

Innovative Approaches to Reducing Nurses' Distractions During Medication Administration

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ABSTRACT

Background: Contributing factors to medication errors include distractions, lack of focus, and failure to follow standard operating procedures. The nursing unit is vulnerable to a multitude of interruptions and distractions that affect the working memory and the ability to focus during critical times. Methods that prevent these environmental effects on nurses can help avert medication errors.

Methods: A process improvement study examined the effects of standard protocols and visible signage within a hospital setting. The project was patterned after another study using similar techniques. Rapid Cycle Testing was

used as one of the strategies for this process improvement project. Rapid Cycle Tests have become a part of the newly adopted Define, Measure, Analyze, Improve, and Control steps at this particular hospital.

Results: As a result, a medication administration checklist improved focus and standardized practice. Visible signage also reduced nurses' distractions and improved focus.

Conclusion: The results provide evidence that protocol checklists and signage can be used as reminders to reduce distractions, and are simple, inexpensive tools for medication safety.

Today's health care setting is a demanding place that lends itself to errors because of the nature of the environment and the fact that humans are not perfect. The staff skill mix and experience levels vary, and there are numerous and complex functions expected of each individual. Technological equipment and procedures are constantly evolving. In such a setting, there are few predictive controls leading to the potential for many problems.

Successful strategies used by other industries for reducing errors have also been recommended for health care. Research that uses teamwork, decision support, and checklists borrowed from the airline industry can

contribute value to health care safety efforts (Agency for Healthcare Research and Quality [AHRQ], 2001). Pilots follow checklists directing appropriate actions, and do not engage in conversation unrelated to the flight during take-off and landing. Airline research indicates that errors have occurred most often because of failures in this type of teamwork and coordination. Similar complex work encountered in health care also requires teamwork and other strategies borrowed from aviation (Helmreich & Merritt, 1998). Thus, nurses could potentially prevent errors by using safety checklists and other practices during critical times. Reducing unnecessary conversation and other distractions would be an additional mechanism for medication delivery safety. To that end, redesigning the healthcare workplace to avoid interruptions has the potential to prevent errors.

ROLES AND FUNCTIONS

People in a work group frequently appreciate safety as a priority only if valued by the informal group leader. However, education also provides reasons and principles for changing behavior. Essentially, people will listen and abide by rules when provided with adequate grounds for the conduct (Geller, 2000). UI-

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timately, every member of the team is important for supporting safety within the nursing unit.

In an effort to maintain the medication administration schedule, nurses are often hurried, distracted, and interrupted during critical steps in the process. Hospitals in general tend to be very noisy settings with conversations occurring in crowded spaces. Nurses frequently perform more than one task at a time within this complex environment. For example, they often take phone calls while obtaining medications or charting. A basic understanding of factors affecting human learning and memory provides insight into error prevention strategies.

HUMAN FACTORS AND ERRORS

There are limits on human cognitive function and the degree of stimulus tolerated before processing breakdowns occur. Over-stimulation to any degree can affect precision, attention span, knowledge retrieval, concentration, and skill performance (Moray, 1994). There are two types of errors that affect functioning: (1) slips and lapses and (2) mistakes.

Slips and lapses result from a departure from the plan, whereas mistakes result from the wrong plan or choice. Slips and lapses include situations when an individual forgets a seemingly simple task or item after arriving in the intended destination. These often occur when functioning on "auto-pilot" with little thinking being implemented (Reason, 1991). People tend to equate a current circumstance to one they have seen before and automatically assume the same solution will work (Moray, 1994). For example, a slip occurs when a nurse proceeds to a patient's room without the requested pain medication because something caused a distraction or interruption as the nurse was entering the medication room.

Slips, memory lapses, and procedural violations affect the short-term memory. This is the working memory, which is used for attention, consciousness, and storing small amounts of information (Reason, 1991). Provided these parameters, distractions can cause nurses to lose focus at a critical time that can easily result in tragedy.

DISTRACTIONS

Distractions include anything that draws away, diverts, or disturbs attention from achieving a goal (Pape, 2002). Excessive input (information overload) and distractions compete for the individual's attention and fill the working memory where information is temporarily stored, thus affecting the ability to concentrate. Slips occur when an interruption prevents an intended action during information overload (Reason, 1991). For example, if a nurse agrees to turn a co-work-

er's patient while administering medication from an extensive list, a slip would occur if the nurse forgot to turn the patient. A mistake would happen if the nurse turned the wrong patient.

Another example of a mistake is if the nurse sees a familiar patient and decides that there is no need to check the patient's armband or allergy band. An error can easily be made because the patient was not the same individual the nurse thought, or the patient's allergies have changed.

A multitude of both internal and external factors affect experienced and novice nurses. However, distractions and information overload more often affect the new nurse or newly employed nurse (United States Pharmacopeia, 2003). Basically, the potential for slips and mistakes is a function of the internal environment, whereas distractions, interruptions, communication problems, time pressure, and noise are functions of the external environment. When the two combine, errors are more likely to occur (Reason, 1991). This is why it is important to consider both inherent human influences and external pressures.

Other factors contributing to errors include multitasking, hurriedness, and the effects of fatigue (United States Pharmacopoeia, 2000). The project that will be discussed was based on a study where focused protocols and teamwork significantly reduced distractions. Results indicated that distractions can be reduced by educating staff members to not distract nurses during critical times. Nurses' avoidance of conversation and use of checklists and signage also contributed to a reduction in distractions (Pape, 2002).

ORGANIZATIONAL CULTURE AND TEAMWORK

Culture is a set of norms, attitudes, and underlying values within any organization (Harrison & Shirom, 1998). If safety and error prevention, innovation, and teamwork are not valued by managers, they will not be valued by staff. Therefore, a standard of excellence must be created within the organization that ranks safety as a priority (Helmreich & Merritt, 1998; Moray, 1994).

Teamwork often suffers when social pressures cause teams to become too informal (Moray, 1994). Airline research indicates that errors have occurred most often because of failures in teamwork and coordination. As a result, the airline industry emphasizes teamwork and clear lines of authority. Conversation is avoided as pilots follow standard checklists directing appropriate actions (Helmreich & Merritt, 1998). Likewise, similar procedures can be effective at improving team function and reducing distractions for nursing staff.

