PATIENT SAFETY FIRST

Distractions, Interruptions, and Patient Safety

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The circulating nurse is preparing for a procedure in the OR and is busy mixing a medication to be delivered to the sterile field. After adding the required epinephrine to the medication, the nurse hears a loud "pop" and sees a puff of smoke in another part of the room. She stops mixing the medication so she can investigate the cause of the disruption. After discovering that a loose plug in the wall was responsible for the event and correcting the situation, the nurse returns to mixing the medication. She cannot remember whether the epinephrine was added, so to be "safe" she adds the epinephrine again. Because of the interruption, the nurse inadvertently doubles the amount of epinephrine ordered in the solution.

Distractions and interruptions often beset clinicians as they try to provide safe patient care. When an interruption occurs, it can negatively influence a clinician's ability to stay focused on an activity or procedure. Some clinicians just expect to be distracted and interrupted, believing that this is a natural part of their work day. Interruptions of all types occur in everyday life, but when they take place in the clinical environment, the results can be serious or deadly. There may be helpful strategies, however, that a clinician can implement to minimize interruptions while increasing his or her ability to manage them. By adopting a strategy to decrease or avoid distractions, a clinician will stay more focused, which can help promote patient safety.

Types of Distractions and Interruptions

Merriam-Webster's definition of *distract* is "to draw or direct (as one's attention) to a different object or in different directions at the same time,"[1] and the definition of *interrupt* is "to stop or hinder by breaking in."[2] A distraction often will redirect a clinician's attention away from an important task. Common distractions and interruptions that occur in clinical environments include

- the telephone ringing,
- people talking loudly or interrupting someone's train of thought, or
- the computer signaling that new mail has arrived.

Timing. The timing of a distraction may be equally important as the type of distraction. The timing of an interruption can result in a clinician missing a critical activity or thought; and delays or omissions in treatment can result in negative outcomes for the patient. For example, if a nonsignificant issue interrupts a nurse when he or she is performing a complex task such as programming a patient-controlled analgesia device, he or she might forget to verify the rate or concentration of the medication and subsequently make a serious error.

A nonsignificant issue that interrupts a nurse during a complex task may lead to a serious medical error.

For health care clinicians, however, there is little opportunity to say "no" or "not now" to distractions or interruptions. There may even be an unspoken expectation that part of a health care clinician's job is to handle all types of interruptions effectively and to do so without appearing stressed or flustered. The reality is that humans have a limited capacity to manage distractions

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and interruptions in a safe manner.

Expectations. Too often clinicians accept distractions as integral to the way work is performed in health care settings. Thus, unlike the environment in an airline cockpit, which is strictly governed by regulations that prohibit crew members from performing nonessential duties or activities when an aircraft is involved in taxi, takeoff, and landing, and during all other flight operations conducted below 10,000 feet, the health care environment is significantly less controlled. For most perioperative personnel, it is difficult to imagine an OR that is quiet when someone is preparing medications or performing highly technical or critical steps of a surgical procedure.

Research on Distractions and Interruptions

Several researchers have studied the types and effects of distractions in the nursing environment. Coiera and Tombs[3] found that health care clinicians often are required to conduct multiple communications at the same time. In a subsequent study, researchers found that a span of as few as 10 seconds between an intention and an interruption can result in an individual forgetting to carry out a task.[4]

Moss and Xiao[5] reported that charge nurses in an OR engage in frequent communication episodes ranging from 32 to 74 episodes per hour. It is difficult to imagine staying on task while managing numerous communication episodes throughout the work day. In this particular study, the charge nurse communicated most often with other perioperative nurses. The charge nurse's most frequent mode of communication was face-to-face, and the communication episodes ranged in length from 10 seconds to almost 10 minutes with a mean duration of 40 seconds. These researchers reported that the most common reason for communications in the OR involved the securing of equipment.[5]

In a study of an emergency department in a large teaching facility, Brixey et al[6] found that RNs experienced an average of three interruptions per hour. These researchers reported that the most frequent interruptions involved communication episodes, including telephone calls, being paged, or face-to-face discussions.[6] The researchers suggested that interruptions may occur as a result of a department's design or the lack of human and physical resources.

Ebright[7] reported that nurses experienced numerous interruptions while providing care on surgical units. In a three-hour block of time, the number of interruptions ranged from seven to 31 with a mean of 19. Interruptions were caused by various individuals, including clinicians and patients, and often occurred while nurses primarily were focused on other activities.[7]

Tucker and Spear[8] concluded that

> *given that nursing work is fragmented and unpredictable, designing processes that are robust to interruption can prevent errors.*[8(p643)]

Observing nurses, these researchers found 8.4 "operational failures," such as medication problems, missing or incorrect supplies, and problems with staffing, during each eight-hour shift.[8] They also found that nurses encountered many interruptions related to either patient care or system issues. The nurses in this study reported that many errors can be caused by interruptions, and because of the interruptions, the nurses experienced increased difficulty in completing their work responsibilities.[8]

Controlling Distractions

It can be inferred from these studies that interruptions and distractions are highly prevalent in nursing work. Regardless of their specific duties, nurses should monitor the number and nature of the distractions and interruptions that they experience while performing their responsibilities, noting when, where, and why they occur. It is certain that some improvements could be made to minimize the number of interruptions that nurses experience as well as the effect these

distractions have on a nurse's ability to provide safe patient care.

Perioperative nurses also need to learn more about the types of interruptions that are unique to the surgical setting. Without a deeper understanding of the types of distractions that are common to the OR, it will be difficult to develop and implement strategies to minimize their occurrence or to improve systems of care. A nurse should consider how interruptions influence his or her work and clinical care throughout the course of the day. Only then will it be possible to determine whether interruptions can be eliminated at certain times or during specific processes to ensure safety.

Unfortunately, multitasking is common in the perioperative environment. To ensure patient safety, certain activities may require a "sterile" environment, similar to that required by the airline industry of pilots and crew members during critical flight maneuvers. Nurses also need to develop specific strategies to increase their resilience to interruptions and distractions.

To date, little is known about how to most effectively manage interruptions and distractions. Researchers, educators, and clinicians must work together to develop and test strategies to increase a nurse's ability to manage the distractions of the work environment. The first step in this process may be simply staying alert to interruptions and becoming aware of how these distractions influence patient care. To understand the nature of the problem it is crucial to learn more about it. – AORN –

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Intake of Vitamin D and Calcium May Affect Breast Cancer

Premenopausal women who consume higher levels of vitamin D and calcium may have reduced incidence of aggressive breast cancer, according to a June 5, 2007, article in the *New York Times*. Researchers studied the survey responses of 10,578 premenopausal and 20,909 postmenopausal women, focusing specifically on their dietary intake of vitamin D and calcium.

After an average of 10 years, 276 premenopausal and 743 postmenopausal women were found to have invasive breast cancer. Data also showed that the 20% of premenopausal women who consumed the highest levels of vitamin D and calcium (eg, more than 948 units of vitamin D and 1,366 mg of calcium daily) had a 33% reduced risk of developing breast cancer than the premenopausal women who consumed the least amount of these nutrients. This association was particularly evident for the most malignant and aggressive kinds of breast cancer tumors. The researchers suggested that women take at least the recommended daily amount of vitamin D (ie, 200 units to 600 units) and calcium (ie, 1,000 mg) to maintain overall health and possibly to help prevent breast cancer.

Bakalar N. Nutrition: vitamin D and calcium intake found to affect breast cancer. New York Times. *June 5, 2007. http://www.nytimes.com/2007/06/05/health/nutrition/05nutr.html. Accessed June 5, 2007.*