

Using electronic health records to predict physician departure

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Physician turnover is disruptive and costly. It affects patients' continuity of care, strains healthcare organizations, and can take a toll on physicians and their families. By some estimates, each departure can also cost a

healthcare facility up to \$1 million.

A new Yale study published Oct. 12 in *JAMA Network Open* examined whether [electronic health records](#) (EHRs), which aim to improve efficiency in healthcare but also have been associated with [physician burnout](#), can be used to identify physicians at risk of leaving.

For the study, the research team analyzed two years of EHR use data from a large outpatient practice network in New England, looking for any measures associated with [physician turnover](#). They found two: the amount of time spent managing the EHR inbox and the portion of a physician's orders that were placed by other [team members](#), a measure of teamwork.

On the second measure, the researchers found that evidence of fewer contributions from team members was associated with higher rates of physician turnover. "There was a higher likelihood of physicians staying if other members of the care team were contributing to their EHR work," said Ted Melnick, associate professor of emergency medicine at Yale and lead author of the study.

Surprisingly, the researchers also found that the less time spent managing EHR inboxes was also associated with higher rates of turnover.

"That was a counterintuitive finding," said Melnick. "Less time spent on inboxes could mean a physician is more efficient or that they have fewer patients, but we controlled for both of those possibilities and still came to the same conclusion." It points to a more nuanced relationship between EHR use and a physician's experience with EHRs that he and his colleagues are working to better understand.

The findings suggest there may be an opportunity to reduce physician turnover, he said. "If we can see that someone is at risk of departure

based on their EHR use pattern that opens the possibility to intervene and prevent what might have otherwise been an inevitable departure," he said.

In recent years, the use of EHR technologies to promote quality, efficiency, and outcomes in the healthcare sector has become widespread. While this shift has transformed [medical care](#) in many ways, it has also added significantly to doctors' workloads and contributed to burnout.

It is likely the use of digital technology will only become more common. A second study from Melnick and his colleagues, also published in *JAMA Network Open*, found that since March 2020, physicians in the same outpatient network examined in the first study have received more messages from patients through the EHR system than prior to the start of the pandemic. (The first study was conducted prior to the COVID-19 pandemic.)

"This is one of the pandemic-related digital transformations that might stick around as the pandemic subsides," said Melnick. "It's not a bad thing from the patient perspective. The medical system is difficult to navigate as a patient and having your doctor at your fingertips is something every patient can appreciate. But for the physician this introduces new EHR-related burdens that we have not yet determined how best to manage."

For physicians, the burden of managing an increasingly crowded inbox might be mitigated by having other members of the care team answer non-medical advice messages or reevaluating how that type of work is reimbursed, he said.

Overall, the two studies offer an important reminder that EHR data can reveal important insights into physicians' job satisfaction and can help

identify when an intervention might be needed to retain them in the practice. They can also provide a reliable alternative to physician surveys, which are typically used to evaluate burnout but whose findings and [potential benefits](#) are limited to whoever responds.

"With surveys, we don't know how accurately the responders represent the full population," said Melnick. "But with EHRs, we can look across the entire relevant population and check in moment to moment."

Melnick and his team are working to refine this method and develop a model that identifies measures of EHR use to predict physician departure. "We don't think EHRs are the be-all, end-all when it comes to physician turnover," he said. "But they represent a way that we can potentially measure risk factors, identify them, and intervene."

More information: Edward R. Melnick et al, Analysis of Electronic Health Record Use and Clinical Productivity and Their Association With Physician Turnover, *JAMA Netw Open* (2021) [DOI: 10.1001/jamanetworkopen.2021.28790](#)

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