

More effective communication among care team may lessen delays in care, allow for shorter hospitalization

5 April 2016

Patients whose hospital care providers used mobile secure text-messaging as a means of communication had shorter lengths-of stay compared to patients whose providers used the standard paging system to communicate, according to a new study from researchers at the Perelman School of Medicine at the University of Pennsylvania published online in the *Journal of General Internal Medicine*. While several studies have suggested that mobile secure text messaging may improve communication, the new study is among the first to assess its impact on patient outcomes.

The study comprised approximately 11,500 patients at two hospitals which both began with the same paging system. After introducing secure text messaging (sent through an application on a smartphone which encrypted the text before it was sent and decrypted it before it was viewed) on select floors at the Hospital of the University of Pennsylvania, average patient length-of-stay declined in the first month from 6.0 to 5.4 days, but was unchanged on similar floors at the control site, Penn Presbyterian Medical Center, where the paging was continued. Over the course of one year, after controlling for patient characteristics and time trends, the researchers found that patients whose providers used mobile secure text messaging left the hospital about 0.77 days sooner, equivalent to about a 14 percent reduction in their overall hospital stay.

"Many forms of communications within the hospital are shifting mediums in part due to the rising adoption of smartphones and new mobile applications. However, little is known about how these changes impact clinical care and [patient outcomes](#)," said the study's lead author, Mitesh S. Patel, MD, MBA, MS, an assistant professor of Medicine and Health Care Management in Penn's

Perelman School of Medicine and The Wharton School, and a staff physician at the Crescenz VA Medical Center. "Our findings suggest that mobile secure text messaging may help to improve communication among providers leading to more efficient care coordination and allowing patients to leave the hospital sooner."

The Penn team also looked at readmission rates and found no difference between the intervention and control sites. The finding suggests that a shorter length-of-stay associated mobile secure messaging did not lead to higher rates of readmission.

"Many hospitals still use one-way paging systems which are often insecure, have limited mobile access, and require either a phone call or face-to-face communication to close the loop. Most email and SMS text messaging platforms are also not secure and prohibited by hospitals," said Neha Patel, MD, an assistant professor of clinical medicine at the Perelman School of Medicine, director of Mobile Strategy and Applications for the University of Pennsylvania Health System, and co-author on the study. "Mobile secure text messaging offers asynchronous communication that allows providers to close the loop quickly and hold group chats that involve the entire care team."

During the twelve-month intervention period, 446,342 secure messages were sent – 377,347 of which were to individuals and 68,995 of which were to more than one recipient. The highest volume was among nurses (39.7 percent of all messages) and residents (37.5 percent), followed by social workers and clinical research coordinators (eight percent), attending physicians (7.8 percent), pharmacists (5.9 percent), and unit secretaries (1.1 percent).

"Health care innovation is more than just using the newest smartphone app; it involves carefully designed implementation and thoughtful evaluation of its impact on clinical care," said senior author David A. Asch, MD, MBA, a professor of Medicine and Health Care Management and director of the Penn Center for Health Care Innovation.

The study was conducted with support from health system leadership and designed to facilitate HIPAA-compliant provider interactions. This effort along with other internal mobile initiatives led to the creation of the mHealth Center for Excellence at Penn Medicine, where clinicians, innovation center designers, the marketing team and information technologists, collaborate to accelerate the adoption of mobile health tools by Penn employees and patients. The mHealth center evaluates the benefits and costs of new applications from concept to development and from pilot to enterprise-wide adoption.

According to C. William Hanson, MD, chief medical information officer at Penn Medicine and a co-author on the study, "Mobile technology is transforming the way medical providers access patient information, communicate and coordinate care, as well as the way that patients acquire medical information and manage their health."

More information: Change In Length of Stay and Readmissions among Hospitalized Medical Patients after Inpatient Medicine Service Adoption of Mobile Secure Text Messaging. *J Gen Intern Med.* 2016 Mar 25. [Epub ahead of print]
www.ncbi.nlm.nih.gov/pubmed/27016064

Provided by University of Pennsylvania School of Medicine

APA citation: More effective communication among care team may lessen delays in care, allow for shorter hospitalization (2016, April 5) retrieved 4 March 2021 from <https://medicalxpress.com/news/2016-04-effective-team-lesser-shorter-hospitalization.html>

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