This month, I will respond to a thought-provoking letter from one of our readers: “The most critical aspect of medical informatics for practicing physicians will be physicians’ acceptance or rejection of computerized physician order entry (CPOE). How will physicians not perceive CPOE as a threat, and what can the informatics industry do to increase physician productivity in a hospital environment, where everyone is under severe time pressure? You can spend millions of dollars on state-of-the-art software, but will physicians use it?” – Joseph Catapano, MD, South Plainfield, NJ.

CPOE programs are electronic systems that allow physicians to prescribe medications, order tests, and communicate with nurses and consultants. Although it is not available in all hospital or ambulatory care settings, the use of CPOE has been increasing. I agree with Dr Catapano that the use of CPOE is an important issue for practicing clinicians.

To understand the dissemination of CPOE, one might ask, “What is the evidence that CPOE is useful?” As with many recent technological innovations, the reduction of medication errors is one of the driving forces behind physician order entry systems. Potential sources of error, including illegibility of written orders, mistakes in transcription, and slowness in triage of orders, can be reduced; in addition, decision-support reminders, such as drug-drug interactions, can be integrated. Bates and colleagues, from the Brigham and Women’s Hospital of Harvard Medical School, demonstrated that the rate of serious medication errors was reduced by 55% after the introduction of a physician order entry system. Based on this research, the Institute of Medicine has recommended integration of CPOE into clinical practice.

The adoption (or lack of adoption) of any technology can be viewed using the theoretical framework of diffusion research described by Rogers. Individuals use several factors when deciding whether to adopt a new technology, including (1) the relative advantage; (2) ability to observe the impact; (3) compatibility with current practice; and (4) complexity of the technology. A significant barrier to the adoption of CPOE is the complexity of the technology. Although many different CPOE systems are available, and the learning curve for each may vary, physicians require some time to explore these systems and to become comfortable with and efficient in their use. As Dr Catapano pointed out, this is a significant challenge when time pressures are severe. Certainly, time demands are an important predictor of physician satisfaction with CPOE.

Studies of time requirements for CPOE have varied. An early study of CPOE on resident physician time demands indicated that it required approximately twice as long to write orders using the computer system compared with the traditional method, but much of this time was recovered because the time spent completing other administrative tasks was reduced. A recent randomized trial in ambulatory settings using time-use and time-motion analyses demonstrated that the CPOE system required a maximum of 2 minutes extra time per patient, and this improved with experience.

A limitation of many of the studies of CPOE is that they were conducted in academic medical settings. Thus, results regarding the potential benefits and time demands may not be directly generalized to community hospitals. Certainly, experience with different CPOE systems may vary. Several recent reports address successful implementation of CPOE, including attaining physician buy-in. Unfortunately, no one-size-fits-all answers to Dr Catapano’s important questions exist. A local needs assessment and some human engineering approaches may be just what the doctor ordered.

Dr Houston is Assistant Professor, Division of General Internal Medicine, Department of Medicine, University of Alabama at Birmingham; Investigator, Targeted Research Enhancement Program, Birmingham Veterans Affairs Medical Center; and Scientist, Center for Outcomes and Effectiveness Research, University of Alabama at Birmingham.