The End of an Error. Complexities in Infant Feeding Management

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Saving babies. Supporting families.

First Candle's efforts to support families during their most difficult times and provide new answers to help other families avoid the tragedy of the loss of their baby are without parallel.

Introduction

We all know that the NICU is an intense and complex clinical environment where you are dealing with the most precious of patients. Infant feeding preparation and management involves multiple processes and players. This complexity presents many opportunities for error. Here we will just begin to scratch the surface of the why.

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Cognitive Demands

To try to work through the many pieces of this puzzle and understand what is happening and why we first need to start by looking at some of the cognitive reasons errors occur.

Distractions in healthcare delivery and their implications for patient safety are well established in the literature. One well-documented example of these phenomena is erroring during medication preparation and administration.

In 2012 the Institute of Safe Medication Practices (ISMP) published an article speaking to distractions in healthcare-related to medication preparation and administration.

They discussed that nurses, pharmacists, and technicians are distracted and interrupted as often as once every two minutes (1,2,3). Medication error risk increases by 12.7% with each interruption (1,4).

When interruptions occur, our prospective memory, or the ability to remember to do something that must be deferred, is impaired (1,2). When an individual makes a plan to complete a task, a signal is set to remind them actually to complete that task. In the case of a distraction, the individual has pulled away from the task they are set to perform. If that signal is encountered in the future, that reminder is supposed to be triggered (1,5). What if that signal does not happen? What if that reminder is not triggered?

Example: *An RN is in the middle of mixing a feed. He or she then has to leave the feeding prep process and area to attend to a crisis alarm. What happens next? What is the cue to remember to go back to what they were doing (or delegate it out)? Do they see the clock and realize the feed is late? Does someone ask them if they need their patient fed? Do they see another staff member feeding a baby and remember? Do they remember where in the process they were? Do they remember it at all?*

In the event an individual does remember to go back to the initial task, they risk omitting or duplicating steps. In certain situations, the entire workflow may need to be repeated, which can be extremely problematic, depending on what they were doing. Adding insult to injury, in an attempt to complete the new task, the individual has an increased likelihood of committing an error with either of the tasks because "the stress of the distraction or interruption causes cognitive fatigue, which leads to omissions, lapses, and mistakes (1)."

Mental Validation

Now let us build a little more on these phenomena. On top of the interruptions and associated cognitive failures, you have to take into account all of the mental validations needed to manage the processes for infant feeding.

Pulling from an FMEA at a large urban hospital, they found as many as 15-20 mental validations are required to prepare feedings for one infant. Validations such as; patient verification, order verification, complex recipe management, combing for volume and fortification, expiration updates, parsing out feedings, planning for real-time and future feeding times, thawing milk, and freezing milk.

NICU nurses generally have 2-4 infants in their care, eating 3-4 times in a 12 hr shift. A nurse/tech could realistically prepare 12 feeds in one day. This would be >180 mental validations in one shift for one clinician specifically related to feeding preparation. These tasks can overlap multiple times throughout a typical shift, leaving every validation point open to potential error. When you consider the need for validation amidst the likely impact of distractions and interruptions, the opportunity for error is high.

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Conclusion

What impacts errors and our ability to detect and prevent them continues to be a complex conversation. Amongst all the distractions and mental validations, we are relying on humans to not only detect but prevent dozens of potential failure points, the majority of which go undetected, unappreciated, unreported, and unresolved.

Unfortunately, at this time, there are no universally accepted national standards to regulate safety management for the preparation and administration of infant feedings in hospitals.

There are many more factors that impact the opportunity for error than what we have reviewed here. To find out more information about the impact of error in infant feeding management, please go to https://www.keriton.com/products#

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Disclosure: The author is an employee of Keriton

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