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Interruptions and Distractions in Health Care: Improved Safety With Mindfulness

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Perspective

In everyday life and in health care environments, distractions and interruptions are threats to human performance and safety. A distraction may occur when a driver is texting while in traffic or when a health care professional is interrupted during a high-risk task such as prescribing or administering a medication. Interruptions—ringing telephones, active alarms or computerized alerts, or even being asked a question—are ubiquitous in society, and health care is no exception.

Despite recent research related to interruptions and distractions in health care, few evidence-based strategies have been identified that effectively mitigate these patient safety problems. It also remains unclear how to best train clinicians to safely manage their work in the face of the constant onslaught of interruptions and distractions. Recognition is often a first step to increasing clinicians' awareness of their possible effects, both positive and negative.

Distractions and interruptions consist of anything that disrupts an individual from the current task by diverting one's attention. Sources for interruptions and distractions include noise, other people, or electronic devices. Noises may include alarms, ringing phones, and other clinicians. Electronic distractions include beepers, text messages, e-mails, or other communication technologies. In the past decade, researchers have studied the nature and frequency of clinician interruptions and distractions. The evidence suggests that certain tasks and clinical departments are at high risk for interruption- or distraction-related errors. Fewer studies have examined what types of interruptions or distractions cause actual errors in clinical settings. Even less is known about what interventions can be effective in decreasing errors related to interruptions or distractions.(1)

Studies that involved directly observing the process of medication dispensing and administration found that pharmacists, technicians, and nurses are distracted and interrupted as frequently as once every 2 minutes.(2,3) Westbrook and colleagues observed 98 nurses while they prepared and administered a total

of 4271 medications to 720 patients in an Australian hospital. They concluded that each interruption results in a 12.7% increased risk of a medication error and that the error rate tripled when a nurse was interrupted 6 times.(4)

Findings such as these highlight the importance of finding solutions to the safety problems caused by interruptions and distractions. The Institute for Safe Medication Practices recently provided a number of practice recommendations for medication administration. These include: (i) establishing a no interruption zone (NIZ); (ii) ensuring a do-not-disturb approach; (iii) providing staff education; (iv) determining the best time for necessary interruptions; (v) creating checklists; (vi) managing mobile devices; (vii) making system improvements; (viii) managing alerts, alarms, and noise; and (ix) gathering supplies prior to prescribing, preparing, or administering medication.(5) Although each of these practices has substantial face validity, it will be important to study them, individually and collectively, to ensure that they actually do reduce the frequency and severity of medication errors without negative unanticipated consequences.(5)

Certain clinical environments such as the pediatric ward, the emergency department, medical–surgical units, and the operating room appear to be at high risk for interruption- and distraction-related errors. Examining a total of 5325 interruptions in a pediatric tertiary care setting, Hall and colleagues found that two-thirds of interruptions resulted in a delay in the original task, and one-fourth related in a loss of concentration or focus.(6) Researchers report that emergency department physicians are interrupted, on average, 10 times an hour, or once every 6 minutes.(7-9) Nurses in the emergency department are interrupted even more often.(7) One study reviewed 13,025 interruptions experienced by medical and surgical nurses on 36 units from 9 hospitals and found that that 90% of interruption-related errors resulted in delays of treatment or loss of concentration or focus.(10) Such errors often occurred during documentation, medication administration, or patient care assessments or procedures.

Studying surgical residents in a simulated environment, Feuerbacher and colleagues (11) found that in 8 of 18 simulated procedures, operating room distractions and interruptions resulted in major surgical errors. In contrast, when there were no operating room distractions or interruptions, only 1 of 18 simulated surgical procedures was complicated by an error. Cellphone use while performing cardiopulmonary bypass has been reported by 55.6% of 439 surveyed perfusionists, who described accessing e-mail (21%) or the internet (15.1%), despite 78.3% reporting that cellphones can introduce a significant safety risk.(12) It remains unclear how the simultaneous use of numerous electronic devices (beepers, smartphones, communication badges) influences interruptions, distractions, and patient safety.

Despite a growing knowledge of the nature and type of interruptions, there is limited evidence available to guide efforts designed to mitigate the effects. Approaches such as the NIZ for medication administration have been among those most widely evaluated and demonstrate that NIZs can decrease interruptions during medication administration in critical care (13) and contribute to overall reductions in medication errors (14) or interruptions.(2) The adoption of this strategy appears somewhat limited perhaps due to the design of clinical work environments, challenges in making and sustaining practice changes, and a lack of staff engagement. Although it is important to continue to pursue research evaluating specific interventions, we believe that clinicians can do much to prevent interruptions and distractions or mitigate their adverse effects. In particular, we are enthusiastic about the potential benefits of clinician mindfulness in allowing for

practice habits that can defend against safety hazards related to interruptions and distractions.

Mindfulness originates from Buddhism, but more recently has been defined as paying attention to the present moment, on one's purpose, and doing so in a nonjudgmental manner.(15) It provides a framework from which health care workers can work most effectively in the context of numerous interruptions and distractions. Langer suggests that mindfulness helps one notice new aspects of things that are familiar.(16)

The clinician who is mindful of the negative impact of interruptions and distractions may react with increased attention, focus, and concentration on his or her work environment. For example, a physician or nurse might go to a quiet space to review orders or complete other high-risk functions such as calculating a medication dose or writing and reviewing orders. Another strategy in mindfulness is to stay calm and regulate one's emotions. When clinicians are distracted or interrupted, becoming distressed could further contribute to making an error. Being present consists of putting aside external worries, distractions, and interruptions and centering one's concentration on a particular work task. Being present for a particular work activity in a busy intensive care unit might be as simple as preparing medications in an NIZ, turning one's personal cellphone off, and asking others to minimize distractions.

There are a number of pragmatic interventions—such as establishing an NIZ or silencing beepers and overhead pages—that may decrease the frequency of interruptions and distractions. However, in the busy health care environment, it is likely to be impossible to create the hermetically sealed environment of a locked cockpit. Therefore, clinicians need to find ways to manage interruptions and distractions, and we believe that promoting and teaching mindfulness may serve as an important strategy to improve safety.

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