Disruptive Technology

Can Electronic Portals Promote Communication in the Intensive Care Unit?

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Patients and family members consistently identify communication in the intensive care unit (ICU) as one of the most important aspects of high-quality ICU care (1). Skilled communication in the ICU leads to improved outcomes, such as better quality of dying, enhanced quality of life, and decreased intensity of care (2). Greater sharing of information with ICU surrogates has been associated with improved satisfaction with care (3). As a consequence, effective ICU communication is a national quality measure (4).

Yet, despite the meaningful effect that communication has on quality of care, insufficient and poor-quality communication between family members and clinicians continues to be a considerable problem in the ICU (5, 6). Solutions have been presented such as frequent, structured, proactive communication (7); stronger relationships between families and clinicians (8); and more accessibility to physicians (9). However, barriers to achieving these goals persist, including inadequate physician training in communication and insufficient time for physicians to attend family meetings (10). Although communication in the ICU clearly requires some level of face-to-face communication, more recently, technological solutions to addressing these hurdles have been proposed, such as personalized software for information sharing (11) and the use of the electronic medical record to identify patients who might benefit from palliative care consultation (12).

Another possible technological approach to improving communication with patients and family members in the ICU is the application of a patient portal. Electronic portals offer patients and family members access to selected components of the electronic medical record and provide opportunities for communication and information sharing with clinicians. Portals are increasingly used, particularly in the outpatient arena, as a means to improve patient satisfaction and care efficiency (14). Yet patient portals have not previously been tested in an ICU setting.

In this month's issue of *AnnalsATS*, Brown and colleagues (pp. 391–400) report the result of a survey that engaged more than 2,200 individuals to determine whether patients and families are interested in an electronic portal to communicate with ICU physicians (13). Using a thoughtfully designed questionnaire, Brown and colleagues presented an intriguing model for gathering patient and family perceptions of the ICU (13). Their study incorporated Internet-based surveys of individuals both with and without prior ICU exposure as well as in-person surveys of family members of current ICU patients.

Respondents to the surveys were interested in electronic portals. They desired functions such as frequent, detailed updates and computerized elicitation of patient values and preferences. More than four-fifths of participants had at least some interest in reviewing medical information

electronically. Family members questioned in the ICU reported the greatest interest.

The study adds a novel perspective to the application of computers to improving communication in the ICU; however, some limitations to the study are worth noting. First, as it is known that families in the ICU desire better communication from clinicians (5, 6), respondents may have confused more communication with higher-quality communication. The study did not assess prior experience with ICU communication, which may have helped to answer this question; in other words, would individuals who received proficient communication still desire supplementary modes of information sharing? The results may also reflect patients' and families' broad desire for access to clinicians, rather than explicitly through an electronic portal. Nonetheless, electronic portals clearly provide additional opportunities for information-starved patients and families to interact with clinicians.

Second, despite the wide net cast by the combination of Internet and in-person surveys, generalizability remains a concern. Although Internet surveys are an efficient method of surveying patients and potential patients, participants in an Internet survey may be more likely to welcome technological solutions, such as an electronic portal, than nonrespondents and others who rarely, if ever, access the Internet. In the survey of family members

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in the ICU, respondents were young, educated, white, and English-speaking, and had substantial exposure to healthcare professionals. Although response bias in family surveys in the ICU has been documented (15), surveys of this type tend to overestimate the quality of care received, which in this case would have likely diminished the desire for electronic portals. The use of both Internet and in-person surveys in the current study helps enhance external validity, but a vital next step requires reevaluation in other settings.

Limitations notwithstanding, the study by Brown and colleagues presents compelling evidence that patients and family members are interested in the use of electronic portals within the ICU (13). They also take some fundamental first steps to identify the functionality desired in such a tool. Clearly, the portal's overarching goal is to enhance communication among patients, families, and clinicians in a more efficient manner, but several additional measures

should be taken before routine implementation.

First, this study identifies the views of patients and family members, key users of an electronic portal, but it does not assess the interest from other major stakeholders; namely, the members of the ICU care team. In an already hectic ICU environment, will clinicians desire or have time to participate in additional modes of communication? Second, although electronic portals have the potential to make communication in the ICU more efficient, they could have unintended consequences. For example, the manner in which information is presented could either enlighten or misinform patients and family members (16). Moreover, inconsistent use of portals by the care team could further frustrate patients and family members who crave information. Additional research will be necessary to determine optimal ways to display complex and constantly changing clinical information

to patients and families. Third, in an ideal setting, electronic portals could offer a means to elicit preferences and values from patients and family members, although anything discovered through the portal would also need to be skillfully blended into face-to-face conversation as well.

The study by Brown and colleagues shows clearly that electronic portals are desired by patients and family members, if for no other reason than to provide more access to clinicians (13). Before implementation, additional thoughtful research will be necessary to evaluate functionality, feasibility, and outcomes. Electronic portals have the capability to improve information sharing between clinicians and families in the ICU; however, more fundamentally, portals may enhance the autonomy that patients and family members desire in the ICU. ■

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