

COGNITIVE OVERLOAD, MEDICAL ERRORS, AND CLINICAL COMMUNICATION STRATEGY

Offload clinicians' burden of retrieving, retaining, and recording information, and simplify communication



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More than a quarter of a million medical errors occur in the U.S. each year and they are the third leading cause of death behind heart disease and cancer. Communication problems and clinician cognitive overload have been associated with medical errors; communication problems are the most common root cause. Hospitals can help reduce medical errors with a communication strategy that helps reduce clinicians' cognitive load.

WHAT IS THE CONNECTION BETWEEN COGNITIVE OVERLOAD AND MEDICAL ERRORS?

RC: Humans parse and make sense of what is going on around us through the act of segmenting information. As a clinician in a hospital environment, you constantly segment what is important and urgent. When you receive too many pieces of information at once, you become overloaded and have difficulty segmenting. This can lead to mistakes. You are also constantly splitting your attention among multiple sources and having to pay attention to too many things at once. This can lead to cognitive overload and may leave you unable to focus on a critical patient care task.

HOW DO YOU EXPLAIN COGNITIVE LOAD IN THE CONTEXT OF THE CLINICAL ENVIRONMENT?

RC: A clinician responsible for four or six patients simultaneously encounters a constant influx of information. The cognitive processing of it is an ongoing act of sensemaking and of learning.

Learning theory identifies three types of cognitive load: intrinsic, extrinsic, and germane.

Intrinsic cognitive load is about the level of cognitive effort you expend to complete a problem or task. As a clinician, your intrinsic load is affected by stress factors that diminish your working memory, like lack of sleep or a sick child at home. Intrinsic load can be compounded by larger, deeper emotions such as shame, guilt, or grief.

Extrinsic cognitive load is about the level of cognitive effort the clinical environment demands of you. You have little control over the extrinsic cognitive load placed upon you. If you're bombarded with information and you can't control how it's coming at you, you can have a heavy extrinsic load.

Germane cognitive load is the effort you have to expend to make sense of new information. If you receive a lab value with no context and have to go to another system and retrieve past values and other related information in order to understand the complete picture, your germane cognitive load is heavy.

WHAT ARE SOME OF THE KEY PROBLEMS HOSPITALS NEED TO SOLVE FOR TO HELP REDUCE CLINICIANS' COGNITIVE LOAD AND OVERLOAD?

RC: One problem is how clinicians are so often put in the position of having to solve complex problems without full context. You might have a small piece of standalone information, such as a lab value, but you're unable to slot that information into any file system in your head that makes sense to you.

A second problem is the way clinicians often have to split attention between multiple sources of information and pay attention to too many things concurrently.

A third challenge is clinicians' struggle to fundamentally communicate with each other. They are hindered by barriers such as multiple standards, conflicting protocols, and disparate communication tools. The difficulty of communicating is a drain on working memory.

A fourth problem is the pervasive need for redundant documentation. When you have to write the same information three or four times in three or four different places while you're busy and juggling information about four to six different patients, you're likely to make a mistake.

A fifth problem is nuisance notifications. Perhaps a nurse doesn't need to receive a patient's vital signs every ten minutes if a patient is stable, or be notified that a patient's SpO2 has dropped down to 88% when that patient has a normal O2 saturation at 88%.

HOW CAN HOSPITALS SOLVE THESE CHALLENGES?

RC: A hospital that's standardized on a single clinical communication and collaboration (CC&C) platform for all clinicians is positioned to employ strategies to address cognitive overload. Working memory is limited in capacity and duration. Hospitals need to offload clinicians' need to retrieve, retain, and record information, and make it easier to communicate. A comprehensive CC&C platform can make all the difference. ●

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