Sharon A. Johnson , PhD

Secure Messaging and Patient Portals:
Designing Customer-Facing Processes

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Patient-facing technologies, such as secure messaging (SM) or email between patients and providers, promise increased patient satisfaction and engagement as well as the potential to improve access and care quality. These technologies may be embedded in patient portals, which link to an electronic health record system, or standalone systems. As with other IT systems, patient portals are likely to be more effective if implemented in conjunction with workflow and process design.

In this talk, process impacts and design guidelines for patient-facing technologies are explored in the context of two separate studies. In the first study, SM implementation at two Veterans Health Administration facilities was examined, through content analysis of secure messages sampled from 40 primary care teams as well as a process analysis developed from interviews with members from a subset of 8 care teams. Questions addressed staff opinions about the integration of SM with daily practice, and team members' attitudes and experiences with SM. We describe several clinical workflow patterns that emerged for SM, as well as explored technology fit and resulting issues. In the second study, we analyzed patient portal use from a multi-specialty group medical practice (250 physicians, 25 clinics, 200,000 patients, and over one million patient visits annually). We examined the relationship between portal use and encounters (telephone calls and office visits) as well as explored effects on perceived health management. Findings from both studies can inform organizational interventions that support more effective patient portal implementation and improved outcomes.

Sharon A. Johnson is a Professor of Operations and Industrial Engineering in the Foisie School of Business at Worcester Polytechnic Institute (WPI). She recently served as Faculty Director of the Healthcare Delivery Institute (HDI) at WPI, and is currently a member of HDI's Faculty Steering Committee. Dr. Johnson's research focuses on modeling healthcare delivery processes, as well as identifying improvements enabled by information technologies and system design methods. Recent projects have explored the use of lean as an implementation strategy for healthcare interventions, investigated the impact of secure messaging on workflows, analyzed access and capacity in health clinics, and examined the implementation of electronic health record systems, including personal health records. She has also explored hands-on approaches for teaching lean process design. Dr. Johnson's research has been supported by the National Science Foundation and the New England Veterans Engineering Resource Center. Her work has appeared in Operations Research, the Journal of the Association for Information Systems, and the Journal of Healthcare Management. Dr. Johnson received her Ph.D. from Cornell University in Operations Research and Industrial Engineering in 1989, and served as Industrial Engineering Program Director at WPI from 1996 to 2009.

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