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Hospital text paging communication as a surgical quality improvement initiative



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ABSTRACT

Background: Studies on medicine wards have shown that numeric pages can be disruptive of workflow and patient care. We created a quality improvement program among surgical ward nurses and residents and hypothesized that a text-based, urgency-stratified initiative would improve communication at no detriment to patient care.

Methods: Surgery residents recorded preintervention data for 1 mo including number of total pages, text pages, and numeric pages received from surgical floors. Nurses and residents completed surveys to assess preintervention satisfaction with communication, responsiveness, and workflow. Nurses were then instructed to use text paging for nonurgent issues. Paging data were again recorded for 1 mo, surveys repeated, and patient safety and satisfaction data collected. Primary endpoints evaluated included patient safety and satisfaction data. Secondary endpoints included communication satisfaction of nurses and residents.

Results: After text paging implementation, 40.1% of nonurgent pages sent from nurses to resident physicians were alphanumeric texts versus only 17.9% before implementation ($P < 0.0001$). There was a 19.5% reduction in the number of nonurgent numeric pages sent ($P < 0.0001$). Overall, 70% of nurses responded postintervention that text paging was the preferred method of contacting a physician and that the text paging initiative improved efficiency. After implementation, 62% of nurses thought that overall communication with clinicians improved. In addition, there was no change in patient safety issues or patient satisfaction.

Conclusions: Our text paging initiative for all nonurgent pages from nurses to residents improved physician–nurse workflow and communication on the surgical ward with no decrease in patient satisfaction or safety.

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Introduction

The Joint Commission identifies communication failures as one of the most common causes of sentinel events.¹ These communication failures are often the result of poor or inadequate responsiveness to outdated technology.^{2,3} Beyond catastrophic consequences, previous studies have reported that residents receive a staggering amount of pages each day that interrupts educational activities and patient care.²⁻⁴ These near constant interruptions distract providers from patient care and lead to an increased number of potentially avoidable errors and decreased patient satisfaction with the care they receive.²⁻⁴ In a recent study, traditional numeric paging was reported as the preferred method of communication for none (0%) of the surgical residents surveyed, and only 1.3% reported it as their primary communication method.³ Recent literature has proposed possibilities beyond pagers for in-hospital communication,⁴ although reports focusing on communication on surgical wards are essentially nonexistent. There is a need for further clinical evaluation of the efficacy and reliability of different types of communications between healthcare providers.⁵

As technology has evolved, text messaging has become the preferred method of communication, and a study in the workplace that found more than 71% of residents preferred text messages at work because of efficiency, with more than 79% because of ease of use.⁶ Although text messaging is easy and efficient, the same study reports that patient information is frequently shared that is not secure and could be in violation of the privileged health information component of the Hospital Information Privacy Act of 1996.⁶ Other studies have evaluated secure smartphone text messaging applications to avoid such potential violations of privacy, finding higher satisfaction in perceived effectiveness in communicating thoughts and integration of patient care into daily workflow.⁷

These messaging applications come at a considerable cost to healthcare organizations though and should be weighed against cheaper alternatives. The purpose of this present study was to evaluate a free online text paging service on an existing pager network to assess nursing and resident satisfaction of a text-based communication system and the effects on patient care and satisfaction on the surgical ward. We hypothesized that a text-based, urgency-stratified initiative would improve resident physician and nurse workflow and satisfaction, would not affect physician responsiveness to urgent communications, and would not increase major adverse events on a surgical ward.

Material and methods

The Institutional Review Board at the Center for Clinical Research and Technology at University Hospitals Cleveland Medical Center reviewed and approved this study. This study was a case-control study in which intern or junior surgery residents covering service pagers for either day or night 12-h shifts recorded preintervention data for 1 mo before the beginning of the text paging trial. These data included average patient census, number of urgent and nonurgent pages received from surgical floors, number of text and traditional call-back pages from surgical floors, total number of pages received, and major adverse patient care events (Fig. 1). Also during this preintervention period, surgical nurses and residents completed preintervention surveys to assess satisfaction with communication, responsiveness to pages, interruptions in educational activities, and overall efficiency of workflow. The surveys were tested for validity by administering them to residents and nursing staff not involved in the study, before implementation, ensuring there were no questions about the survey and that target data would be collected.

Service	Average Patient Census	Shifts Worked	Total number of pages	Average pages per shift
Holden/General GI Surgery	8.8	10	44	4.4
Transplant Surgery	16.7	12	140	11.7
Colorectal Surgery	16.1	9	125	13.9
Vascular Surgery	11.8	10	50	5
Acute Care Surgery	12.3	8	113	14.1
Surgical Oncology/HPB	9.1	10	47	4.7

Fig. 1 – Pages by service. (Color version of figure is available online.)

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