



Authentication and Reduction of Verbal Orders in a Community Hospital

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Introduction

Medication safety has been an objective of patient-centered care since the first IOM report, *To Err is Human: Building a Safer Health System* (1999) estimated that the deaths of 7,000 people annually were due to medication errors. The report stated that medication errors were a significant cause of morbidity and mortality as one out of every 131 outpatient deaths and one out of 854 inpatient deaths were attributed to these types of errors (IOM, 1999). A subset of the medication-related errors occurred as a result of verbal orders given over the telephone, sent via fax, or transcribed by another health care worker. In 2003, the National Quality Forum and The Joint Commission set the standard for the receipt of verbal orders by requiring the RN or Pharmacist to first transcribe the verbal order and then read it back to the physician for verification. This standard takes into account the variety of human and environmental factors that might cause miscommunication, misunderstanding, and transcription errors: the fatigue of nurses and pharmacists, noise levels, sound-alike medications, accents, and different pronunciations coupled with numerous individuals and steps in the process of verbal ordering (National Quality Forum, 2010).

Purpose

The purpose of this quality improvement study was to use Wakefield and Wakefield's verbal order process to discover the factors related to verbal order use in a community hospital and to decrease the potential for medication errors related to verbal orders, particularly unsigned verbal orders.

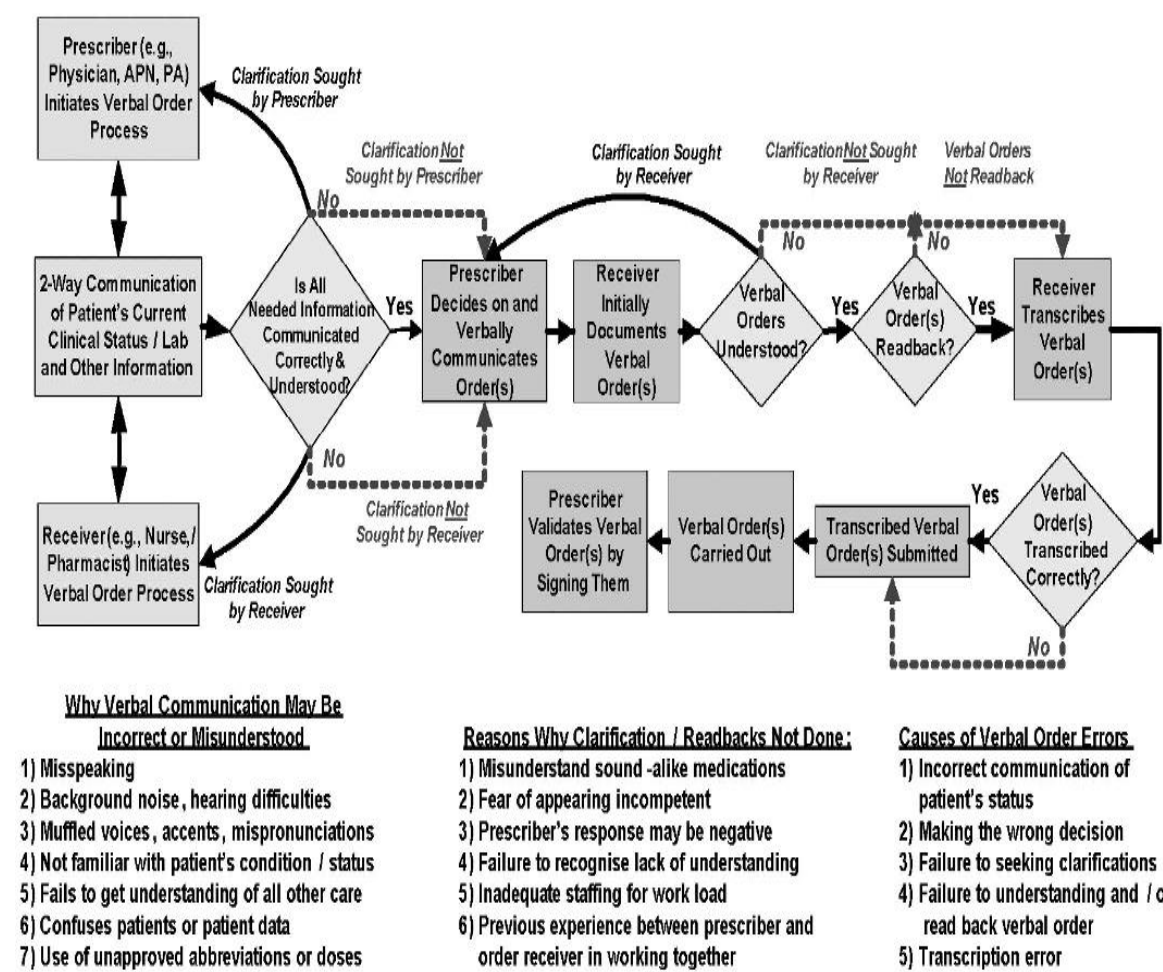


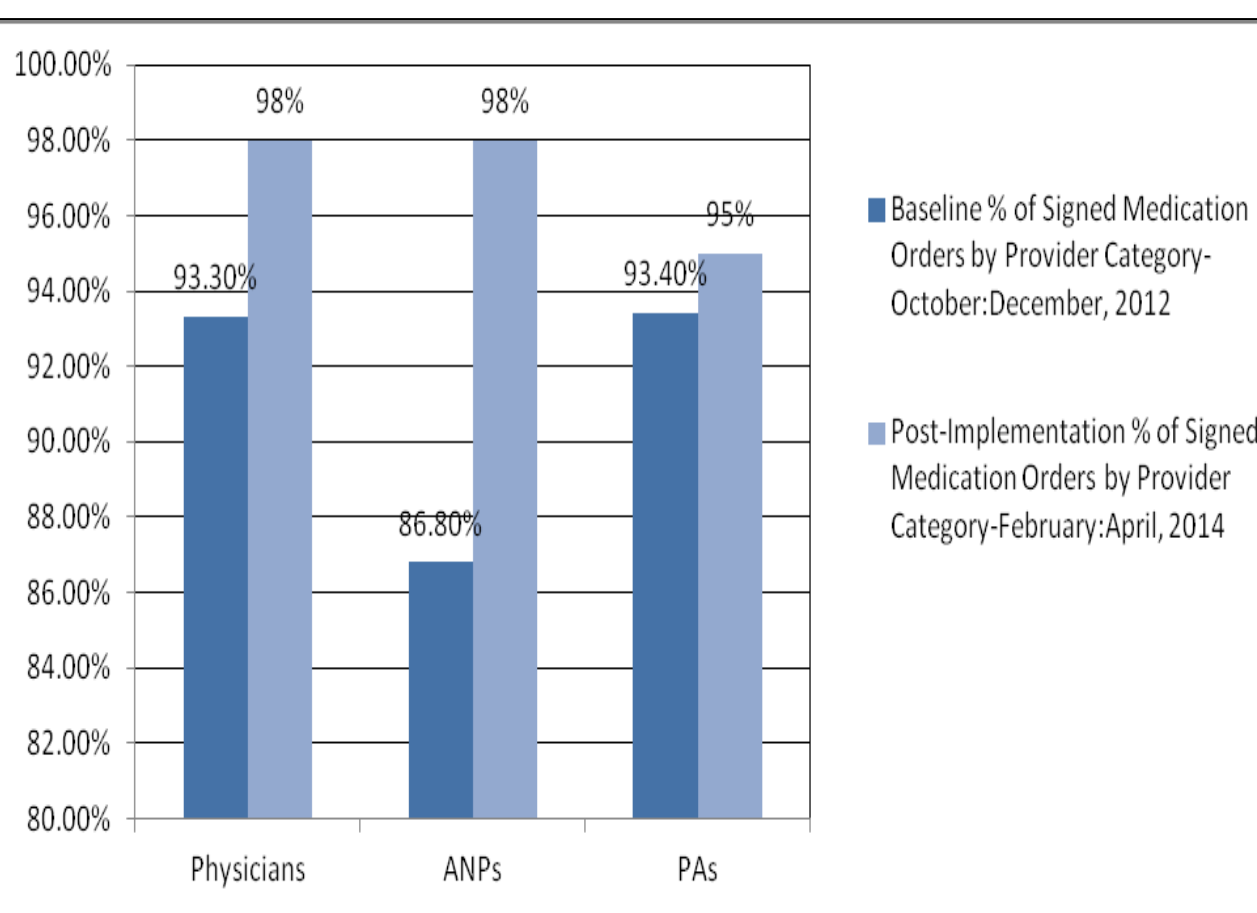
Figure 1. Verbal order process model (solid arrows indicate intended flow. Broken arrows signify unintended flow (Wakefield & Wakefield, 2009).

Methods

In 2012, a verbal orders subcommittee was formed, and two units were identified as pilot units to trial practice changes. The pilot unit team consisted of two staff nurses, the nurse managers, a physician champion, a quality improvement representative, and the project leader. A retrospective paper chart review was conducted from October to December 2012 for two medical/surgical units—Unit 1 and Unit 2 for verbal orders that remained unsigned after discharge of the patient. On Unit 1 there were 7,698 total orders with 356 (4.6%) unsigned verbal orders. Unit 2 had a total of 4,879 orders written for 142 discharged patients with 432 (8.9%) unsigned orders.

In an effort to understand the root cause of unsigned verbal orders, the team examined the number of signed and unsigned orders after discharge based on prescribing provider. **Graph 1** shows the percentage of baseline and post-implementation unsigned verbal orders by physicians, advanced practice nurses (APNs), and physician assistants (PAs). The team was interested in what type of provider was responsible for the majority of unsigned verbal orders.

The verbal orders subcommittee then developed a medication safety toolkit for all prescribing providers who had more than 5 unsigned verbal orders within a month. The identified providers were required to complete an electronic learning module with a post-test. The providers who completed the learning modules were followed in the post-practice change period to determine improvement in compliance with signing off verbal orders. In 2013, the hospital went live with an integrated electronic health record and data was then collected in February, March, and April of 2014.



Graph 1. Baseline Percents of Signed Medication Orders by Provider Category—October-December, 2012 and Post-Implementation Percents by Provider Category—February-April, 2014

Results

Each pilot unit is listed in (**Table 1**) with the number of unsigned verbal orders and the total signed orders during the data collection time periods, and converted into a ratio or proportion to show the change in the reduction of unsigned verbal orders and the increase in the number of signed orders after the intervention. The number of orders increased dramatically due to the inception of electronic order sets that counted each individual order, but numbers of unsigned verbal orders decreased after the medication safety toolkit was implemented. Using Mini-tab software, a two sample t-Test was utilized to determine a statistically significant difference between the baseline and post-implementation data sets ($p < .05$). There was a dramatic improvement in the average ratio, going from **.05** to **.01** in Unit 1 and **0.1** to **0.01** in Unit 2, of unsigned orders for both units as a result of the intervention. The standard deviation for Unit 1 is **0.02** and **0.00** and for Unit 2 is **0.01** to **0.00** for baseline and post-implementation data time periods respectively.

Additionally, in (**Graph 1**) the three categories of prescribers is displayed showing the baseline data of signed medication orders, and the increase in signed medication orders after CPOE. Physicians, ANPs, and PAs who completed the module went from 93.3% to 98%, 86.8% to 98%, and 93.4% to 95% of signed medication orders respectively. The results indicate there was a positive increase in the percentages of medication orders signed after the program by all categories of providers.

Month	Unit 1 Unsigned Verbal Orders	Unit 1 Total Signed Orders	Ratio	Unit 2 Unsigned Verbal Orders	Unit 2 Total Signed Orders	Ratio
10/1/2012	113	1483	0.076	110	1207	0.091
11/1/2012	130	3151	0.041	162	1427	0.114
12/1/2012	113	2708	0.042	160	1813	0.088
2/1/2014	109	7364	0.015	78	5169	0.015
3/1/2014	82	7388	0.011	42	5233	0.008
4/1/2014	80	7813	0.01	47	5108	0.009

Table 1. Baseline and Post-Implementation Ratio Comparisons

Conclusions

- Significant reduction in percentages of verbal orders after provider education and CPOE implementation on pilot units of Unit 1 and Unit 2
- Enhanced awareness of nursing to no longer take verbal orders face-to-face—if given over the telephone—immediate documentation in EPIC with read-back of the order while provider is on the telephone
- Orders entered electronically by the nurse are sent to In-box of prescriber for sign-off and alert is generated when provider signs into EPIC
- Significant reduction in incomplete medication orders by selected provider group responsible for patients on the two pilot units—Unit 1 and Unit 2

Post-Implementation EPIC Data for Unit 1 and Unit 2 for Percent of Verbal Orders

Month	Total Orders	Verbal Orders	Verbal %
February			
Unit 1	7,364	109	1%
Unit 2	5,169	78	2%
March			
Unit 1	7,388	82	1%
Unit 2	5,233	42	1%
April			
Unit 1	7,813	80	1%
Unit 2	5,108	47	1%

References

1. Institute of Medicine (1999). *To err is human: building a safer health system*. The National Academies of Science, Engineering, and Medicine.
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3. Wakefield D.S., Brokel, J., Ward, M.M., Schwichtenberg, T., Groath, D., Kolb, M., Davis, J.W. & Crandall, D. (2009). An exploratory study measuring verbal order content and context. *Qual Saf Health Care*, 18:18(3),169-173.