

Nursing work environment shapes relationship between EHR and quality of care

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Penn Nursing's Ann Kutney-Lee, PhD, RN, FAAN, Adjunct Associate Professor of Nursing, and a Senior Fellow at both CHOPR and the Leonard Davis Institute of Health Economics. Credit: Penn Nursing

In the decade since the federal government's electronic health record (EHR) initiatives first became law, nearly all U.S. hospitals have adopted some form of EHR technology. Now, focus is on how a comprehensive

EHR can enhance outcomes. Yet, little is known about the sociotechnical factors that can shape the relationship between advanced EHR adoption and quality of care.

In a first-of-its-kind study, Penn Nursing's Center for Health Outcomes & Policy Research (CHOPR) has examined nurse satisfaction with EHR systems and the concurrent effects of EHR adoption level and the hospital work environment on usability and quality outcomes. Data from more than 12,000 nurses at 353 hospitals in four states show that the work environment is associated with all EHR usability outcomes, with nurses in hospitals with better environments being less likely than nurses in less favorable environments to report dissatisfaction with EHR systems.

Overall, 25 percent of nurses reported dissatisfaction with their current record systems while similarly high percentages reported usability issues. Over half of the surveyed nurses reported that EHRs interfered with [patient care](#), while nearly one-third reported that they did not help them to do their work efficiently. Differences in usability reports were vastly different by the quality of the work environment. Nearly forty percent of nurses working in hospitals with poor work environments reported dissatisfaction with the record system compared with less than twenty percent of nurses working in hospitals with better environments. Also of note, nearly half of nurses working in poor environments reported that the EHR system did not help them to work efficiently, compared with one-quarter of nurses in better environments.

"Our study indicated that hospital work environment plays a significant role in how nurses evaluate EHR usability and whether EHRs have their intended effects on improving quality and safety of care," says lead-investigator Ann Kutney-Lee, Ph.D., RN, FAAN, Adjunct Associate Professor of Nursing, and a Senior Fellow at both CHOPR and the Leonard Davis Institute of Health Economics. "Our data showed that the

effect of EHR adoption level on outcomes was moderated and sometimes rendered insignificant after including the work environment. This moderation suggests that the [work environment](#) may play a more important role in the delivery of safe patient care than the type of EHR system."

More information: Douglas Sloane et al, Electronic Health Record Adoption and Nurse Reports of Usability and Quality of Care: The Role of Work Environment, *Applied Clinical Informatics* (2019). [DOI: 10.1055/s-0039-1678551](#)

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