampling

Unit Type

The units or wards selected were from a wide range of settings: 1) critical care unit, 2) general and specialized surgical unit and 3) general and specialized medical unit. Given that in the critical care and specialized units, the health care teams are smaller cohesive groups with specialized domain knowledge, choosing only these settings would have offered a limited view of how verbal orders occur. By including generalized units in the study, this enabled a wider perspective of how verbal orders occur especially on units with larger domain expertise and a larger staff. The aim was to

choose units where verbal orders occur but not where they occur exclusively. Since almost all orders are verbally communicated in the E.D. and O.R., these settings were excluded from the study.

Health Professional Type

The participants were a representative, purposive sample of health professionals who participated in, and were affected by, verbal orders on wards and pharmacy satellite [43]. At the minimum, this included the clinician who gave the order, the authorized person(s) who received the order and others who participated in the communication. Examples included the physician, nurse, pharmacist, respiratory therapist and health unit coordinator. This was estimated to be to be approximately 10-12 participants across all unit types.

Recruitment of Participants

Institutional Review Board (IRB) and Informed Consent

IRB approval was sought both at OHSU and PPMC in order to fulfill the OHSU master's thesis requirement and PPMC's mandatory study site requirement. OHSU IRB waived authoritative oversight by designating PHS IRB as the responsible IRB.

Prior to participating in the study, each participant received a one-page fact sheet outlining the study's description, the series of questions to be asked during the interview and a written consent form to be signed that designated no harm or endangerment would result from participating [Appendices A-1 and A-2]. Participants were informed that information obtained in this study would be kept confidential eliminating the use of any identifiers. Furthermore, the participants were given the opportunity to ask any questions before the start of the recordings.

Recruitment Techniques

A preparation phase was necessary to maintain the momentum of the study during IRB approval process and to become acquainted with PPMC staff. The researcher solicited the help of an "insider" to use a "*top-down*" group e-mail approach to contact the nursing managers. This endeavor resulted in only one nursing manager expressing an interest in the study. Since this method lacked personal contact, one of the clinicians introduced the researcher in-person to a handful of nursing managers. Subsequently, the researcher was invited to the unit and resident meetings to speak about the study, to answer questions and to make arrangements for recruitment. Although this led to numerous questions about the study, it did not produce any volunteers.

In order to successfully reach each health professional type, the recruitment of participants warranted the assistance of charge nurses, physicians and respiratory care manager or local champions to "gain entry." Having these people as authoritative PPMC sources to endorse the study had helped to facilitate trust between the participants and researcher. Each local champion was given a description of the study and was asked to identify who might be interested and willing to participate. With the local champion's input, the researcher was able to reduce time spent on identifying and contacting participants who might not be interested in participating. Given the participant's busy schedules, the researcher made every effort to accommodate their needs and to ensure the interviews flowed smoothly and quickly. By adjusting the length of the interview with the first participant and using this new time estimate (maximum of 30 minutes) for recruitment purposes, the researcher was able to use an impromptu face-to-face approach to recruit additional participants. At other times the researcher used a chain sampling technique to identify hidden or hard-to-locate participants for additional information on verbal orders [44]. A caveat was that those who were hard-to-locate were also difficult to schedule time with during the three weeks of interviews. E-mails and flyers alone were found to be the least effective in reaching health professionals and receiving affirmative responses.

Data Collection

The methodology included qualitative data, such as 15-30-minute audio-recorded, semi-structured interviews on the positive and negative consequences (effects) of verbal orders based upon using the critical incident technique (CIT). The CIT was developed by Colonel John C. Flannagan, director of the Division of Aviation Psychology, in 1947 to improve flight training and performance issues. The CIT is now used in a variety of studies including a study conducted by the National Library of Medicine's Office of Health Information Programs to evaluate the impact of MEDLINE [45-46]. The CIT is a method which enables researchers to identify behaviors associated with positive and negative outcomes on a task, process or system. This endeavor can be carried out in conjunction with or without direct observations of hundreds or thousands of users/participants [47]. For instance, this can be accomplished by soliciting users who perform certain tasks to recall specific incidents, which resulted in effective or ineffective outcomes. Through inquiring into these incidents, researchers can learn firsthand about user behaviors and roles and system vulnerabilities, which contributed to the successes or failures of these incidents.

Pilot Interviews

Pilot interviews were conducted with two non-participants (former clinicians, who are now in the OHSU medical informatics department) in order to refine the interview scripts, technique/length and fieldnote recording. During the first interview, the researcher took detailed notes while the participant was speaking. The researcher found that it was difficult to maintain eye contact and interview flow and to follow-up with additional questions simultaneously with note taking. Prior to the second interview, the researcher sought verbal permission from the participant to audio-record the interview with an inconspicuous Olympus DM-1 digital recorder which resembles a cellular phone. The DM-1's storage capacity includes up to 10-hour recordings in SP mode (for quality) and, thus, it eliminated the need for analog tapes. By recording the second interview, the researcher was able to engage more fully with the conversation and to ensure a smoother interview flow. Because of these interviews, the

researcher discovered that it would be more time-effective for prospective participants to think ahead about instances or incidents of verbal orders before the interviews. Often it is difficult to recall an example(s) quickly when initially asked.

Interview Procedures

During the first round of interviews, nine semi-structured questions using the CIT were asked. The first three questions were used to set the interview process in a neutral tone and to establish a context from which to better understand each participant. With the remaining six questions, the CIT was used to elicit behaviors and motivations surrounding the incidents of verbal orders, and the positive or negative consequences that resulted. It was through the use of CIT that we could gain insights into the perceptions of health professionals and how the use of verbal orders impacted their clinical work processes. In the event the participants were able and willing to devote additional time to the interviews, four optional open-ended questions were used. In addition, pre- and post-interview notes were taken to document the environment/settings in which the interviews took place.

Data Analysis

The goal was for the researcher to transcribe the notes within the week in which they were taken while recall was at its optimum. However, due to the new recruitment timeline, this goal was not feasible. As an alternative, the transcriptions occurred within the month of the interviews. The delay prevented the researcher from enriching the qualitative data process. That is, to transcribe and analyze each interview before proceeding to interview the next participant, as is commonly preferred. The coding and analysis of the data included content analysis and validation.

Content Analysis

Content analysis was the technique used to examine the content of the critical incident and qualitative data and iterative analysis was the procedure used to validate the data until saturation [48]. Content

analysis may be defined as a systematic and close examination of the content and language of narrative texts which may reveal how researchers and participants view and understand certain issues [49]. The coding of themes or categories was derived from a variety of sources. The researcher had begun by creating categories (prior to reading the data) to identify segments of the data in which to test those ideas. Although the initial categories were appropriate in some cases, the rest of the data could not be categorized in a similar manner. Next, the researcher read and coded to a general level (data simplification or reduction) as a way to identify a simple conceptual schema. As this did not provide enough depth or insights into the data, the transcripts were later re-read, re-coded and re-analyzed to build on sociologist Strauss' model that "coding is much more than simply giving categories to data; it is also about conceptualizing the data, raising questions, providing provisional answers about the relationships among and within the data, and discovering the data." This may be viewed as "data complication" or a heuristic approach for providing "ways to interact and think about the data [50-51] [Figure 1]."

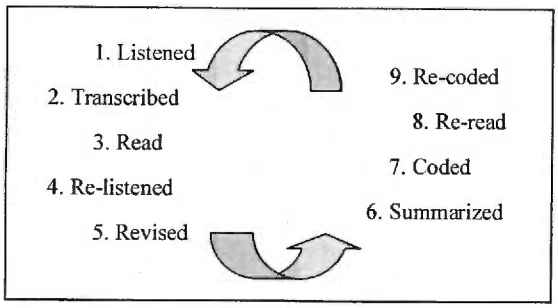

Figure 1. Iterative Rounds of Transcription and Coding

The iterative analysis consisted of four iterative rounds or cycles of careful reading and listening until data saturation. Although the goal was to recruit 10-12 participants for the study, the researcher found 15 volunteers, who were interested in participating. Of the 15 audio-recorded interviews, 10 interviews were randomly selected for the first three cycles of analyses [Table 1]. The remaining five interviews (fourth cycle) were used to further validate the data, if needed.

Cycle	# Participants Randomly Selected	Health Professional Type					Description of Iterative Analysis
		Physician	Pharmacist	Nurse	Respiratory Therapist	Health Unit Coordinator	
I	5	(1)	(1)	(1)	(1)	(1)	Full transcripts & coding
II	3	(1)		(1)	(1)		Full transcripts & coding
III	2	(1)		(1)			Full transcripts & coding
IV	5	(2)		(3)			Notes & coding

Table 1. Four Cycles of Iterative Analyses

Each row in Table 1 represented a cycle [Table 1]. A participant was selected from each health professional type until that type was completed. With our study sample, there was no longer a remaining pharmacist or health unit coordinator in which to select during the second cycle. By the fourth cycle, all those remaining in the sample were the two physicians and three nurses.

During Cycle I, findings to the five interviews (a stratified random sample of each person by health professional type that excluded unit type in order to maintain the participant's identities) were summarized, such as common or different themes between disciplines. Using this hypothesis framework, it was then tested in Cycle II of three interviews. Similarities and differences between and within disciplines were noted. Any new themes, patterns or unforeseen perceptions that were inconsistent with findings in the first phase were identified. The findings in the first two cycles were further tested in Cycle III of two newly transcribed interviews. Data saturation was reached when no new information was found during Cycle IV with careful listening, note-taking and rigorous analysis of the remaining five interviews.

Data Validation

For this study, the researcher adopted similar validation approaches found in Embi's initial research on perceived impacts of computerized physician documentation [52]. These approaches included member-checking (consensual analysis) and data saturation to validate the data. Member checking was one of the methods to ensure the accuracy of the researcher's findings at either a set point in time or during the course of the study. Some examples included verifying and noting exceptions of transcribed data with Greg Sicard, M.D., an internist and OHSU informatics fellow; following-up on clarifications of transcribed data with participants; and comparing the researcher's data with two other informatics researchers who analyzed a subset of the data (two randomly selected transcripts) separately. One of the informatics researchers was Charlie Hu, M.D., a clinician in internal medicine and pediatrics and OHSU informatics fellow; and the other researcher was Tina Purnat, a non-clinician (peer) with qualitative experience. Both were given information about the research questions and were asked to identify their own themes. These themes and comments were then compared with the researcher's categories, which were found to be similar but with different terminologies employed. However, an exception arose when one of the researchers classified "quick" and "convenience" as being the same category. After careful consideration, a consensus was reached that the terms "quick" and "convenience" could be categorized under the same theme.

RESULTS

Descriptive Data

A total of 15 participants representing various health professional types were interviewed. The following is a summary of the health professional's descriptive data [Table 2].

Health Professional Type	Description	N	Education
Physician	Residents and hospitalists	4	M.D.
Pharmacist	Staff	1	Pharm.D.
Nurse	Staff and charge nurses	7	R.N.
Respiratory Therapist	Staff and lead	2	A.S.
Health Unit Coordinator	Staff	1	Other

Table 2. Demographic Data of Participants

Due to time constraints and the need to have heterogeneity (to capture the widest range of issues), every effort was made to recruit those who have worked on different wards (eleven participants) and shifts* (seven participants); have worked in different roles/job positions (eight participants); and have worked at other hospitals prior to PPMC employment (eight participants) for a wider range of perspectives. Of the 15 participants, there were 3 males and 12 females. The average (mean) years of PPMC experience were 6.30 years across all health professional types or disciplines.

* A 12-hour shift was counted as one shift (the same shift).

Observations

Researcher

While waiting for the participants, the researcher observed the work environment and how busy people were. Of the nine interviews that were pre-arranged, the researcher still waited 44% of the time to be seen. For the other six impromptu interviews, the health professionals met with the researcher when they were able to incorporate the interviews into their schedules that day.

During the interviews, the researcher and participant were interrupted 53% of the time by pagers or other health professionals. Of these interruptions, two were telephone orders, and one case was critical enough that it led to the postponement of the interview.

Participants

Participants tended to speculate or abstract other health professional experiences when they were unable to speak from personal experiences to help answer the questions. Interestingly, this occurred even when they were not prompted. These perceptions had varying degrees of accuracy. Some examples included the following [Table 3]:

Speculations	Findings
▪ A staff nurse commented that a charge nurse is able to see the whole unit and can better comment on perceptions on the ward.	▪ Although it was true that a charge nurse (a trained clinician in a supervisory role) could comment on a unit level versus on a patient level, the health unit coordinator (non-supervisory administrative role) could also be knowledgeable about order activities given that she/he was located at the nursing station.
▪ A staff nurse felt the physicians would know about the origin of verbal orders.	▪ All of the physicians still speculated on the origin of verbal orders, but gave their best educated guesses.
▪ A respiratory therapist thought that nurses took more verbal orders.	▪ This was true to some degree, but this varied depending on the unit and patients, (e.g., critical conditions and codes).
▪ One of the nurses gave a lower estimate of verbal orders and estimated there will be more on a shift when a physician is not as accessible.	▪ The researcher was unable to confirm this with other nurses and charge nurse. On wards where physicians/surgeons were not as accessible, (e.g., post-op, the number of verbal orders was not higher).
▪ One of the respiratory therapists speculated that nurses would be more impacted by JCAHO's read-back given the many different drugs and dosages that were involved	▪ This was an astute observation; the findings had shown there was an impact but in a positive way.

Table 3. Comparison of Speculations and Findings

Qualitative Data

In this section, the data were compiled from the semi-structured and open-ended questions asked during the interviews. Due to the extensive nature of the responses, the representative quotations were included in Appendix B.

Definition of Verbal Orders

The purpose of this question was to ensure an understanding of what were verbal orders, which may vary from person to person and, thus, may influence how the participant responded.

Almost all participants felt that "verbal orders" and "telephone orders" were synonymous terms. That is, verbally communicated orders in-person or via the phone that will be written and signed later which coincides with the definition proposed for this study. Of note was that nurses referred to themselves as the authorized designee (orders being given to them) to take and to write orders for physicians. On the other hand, the physicians did not all feel it was the nurse's sole responsibility and implied that other health professionals were also involved in receiving verbal orders. For residents, they only witnessed telephone orders given, as they would be writing the orders themselves (their responsibilities) if they were present on the wards. The residents' point-of-view was in contrast with physicians who have been in practice for a number of years. While for respiratory therapists, the types of orders received depended on their designated work area. For example, the respiratory therapist present in the critical care units would receive critical care orders in-person.

Origin of Verbal Orders

The intent of this question was to establish a history of how verbal orders evolved, since little is written about its origin.

Admittedly, a couple of participants said this was not something they had thought or had known about, in spite of their ability to define what were verbal orders; how they were documented; and how they were initiated and carried out. Other participants were inclined to guess on the origin of verbal orders to answer the question and inquired whether the researcher knew where they originated. This included the participant with the longest years of service, who said verbal orders have existed for sometime and could not describe it further.

Frequency of Verbal Orders

Although participants were asked for the approximate number of orders on a given shift, their responses were not meant to be interpreted as solid evidence, since people's perceptions may not be accurate. Instead it was to gain insights into where verbal orders mostly occurred (what types of units) overall and under what circumstances [Figure 2]. Verbally communicated orders via the telephone were found to transpire more frequently than in-person.

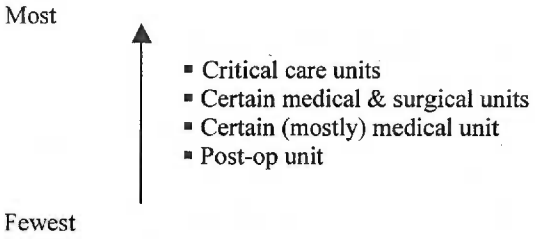

Figure 2. Units with the Fewest to Most Verbal Orders

Expectedly, the estimated number of verbal orders differed within the same health professional type (i.e., nurses and respiratory therapists) even on the same ward and shift. For example, not all of the charge nurses received more verbal orders than the floor nurses on the same ward. Furthermore, there was no hierarchy for order-taking amongst respiratory therapist leads and non-leads. Rather the number of verbal orders received was in accordance with their assignment area of the hospital. Surprisingly, both residents estimated the same number of verbal orders per day.

Work Process of Verbal Orders

Using Robbin's definition of process conflict, a work process may be described as "how work gets done" in order for managers to perceive, understand and act upon events that need improvement. Examples are workflow, relationships amongst members and communication channels [53]. Increasing our understanding of how verbal orders work will enhance our objectives of understanding the nature of verbal orders and how they impact the individuals in the health care team.

Based on the data, verbal orders may be initiated by nurses, pharmacists and respiratory therapists in addition to the physicians. In some cases, the nurses or pharmacists may write the orders for physician signature in the event the physician were to forget; to speed up the process; or to ensure the order was written correctly. In another instance, one of the nurses said, *"To me I'm still hearing from that physician whether it's my suggestion or not."* Due to the variability of responses, it was difficult to make any generalizations by health professional type. Therefore, the case scenarios devised in Appendix B were an attempt to map these processes by ward and by health professional type.

Impact of Verbal Orders

The researcher's primary goal was to conduct an exploratory study on the nature and impact of verbal orders. The two major impacts discovered were time/efficiency factors and interpersonal relations with the health care team. Because JCAHO safety recommendations were an essential part of the verbal order process, the participants were also asked to differentiate the impacts associated with JCAHO read-back and JCAHO standardized abbreviations.

Interestingly, it was perceived that JCAHO read-back in-person was communicated somewhat differently than via the telephone. It was a positive impact in most cases despite the increased time surrounding verbal order read-back. While, for others (regardless of unit and health professional provider type), they were indifferent and viewed verbal order read-back as part of the job. The read-

back of verbal orders is a key component behind the preparations of the upcoming JCAHO accreditation survey to ensure compliance of standards.

Unlike the JCAHO read-back, the researcher learned that JCAHO standardized abbreviations have not yet begun in some cases. The nurses were accustomed to writing things out, as they did not have time to look for the abbreviations. However, they had mixed feelings about how they would be impacted once the physicians adopted these abbreviations and had to write things out. For the physicians interviewed, it was a new habit for them to learn and it will take some time for them to adapt.

Likes and Dislikes of Verbal Orders

The purpose of this section was to disclose the participant's likes and dislikes of verbal orders. In general, the vast majority of the participants liked verbal orders for their speed and convenience, but disliked the risks/potentials for errors. Several non-physicians disliked their interactions with grouchy physicians [integrated as themes and patterns in Appendix C].

Critical Incident(s) of Verbal Orders

The focus of this section was to reveal the positive and negative consequences of verbal orders through the use of the CIT. The phrase "critical incidents" used in this study referred to the incidents resulting from the CIT and not in the conventional medical sense of the phrase as "sentinel events, critical patient care issues, or any patient event outside the normal parameters of care [32]." As a whole, the critical incidents were mostly positive incidents in which the participants recalled when verbal orders were beneficial. In some cases, a participant could recall many beneficial examples at a time without being prompted. It appeared that recalling positive incidents was much easier than recalling negative incidents (even with the questions provided in advance). That is, there were fewer incidents in which verbal orders were not beneficial. The pharmacist's example about sound-alike drug names was later excluded from the data as it had occurred at another hospital and not at PPMC.

For two of the participants, when probed further about missing negative incidents, they still were not able to recall any incidents during the follow-up period.

Perception of Verbal Orders

The responses to this question varied depending upon the perspective of the health professional type. It was extraordinary to find the number of indifferent responses received and the participant's ability to perceive it from multiple perspectives aside from their type. The largely indifferent responses were a marked contrast to what the researcher had expected in light of the many safety recommendations to reduce verbal order errors. Other responses included an outlier that verbal orders were a distraction for nurses, while they were perceived well for pharmacists despite the many clarifications.

Themes and Patterns

The following themes and representative quotation(s) emerged from analysis of the data and were later used to identify the impacts of verbal orders [Table 4]. A comprehensive list of supporting quotations is found in Appendix C.

#	Themes
1	No waiting
2	Accuracy ▪ Clarifications/corrections
3	Interpersonal relations
4	Policy
5	Communication ▪ Process
6	Risks/potential for errors
7	Work Process ▪ Pressure ▪ Trust
8	Other Orders

Table 4. Summary of Themes and Patterns

Theme 1: *No Waiting*

This category referred to orders that were prompt/quick/fast (sense of urgency) and convenient/efficient. According to the Miriam-Webster dictionary, convenience is "fitness or suitability for performing an action or fulfilling a requirement." Further analysis of the data revealed that verbally communicated orders enabled actions to occur even without the presence of the physician. In particular, the surgeons who could not come down to the wards to see their patients or the physicians who were out of the hospital. Action was taken care of quickly (ability to get work completed for the immediate need) without delays, which ensured the continuity of patient care.

Representative Quotation:

"Like I said, patient care doesn't have to wait. If you have a patient, for example, they don't look good and you want to draw an ABG (arterial blood gas), well you can't poke an artery without an order. So, you page the doctor, call him ... 'The patient is not looking good; I like to draw a blood gas.' They said, 'Done.' So, in less than 30 seconds sometimes to two minutes, you have an order for a diagnostic that you can get to the lab, have results in five minutes and make a patient care decision in ... the whole thing in less than 10 minutes. I don't think you can operate without it." – Respiratory therapist [Appendix B, page 59]

Theme 2: *Accuracy*

Participants were asked to comment directly about the accuracy of verbal orders relative to telephone and written orders. The responses were based on the perceived accuracy of verbal orders to see how much they varied from JCAHO and other regulatory agencies.

Representative Quotation:

"I can see both ways. If they read it back, it's more accurate. I can also see how if ... there's potential for it to be miscommunciated." – Physician [Appendix C, page 65]

Sub-theme 2a: *Clarifications/corrections*

This sub-theme referred to methods that were used to ensure all orders were clarified and written correctly. According to one of the nurses, the physician's ability to write the orders correctly was independent on the number of years in practice (experience).

Representative Quotations:

"You can write it the way you want it. As pharmacists, that's very important because we wouldn't have asked them if there weren't problems with the original order. So, if I get to write it the way ... it would be written (chuckles) the correct way (laughs), I don't have to worry asking them for another clarification ..." – Pharmacist [Appendix C, page 65]

"What I read back to them (physicians) is what I am writing, so I may reword it a little bit especially if it is a detailed order like, 'transfuse two units of RBC's, you know, give twenty milligrams of Lasix between, and then check an H/H q2°, you know, every ... or two hours after.' It may get reworded a little bit, but I am writing it down as I say it, so I think in that way it may not be accurate. It may not be what they would write. I might write it differently than they would write it. It seems clearer to me the way I am writing it or I'll use the abbreviations that are ... the correct, uh, abbreviations instead of using the ones like, um, oh, um, primarily it's got to do with 'bid' or 'daily' or, you know, one of those abbreviations or they leave out 'po.' But, I'll read it back to them while I'm writing it ..." – Nurse [Appendix C, page 66]

Theme 3: *Interpersonal relations*

Interpersonal relations may be defined as to how well the participant interacted with other health professionals. These interactions varied between and within each health professional type and ward. On one ward, the researcher observed a sense of camaraderie between health professionals when one nurse responded quickly and attempted to use a Spanish word. For the health professionals who have had negative experiences with physicians, they also recognized that these experiences were limited to a select few and not to all physicians.

Representative Quotations:

"I like the contact with physicians." – Nurse [Appendix C, page 66]

"'Don't call me on Thanksgiving, you're the third person (whispered).' So, you do get the cranky doctors who don't want to be bothered. I don't even remember what the instance was over, but it was important enough that they (nurses) felt they needed to disturb him." – Health unit coordinator [Appendix C, page 67]

Theme 4: *Policy*

This category was for those who were confused about whether certain recommendations were hospital or unit policy, quality management recommendations or JCAHO standards.

Representative Quotation:

"I'm not sure if it's a policy, but, um, new safety recommendations that we actually do go get the chart. And when we read back a verbal order, we read it back after we have written the order out ..." – Nurse [Appendix C, page 67]

Theme 5: *Communication*

Often nurses, health unit coordinator and pharmacists received incomplete information when orders were communicated to them. This category differed from the sub-theme of clarifications/corrections in that incomplete information referred to missing or insufficient information and did not imply whether they were correct or not.

Representative Quotation:

"What I don't like about them (verbal orders) is I don't get all the information that I need a lot of times. If the doctor says they want an echo but they don't tell the nurse why he wants it for, and so somebody has got to call the doctor back and find out why they want the echo ..." – Health unit coordinator [Appendix C, page 68]

Sub-theme 5a: *Process*

This sub-theme was to determine whether there was a difference in how verbal and telephone orders were communicated, as one involved a face-to-face approach, while the other approach relied more on the voice and intonation of the person.

Representative Quotation:

"Nurses read them back either way. But, I'm not as aware of it in-person as I am over the phone that they are reading it back. In-person it sounds like they are making sure that they heard you. Whereas, reading back over the phone, it feels ... it's a little bit more formal. In terms of ... other differences between verbal and telephone (voice fades away) ... not really. Pretty much more in terms of the way they are carried out and communicated." – Physician [Appendix C, page 70]

Theme 6: *Risks/potential for errors*

The risks and potential for errors were always in the back of the health professional's mind even if they could not speak from personal experiences and could only draw from anecdotal stories.

Representative Quotation:

"It's not so much my perspective, but I could see how in the nursing perspective - in the unit primarily - how things can be miscommunicated. Because sometimes they're not often as if the physician turns to you and succinctly states 'Write an order in a certain way.' Often it is phrased in a question, 'Can I do this?' And so there is room for the physician to may not interpret ... you may not be on the same wavelength when you're just phrasing it as a question. 'Would it be OK for me to do this? ...'" – Pharmacist [Appendix C, page 71]

Theme 7: *Work Process*

The work process referred to how verbal orders were initiated and carried out. This in itself could be quite complex, as communication was no longer limited to in-person conversations or the telephone. With the advent of cellular and mobile phones and text and voice pagers, health professionals have a multitude of choices. However, text pagers were still the nurse's first choice in getting their messages across quickly to physicians but in the least intrusive manner.

Representative Quotation:

"Even if (we) graduate from (the) same program, every nurse has her own style of practicing." – Nurse [Appendix C, page 71]

Sub-theme 7a: *Pressure*

This sub-theme conveyed the underlying feeling of today's health-care environment -- the need to take care of things quickly and not keep other health professionals waiting, which could be stressful combined with other competing priorities.

Representative Quotation:

"Although I tell myself don't rush, there's the pressure you put on yourself just because you don't want to keep someone waiting while you go find the chart. ***If you do go find the chart,*** *that's the other thing." – Nurse* [Appendix C, page 72]

Sub-theme 7b: *Trust*

In getting work done at a large acute care hospital which included teaching services, this required an enormous amount of trust working with unfamiliar clinicians.

Representative Quotation:

"In particular, telephone orders especially if I don't know doctor – easy to think talking to someone else and have them say they never ordered this or that; unknown feeling until you know people's names. Who knows if someone is pretending to be a doctor?" – Nurse [Appendix C, page 72]

Theme 8: *Other Orders*

There were other types of verbally communicated orders that could not be classified as verbal orders, but could be misinterpreted in an effort to speak succinctly.

Representative Quotation:

"I personally don't consider this a verbal order, but we have these voice speakers that the nurses will page us and say 'I need such and so for such and so patient' and there isn't ... it's clearly not a verbal order but they are verbally communicating to us what they need ... You can't make them repeat, so you have to tune in. And sometimes in their effort to talk succinctly ... sometimes it gets ... or it can get to the wrong patient 1X 1 bed 2, 1X 2 bed 1. It all starts to sound alike." – Pharmacist [Appendix C, page 73]

DISCUSSION

This research study produced an enormous amount of data along with a few surprises and, in turn, has generated additional unanswered questions and thoughts.

Observations

The researcher found the health professionals to be dedicated, observant and members of a busy staff. There was interest in the study but patient care remained the number one priority. This was evident in the number of times the researcher waited to be seen and by the number of times the researcher and health professional were interrupted during the interviews. Remaining flexible and working with the staff was crucial in completing the interviews. The researcher was astonished to discover the staff's ability to speculate from multiple perspectives in order to help answer the questions. This may be attributed to the majority of the staff having worked on other wards, shifts and in different capacities. It could also be attributed to working closely with other team members that they have a sense of what others do, but not enough to describe in great detail or accuracy.

Qualitative Data

A major finding was through the use of CIT that the researcher learned about new safety recommendations and verbal order processes from the context of the health professionals. However, it was surprising to find there were not as many negative incident stories as anticipated; this was contrary to what has been portrayed by regulatory agencies and patient safety advocates. This may be attributed to a number of reasons. In our society, there are negative connotations associated in verbally relating negative incidents. In this sense, it would be easier to speak in the third person and refer to someone else's negative incidents than to admit personal wrongdoing, (e.g., "this occurred because *I* did such and such.)" A second reason could be that the participants either misinterpreted the question or the researcher did not ask the question correctly. In order to address this, two of the

participants with missing negative incidents were given another opportunity to elaborate. Still, no incidents were provided. A third reason may be the sole use of the CIT. Although the reliability and validity of the CIT was studied in Sweden by analyzing the job of store managers for a grocery company, it may not be an effective technique in which to uncover highly sensitive patient safety incidents [54]. Finally, there may not be as many negative incidents out there as we were led to believe. There may be anecdotal stories, but not necessarily actual incidents. For a researcher, it is important to eliminate the risk of people making up stories in order to have stories to tell. This actually occurred while interviewing one of the physicians who was struggling to recall any stories and wanted to help answer the question. After a few minutes of thinking-aloud, the final response was that the physician could not think of any negative incident stories.

Second, participants were more likely to be impacted by the severity of their experiences than how often they occurred. For example, negative interactions with physicians seem to occur more often and recalled more vividly with nurses with less than five years of experience or with the health unit coordinator. This may imply nurses with more than five years of service no longer encounter negative interactions or have grown so accustomed to working with physicians that their behavior is no longer an issue. One nurse observed that she has worked at PPMC for so long that all the physicians know her but that the new nurses need to make an effort to know and approach the physicians with questions. This raises an interesting question. Do verbal orders give physicians and newer nurses the opportunity to interact more? If so, by implementing CPOE it could become increasingly harder for newer nurses to identify the physicians if the interaction is via the computer.

Lastly, although most participants agreed on the same advantages and disadvantages of verbal orders and could see the issue from many perspectives, there was variability among the participants within the same units. Both of the same-year residents had similar responses in that they felt it was their jobs to write the orders and not to delegate that responsibility. One resident made the remark that increasingly more verbal orders are given which suggests this is an evolving process. That is, the

number of orders and experiences surrounding these orders may change if the researcher were to follow-up with these individuals in a couple of years. The residents may become more inclined in giving verbal orders, as their ability to trust other health professionals increase. This was in contrast to the physicians, out of residency, who were more comfortable with giving verbal orders. However, a larger number of physicians will need to be studied before additional inferences can be made.

Themes and Patterns

The researcher was least certain about the participant's perceptions of the accuracy of verbal orders. Because people's perceptions may not be accurate, it is important to complement it with observation work. But, the researcher was most certain about the verbal order impact on patient care across all health professional types or disciplines, as described in this section.

Of all the themes and patterns, the work process of verbal orders was the most complex to describe. As stated by Gorman, et. al., "the care of the patient involves active collaboration among nurses, physicians, therapists and others" with order creation and communication [55]. That is, the verbal order process or cycle involves the prescriber, interactions with other health professionals, documentation and computer input. This implies that the communication process does not happen linearly and is dependent on whether the orders are newly placed or modifications made to existing orders. Although the researcher attempted to illustrate the processes, there is variation even within groups, as health professionals have developed their own processes of accomplishing tasks. Certainly the role that nurses play can be just as complex as physicians in an effort to improve patient safety [56]. However, without an existing model of how verbal orders occur, the individual processes can shed some light on how these tasks are handled over a set point in time.

In order to better illustrate what verbal orders are, three examples of verbal orders were provided [Appendix B, page 56]. The first example occurred during the interruption to the respiratory therapist's interview. It illustrated the intensity, the process and the complexity of the order. Not only

was it a verbal order but also it was a concurrent written order. The second example occurred during the interruption to a physician's interview. It conveyed the sense of urgency behind the telephone order, how it was convenient for the nurse and physician and how it benefited the patient. The third example also illustrated the complexity of the verbal orders. Unlike the first example where it was synchronous -- the verbal order was being written, while it was being repeated-back and performed, the last example was asynchronous -- the verbal order was written after it was given. The researcher believes these real-live examples were a better reflection of what are verbal orders than to have participants describe a hypothetical case.

Overall participants liked verbally communicated orders because they were found to be quick (what's best for the patient) and convenient/efficient for the health professional. These findings imply a sense of time and urgency to verbal orders. This was witnessed firsthand when the participants stopped the interviews for a couple of minutes to answer their pages or in one instance, for a respiratory therapist to go upstairs to one of the units. In the latter case, it was five verbal orders that had to be repeated back and performed quickly for a patient that was having difficulty with breathing. For ICU patients, acute patients and critically-ill patients the need to stabilize these patients quickly was vital for their well-being.

Contrary to the belief that verbal orders were most convenient for (and directly benefit) the physician, who was off site, on different wards, in the isolation room, etc., this was a more efficient approach and would allow more time for physicians to spend with other patients. Although physicians and patients may sometimes feel rushed during a patient visit, devoting more time to patient care is important. For the residents, this meant having the ability to stay within the new regulations on resident hours per week. As represented by the data, this 'convenience' could also be applied to pharmacists or nurses during the times in which they initiated the orders for more expedient patient care. An exception to this was the charge nurse's perception that verbal orders were disruptive to staff nurses and, thus, took the verbal orders on their behalf.

Verbally communicated orders were disliked because they have the potential for errors. Specifically, orders could be misconstrued, misinterpreted or miswritten/translated. These findings suggest there are risks with verbal orders. However, safety precautions are being implemented to minimize these risks. A better question may be to ask is whether the pros of verbal orders outweigh the cons. Another question is how many errors are not caught by safety mechanisms already in place? Having a system of more consistent checks in place may be a solution. If the researcher were to base it on medication orders alone or from only a pharmacist's perspective could give a false perception of a higher risk for all verbal orders. Thus, to fully address the cons of having verbal orders, the types of orders need to be accounted for, as well as the participant's perspective.

Finally, the JCAHO's read-back and standardized abbreviations and other new safety recommendations were an integral part of the verbal order process. The nurses and health unit coordinator felt this should have been implemented to ensure the accuracy of orders and to prevent any potential errors. For physicians, writing out acronyms took more time and was viewed as a new habit to learn. The issue of time may be part of the learning curve -- once an action becomes habit, it will be done without second thought or awareness of time. Even when participants were not prompted, safety recommendations and issues came up in their answers. However, they were not always clear whether they were recommendations, requirements or policies. This may in part support the pharmacist's comment that safety recommendations are being introduced in stages, and the upcoming JCAHO inspection has not yet occurred. Because this is a gradual process, the pharmacist and others may play a more extended role in clarifying orders. Thus, the exact impact is not yet clear. What has begun is just a component of JCAHO and PPMC's Quality Management efforts.

Limitations of Study

First, every effort was made to limit any analytic bias by soliciting the assistance of two other researchers to analyze a sub-set of the data. Second, time and resource constraints limited sample size

and the opportunity to complement data with observations. For one, the data collection preparation and process took approximately three months at an acute care hospital. The interview process took three weeks during which busy senior clinicians were unavailable. By selecting all the nurses who were available, there was selection bias and an over-representation of that health profession type. Finally, since this was a study of health professional's perceptions of verbal orders, it was based largely on people's recall of prior events and their ability to remember them. Namely, it was potentially subject to recall bias. For example, if it was too long ago, the accuracy of the incident could be greatly diminished over time.

Future Research

Given the dynamics and complexity involved with verbal orders, additional research in this area needs to be conducted. The researcher proposes another verbal orders study to address one of the limitations of this study: to complement this research study with observation work at the acute care hospital. Since patient safety advocates are strongly urging medical centers to implement CPOE, this will have a tremendous impact on verbal orders, as some institutions may elect to eliminate verbal orders upon CPOE implementation. Such hospitals include the network of Veterans Affairs Medical Centers with their implementation of the Clinical Patient Record System. However, a survey conducted by the newsletter *Medical Records Briefing*, indicated only four respondents out of 629 took the extreme approach of having policies that forbid use of verbal orders at any time. "It was assumed that some verbal orders were either necessary or justified [57]." If verbal orders are to remain, their newfound role will have to be studied further in conjunction with CPOE.

Currently, there are no studies on verbal orders that monitor their transitions from pre-CPOE implementation, during CPOE implementation and through post-CPOE implementation. The researcher believes it would be most beneficial to examine the impacts associated with verbal orders

from a paper-based system to a computer-based system. Of note, a participant having worked at a medical center without verbal orders had observed the following:

> *"It felt to me like it was different; it felt like it ... there was not the same service, cooperative feeling because when I would ask for a particular medication, in my mind it was the nurse that was blocking (laughs) me -- telling me that I had to put it in the computer. So, I think in terms of that feeling that we were all making decisions that were in the best interest of the patient that was lacking a little bit in certain settings there. Where I felt that ... it was inappropriate to have to stop what you're doing and go and enter something in the computer. Yeah, I would say it interfered a little bit in the relationship, communication and stuff."* – *Physician*

Therefore, it may not be prudent to completely eliminate verbal orders. In fact, the communication process may enhance and improve the working relationship, as shown by this study and studies by Dykstra, Embi, et. al. and Ash, et. al. [30, 52, 58].

CONCLUSION

This research sought to answer the questions of the nature of verbal orders and the perceived impacts of verbal orders on health professionals in hospital care. Verbal orders were found to be complex in nature and difficult to identify at times. The verbal order process involved the prescriber, interactions with other health professionals, documentation and computer input. The two major impacts discovered were time/efficiency factors and interpersonal relations with the health care team. The extent of the JCAHO safety impacts is not yet known. For now, it appears that it will take some time to become acclimated with the new safety recommendations such as JCAHO standardized abbreviations, where the former ways of writing or old habits are so ingrained with physicians.

Verbally communicated orders were found to be an important and integral part of patient care despite the potential for errors. For the vast majority of the participants, they felt there were advantages and disadvantages to verbal orders, but not enough to deter them from giving/receiving more or fewer orders. Rather it was more important to do what was best for patients who were entrusted in their care. Although the participants expressed their concerns (disadvantages) that verbal orders could be misconstrued, misinterpreted or miswritten/translated, there was insufficient evidence (lack of negative incidents reported) to support these perceptions of an increase in patient risk. In fact, these findings are consistent with the findings of the West, et. al. and Randolph, et. al. studies that verbal orders were *not* a major cause of medical errors.

Of note, these results provide only a beginning to the understanding what verbal orders are; what the processes are; and what the impacts on these health professionals will be. However, more research is still needed to fully assess the extent of verbal order impacts. The benefits of verbal orders include greater efficiency, which leads to better patient care and more empowerment of health professionals.

Future studies will explore whether the benefits of verbal orders outweigh their risks and what role verbal orders will play with the implementation of CPOE.

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Appendices

Verbal Orders Study (Providence IRB Study #: 04-13)

Project Fact Sheet

Title The Impact of Verbal Orders on Clinical Work Processes: An Exploratory Study

Background The National Coordinating Council for Medication Error Reporting and Prevention Council (Council), individual institutions, and other regulatory agencies, such as the Joint Commission on Accreditation of Healthcare Organizations believe there is a potential for errors in the use of verbal orders. Thus, the Council recommended that health care systems and organizations establish policies and procedures, e.g., repeat back to the prescriber and immediately reduce the order to writing. It is not known whether these verbal order policies would improve the safety of verbal orders. In fact, there is a lack of studies that demonstrate increased patient risk, or that verbal orders are a major cause of medication errors.

Purpose Accordingly, the process through which verbal orders are carried out, i.e., when, where, why, how, and by whom, should be studied in greater detail. It may not be in the best interest of patient care and the workflow to eliminate verbal orders. As a result, the goal of this study is to learn how nurses, physicians, and other health professionals feel about verbal orders. The verbal order process involves not only the physician time, but also the time of nurses, pharmacists, respiratory therapists, and others. Hence, it is important to know how verbal orders affect the individual members of the health care team.

Procedure The research method that will be used is called the "critical incident interview." This method allows researchers to identify factors associated with positive or negative outcomes by asking people to recall specific events. Approximately 10-12 interviews will be conducted during the study. These are 25-30-minute audio-recorded interviews in which the questions are given in advance to the participants, e.g., likes/dislikes about verbal orders, instances where verbal orders were beneficial/not beneficial, etc. This would enable them to think about the answers prior to the interview, and to bring notes of their answers to the interview. In the event the person is able and willing to devote additional time to the interview, entirely optional questions (also made known in advance) may be asked.

Consent Participation is voluntary (no connection with employer) and there are no expected risks for taking part in this study. Participants will be asked to sign a Providence IRB approved consent form. A person may refuse to take part as he/she wishes at any time and for any reason.

Privacy The identities of participants, recordings, and transcribed notes are confidential, and will not be disclosed without permission. Responses will be compiled in aggregate, and no identifying data will be disclosed without consent for research publications or presentations.

Support This study is a master's research project and is not supported by any grants.

Investigators This study will be conducted by the graduate student in conjunction with the following investigator:

Susan Moy	Biomedical Informatics Graduate Student, OHSU
Paul Gorman, M.D.	Thesis advisor, OHSU and PPMC

Questions If you have any questions or concerns about this research, please use the following e-mail address:

Susan Moy
Oregon Health & Science University
3181 SW Sam Jackson Park Road, Mail Stop: BICC
Portland, OR 97239
moys@ohsu.edu

Interview Questions – page 2
(Providence IRB Study #: 04-13)

The questions to be asked are, as follows:

1. "As an introduction, can you briefly describe your training/experience and settings where you have worked in?"
2. "I heard that verbal orders happen often and want to learn more. In your opinion, how do you define a verbal order?"
3. "Can you give an estimate of when, where, and how often verbal orders occur during a shift? [How many hours are in the shift? And, where is the physician (usually) when this occurs?]"
4. "What do you like about verbal orders?"
5. "Can you tell me about an instance where verbal orders were beneficial?"
6. "What do you dislike about verbal orders?"
7. "Can you tell me about an instance where verbal orders were not beneficial?"
8. "How do verbal orders impact or affect your position? [Has this changed with JCAHO's read-back policy, standardized abbreviations and acronyms, and other regulatory requirements?]"
9. "Earlier you mentioned about _____, could you further elaborate what you meant by that?" [Ask for explanations and opinions.]

In the event the participant were able and willing to devote additional time to the interview, the following optional list of open-ended questions would be used:

1.1 "Are verbal orders more accurate?" [If so, why? If not, why not?]

2.1 "Is there a difference between verbal and telephone orders?"

3.1 "Where does the verbal order come from?"

4.1 "How is the use of verbal orders perceived on the ward?"

INFORMED CONSENT FOR A RESEARCH STUDY

Title: The Impact of Verbal Orders on Clinical Work Processes: An Exploratory Study [PHS IRB #04-13]

Principal Investigator: Susan Moy (M.S. candidate), Department of Medical Informatics & Clinical Epidemiology, School of Medicine, Oregon Health & Science University (OHSU)

Co-Investigators: Paul Gorman, M.D. (Thesis advisor)

Introduction and Purpose

You are being asked to take part in this research study because you are either involved with or impacted by the verbal order process. This consent form will explain this study to you, and what you need to do if you take part. Make sure you understand what is written; and ask as many questions as needed before you decide to take part.

The National Coordinating Council for Medication Error Reporting and Prevention Council (Council), individual institutions, and other regulatory agencies, such as the Joint Commission on Accreditation of Healthcare Organizations believe there is a potential for errors in the use of verbal orders. Thus, the Council recommended that health care systems and organizations establish policies and procedures, e.g., repeat back to the prescriber and immediately reduce the order to writing. It is not known whether these verbal order policies improve the safety of verbal orders. In fact, there is a lack of studies that demonstrate increased patient risk, or that verbal orders are a major cause of medication errors.

Accordingly, the process through which verbal orders are carried out, i.e., when, where, why, how, and by whom, should be studied in greater detail. For instance, the dialogue during verbal ordering may improve the working relationship between physicians and other health care team members and, thus, it may not be in the best interest of patient care and the workflow to eliminate verbal orders.

The purpose of this study is to learn how nurses, physicians, and other health professionals feel about verbal orders. The verbal order process involves not only physician time, but also the time of nurses, pharmacists, respiratory therapists, and others. Hence, it is important to know how verbal orders affect the individual members of the health care team.

About 10 to 12 people at Providence Portland Medical Center (PPMC) will take part in this study.

Study Procedures

If you take part in this study, you will be interviewed (one to one basis), one time. This will involve a 25-30-minute audio-recorded interview. You will be given the questions in advance, e.g., likes/dislikes about verbal orders, instances where verbal orders were beneficial/not beneficial, etc. This will enable you to think about your answers prior to your interview, and to bring notes of your answers to your interview. In the event you are able and willing to devote additional time (5-15 minutes) to your interview, a few optional questions (also made known in advance) will be asked.

Your interview will take place on selected wards and pharmacy satellites at PPMC.

Follow-up

The researcher will follow-up with you via e-mail if there are any questions, i.e., to ensure the accuracy of the transcribed interview notes prior to the analysis stage.

Possible Risks

There are no expected risks to you if you take part in this study. You may choose to not answer a question(s).

Possible Benefits

There are no direct benefits to you for taking part in this study. However, you may find it a rewarding experience from having contributed to a study, i.e., the sharing of information/knowledge to improve patient safety. The results of this study can be shared with you once the write-up is completed.

General Information

You may choose not to take part in this study. Your taking part in this study is voluntary. If you decide to take part, you are free to stop at any time and for any reason. While in this study, any important new information that may affect your wish to continue taking part will be given to you.

You do not give up any of your legal rights by signing this consent form and taking part in this study.

Costs

You will not be paid to take part in this study; nor will it cost you anything to take part.

Privacy

Your study records are personal and private and only the study investigator and other research staff, yourself and anyone you allow have the right to look at your records. It is important for the Providence Health System (PHS) Institutional Review Board (IRB – a committee that reviews research to protect your rights) be able to look at your study records, if needed. When you sign this consent form, you agree to allow this. If results of this study are reported in journals or at meetings, your identity will remain secret.

The study records and audiotapes will be transcribed without any identifiers. Fieldnotes, recordings and transcripts will be stored in a locked desk drawer of the study investigator; access is limited to the study investigator and co-investigator. Computer files will be saved in password-protected directories inside firewall-protected networks at OHSU. These items will be kept until the thesis write-up approval is sought.

Questions:

Any questions you have about this research study can be answered by:

Researcher: Susan Moy at moys@ohsu.edu (e-mail is best)

Any questions you have about your rights as a research subject will be answered by the PHS IRB at 503-215-6512.

You are free to ask questions about this study at any time.

Consent:

I have read all of the above, asked questions and received satisfactory answers about what I did not understand. I agree to take part in this research study. I have been given a copy of this consent form.

Please indicate (initial) if you would like to receive results about this study:

_____yes

_____no

_____
Name (Please Print)

_____
Signature Date

_____
Name of Witness (Please Print)

_____
Signature of Witness Date

Qualitative Data

For this section, the non-CIT and CIT data refer to the question types, (e.g., definition, origin, frequency, work processes, impacts, positive and negative consequences and perceptions.) The question types were represented as headings (shaded gray areas), followed by sub-headings of each quote for easier categorization. The abbreviations used were: v.o. = verbal orders; t.o. = telephone orders; HUC = health unit coordinator and RT = respiratory therapist. The italicized quotations were bolded to emphasize the word or phrase in the way it was expressed.

In order to maintain data integrity, every effort was made to capture the essence of what was said without any changes made to the grammar. Some quotes were combined (e.g., the elimination of excessive pauses or repeated words when the participant was unable to articulate his/her thoughts); reduced in size; or further clarified for easier readability and understanding. Typically, the responses from the first three phases of analyses were included. Responses from subsequent interviews were incorporated only if they provided a different or new perspective to further enrich the data. Also, in cases where the quotations overlapped, square brackets or [ ] were used to refer to the other references.

Definition of Verbal Orders

v.o./t.o. are different

"I put them into those two categories when the physician is not writing the order and a verbal order to me is, um, when they are speaking to me in-person. They are not using the telephone to communicate it and I'm writing the order for the physician." – Nurse

v.o./t.o. the same

"Any order given by a doctor that isn't written to a nurse or other person that can actually take orders where the doctor needs to sign it later. By the phone, in-person; those are the only two ways I have seen them." - Health unit coordinator

v.o./t.o. the same*

"My definition of a verbal order comes strictly from a hospitalist or one of the attending doctors or teaching staff. So, they are all medically licensed individuals. I don't take verbal orders from any other ancillary service, whether it's physical therapy, or nursing, or anybody else. It has got to come from a doctor and usually it's face-to-face." - Respiratory therapist

* The clarification was made later that a telephone order is a verbal order over the phone.

v.o./t.o. the same

"The only setting where I have seen verbal orders given is when the physician calls to the ward that their patient is on and says they like to give them a verbal order. And then, um, somebody who is qualified to take that order answers the call. The doctor who would be calling signs it at a later date ... That's the only setting where I have seen it in because if you are given an order for a patient in your own wards, then you would be writing that order yourself in the chart." - Physician

v.o./t.o. the same*

"Any time a physician or any prescriber (a physician assistant, a nurse practitioner but mostly a physician) is communicating to you something that's going to be transcribed onto the charts."- Pharmacist

* The clarification was made later when describing the number of orders per shift.

v.o./t.o. the same

"A doctor giving me an order for a patient and writing it down in the chart. I usually repeat it to him what the order that was being given and transcribe it on the patient's Physician's Order Form." - Nurse

v.o./t.o. the same

"A verbal order is any order taken from, um, somebody who can legally write orders, or give orders, or drugs, or therapy. So, any physician, nurse practitioner, physician assistant. It can be done over the telephone; it could be done in-person." - Respiratory therapist

v.o./t.o. the same

"For me ... it would be when I would either talk to a nurse directly or over the phone. They would note that in the order record, so the order would be in their writing with my name next to it." - Physician

v.o./t.o. the same

"Any time a doctor or health care provider tells me directly what to do for the patient; it could be in-person (or) over the phone. When you write them; it's 'v.o.' and 't.o.' but it's still someone telling you directly what they are." - Nurse

v.o./t.o. the same

"A verbal order usually for me is either calling in on the phone or giving an order to a nurse, a respiratory therapist or a pharmacist without writing it down myself. It's something they would write it down. Most are telephone orders; it's usually (during) a procedure where I use a verbal order and ... actually be there at the same time. Most of the time if I'm there, I'll write it because it's my job." – Physician

Origin of Verbal Orders

Don't know

"I don't really know about the history of it; it's always been around for as long as I have been in practice. I'll try to go get the chart (laughs) and hand it to them." - Nurse

Don't know

"Oh, I don't know. I never even gave it a thought (laughs) honestly." – Health unit coordinator

Don't know

"Hmm, no ... I think that the medical culture now is very dependent on documenting almost everything ... on like every single thing now. My suspicion is that it wasn't how it used to be. A lot of things were verbal orders or at least less documented orders. Probably the real question is, 'Where did all the written orders come from (laughs)?'" - Physician

Guess

"My guess is that it arose pretty much out of necessity. A physician cannot be on the floor the whole time; they can't be at every patient bedside; there's more nurses, more patients than there are prescribers. They have x-rays to look at, other patients to see, and so, my guess is that it arose out of necessity. They have to go home at some point, so they don't have to actually be right there to order the drug. So, you can just call them; that seems logical." - Pharmacist

Don't know

"I do not (laughs). I don't." – Respiratory therapist

Guess

"I assumed that they actually came before written orders (laughs). They probably preceded written orders. Do you have an answer to that? I think it's the natural way for physicians to communicate before there were even charts and written orders I would think." - Physician

Guess

"Probably out of necessity to save time and get patient faster treatment. It's probably been there for the longest time I would guess. I never thought about it." – Nurse

Frequency of Verbal Orders

1-2 v.o.'s per 8-hour day shift

"On a shift for me, I probably write one to two a day ... that would be total for all the patients on the unit. I bet you that it's estimated it to be higher but when I really think about it, it's probably one to two a day. I would estimate that it's higher on a shift when the physicians are not as accessible." - Nurse

10-20 v.o.'s per 8-hour evening shift; up to 50 on other unit during evening shift

"On this floor, maybe between 10-20 a shift and on the other floor where I worked at, it could be up to 50, which is (a) pretty active floor. Patients dying and not dying and wanting to die (said softly). Codes ... up here we haven't that many codes but on the other floor we used to have ... it's more intense, it's more critical." - Health unit coordinator

6 v.o.'s per 12-hour day shift

"Half a dozen ... Yes, because I don't ... 75% of my time is in the critical care unit. We always have a pulmonologist in the intensive care unit ... in the ICU. So I can be approached or I can approach him (laughs) fairly readily. There is always a resident in the ICU because we are a teaching institution and that's how they get their experience." – Respiratory therapist

3 or 4 v.o.'s per shift (up to 30-hour shifts)

"Oh, maybe three or four a day." - Physician

5 or 6 v.o.'s per 8-hour evening shift

"We pretty much only take a verbal order if we have something that needs to be changed. So, maybe five or six at the most. It kind of depends on the unit you're covering as well. In the ICU, it's primarily teaching service oriented, so there is always an intern over there who's easy to find that we can ask. There is probably more verbal orders there for instance than if we were working on the post-surgical floor where contacting surgeons is (chuckles) hard to do." - Pharmacist

2 of 5 days when RN called Dr.; Dr. maybe called RN 3x's during ~7 months

"On an average, gosh ... sometimes I can go through the whole shift without having to call the doctor. But, I at least talk to a doctor I would say at least two days out of the five days that I am here. Um, it's not very often that I have to. Maybe it's just my particular patients that I happen to have (laughs), just I have been fortunate that ... yeah, not too often. I would say two out of five days where I have had to call for things ... I have been here since September (now April), probably ... maybe three times that they've called me to add something to the orders. Yeah, not too often." - Nurse

3-5 v.o.'s per 12-hour day shift; 12 v.o.'s in ICU; 0 v.o.'s on med-surg floors

"Oh, it depends on, um, your assignment area. You could be on the respiratory floor and take, oh, anywhere from three to five maybe; in the ICU you might take a dozen. During the entire 12-hour shift and you may have days where you are on med-surg floors or something like that, where you wouldn't take any. Nursing takes more than we do." - Respiratory therapist

15-20 v.o.'s per day

"I would typically maybe call one or two of the nursing stations and give verbal orders right off the bat for, um, potassium, or magnesium, or something that needed to be replaced based on the morning lab. Maybe three or four verbal orders that I would give first thing in the morning. And then throughout the rest of the day, hmm, gosh, maybe eight or ten orders that I might give, um, over the phone. Or when I'm talking to a nurse about a particular patient and the chart is hard to find, or it's already up in the order rack, I might say 'Would you write that as a verbal order?' So, all total, gosh, fifteen, twenty maybe verbal orders a day. But, I can say (when I was) a (3rd year) resident, the number of verbal orders that I would place would probably be about the same as it is as a hospitalist. With the caveat added -- certainly in the ICU setting, there are many, many more verbal orders than anywhere else in the hospital." - Physician*

* The clarification was made later that this includes the verbal orders given to the nursing stations.

1 v.o. per 8-hour evening shift

"For this unit, three times a week in-person and over the phone; typically after 8 PM. Get one every other shift. On __ (mostly medical floor), it was every evening shift at least once. Patients sicker -- labs are always wacky. This unit is __ – patients (are) stabler and not as critical." - Nurse

3-4 v.o.'s on wards; more v.o.'s in ICU; 1-2 v.o.'s during electives

"I would say probably three a day. I get to work at 7 AM and I leave anywhere between 5 and 10 PM. I haven't had too many ... I don't have the neatest handwriting either. Even though our ICU is one big room and I'm always there, it's a lot easier because I'm the only one there to give verbal orders and the nurses are actually really good about it. That's one instance where I actually know them all and would feel comfortable giving a verbal order even though I'm right there. It may not be on their patient, it may be on someone who is more critical right next to them. On the wards, it's typically three to four a day. When I'm doing electives, I may get one or two. But, usually it's not that many because I'm not the primary doctor seeing this patient. The nurses would tend to call the primary doctor with any questions rather than me." – Physician

Work Process of Verbal Orders

How Verbal and Telephone Orders Were Initiated

1. Hospitalists

Upon arrival, the hospitalist calls were placed to the nursing stations for lab orders (i.e., potassium and magnesium) based on lab reports.

Scenario 1 (in the morning):
Hospitalist turns on computer in hospitalist office space → checks morning lab reports → calls nursing stations with orders, (e.g., lab tests, chest x-rays)

Scenario 2 (with patient):
Hospitalist sees patient face-to-face → patient is doing badly → signs off on sheet → gives verbal order(s) to nurse

Scenario 3 (with nurse):
Hospitalist speaks with nurse about patient and chart isn't available → asks nurse, *"Would you write that as a verbal order?"*

2. Nurses

For one unit, the nurses checked with other nurses before calling a physician to ensure multiple calls to the same physician were not made.

Scenario 1 (if nurse called physician):
Nurse → Checks with other nurses on the shift and unit → nurse places call to physician

Scenario 2 (if nurse was busy):
Nurse approaches HUC → HUC calls → Service picks up → HUC says *"My name is ____; I'm calling from ___. I need to speak with who is on-call tonight"* + gives them the information → Dr. calls back → HUC puts Dr. on hold → gets nurse → nurse speaks with Dr.

3. Nurses or physicians

For another unit, the charge nurse could initiate an order because of concerns or requests, or the physician could also initiate the orders.

Scenario 1 (nurse initiated call):
Nurse calls/pages Dr. → concerns or requests

Scenario 2 (physician's last minute thought):
Dr. says to nurse, *"Oh yes, could you add this?"* → Dr. walks off the unit

Scenario 3 (physician had forgotten to write the order):
Nurse + Dr. have a discussion about a patient → nurse discovers that Dr. has forgotten to write the order → nurse writes the order

How Verbal and Telephone Orders Were Carried Out

1. Nurses

For all units, interruptions were minimized when possible.

Scenario 1 (charge nurse intercepted call):
Dr. calls unit with order → HUC or monitor tech answers the phone → passes the call to charge nurse at front desk area.

Scenario 2 (nurse text-paged physician):
Nurse text-pages using own format:

Unit, bed #, Mr or Ms last name, complaint; please call me (nurse's name), 5-digit extension #.

2. Respiratory therapists

Given a lot of the ICU verbal orders for respiratory therapists were for people that were mechanically ventilated, these specialized orders did not go through the nurse before it reached the respiratory therapist.

3. Examples of verbal orders

Example 1:

RT paged → unit → Dr. says *"I need multiple ventilator changes."* → RT repeats back five changes (Dr. says *"Yes"*) while pulling back ET tube → changing FIO_2 tube → changing PEEP → changing rate → changing tidal volume → RT asks, *"Are you writing the order as we speak, right?"* → Dr. says *"I'm writing the order."* → RT replies, *"OK, that's fine."* → Dr. leaves → RT signs off on order.

Example 2:

"Like the call about a patient vomiting right now. If I were to not give a verbal order, patient would have to continue vomiting until I got up there which would be when I got done talking with you (the researcher). She (nurse) got what she needed to take care of the patient." - Physician

Example 3:

"I think there are instances where you give verbal orders, such as like in the ICU, where you give an order to a nurse. But, I also write those myself in the chart. So, would you consider that to be a verbal order? Probably because the medication is given before it's read in the chart." - Physician

Impact of Verbal Orders

Read-back of Verbal Orders

Increases length of phone call

"Oh, it takes more time. So, what it really impacts is the length of the phone call. Really ... you have to go look for the chart already anyways. I guess that's the only change." - Nurse

No impact on HUC; speculates it is beneficial for RN

"It's pretty much the same ... um, in what I do, but I have heard nurses say when they read back, 'Oh, OK, let me change that.' I can see where ... I mean I figure that should have been happening all along anyway, so to me it is really beneficial that JCAHO is having these read-back." - Health unit coordinator

Indifference (read-back part of job)

"Well, I just went through this. I was just up in the unit and the doctor was there. He said, 'I need multiple ventilator changes.'" [See 'Work Processes' section above.] - Respiratory therapist

No impact on RT

"No, I don't think so ... we don't have a lot of different drugs and a lot of different drug doses. So, we deal with just a handful of drugs and they are all at a pretty standard dose. So, if a doctor calls me and tells me to start an Albuterol treatment ... OK, 2.5 mg? Yeah, unit dose of Albuterol. Our dosing is pretty much a given. We do verify it but it's a given. However, ... I would bet you would get a different answer from nursing." – Respiratory therapist

Increases time to read-back but worthwhile

"I think every once in a while it seems that it is taking longer because it has to be read-back. But, I think for me the sense that I feel confident that things were understood is enough of a reward for listening to the nurse to read it back. It makes a huge difference." - Physician

Positive impact

"I like to read everything back. Sometimes if in a big hurry (maybe a while before doctor calls you back), scribble onto a piece of paper and not writing in order section and later transcribe it. May have made mistakes but not know it; that I don't care for. The doctors like it when you read it back." - Nurse

Positive impact

"The reading back of the verbal order (actually I really like) doesn't take much time. In my mind it verifies that 'yes this is what I got ... the order that I perceive you giving me.' I used to use it when I took telephone messages too. Let me make sure I got your telephone correct ... that kind of thing. So, it seems like a courtesy just to do it. It hasn't impacted me negatively in any way." - Physician

Positive impact

"Reading back whenever possible anyway ... that is what we have been working here on this floor. It affects me – so it may take a little bit more time in that I need to rethink when I get a verbal order how is it that I need to write it?" - Nurse

Standardized Abbreviations of Verbal Orders

Doctors' illegibility issue

"As far as med errors with their standardized abbreviations, um, yeah, I can see where ... a lot of that is Dr's handwritings where I've seen the problems so. With the nurses not so ... I haven't seen it ..." - Health unit coordinator

Increases time to write out abbreviations

"Um, instead of writing 'MS,' you write 'morphine sulfate.' I would say that those are more recent changes and they do take more time. I think they're more inconvenient. Right now there's tons of stickers in the chart that says 'users, use abbreviations, please write again.' So, there's about a billion little orange stickers (laughs) in the charts right now." - Physician

No impact on pharmacists yet

"The new JCAHO requirements and the prohibited abbreviations ... it hasn't quite come to this point yet. But, there will come a point where every time there's a prohibited abbreviation, that the prescriber would have to be called for clarification, which will be a ***huge*** *amount of verbal orders. And it is likely that it could fall primarily on pharmacy which is ... obviously (didn't sound thrilled) not the way we would like to spend our time. But, we can easily spend an 8-hour shift doing that ... just clarifying. We just kind of started this; we kind of get the word out and educate ... the notes in the chart; we are doing yellow stickers ... kind of try to get people used to it before we start doing 300 phone calls (laughs) a day.) We're up for JCAHO this year, so the squeeze will come. JCAHO expects 100% compliance. It will come to that. I know it did at _____ (other hospital); they did JCAHO ... I think it was last year they did it. They were on the phone calling if that's what it takes ... the hospital rules require us to do that." - Pharmacist*

Positive impact (↑ once doctors start)

"It hasn't affected it at all I think -- it's made it better and safer. You just have to get used to their abbreviations. It's safer; I agree with it, so I'm OK with it. It makes it nicer too 'cause the doctors don't necessarily comply with (laughs) the JCAHO orders. So, once they start the standardized abbreviations and things like that ... would be easily readable, so it would be nice once they start practicing as well (laughs). I thought it's beneficial to us and to patients so that accidents and mistakes don't happen. I don't think it has affected me negatively; I think it's a positive effect." - Nurse

Doctors' illegibility issue (negative impact once doctors start)

"I haven't seen doctors ... any that has been practiced that way. I have always seen just the abbreviations being written and I can't really ... When they do write out stuff at times - a lot of times it is illegible. But, um, yeah, I could see where it probably could turn into a problem. But, I haven't experienced that yet ... but I ... as far as me, ***I*** *write it out just to get into the practice of what JCAHO requires us to do. I can see it being a real problem (laughs). Yeah." - Nurse*

New habit to learn but worthwhile

"The abbreviations are sort of ... um, difficult from the standpoint of writing orders. Um, I think it's more in the written part that it seems a little erroneous that you have to write out 'daily' vs.'q day.' But, it doesn't seem to make much of a difference in terms of the verbal order process to me. I think it's more just a new habit to learn. For myself I feel like, gosh, if that makes a difference in one patient's stay, it's worth doing it so ..." – Physician

Positive impact

"Use abbreviations only if (I) know what they mean. Can't remember the i's (left i, right i, both i's) and no abbreviations, so I write them out - write them down if not 100% sure." - Nurse

Increases time and interrupts flow

"The abbreviations are a little different because I have my favorite abbreviations and I can't use them anymore. So, I'll often be writing an order and get down sort of towards the end of the assignment and look back and realize that I can't use that abbreviation, and have to go back and mark it up and write 'daily' next to it or 'every other day.' I love 'q.o.d.' 'Q.o.d' is my favorite because 'every other day' is such a long thing to write. (When rounding) to have to write it out and then realize you can't say 'qd,' but mark it up and write 'every day' or 'daily' sometimes it just takes a little longer. It's the perceived like ... it seems the flow is interrupted." [Also under 'Pressure' sub-theme section.] - Physician

Unfamiliar abbreviations and doctors' illegibility issue

"Doctors write so many abbreviations that we don't know what they are! Can't read them and call back if it's important; we use our judgment. – Nurse

Beneficial Instance(s) of Verbal Orders

Immediate patient needs

"I can remember when a physician called back and ordered a CAT scan for a patient that was having neurological changes. They decided to go ahead and do that; it was kind of a last minute thought; they were away from the unit. I think it benefited the patient to have it done immediately so therapy could be initiated. There are times when, uh, especially when I think of abnormal electrolytes and the call to the physician to get treatment done immediately instead of waiting and delay in time. Hmm, when, um, doctors give you orders for a diet, they make patients very happy (laughs) when they haven't been seen by a doctor. So, there's that component that it's nice for the patient, so they don't have to wait." - Nurse

Pain relief

"Some of these orders, the patient could be in pain for a longer time -- could be suffering; whatever the problem might be, could be going on longer. And with the verbal orders at least some of them could be addressed. Getting up at 11:30 to come in at night and write an order for a Tylenol; that one I can see where verbal orders are beneficial. So, for the patient ultimately, I can ... it as ..." – Health unit coordinator

Pulmonary adema

"Absolutely, many (laughs). Um, patients having acute onset of pulmonary adema. We need to get in contact with the physician; get them face-to-face and start giving certain treatment together; get them transferred to the unit; get them into bed; get them on the mechanical ventilator; take verbal orders for the settings for the ventilators. So, all of those things happen in a verbal order instance." – Respiratory therapist*

* This was clarified later that it is any physician at the scene.

Dietary needs

"Well, I do think that when, say, a patient is admitted to the hospital and the physician is coming in to see the patient, but the patient wants to eat, or needs IV fluids, or things like that. You would rather start things sooner than later is beneficial." - Physician

Any intervention

"Pretty much any time I take it ... you know, for any intervention. If they write for an antibiotic and it's not the proper dose or interval for that patient's renal function, then we ask them 'Can we adjust it based on that dose on their renal function?' And they'll say 'Yes;' we go write the correct dose as a verbal order for that patient." - Pharmacist

Fluctuating (patient) temperature

"Last week here I had a patient with temperature 103°; I text paged doctor (one of interns) beforehand and not have to waste time and not talk as much. When temperature fluctuated, was able to text page them to get order: Tylenol x1 200mg, cool clothe to forehead to get temperature down." - Nurse

Pain relief

"Usually it's the instance of pain control. I think it is definitely beneficial talking to the doctor about that ... 'cause if things aren't working ... you have to talk to them to tell them what's going on. That's the only thing I can think of right now." - Nurse

Patient does not look well

"I can think of a hundred. Like I said, patient care doesn't have to wait. If you have a patient, for example, they don't look good and you want to draw an ABG, well you can't poke an artery without an order. So, you page the doctor, call him ... 'The patient is not looking good; I like to draw a blood gas.' They said, 'Done.' So, in less than 30 seconds sometimes to two minutes, you have an order for a diagnostic that you can get to the lab, have results in five minutes and make a patient care decision in ... the whole thing in less than 10 minutes. I don't think you can operate without it." – Respiratory therapist

In urgent situations

"Probably I think the times that they are most beneficial is in an urgent situation where you need to be concentrating on medical decision-making without having to step back and actually write orders." - Physician

Non-beneficial Instance(s) of Verbal Orders

Sound-alike drug name (not for RT's)

"In that instance where the physician wanted a specific drug and that drug was not given. It was detrimental to the patient. The wording was very close. I don't know if it was a cultural difference between two parties or ... It was happening so fast that it was misinterpreted. They, um ... if I say 'Albuterol' and someone says 'Atrovent' the similarities are close enough that in the heat of a critical or acute exacerbation, you may be listening for a particular drug and (it's) not really said. It is just something that was misinterpreted ... that I observed." – Respiratory therapist

Incorrect chart

"I had taken a set of verbal orders for two different patients (takes a deep breathe) ... they both had to deal with supplementing a low potassium level that the doctor had ... I think they had noted it. I can't remember if I had initiated the call or they had just reviewed the labs and their ... the patient's potassium level was low. They gave me a verbal order and I was in a hurry, so I took, um, a yellow sticky and wrote the orders down with the patient's name. But, the second set of orders I wrote in the wrong chart and, um, pulled it; talked to the nurses; told them, you know, they had potassium to give now and they gave - actually gave potassium to the wrong person. So, um, fortunately her potassium was on the low end of normal and we had to talk with the ... um, the hospitalist came and said to me 'I didn't give you this verbal order.' That's how we caught it ... So, ... it was shocking to me that ... and you realize how easily it can be done. But, I don't know what in the process where I changed the names ... where my thinking was when I changed a name. But, grabbing the chart, grabbing the correct two patients' chart would have been, um (voice fades), one way (said firmly), you know, what JCAHO was actually recommending would be the way I think to, uh, prevent that error." – Nurse

Sound-alike drug name

"Sometimes there can be a med. error. A phone verbal order taken for my patient: Dopamine and Dobutamine, similar sounding name. The wrong one got wrong dose; not sure if nurse heard differently or relayed to me incorrectly." – Nurse

Doctor unreceptive to other options

"There was one time and I called and tried to resolve a problem ... But, it wasn't beneficial because I didn't get what I thought I was going to get; I didn't get have any openness from the physician. My patients didn't get the help that they needed particularly. But, you know, in that instance that was the only thing that wasn't beneficial." - Nurse

Doctor angry that nurse discharged patient

"The discharge instructions had been written up in the patient's room and the plan was for her to go home that day. A physician came in and said the patient could go home ... he didn't write the discharge. I made the assumption ... yes, he assumed I was going to write it since everything was already done. I discharged the patient. The doctor was angry that I took care of it and he didn't." - Nurse

No problem

*"**I have** ... yet seen a verbal order that caused a bad outcome, but I have heard many times that they have happened. And I can see there is definitely that potential ... Usually if the nurses aren't clear about an order, they'll call back and ask for clarifications. So, I think there are, um, sort of fall-back mechanisms to prevent mistakes from being made. But, I would say namely, probably anecdotal stories about errors or signs, you know, that pharmacy lists about how to write out the orders so it's not misinterpreted." - Physician*

No problem

"Me, personally, no ... It's unlikely that you would misunderstand somebody speaking an order to you vs. coming back from a chart -- looking at a doctor's handwriting and maybe misinterpreting an order that the doctor wrote ... So, there's nothing bad about it that I can think of." – Respiratory therapist

No problem

"I'm not sure it has actually ever happened to me. To be honest I can't remember one." – Physician

Perception of Verbal Orders

Distracts the nurses

"My impression is that it takes them (nurses) away from patient care – of things that they're doing at the time if they need to come to the desk and write the order, so that's why I say 'oh no, I'll take that order.' You know, um, so they are not distracted from their care." - Nurse

Depends on the health professional type

"Um, I think the nurses like them. To me, it's more like a ... comes with the job-type thing. (For the nurse) it depends on the doctor. If you get the grouch, nobody wants to call him. I have actually heard doctors say 'Do not call me for a Tylenol order.' So, I think the nurses like it because it gives them the freedom to get what they need for their patient and to get working on the patient faster than waiting for the doctor to actually come in and assess the patient and decide whether it's OK. Um, I think it shows trust between a doctor and a nurse." – Health unit coordinator

Depends on the health professional type/case

"I think it depends on who you are. If nurses, they are probably more inconvenient for you. On the other hand ... (long pause), um, maybe it would make them feel more powered because if they feel they need something for the patient, they call the physician. Even though the physician is not there, they can still get the thing that they think the patient needs through a verbal order. So, I don't ... exactly sure how the nurses feel about it. The doctors, I think, probably have differing opinions as well. The convenience factor, I think ... is a strong one especially for surgeons who can't come down to the wards to see the patient or in clinic. I think the risks certainly are always in our minds having the order not correctly transcribed on a given order. Overall feeling I would imagine it would be positive because they continue it. If it's negative, they wouldn't continue with it. I know it's not a very clear answer (laughs). But, I mean I don't think there is just a negative or a positive answer here. I think the answer has many different cases." - Physician

Good for pharmacists

"Good (voice rises) for the most part. We don't fear them (verbal orders)." - Pharmacist

Indifference

"I don't think anybody thinks of it any different than an actual physician handwritten order. An order is an order ... (pause), period ... that's my perspective ... of course, I can only speak for myself. I can speculate that I would think every ... you know, ... orders are orders. No, not like I'm overwhelmed with (laughs) verbal orders or ... You know, the only comment that I can think of it ... maybe ... would ... that about verbal orders ... might be ... 'I got all these verbal orders from this one physician; he really needs to come in and sign off on these.' – Respiratory therapist

Depends on the health professional type

"I think, you know, maybe there is a sense from some of the nurses maybe it's a hassle from their standpoint to have to find the chart and write in it rather than having the physicians to do that themselves. I think from the physician's standpoint, there's not really a judgment, um, involved in terms of whether an order was given verbally, um, or written. Unless there's a feeling that the order was given in response to some information that should have prompted a visit to the patient. So, I guess in a situation where maybe a nurse calls and says the patient was having chest pains. Um, there would be verbal orders that you would give, but if that precluded from seeing the patient then that would be a problem. Um, the other time I guess that it may be frowned upon a little bit is if a patient is admitted and the whole set of admit orders is done as a verbal order set (laughs). That happens sometimes (laughs). Um, people might think that was a little bit dodgy. Not very often but sometimes that will happen." - Physician

Indifference

"I don't think there is any difference. I figure it is equally as important. I can't say I see a difference on how others perceive them. But, I have never done the charge nurse role – that might be a great question who sees the whole unit and not just the patient. This is the same for the other unit that I worked at." – Nurse

Indifference

"I don't think people think about it or there's a thought attached to them. I think it's an expected part of the job." – Nurse

Indifference

"I haven't heard too many issues about verbal orders other than some of the new grad nurses saying 'You know, I have never written this before ... How do I write it out?'" – Nurse

Depends on individual

"Some people like them, some don't." - Nurse

The themes and patterns in Appendix C were derived from Appendix B. Of note, it was not possible to extrapolate themes and patterns from all question types.

Theme 1: No Waiting

Quick

"I get a prompt plan; a prompt intervention; prompt something to do (laughs); something gets done right away for a concern." – Nurse

Quick

"They are quick. Sometimes that's imperative; that's the best thing you can say for them is that they're fast." – Respiratory therapist

Quick

"I like them because they are quick." – Nurse

Quick

"Sometimes in the morning if someone's electrolytes are low, just because there are so many patients all around the hospital, I may just call to make it faster just for them to get electrolyte replacement." – Physician

Convenience

"Well ... for example, if the physician is out of the hospital, he can give an order for a patient and they are not on the site. Or if you are in the hospital and your patient is on a different ward, you don't have to actually go there to write the order. So, the convenience is certainly why people do it." - Physician

Convenience

"I like that I don't have to have the physician present for me to be able to treat the patient; I can get that order by telephone, if necessary. If you need something right now, you find your attending or who's covering or whatever, you page them and they call you back to get your order. Patient care does not ever wait with us able to write verbal orders." – Respiratory therapist

Efficiency

"I think mostly efficiency on my part. If you were to add together all the time involved in placing a verbal order, it probably ends up taking longer. If you add everybody's time together from the standpoint of the physician, um, it saves time in terms of having to physically get to the place where the patient is and find the chart. So, that's what I like about them." - Physician

Convenience

"They're convenient especially when I'm not in the hospital; or I'm on another floor; or taking care of another patient; or admitting another patient and get called about some change that I don't think it's necessarily acute – doesn't require me that I see a former patient or a patient I've seen that day; I can just ... it's a convenience out of both for me and for the patient and nurse because I don't have to come back later that day and write it. It can be done right when they need it." – Physician

Theme 2: Accuracy

Meds becoming more accurate and accountable

"Now because of JCAHO, I do see that. In the __ years I've worked here, I've seen things improve as far as verbal orders go, in ... specifically with meds. There was a time where they were having me, um, to check meds. I was like I'm not a pharmacist; I don't ask the right question. I wouldn't know a bad dose if I saw it, you know. So after that, I kind of refused to check the meds. I felt it was a nursing duty ... they were more equipped, more trained to do that than I was. Since then I have seen that it has improved a lot. So, I think they getting more accurate, especially having to become more accountable." – Health unit coordinator

Multiple views

"I would think ... telephone orders are probably the least accurate. Probably the most accurate would be to always write it out yourself. Um, I would have to say because I give the verbal order and write them usually at the same time for patients in the ICU, I would consider those two pieces as accurate. But, maybe through the nurse, who is hearing it and rather than looking at it, it's not as clear. But, I think in that setting, since the doctor is always there, like it is always checked. If you ask for 1 mg before you give it, OK, I'm giving 1 mg of whatever, so you also have a feedback system there to check if it's correct. Yeah, that's a good point (in reference to the researcher's comment regarding illegibility). Yeah, that's true. Somehow it's amazing that it does actually get in the chart, I mean in the medication list for the patient, as I checked it. So, there haven't been any mistakes like that I have seen. But, I imagine that could happen." - Physician

When pharmacists write orders

"Well, if the pharmacist is writing the order, I think it's more accurate (laughs). Sometimes, um ... when nurses take verbal orders ... I mean every discipline has something they are good at ... nurses obviously have their niche about what they're good at -- patient care, patient assessment and things like that. Really their drug exposure is not that much, so frequently they don't know how to spell drugs. Or they are not familiar with the dosing. So, that makes it ... sometimes when they take a verbal order ... if the physician maybe didn't tell them specifically what to write, sometimes ... there can be mistakes there. Pharmacists write good verbal orders (laughs.) Only because we knew what we want to start with; we're just not ... haven't been ... where we are outside the place where we say here, 'Take this verbal order,' which is what happens with nurses." - Pharmacist

Multiple views

"No, I would say they're not. I don't think they're more accurate than written orders unless you figure in that, perhaps, by giving a verbal order, you had spoken to the nurse and given the rationale behind it. Whereas, maybe if you were just writing the actual medication, the dose, that piece of it would not necessarily get related to the person that was going to administer the medication for example. But, I don't think in terms of ... I can't imagine that they can be more accurate ... well, yeah the legibility issue ... so (sighs). I guess you also have somebody else that's ... that's hearing it and perhaps correcting a potential mistake you might not notice yourself. So, I guess maybe they have the potential to be more accurate ... (long pause). Um, ... I can't say one way or the other (laughs)." - Physician

When nurse presents it to doctor

"Only accurate as info I present to the doctor. But, it could be less accurate because if tell someone and they tell someone, you know, there's potentially a problem. But in terms of patient care and quickness (get stuff done), can't imagine doing job without verbal orders. People know that they're serious when taking verbal orders and not acting like jerks." - Nurse

Multiple views

"That's a very interesting question; I can see both ways. If they read it back, it's more accurate. I can also see how if ... there's potential for it to be miscommunciated." - Physician

Familiar with patient

"It's more accurate if I know the patient." – Nurse

Sub-theme 2a: clarifications/corrections

Clarifications/corrections

"You can write it the way you want it. As pharmacists, that's very important because we wouldn't have asked them if there weren't problems with the original order. So, if I get to write it the way ... it would be written (chuckles) the correct way (laughs); I don't have to worry asking them for another clarification. Mostly for pharmacy purposes ... I mean often we will include JCAHO. As pharmacists, since we read a lot of orders, we are more sensitive in making them readable and using appropriate abbreviations or we are supposed to be (both laughs). Anyway, so that's better." – Pharmacist

Clarifications/corrections

(See next page for additional quotations.)

Clarifications/corrections

"I don't think they are more accurate. What I read back to them (physicians) is what I am writing, so I may reword it a little bit especially if it is a detailed order like, 'transfuse two units of RBC's, you know, give twenty milligrams of Lasix between and then check an H/H q2°, you know, every ... or two hours after.' It may get reworded a little bit but I am writing it down as I say it, so I think in that way, it may not be accurate. It may not be what they would write. I might write it differently than they would write it. It seems clearer to me the way I am writing it or I'll use the abbreviations that are ... the correct, uh, abbreviations instead of using the ones like, um, oh, um, primarily it's got to do with 'bid' or 'daily'; or, you know, one of those abbreviations or they leave out 'po.' But, I'll read it back to them while I'm writing it. And they'll say 'give Pepcid 20 today,' and I'll write 'Pepcid 20 mg po' and they'll say 'yes.' And I say 'today'? If I wrote it exactly as the way they told me, it would require another telephone call (laughs), so I just say again what I'm ... I guess what I'm doing is putting in the correct language and reading it back to them and they say 'Yes.' Standardized abbreviations, the ones they recommend, yeah. Or putting in, you know, what route because they haven't said it ... that kind of thing ... All of those (physicians) regardless of how many years of practice." - Nurse

Clarifications

"Don't just write morphine but 'morphine for pain;' pain/medication and for what reason to make things more accurate. Also, helps to jog memory what I was thinking about – pharmacist can notice mistakes seeing the reasoning behind order." – Nurse

Clarifications

"The clarity sometimes ... I think it's something that they want me to write but I'm not sure. They may have said something to me ... oh, they're just telling me; some clarification issues. They (physicians) don't come out to say 'Would you please write this?' or 'Would you take care of this?'" – Nurse

Theme 3: Interpersonal Relations

Positive

"I can actually talk to the doctor. If there is something I am calling about, I can explore other options with him. If he writes for one thing, um, I am only am to give that one thing. Whereas, maybe there is something I have seen or that the patient is asking for it, I can have him open up to other options with me or discuss, you know, things... that's one thing I like about it – as far as a discussion with the physician of other options." – Nurse

Positive

"I like the contact with physicians." - Nurse

Positive

"On this floor, I noticed the doctors are all really nice. I was even teasing one doctor last night. 'Every time we call you, you are always so nice.' And it was like 11:30 (PM). He goes 'I'm always nice.' It's been my experience that they are all really mellow and easy to get along with." – Health unit coordinator

Positive

"Outside of that teaching staff, we have to be able to have a pretty good rapport with all medical people in the hospital; as far as the doctors are concerned, the hospitalists and the attendings because all of them can give us a verbal order at anytime ... They're (pulmonologists) very communicative and very easy to get along with. You have a question (and) they are there to answer it for you. It makes work a lot easier that way ... Yeah, I don't think it would have mattered who it was. I always approach my job the same way no matter who it was. I don't have those kinds of ... interpretative differences with too many people. And if I do, I get them straightened out quickly." – Respiratory therapist

Negative

"Yeah, I would say the mood of the doctor. I mean that's usually what is bothersome. If, you know, you're going to call him and not have any problems (laughs), well then it's not a problem. I'm not going to not call because I'm worried about the doctor not being happy with me. But, it's always nice to have, you know, a friendly person on the other end (laughs) that you're talking to. So, that's the only thing that I cringe about. It's not that big of a deal but ... (laughs)." – Nurse

Negative

"One doctor ordered 'Tylenol 10 grains PR' - hardly get grain orders. I asked him to repeat it. It was like midnight and he was whispering. He said it very slowly ... it was like very rude; didn't like that. Don't like the feeling that I'm interrupting someone and they're grumpy about it." – Nurse

Negative

"I dislike that often doctors are so rushed or you get the impression when you're talking to them that they're so rushed. This is not all physicians but many of the physicians are bothered you called them. They need to know right away; give me the order and get on with their day." – Nurse

Negative

"'Don't call me on Thanksgiving, you're the third person (whispered).' So, you do get the cranky doctors who don't want to be bothered. I don't even remember what the instance was over, but it was important enough that they (nurses) felt they needed to disturb him." – Health unit coordinator

Theme 4: Policy

Unsure if policy

"I'm not sure if it's a policy, but, um, new safety recommendations that we actually do go get the chart. And when we read back a verbal order, we read it back after we have written the order out. So, we are actually reading back what we write. Not just repeating back what the physicians had said to us on the telephone. For instance, they'll say 'KCl 20 mEq PO x 1 now' and I would repeat that back to them and write it. But, now for safety, what's encouraged is for me to go ahead and write that order into the chart ... to a specific chart and not a piece of paper and then to read back what I had written down to a physician. So, it's a good safety precaution." - Nurse

Unsure if policy

"That was when I first started working (here). I guess then all the secretaries were doing it. It was like, you know, 'If you don't let me ***touch*** *a morphine, why are you letting me to decide whether that is a correct dose or not?' That's obviously nursing. I don't know whether that was hospital policy; it might have just been unit policy. But, I just flat out refused to do it anymore. I don't know whether someone took it on and it got stuck in that position, that unit or what." – Health unit coordinator*

What was decided

"What we decided to do, um, is to ... if the patient is not there, to write their name, first and last name, on a blank set of orders and then to write the order out. Then when they return, we can stamp that in the chart." – Nurse

Unsure if JCAHO regulation

"Well, just briefly I would say in the last month when ... actually I don't know whether it's a JCAHO regulation or not ... where they have been really pushing to change abbreviations like 'qd' to 'once daily.'" – Physician

Unsure if JCAHO requirement

"Is it (read-back) a requirement? Oh, I didn't know it was a requirement. It would make sense." - Physician

Theme 5: Communication

Incomplete information given

"What I don't like about them (verbal orders) is I don't get all the information that I need a lot of times. If the doctor says they want an echo but they don't tell the nurse why he wants it for, and so somebody has got to call the doctor back and find out why they want the echo. Or someone has got to look for a reason and to decide what the doctor is trying to think. And (sigh) with lab results too, some of the labs that the doctors order by phone, sometimes they're not in the computer the way they had stated. So then I have got to call the lab to find out are there other names this lab could be; and then they give me a list of names they could be and what they could be looking for. And then still (I) got to go back and find out what it is ... exactly what it is they are looking for. I guess different hospitals call different labs different things, so. Like a chem. 7 is a pretty basic one. Here they don't go by chem. 7; it's a 'basic metabolic panel.' So, um, that's really a basic one, but, um, like the Coombs' (test) indirect, direct. Certain tests like that, if I don't know what they are looking for, I gotta call them 'cause if I order the wrong thing, it's going to give them all the wrong data." – Health unit coordinator

Incomplete information given

"There was a nuclear scan that was ordered on this patient and, um, apparently the doctor communicated to the nuclear techs down that ***he didn't want it done*** *for some reason. And so the nuclear tech called us back and informed us, while we were waiting for this patient to go down for his test. So, he said, 'Did you know the doctor cancelled it?' I replied 'He did (surprised tone)?' OK, well,* ***there's nothing in the chart that indicates that it was cancelled ...*** *I had to kind of spend extra time trying to figure out like what was going on and why didn't he want it ... later, um, the next day, I found out he had* ***forgotten*** *to write in the chart ... It didn't tell the whole story." - Nurse*

Uncertain who to call

"It's a pain to figure out who (doctor) and when to call; that's why with hospitalists and residents ... because of text-paging, it's so much easier. In this unit certain surgeons like their physician assistants to be called first. You can always ask for the charge nurse, but it is kind of a pain to figure out who to call." - Nurse

Authoritativeness

"With verbal orders, you speak with authority in critical settings. Some people are better at giving orders." – Physician

Sub-theme 5a: Process

v.o.'s are more like a conversation

"I think actually I feel safer with a telephone order. It, um, it's more of a conversation that you're having with a physician sometimes with the verbal orders. And I don't know how well I repeat those back or whether they're repeated back. 'Can we DC this central line?;' 'Yeah, go ahead,' and, um, we'll talk about the rest of the order and then they leave the unit and they forget to write it. So, I would write 'DC central line v.o.'" - Nurse

v.o.'s while walking away and t.o.'s more focused on each other

"If it's a verbal order, I can see that the nurses maybe are not repeating or fully concentrating on what's being said because it's usually doctors are walking one way and the nurses walking the other ... where they don't have the full attention to each other (like) on the phone ... I don't want you to think they're not paying attention ... Let's say, if a nurse has two or three crises going on at the same time and the doctor is in a room with one patient, he may ... might have told her something and she's thinking about the crises going on in the other two rooms, you know. 'Bring me this or I need you to do this.' And she may not have gotten all of it because she's got her mind on other things. But, when they are on the phone, they are kind of more tunnel-visioned - focused on each other." – Health unit coordinator

v.o.'s – hear and see feedback system than person saying it verbatim

"Personally, I feel like if you give it directly with the person like face-to-face, it will more likely to happen correctly. Why? I don't know ... I say I would be there and then I would hear the feedback (the check system); when they give it and get it confirmed that's what the medication is and I watch them give it. So, I feel more certain in my mind that's what happened." - Physician

t.o.'s given on the cell phone

"No, the only time I could say there is a problem if you had somebody on the other end with a bad cell phone connection or something like that. But, then I wouldn't take an order over a broken up cell phone. I wouldn't take it at all. I would call somebody else." - Respiratory therapist

t.o. read-back more formal

"Nurses read them back either way. But, I'm not as aware of it in-person as I am over the phone that they are reading it back. In-person, it sounds like they are making sure that they heard you. Whereas, reading back over the phone, it feels ... it's a little bit more formal. In terms of ... other differences between verbal and telephone (voice fades away) ... not really. Pretty much more in terms of the way they are carried out and communicated." - Physician

v.o.'s – see person; t.o.'s – don't know if person is paying attention

"But, they're (hospitals in general, JCAHO standards) trying to get away from verbal orders and probably phone orders – it's easy for everyone to be thinking about something else and not write it in the chart. There is a difference but there isn't a difference because it's still verbal communication. I say if you can see the person, you can feel more confident in what they're (doctor or person giving the order) communicating. Like if they were talking on the phone, I wouldn't know if you were looking at the dog next door or thinking about something else. When you can see the person, you can get a feel more for how they are taking the situation and if they get the gravity of it." - Nurse

v.o.'s – unaware of read-back

"I don't know there has been ... that there's really been a second read-back (with verbal orders). I don't think we talked about it. I think we, um, really just spoke about telephone orders." - Nurse

v.o.'s - not all nurses are comfortable if unfamiliar domain

"For example, I'm giving Digoxin to a patient who is on the orthopedic floor. While we are in the process of getting patient transferred the patient develops a heart issue. In that setting the nurse isn't as comfortable with that. I have to be very careful when I say '.25mg IV' – make sure that I'm clear about it and nurse is clear about it. You can tell when you are giving a nurse a verbal order that they are not comfortable by the sense of her voice ... It's more the area of expertise (and not years of experience)." – Physician

t.o.'s given on the cell phone

"I hate it when they (physicians) use cell phones because when they are driving, sometimes there's static. That's my biggest peeve. I do not like ... if they are driving, I say 'Can you park your car and talk to me? I need to get this right.'" - Nurse

Theme 6: Risks/potential for errors

Potential for errors

"They (verbal orders) can be misconstrued. They are liable to be misunderstood and they are not as accurate overall." – Respiratory therapist

Risks

"Well, it's difficult to communicate; it's just one more person that you have to go through. And it's difficult to communicate the exact nature of the order with the person you're speaking with on the phone, especially if they don't have the same training as you. So, I think miscommunication could happen. And the order can be incorrect with how it's translated, maybe not given the same attention to detail over the phone than if you would in-person. Certainly the risk of errors is higher; that would certainly be a drawback of a verbal order." - Physician

Potential for errors

"It's not so much my perspective but I could see how in the nursing perspective - in the unit primarily - how things can be miscommunicated. Because sometimes they're not often as if the physician turns to you and succinctly states 'Write an order in a certain way.' Often it is phrased in a question, 'Can I do this?' And so there is room for the physician to may not interpret ... you may not be on the same wavelength when you're just phrasing it as a question. 'Would it be OK for me to do this?' For instance, if I ask them, 'Can I renally adjust the medication?' He or she will say 'Yes,' then there's some room for it ... because the physician is not exactly aware of the exact thing that I'll be writing. But, before he or she signs it, they'll read it to make sure they agree." - Pharmacist

Risks

"Um, what I don't like? I guess there is a risk of having an order written incorrectly. Although I have to admit that I can't remember the last time that was a problem that I noticed. So, it doesn't seem to be a big issue (said very softly)." - Physician

Potential for errors

"There's potential for the order to be written incorrectly or to be taken incorrectly." – Physician

Potential for errors

"There is always the potential they could be misinterpreted. When it is quick and heated, it is likely to be misinterpreted." - Physician

Risks

"Either side (nurse or physician) can forget to write it down." – Nurse

Potential for errors

"There is the risk of misunderstanding especially with English as a second language and with certain words." – Nurse

Theme 7: Work Processes

Different styles

"Even if (we) graduate from (the) same program, every nurse has her own style of practicing." - Nurse

Different styles

"Not all floors/physicians use text-paging system." – Nurse

Different styles

"I actually did not like verbal orders at first. I tried not to use them but I've come to use them more and more (now three to four per shift)." – Physician

Sub-theme 7a: Pressure

To find chart

"Although I tell myself don't rush, there's the pressure you put on yourself just because you don't want to keep someone waiting while you go find the chart. ***If you do go find the chart****, that's the other thing." – Nurse*

In general

"You are feeling the pressure; it may not be as smooth and relaxed as they (physicians) could be. Many of the doctors are bothered you called them." [Also under 'Interpersonal relations' section.] – Nurse

When rounding

"Different people round different ways. In the morning what we try to do is see all of the patients that we can very, very quickly, one after another. If there is a quick order that we need to do that we noticed, we write it and go on to the next patient. The people that you are rounding with are waiting while you go get the chart and write out the order than give it to the secretary and go." – Physician

Sub-theme 7b: Trust

Unknown doctors

"In particular, telephone orders especially if I don't know doctor – easy to think talking to someone else and have them say they never ordered this or that; unknown feeling until you know people's names. Who knows if someone is pretending to be a doctor?" - Nurse

Unknown doctors

"I'm not too familiar with all of the Teaching Services because they rotate every July. You have new faces coming in and it's like 'Who are you?' So, that's one way of learning who they are ... is they are giving me verbal orders. 'Who are you?' and they tell me who they are." – Respiratory therapist

Unknown nurses

"I typically unless I have a question for the nurse who is taking care of that patient, in which case, you ask for a particular person. But, I think for the most part I feel comfortable giving verbal orders, you know, to any nurse as long as there aren't, you know, any nuances that you need to share with a particular person that is going to be seeing the patient. Theoretically, whatever that is that you are going to tell them is somehow be conveyed in the order anyway I think for the next person ... the next nurse that takes over, so." - Physician

Unknown doctors

"If I doubted a resident's order, I would not hesitate to go straight to the pulmonologist that day or the intensivist, so if I felt like I needed any verification." – Respiratory therapist

Unknown doctors

"If don't know doctors in-person, have to ask 'Who are you?' Over the phone, they'll say this is so and so (more clarifications sometimes)." – Nurse

Unknown nurses

"I'm not sure that I have worked here long enough to really know the nurses ... I'm not discriminant who I give it to ... And the shifts change and I don't always know the night time nurses. It wouldn't be the same nurse I dealt with earlier in the day." - Physician

Nurses

"For the most part I trust most of the nurses, but I have been burned a couple of times on what they said they wanted and that wasn't what they wanted. It's mostly been ... like with large volumes types of things like D5½NS vs. D5NF's. They have 15 seconds to leave a message (on voice speakers). You can't make them repeat, so you have to tune in. And sometimes in their effort to talk succinctly ... sometimes it gets ... or it can get to the wrong patient 1X 1 bed 2, 1X 2 bed 1. It all starts to sound alike." – Pharmacist

Theme 8: Other Orders

Not a v.o.

"Sometimes there be ... sort of the equivalent of a verbal order where the pharmacists will do a similar notation. For example, if you order, um, 'Coumadin per pharmacy,' then the pharmacist comes in; does adjustments using your name. Although for me, it's not quite the same as a verbal order because, you know, I basically ordered a protocol they're then following through." - Physician

Not a v.o.

"I personally don't consider this a verbal order, but we have these voice speakers that the nurses will page us and say "I need such and so for such and so patient" and there isn't ... it's clearly not a verbal order, but they are verbally communicating to us what they need. So, we don't actually see the written order; we are going on ... I mean we will eventually." - Pharmacist