



KEY POINT SUMMARY

OBJECTIVES

The purpose of the study was to compare the effects of two communication systems—indirect pager and direct cellular phone—on the efficiency and error rate in staff communication between surgeons in the operating rooms and orthopedic floor nurses in an acute care hospital.

DESIGN IMPLICATIONS

Wireless communication systems that are easy to use may help facilitate staff communication and collaboration, and reduce errors in communication.

Direct Cellular vs. Indirect Pager Communication During Orthopaedic Surgical Procedures: A Prospective Study

Ortega, G. R., Taksali, S., Smart, R., Baumgaertner, M. R.
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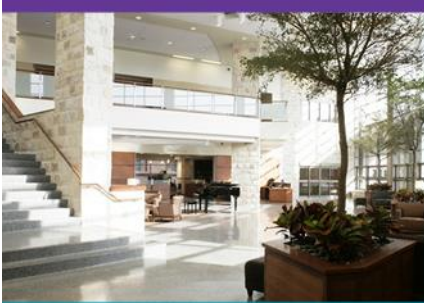
Key Concepts/Context

Staff-to-staff communication is critical to quality and efficient healthcare. Physicians, nurses, and other healthcare workers all use various methods of communication in their daily work. Difficulties in staff communication often lead to interruptions and delays in patient care, variation in response time, medical errors, violation of privacy, and dissatisfaction in patient and staff.

Hospital communication systems play an increasingly important role in communication among healthcare workers. However, certain communication methods were not as effective as others and may cause difficulties in communication. In the hospital in this study, indirect pager communication was used in the communication between surgeons in operating rooms (ORs) and floor nurses. This method involved a circulating nurse in an OR serving as an intermediate and relaying the messages between an intraoperative surgeon and a floor nurse (i.e. floor nurse to surgeon communication) or a floor associate notifying the floor nurse about the surgeon's call (i.e. surgeon to floor nurse communication). An alternative method was to use cellular phones with wireless ear pieces to facilitate direct communication.

Methods

A total of 60 trials of communication from floor nurses to intraoperative surgeons during peak-hour elective operations were conducted including 30 with cellular phones and 30 with indirect paging as the communication methods. During each trial, an orthopedic floor nurse called a surgeon in OR randomly by cellular phone or



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by pager and asked one of 30 common patient care questions that required communication between surgeons and nurses. A stopwatch was used to measure response time (from first phone ring to surgeon answering call), correct patient identification time (from nurse's presentation of patient name to confirmation by surgeon), problem and solution presentation time (from nurse' patient care question to surgeon's solution presentation) and total communication time. Direct observation was conducted to record the response rate (percentage of calls answered by surgeons), errors during communication (changes in questions and answers), and intraoperative case interruptions (surgeon leaving the operating table or discontinuing the procedure). Nurse satisfaction with communication was evaluated (i.e. excellent, acceptable, and unacceptable) based on delays and difficulties in communication. Twenty-eight trials on surgeon-to-nurse communication were conducted in the same manner. Paired t-tests were used for statistical comparison between trails with cell phones and trials with pagers.

Findings

In nurse-to-surgeon communication, direct cellular communication was associated with higher response rates (100% vs. 73%), lower error rates (none vs. 27-33%), less intraoperative case interruptions (none vs. 10), much shorter communication time (32s vs. 250s), shorter response time (11s vs. 211s), shorter correct patient identification (5s vs. 172s), and shorter problem and solution time (13s vs. 189s). Similar pattern was found in the data from surgeon-to-nurse communication trials. Nurse's satisfaction with communication was higher when cellular phones were used.

Limitations

There were several limitations of this study:

- In this study, a set of standardized common questions were used instead of real-life questions in patient interaction. This approach was helpful in eliminating variation in patient care questions that might considerably impact the communication time and other outcome measures. However, this might demonstrate communication behaviors different from real-life communication events.
- The article did not include details about the sample of surgeons and nurses. Variation in communication style among staff might be a significant confounding factor. The results may not be readily applied to non-peak-hour operations or other settings.