

**May 5, 2005**

**Hearings before the Joint Committees on Health Care Financing and Economic Development and Emerging Technologies.**

Senators, I wanted to thank you for the opportunity to speak with you today. My name is David Feinbloom, MD and I am an academic hospitalist at Beth Israel Deaconess Medical Center (BIDMC) in Boston where I am the Director of Clinical Resource Management for the Department of Medicine and Physician Liaison for Clinical Information Systems. We are very fortunate at BIDMC to have successfully implemented a CPOE system which has been well received by physicians, nurses, pharmacists, and has positively impacted patient care. I believe that our experience is instructive as it highlights the benefits of CPOE and may assist others in avoiding some of the problems that are often encountered when these systems are implemented.

I am here to join the other panelist in advocating for the widespread adoption of electronic medical records (EMR) in general, and computerized physician order entry (CPOE) in particular. As medical care becomes increasingly complicated, specialized, and fragmented, it is more challenging than ever to maintain an accurate and integrated medical record that is accessible to all relevant care providers in a timely manner. It is well known that patients are at high risk for adverse outcomes as part of normal care in the modern hospital. The threats to quality are numerous, but broadly speaking can be viewed as errors of commission and errors of omission. Errors of commission are best exemplified by illegible orders, which result in the wrong drug or wrong dose of a medication being given to a patient, often with deleterious results. Errors of omission may occur when a physician fails to provide the correct treatment, or react to a critical result, leading to an avoidable adverse outcome. While none of these errors is intentional, they highlight the difficulty of managing all of the data and detail that is generated in the course of healthcare delivery.

The power of CPOE and EMR's is due to their unparalleled ability to structure and manipulate clinical data. This allows for clinicians to access critical patient information in real-time, track and respond to abnormal results or care that is overdue, and use best evidence decision support at the point of care. The result is improved quality, fewer medical errors, and reductions in morbidity and mortality. This in turn creates a feedback loop and leads to clinical practice that is more uniform, evidenced based, and cost-effective.

One can imagine that in the traditional paper ordering system, a nurse may see a poorly written order for "6U" (6 units) of insulin and inadvertently interpret it as "60" units of insulin; an error that may produce life threatening hypoglycemia. At the BIDMC the implementation of CPOE has virtually eliminated these types of overdose errors. We have also been able to dramatically decrease the rate of adverse drug events due to the ability of the CPOE system to check all medication orders for interactions with other medications, adjust dosing for age, weight, and kidney function, and to flag for known patient drug allergies. This is possible because our system is fully integrated with the

pharmacy and the patient's clinical information database, which allows the clinician to identify errors at the time of ordering.

CPOE can also example prompt physicians to provide care that they may have inadvertently omitted. For example, our CPOE system automatically prompts clinicians to administer the Pneumococcal vaccination to all eligible patients over age 65. This has increased our compliance rate from 3% to 70% in the 6 months since implementation. This simple but effective use of CPOE puts us in line with JCAHO requirements and is of obvious benefit to our patients.

CPOE also has great promise for improvement of resource utilization. Examples include: notifying clinicians about redundant tests at the time the new order is being placed, suggesting formulary medications, and offering decision support algorithms which are evidence based and cost-effective.

Despite the promise of CPOE, it still has minimal penetration into the American health care system. This is because successful implementation and deployment involves many challenges. There are numerous examples of hospitals where CPOE was installed and then failed, typically because of incongruity with standard clinical work, poor design resulting in more additional problems than those solved, and lack of physician acceptance. In addition, implementation requires a large initial capital investment and then ongoing maintenance.

These challenges can be solved, but will require the combined efforts of both the public and private sectors. From the standpoint of the academic community, we will continue to develop POE systems that address the quality, efficiency, and safety needs of the health care system. We can also provide expertise on the social engineering that necessary for successful implementation. However, it is critical that the government join with the payers to begin the process of implementation. As has been discussed, this investment will be more than offset by future savings, and the positive effect on the future health of our patients will be immeasurable.

David Feinbloom, MD  
Instructor in Medicine  
Harvard Medical School  
Hospitalist – Attending Physician  
Division of General Medicine and Primary CareGroup  
Beth Israel Deaconess Medical Center  
Boston, Massachusetts