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Perspectives in Prevention From the American College of Preventive Medicine

Preventive Medicine and the Electronic Health Record

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Preventive medicine appears to be emerging as a powerful force to enhance the lives of Americans. Information on disease prevention and health promotion comes to us in a constant stream from the news media these days. With so much information available, it can be challenging for physicians to function wisely during these times of growing enlightenment. One key element of future healthcare, the electronic health record (EHR), will help patients and providers meet the challenges of having too little or too much information. EHRs, which will place the patient or consumer at the center of the health system, are coming of age and gaining momentum.

My personal experience with early EHRs dates to the 1970s, when United States Air Force aerospace medicine researchers had already organized clinical study group information on grounded pilots using digital technology. Although those were the days of main-frame computers using card-punch technology, the value of searching the files using computer queries was recognized immediately. For example, clinical studies showing that certain previously diagnosed abnormalities were really normal variants allowed aviators with such findings to be returned to flying duty.

Thirty years later, the technology is orders of magnitude better, and our national health information technology framework now prominently features an EHR for Americans. Tommy G. Thompson, Secretary of Health and Human Services, and David J. Brailer, MD, PhD, National Coordinator for Health Information Technology, authored a progress report providing this framework.^[1] In addition to the call for EHRs, this report encourages the use of personal health records (PHRs), which include personal health information, for individuals.

By using EHRs, physicians today can strengthen relationships with their patients and improve the quality of care. At the point of care, decision support tools linked to these electronic records can provide practice guideline information and reminders to ensure that care is proper and complete. The

delivery of clinical preventive services can be enhanced through patient education and automatic prompts for action needed by either the patient or physician.

EHRs are part of the solution to patient safety problems. Many of the physician errors resulting in deaths that have been featured in the patient safety reports could have been prevented by the use of EHRs and related decision support tools. The application of health information technology in systems of healthcare delivery will help prevent future errors of commission.

What about errors of omission? Failure to provide proper immunizations, periodic screening examinations, prophylaxis, or required medications also reflects poorly on healthcare quality. EHRs offer the key to solving the problem of ensuring that such preventive services are provided.

Although clinicians are responsible for caring for their own patients, their use of EHRs can contribute to the health of the public at large. Emerging communicable diseases, unsafe foods, and bioterrorism are among the threats that concern Americans. Disease surveillance, threat monitoring, and reporting are key factors, and can be greatly improved by the application of health information technology. EHRs, if properly configured and linked, can play a key role in alerting public health officials to health emergencies so that proper countermeasures can be taken.

Health status indicators, based on reporting from many sources, now in use will be augmented and replaced in some cases by better and more complete reporting using HER-based data. Individual health data, after being aggregated and de-identified, can be the focus of health surveillance systems.

Aggregated and de-identified data can also serve as the foundation of systems designed to track quality-of-care measures and to assist physicians in providing safer, evidence-based care. The performance of clinical decision support programs aimed at flagging abnormal laboratory results, identifying potential drug-to-drug interactions, and providing evidence-based practice guidelines can be monitored at the healthcare delivery system or population level using such data. Of course, overall clinical outcomes and health status indicators will tell the story regarding quality and patient safety.

We now have maturing technology, a strategic framework, political resolve, and population health goals.^[2] Even so, the pace of adoption of EHRs has been slow. What are the obstacles? Paying for the technology is part of the problem. The current healthcare financing system provides little incentive for those embracing technology, improving healthcare quality, or enhancing the health of Americans. Payment continues to be based on performing services, and greater volume results in higher compensation. Although we understand that health plans are supportive of pay-for-performance initiatives, the relationship between quality improvement metrics and payment is not yet clear.

There is a growing amount of money becoming available to accelerate the development and adoption of EHRs and supporting technologies. According to a press release on October 13, 2004, "The U.S. Department of Health and Human Services today announced \$139 million in grants and contracts to promote the use of health information technology (HIT). Awarded through HHS' Agency for Healthcare Research and Quality, this multi-year program builds on President Bush's initiative to use HIT to improve the nation's healthcare system."^[3] Although the pace has been slow, leaders in

key government positions and in the private sector are pressing for incentives to speed adoption of EHRs.

The future looks bright as EHRs are used at the point of care and for population health surveillance. The enhanced ability to gather and analyze health and medical care data will serve us well during our continued quest to prevent disease and injury and promote health.

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