Charting the Course for Home Health Quality: Action Steps for Achieving Sustainable Improvement

Promoting Patient Safety and Enabling Evidence-Based Home Health Care Through Informatics

Executive Summary

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THE ISSUE

The Institute of Medicine (IOM) Committee on Quality of Health Care in America identified the critical role of information technology in designing a health system that produces care that is "safe, effective, patient-centered, timely, efficient, and equitable." The IOM and other health care experts have called for a national health information infrastructure (NHII), defined as a set of technologies, standards, applications, systems, values, and laws that support all facets of individual health, health care, and public health.

Given the independent and remote nature of services in home healthcare, many components of such an infrastructure, tailored to the types of problems and interventions that most frequently occur in that setting, have enormous potential to improve practice. *What, then, should be the role of informatics in promoting patient safety and enabling evidence-based practice (EBP) in the home care setting?*

PAPER OBJECTIVES AND METHODS

This paper examines the potential for informatics to promote patient safety and improve quality of care in the home health setting. First, it discusses aspects that distinguish safety and EBP in home health care versus other settings. Second, it describes the components of an informatics infrastructure for patient safety and EBP in the context of a National Health Information Infrastructure. Third, it addresses the role of informatics in five areas: 1) information access; 2) communication among members of the healthcare team; 3) automated surveillance for real-time error detection and prevention; 4) standardization of practice patterns; and 5) telehealth. Last, the paper delineates challenges for the future and key recommendations for education, practice, policy and research.

EPB is conceptualized as a continuum that includes the building of evidence from practice, through collection and analysis of data gathered at the point of care, to evidence generated from formal research studies. Within the context of this definition, OASIS and the associated outcomes-based quality improvement (OBQI) efforts in home health care exemplify an approach for building evidence from practice and providing a feedback loop to improve practice. Thus the paper describes a number of ways in which OASIS and OBQI could or should be linked to other components of an informatics infrastructure to strengthen information access, communication, error prevention and standardization of home care practice.

FINDINGS

The components of an informatics infrastructure are available and applications that bring together these components to promote patient safety and enable EBP in home health care have demonstrated positive or promising results in some settings.

Data Acquisition

- No single method of data acquisition is sufficient in terms of comprehensiveness and efficiency to meet all requirements for patient safety and EBP in home care; multiple strategies must be utilized.

- In particular, patients and family members are currently an under-utilized resource for entering data related to important health indicators and self-care management issues.

Health Care Standards

- The implementation of OASIS in home health care supports the capture of standardized outcomes beyond what is typical in other healthcare settings. However, the integration of OASIS data elements with standardized terms for problems and interventions is not widespread in the industry.

- In addition to standardized terminologies, standards are needed to represent knowledge in a way that a computer can automatically process it.

Messaging

- Standards for messaging would support computer-based interactions between the home health care nurse and the home health agency, as well as between the nurse and the patient, physician, pharmacy or other decisionmaker in the home care setting.

Confidentiality and Security

- Participation of home health experts in OASIS activities alone is not adequate to ensure that evolving healthcare standards will meet the needs of home health care. Home health care experts should participate in other standards processes to ensure that the resulting standards are appropriate and sufficient for home health care

Clinical Event Monitors and Data Repositories

- Clinical event monitors have consistently demonstrated more timely and cost-effective detection of adverse events as compared to spontaneous reporting. Also useful for patient safety and EBP is a clinical data warehouse for data mining, benchmarking, and other types of quality-related analysis.

Data Mining Techniques

- Potential applications of these types of techniques in home care include: 1) surveillance (e.g., of central line infection rates among various home care nurses); 2) case-based reasoning (e.g., matching a new case to the most similar previous case to re-use a plan of care that resulted in good outcomes in the previous case); and, 3) rule induction (e.g., creating rules for predicting patients at risk for hospital admission through examining patients who were admitted as compared to those who were not).

Digital Sources of Evidence and Surveillance for Real-time Error Detection

- Digital sources of evidence tailored to the types of problems and interventions that most frequently occur in that setting have enormous potential to improve practice.

- Also important is the integration of digital sources of evidence with documentation systems to provide decision support for error prevention, adverse event detection, and EBP. This can be done through simple approaches such as building aspects of a particular guideline or standard of care into a document template for a particular kind of patient. More sophisticated approaches rely on multiple sources of data and are interactive.

- One barrier to clinical decision support related to medications in home health care is the lack of integration between prescribing systems and other information systems used in home care such as the nurse documentation of the encounter and the laboratory results reporting.

Communications Technologies

- Communication networks and devices are essential for enabling access to electronic sources of evidence such as practice guidelines, research articles, benchmarking databases; for improving communication; and for facilitating fail-safe delivery of messages related to patient safety.

- Collaborative technologies such as virtual whiteboards have significant potential for enhancing communication among members of the healthcare team, but have been used only minimally in health care.

- Available studies suggest that communication failures are a leading cause of errors, and the IOM recently identified coordination of care as one of its top-ranked 14 quality priorities.

Telehealth

- Findings from a number of studies suggest that patients are generally satisfied with telehealth applications; however, the cost-effectiveness of telehealth is still under evaluation.

IMPLICATIONS AND RECOMMENDATION FOR HOME CARE POLICY, RESEARCH AND PRACTICE

A number of challenges must be addressed so that an informatics infrastructure and related applications that promote patient safety and enable EBP in home health care can be realized. Challenges include supporting knowledge maintenance over time, integrating the components of an informatics infrastructure in ways that vendors can afford to develop and providers can afford to purchase, integrating OASIS with other systems to provide functionality for decision support for adverse event prevention and EBP, and understanding the legal and ethical ramifications of computer-based applications. To address these challenges, the following recommendations are proposed:

- Informatics competencies should be integrated into health care curricula, staff development, and continuing education efforts.

- Public-private partnerships should be formed to facilitate the widespread adoption of decision support systems that detect and prevent potential adverse drug events across settings including home health care.

- Cost-effectiveness analyses of the use of key information technologies in home health care should be conducted.

- Research and demonstration projects that focus on the use of information technology to promote patient safety and enable EBP in home health care should include analyses related to the extent to which the innovation meets clinical and administrative needs and can be integrated into the clinician's workflow.