SUPPLEMENT ARTICLE

Enhancing Communication in the 21st Century

Marie Y. Mann, MD, MPH, Michele A. Lloyd-Puryear, MD, PhD, Deborah Linzer, MS

Health Resources and Services Administration, Rockville, Maryland

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ABSTRACT

Quality communication is a critical component in all aspects of public health and clinical care. The quality of the process of communication between the patient/family and the physician affects the quality of the patient/family-physician relationship, patient behavior, and health outcomes. Advances in communication and information technologies can enhance the quality of communication, not only between patients/families and their physicians but also between clinicians and public health professionals. Communication and integration between the domains of personal health and public health have the potential to improve the delivery of health care and public health services and to yield the desired seamless continuum of health care. This article discusses some of the advances and efforts in the use of information technology to facilitate enhanced communication for quality health care.

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Key Words
communication, electronic health record, health information technology

Abbreviations
EHR—electronic health record
HRSA—Health Resources and Services Administration
MCHB—Maternal and Child Health Bureau

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Address correspondence to Marie Y. Mann, MD, MPH, Genetic Services Branch, Maternal and Child Health Bureau, Health Resources and Services Administration, 5600 Fishers Lane, Room 18A-19, Rockville, MD 20857. E-mail: mmann@hrsa.gov

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Effective communication is critical to the patient-family physician relationship and contributes to quality care and improved health status. Collaborative relationships are enhanced when there is good communication. The Institute of Medicine report *Crossing the Quality Chasm: A New Health System for the 21st Century*[1] documented the large gap between expected and achieved quality in health care and the threat to patient safety. Many of these gaps result from ineffective communication between clinicians and patients/families, clinicians and clinicians, and health care organizations/public health agencies and clinicians. One of the report's recommendations was "to redesign health care processes," relying on certain rules, including "clinicians and patients should communicate effectively and share information" and "clinicians and institutions should actively collaborate and communicate to ensure an appropriate exchange of information and coordination of care."[1] Indeed, at a time when clinicians are faced with increasing demands (to see more patients and to screen and to intervene for an ever-increasing list of physical and mental conditions) and increased financial complexities and pressure, effective strategies and tools must be available to assist them in delivering quality care.[2]

Effective communication is pivotal in coordinating care for children, especially those with special health care needs. The importance of effective communication between families and clinicians and between generalists and specialists cannot be overstated. It is an essential component in providing a medical home for children with special health care needs.[3] Poor communication has been correlated with delayed or adverse care for the child and parental dissatisfaction. Sharing of information with timely, systematic, information transfer and efficient personal contact between generalists and specialists could lead to more-effective communication and coordination of care and better outcomes for the child and could meet the needs of the family.[4]

The intersection of health care delivery and public health in the care of children has a long history. Communication between the 2 domains was highlighted in an Institute of Medicine report as an essential component of a framework for promoting and protecting the health of the US population.[5] Reiterating the Healthy People 2010 vision of Healthy People in Healthy Communities, the report not only focused on the governmental public health infrastructure but also emphasized the importance of partners, including the health care delivery system, and the need to enhance communication between these 2 domains. Communication should be acknowledged "as the key to forging partnerships, assuring accountability, and using evidence for decision-making and action."[5]

The need for effective communication and sharing of information between the public health and health care delivery domains is particularly important in the care of children.[6] In the case of all newborn screening, effective communication between the state public health newborn screening program and the infant's medical home increases the likelihood that every screen-positive newborn will receive appropriate services.[7] Two surveys funded by the Health Resources and Services Administration (HRSA)/Maternal and Child Health Bureau (MCHB) highlighted a systems gap in the exchange of information between the newborn dried blood spot screening programs and clinical care. Kim et al[8] found that state newborn screening programs do not always include pediatricians in the newborn screening communication process. Desposito et al[9] found that 31% of pediatricians were notified of screen-positive results >10 days after testing was completed. Public health agencies, which are facing the challenges of addressing an increasing number of threats to children's health (such as obesity and violence), need to work collaboratively with families and clinicians to gather and to share information for monitoring and health-promoting activities.

E-MAIL COMMUNICATION

The emergence of information and communication technologies, such as the Internet, has expanded the ability of clinicians to reach patients, the ability of patients to interact with clinicians, and the ability of clinicians to interact among themselves. Such interactive technology is being used to exchange information, to facilitate informed decision-making, to enhance peer support, and to support clinical care. E-mail communication, unlike telephone conversation, does not require synchronous interaction, "is rapid, relatively inexpensive, simple, and convenient,"[10] and allows continuous access and more active participation in patients' health care by patients and their families. Tasks such as arranging specialty referrals, setting up appointments, and adjusting medication dosages can be handled through e-mail. Simple test results that are well understood by patients/families also might be handled through e-mail.

In 2001, ~60% of the US population had access to the Internet at home or work.[11] Despite potential confidentiality risks, most US adults who use the Internet report a desire to communicate with their physicians online.[12,13]

Studies indicate that communication via the Internet or "teleconsultation" has a positive impact in clinical care by improving access to specialists and improving family participation.[13] This form of communication, however, generally has not been well adopted by pediatricians and other physicians.[12,13] Some reasons that have been cited include concerns about maintaining security and confidentiality, concerns about the potential volume of e-mail correspondence and the impact on workflow, decreases in face-to-face visits, potential lack of reimbursement for this type of service, potential liability, and other legal issues.[12–15] Guidelines for conducting e-mail communication are available, and these can

be used to address some of these concerns.[10] Partnering with patients and their families at all levels in addressing concerns and issues will best serve the needs of the patients.

ELECTRONIC HEALTH RECORD

Most health care in the United States is delivered in ambulatory primary care settings.[16] Health information has been managed, for the most part, with a collection of paper records, which may be poorly organized, illegible, or missing information and frequently cannot be retrieved in a timely manner.[14,16] According to Bodenheimer and Grumbach,[17] the electronic health record (EHR) offers the "promise of accessibility, greater convenience, and accuracy of information" about individual patients, thereby improving efficiency and quality of care. By having ready access to more-complete and more-accurate patient information, clinicians will be able to make better, timely decisions regarding the care of patients. Generally an EHR includes a longitudinal collection of electronic health information about the health of an individual or the care provided, immediate electronic access to patient- and population-level information for authorized users, and clinical decision support. Computerization of health information can be helpful in a variety of ways, including generating reminders for services, making practice guidelines available at the point of care, enhancing medication prescription and administration, and ensuring prompt follow-up evaluation of abnormal results. There is also evidence that EHRs can be effective in facilitating clinical decision-making.[18]

Despite the potential of EHRs, there is reluctance on the part of clinicians to adopt the technology. In 2002, adoption rates in the ambulatory setting ranged from 14% to 28%.[19] The rate of adoption by pediatricians is even lower, with pediatric practices reporting an 8% use rate.[20] The lack of common definitions, data and systems standards, and open-systems architecture is a major impediment to the development and use of EHRs. EHRs must be tailored to meet the needs of the pediatric population to be useful for clinicians who provide care to children. A major obstacle to adoption is cost, especially for established practices. There is a general lack of capital for system acquisition, and any resultant cost savings would tend to flow to third-party payers, rather than to the clinicians who purchase the systems, resulting in a net financial loss.[21,22]

INTEGRATED INFORMATION SYSTEMS

An integrated information system connects users of information to each other and to the information. It enables data, information, and knowledge to be shared across domains on a right-to-know/need-to-know basis. Information is accessible only to authorized users and is aggregated at the individual patient level when and where it is needed. The connectivity is achieved through a combination of technology, standards, and agreed-on rules and processes regarding confidentiality, data accessing and sharing, and data collection. As a prerequisite to the linkage of information from multiple systems, there must be common data standards.[23] With linked information systems, programs can share common data elements, thereby reducing redundant data collection, burdens on submitters, and risk of data-entry errors and enhancing collaboration across programs.

Integration of public health and health services data is desirable and endorsed by the American Medical Association.[24] Among other things, it would enable public health professionals to produce quality community-level data, to identify significant health trends in real time, and to support participation and collaboration in health promotion at the community level. With the development of population-based immunization registries that collect information from all immunization providers (private and public), any authorized user could determine readily the complete immunization history of a child. The registries also could produce official immunization records, could generate reminders, and could be used to assess the immunization coverage in a practice or a community, which likely would mean less work for clinicians who must complete school records and camp forms.[25] Another opportunity resulting from the integration of public and clinical information systems would be the study of long-term outcomes of population-based public health programs such as newborn screening and evaluation of the effectiveness of interventions.

Tremendous resources are required to build integrated information systems that meet the needs of diverse practices and environments. Since 1999, HRSA/MCHB has provided financial and technical support to 25 state public health programs to promote communication among programs and linkage of information, to ensure (1) minimal duplication of data tracking between programs that serve the same populations, (2) rapid follow-up evaluation coupled with efficient effective delivery of medical services and ancillary and social services, (3) adequate privacy protection, and (4) collection of appropriate outcome data for system evaluation and improvement.[26] This effort has resulted in qualitative assessment of 7 state newborn screening programs and their planned efforts to integrate and development of the *Sourcebook for Planning and Development* (April 2003), which describes best practices, and a companion, *Tool for Assessment and Planning* (September 2003), to support state health programs as they strive to implement integrated child health information systems. HRSA/MCHB has also partnered with the Public Health Informatics Institute to articulate a long-range vision, including the development of core functions, performance, and standards specifications to support integrated information systems on which a business case can be developed. A community of practice, a learning community, has been

created to support the state public health programs that have embraced integration and can work collaboratively in moving their integrated child health information systems forward.

DISCUSSION

There are compelling reasons for tapping the potential of communication and information technologies to enhance communication within the health care system, even as the health care system rethinks the way businesses need to be conducted. Technology will have a profound effect as it alters the ways in which people come together and communicate. From the perspective of clinicians, more-extensive use of information technology could provide ready access to complete, accurate patient data and information resources that could enhance interactions with patients and support improvements in clinical decision-making. Better information technology will strengthen the sphere of personal health and enhance coordination with public health activities and integration of clinical care and public health services. Not only will enhanced information exchange and communication offer possibilities for well-coordinated and comprehensive care at the community level, but also there is the potential to augment population health functions, including improved disease surveillance and quality measurement. For patients and their families, there will be greater opportunities to be well informed and actively engaged in their personal health care.

Even with reports of health cost savings (eg, $8.6 million annual savings at a teaching hospital that replaced outpatient paper medical charts with EHRs), there remain substantial financial barriers to the adoption of information technology.[27] Furthermore, clinicians' concerns about liability and malpractice must be addressed.[28] The multicultural and multilingual citizenry of the United States, with varying levels of literacy, must be considered when the value and benefits of advanced communication tools are being promoted. Interoperable systems and secure information-sharing practices will be essential for realization of all of the benefits that can be gained. The efforts to promote data exchange and information sharing between the public health and personal health information systems need to be supported. Such information linkage is essential to meeting the health needs of the pediatric population.

Significant progress has been made toward the adoption of information technology in the United States. In early 2004, President Bush called for the creation of EHRs for all US citizens in 10 years and subsequently issued an executive order establishing the position of the national health information technology coordinator within the Department of Health and Human Services. The appointment of Dr David Brailer to the position was followed by the release of a report on the nation's first strategic plan for nationwide implementation of health information technology in the public and private sectors.[19] Legislatively, there is bipartisan recognition of the importance of addressing this issue, with a number of bills being proposed and introduced in the 2004 congressional session. Agencies within the Department of Health and Human Services are working to promote the use of information technology in public and private health care settings by providing grant support and conducting demonstration projects.[28] As progress is being made, continued public-private collaboration among consumer groups, professional organizations, health agencies, and industry will be critical to the successful adoption of information technology for improving the quality of communication and care and the satisfaction of patients and their families with care. Finally, even as information technology is being leveraged to improve patient care and services, the limitations of the technology must be acknowledged. No matter how advanced the communication technology may be, it must not replace the crucial interpersonal contacts that serve as the basis of the patient/family-physician relationship.

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