

# How bad “cognitive ergonomics” can drain doctors’ brainpower

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Think of the brain as a car with a finite amount of fuel available to function optimally.

An excessive workload can drain what it takes for your brain to run properly. So too can having to work in a way that you are constantly switching tasks or being interrupted or interacting with user-hostile technology. These factors, among others, constitute poor “cognitive ergonomics,” a growing problem in health care.

Poor cognitive ergonomics leads to increased cognitive load for physicians, but have you ever stopped to consider what that cognitive overload means in the context of burnout and patient safety?

During an AMA STEPS Forward™ webinar, “Integrating Organizational Actions Toward Patient Safety and Clinician Wellbeing,” two experts tackled that question and offered suggestions on how health care organizations can make changes that build on traditional safety models. That involves integrating consideration for human factors, such as ergonomics, that affect outcomes in patient safety and the well-being of the physicians and other health care professionals caring for patients.

“A clinician’s brainpower is a limited, highly trained resource. It should be budgeted and optimally used just as you consider budgeting other resources in healthcare delivery,” said Michael R. Privitera, MD, professor of psychiatry at the University of Rochester Medical Center (URMC) and medical director of URMC’s Medical Faculty and Clinician Wellness Program.

Committed to making physician burnout a thing of the past, the AMA has studied, and is currently addressing, issues causing and fueling physician burnout—including time constraints, technology and regulations—to better understand and reduce the challenges physicians face.

By focusing on factors causing burnout at the system level, the AMA assesses an organization’s well-being and offers guidance and targeted solutions to support physician well-being and satisfaction.

## Boost patient safety

While technological advances have helped improved medicine, advances move so rapidly that they can be implemented without much thought of how they are affecting the humans who are interacting with the technology, explained Dr. Privitera and Kate MacNamee. She is director of design research for Ximedica, a medical product-development company.

Technology has led to a rise in connectivity, tracking, accountability and expectations beyond typical work hours. The low cost of technology and high personnel costs has led to staffing decreases that only put more stress on the remaining health professionals. And functional, but not usable, technology has created “shadow work” that physicians are all too familiar with—the unseen, unpaid parts of the job that fill your day.

“There’s a paradox,” Dr. Privitera said. Many of the well-intended inventions to improve specific elements of quality, safety or value “when added all together in total, they are contributing to a dysfunction.” That’s because of “the cumulative impact of workload and burnout at the point of care.”

That can have an impact on patient safety.

Although most safety interventions focus on training clinicians, root cause analyses show that extraneous cognitive load accounts for 87.1% of individual medical errors, MacNamee said. While 12.8% of errors are caused by an individual’s knowledge and skill, the remaining errors are directly caused or indirectly caused by an individual’s cognitive load, she said. This includes attention on task, information processing, critical thinking, noncompliance and normalized deviance.

Because extraneous load is inherently reducible, focusing on a physician’s well-being by reducing their cognitive load and improving the work environment overall can help improve patient safety.

## How to improve cognitive ergonomics

Leadership and clinicians working together to make changes can go a long way in improving physician well-being. And Dr. Privitera said patient safety and quality improvement efforts, along with initiatives to cut burnout, can have a greater impact when leadership focuses on human factors and ergonomic principles rather than over-focusing on end result metrics.

Among other things, Here are some broad-stroke interventions organizations can take to begin reducing the shadow work and cognitive load on physicians and other clinicians face.

**Evaluate processes and metrics.** Look at what processes and metrics are being used, along with those to be implemented, and better understand the system-level effects of policies and processes.

**Create standardization.** This needs to happen across processes, teams and units. Allow for routines, but don't standardize at the cost of safety. Instead, standardize deliberately.

**Consolidate information.** This can reduce split attention and bring data together that is needed for workflows.

**Decrease redundancy.** Do this in communication of data. For example, physicians should only be notified of abnormal lab results one time via one route of communication.

**Prioritize design.** Procure equipment and implement layouts with deliberate designs that consider human factors or ergonomics.

**Collaborate.** Administrators, human factors professionals and the clinical staff need to work together to identify opportunities to lower the cognitive load.