Physician Adoption of Technology Linked to Providing Benefits

Barry P. Chaiken, MD, MPH

Much has been made over the last 20 years about the reluctance of physicians to adopt computer technology in their workflow. Closer examination reveals that this perception really is counter to reality. Sure, most physicians today express their reluctance to enter orders or write their progress notes using a computer keyboard for data entry, but cardiologists, radiologists and others regularly use high tech equipment that has a keyboard as the sole means of "communication" with their equipment. There is little evidence to suggest that technology adoption, in areas such as diagnostics and therapeutics, has been slowed by physician resistance.

The real difference between the ready technology adoption of certain tools and the resistance to others can be found in the benefit obtained by the physician user. Physicians, as a whole, are no different from other segments of society in their acceptance of new technology. There are the explorers who embrace almost any new technology that comes along and then there are the laggards that are most resistant to anything new.

As can be seen in Chart 1, types of adopters can be described in terms of benefits and risks. Intuitively, as benefits increase and risks decrease, more potential users of technology will adopt it. The real challenge in physician adoption to technology is providing the right types of benefits with the lowest amount of risk. For physicians, benefit is tied to information access. Risk is often measured in terms of time: the time it takes to get work done, often referred to as efficiency of workflow.

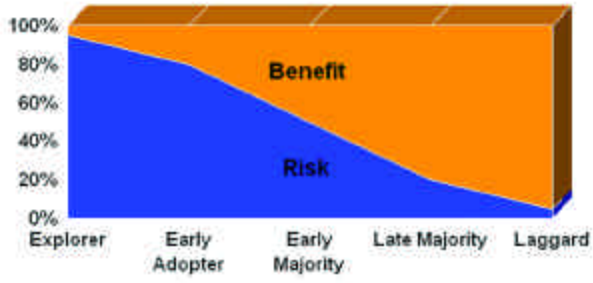

Chart 1. Adoption of innovations

PHYSICIANS USE OF TECHNOLOGY

The McKesson Corporation, a vendor of healthcare information technology solutions, commissioned Harris Interactive, the global leader in online market research, to conduct a study to better understand why physicians and nurses do or do not use clinical information tools. The study helps shed some light on the obstacles that organizations must overcome in the ongoing effort to build solutions physicians and other caregivers want to embrace.

The online survey polled 200 physicians and 100 nurses in community-based hospitals of at least 200 beds. One of the first questions was, "What's the most important issue in healthcare today?" The physician and nurse respondents -- at almost a 10-to-1 ratio -- reported that quality of patient care is their No. 1 concern over saving time and money (Chart 2). This result, of course, challenges the commonly embraced paradigm in healthcare that economic pressures supersede patient care among clinicians.

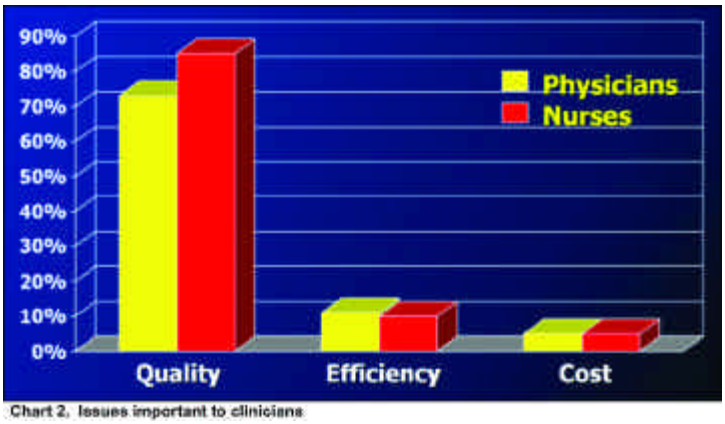

Chart 2. Issues important to clinicians

To determine what these physicians and nurses believe will help boost quality, they were asked what will improve the practice of medicine within the next five years. The results demonstrate a high expectation for clinical information systems, as 86 percent of the physicians and 84 percent of the nurses see clinical information technology as a differentiator. On top of that, 60 percent believe the clinical information technology tools that can really impact quality already exist today (Chart 3). While this is a large number of clinicians, only 12 percent have ever used advanced clinical decision support tools such as those that monitor and compare patient information and issue rules-based alerts.

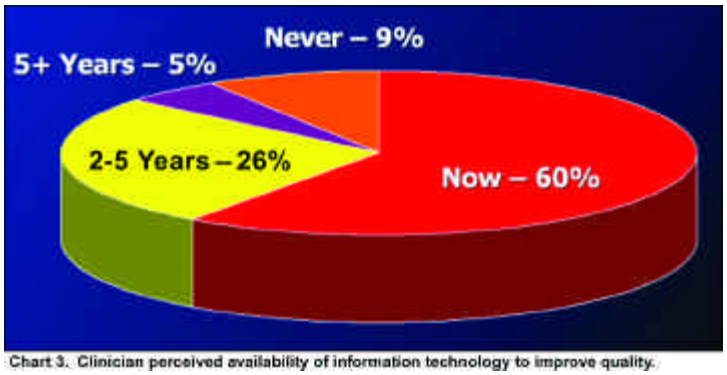

Chart 3. Clinician perceived availability of information technology to improve quality.

In addressing this large chasm between people who see the benefit to using these systems versus those who are actually using them, the study looked at barriers to adoption. The majority of physicians (54 percent) see themselves collectively as an obstacle to adopting such IT and 55 percent of the nurses agree with them. The physicians, at a rate of three-to-one, cited unwillingness to change as the chief reason for lack of adoption.

Other reasons included lack of time to learn new things and information technology systems that are difficult to learn and use. Many physicians gave a lot of examples of trying to use clinical information systems and finally giving up because they were too difficult to learn and use. They reported that in the end, it was much easier to ask the nurse to print out the information.

It is not surprising then that ease of use was cited by 52 percent of physicians as the most important success factor in adoption of clinical information systems such as computerized physician order entry/clinical decision support solutions. In addition, over 90 percent of physicians and nurses listed it in the top three drivers of adoption (Chart 4). While it requires a lot of experience on the part of an information technology vendor, vendors must do a better job of designing clinical information systems because physicians are extremely busy and have limited time for training.

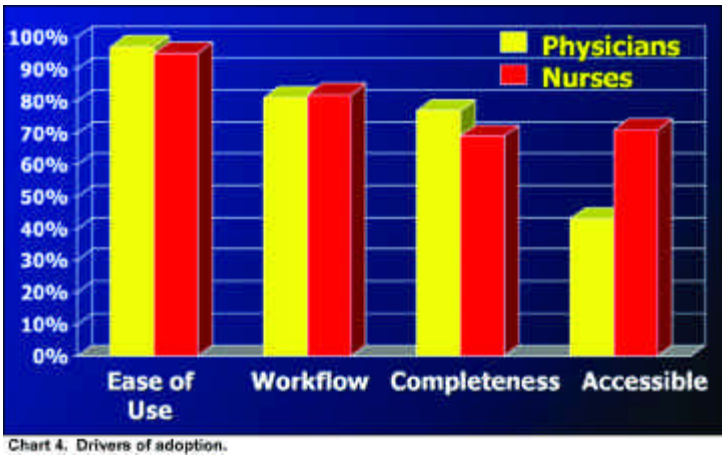

Chart 4. Drivers of adoption.

To incorporate the views of hospital administrators, Harris Interactive followed the quantitative study with an online bulletin board and focus groups that included CEOs, CIOs and CMOs. The participants reported these top ways to ensure physician buy-in of clinical technology adoption:

- Early involvement
- Show benefits
- Find champions
- Train well
- Give them time/resources to learn
- Make it easy to use
- Follow workflow
- Integrate systems
- Recognize different needs of physicians
- Give them access

Together, the quantitative and qualitative results identified three critical success factors for large-scale clinician adoption. In addition to ease of use, clinicians need to be engaged early in the process to ensure adoption. Finally, organizations must implement clinical systems in an incremental approach in order to show immediate benefits.

OTHER REPORTS

According to a recent study published by The Advisory Board, upwards of 90% of physicians accessed the Internet in 2000, and over 55% accessed it on a daily basis. In addition, 20% consider the Internet essential to practicing medicine. A study completed by the American College of Physicians - American Society of Internal Medicine, 47% of internists utilize handheld computer devices currently, and over 67% are expected to be using them in 2002. About twice as many physicians under age 40 use these devices compared with physicians over 50 years of age (60% versus 34% respectively). Chart 5 shows how those in the study reported how they use the device.

In another report published by the Advisory Board

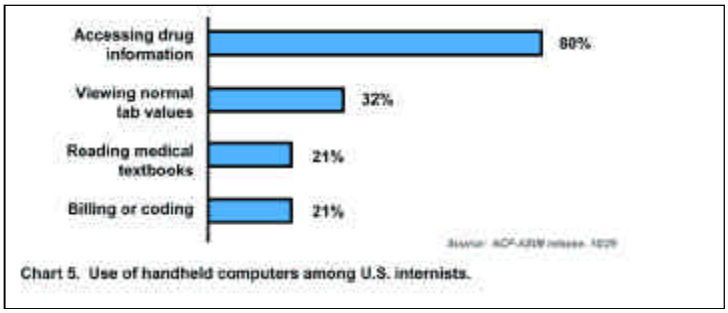

Chart 5. Use of handheld computers among U.S. internists.

addressing integration of physicians into hospitals, the top six benefits from improved hospital-physician information technology integration are:

- Easier physician ordering, access to results (68%)
- Facilitation of data exchange among caregivers (46%)
- Determining eligibility, processing claims (34%)
- Physician access to patient demographic information (28%)
- Improved message exchange between physicians and patients (26%)
- Improved physician workflow (25%)

Finally, in another study completed about a year ago by Harris Interactive, claims processing, diagnostic reporting and pharmaceutical information where identified by physicians to offer the greatest benefit to their daily practice through the use of Internet applications (Chart 6).

Chart 6. Internet applications with the greatest use for daily practice.

There are many more studies that show a strong trend toward use of technology by physicians. If current technology is compared with present day offerings, a trend can be identified that shows increasing functionality and benefits, which correlates very closely with actual use.

AVAILABLE TECHNOLOGIES

Coupling benefits with technologies drives physician adoption, and the aforementioned studies identify some of the specific benefits that have great value to physicians. The current crop of physician information technology applications are starting to address these needs.

Extranets or physician portals offer uniform, easy to use computer interfaces for access to clinical and administrative hospital information. By utilizing familiar Internet browsers (e.g., Internet Explorer or Netscape), physicians are able to quickly access needed information through use of an interface that is most familiar to anyone who has accessed the Internet. Physicians are able to intuitively use such portals and immediately derive benefits. In addition, by utilizing the same interface both in the hospital and remotely, physicians quickly learn to maximize their throughput with the new information tool.

Although computerized physician order entry (CPOE) has been available for many years, the functionality offered barely exceeded that of a handwritten order sheet. Recent technology developments now offer physicians clinical decision support coupled with CPOE, thereby converting the interaction with an order management system into a clinically driven treatment planning session. Access to evidence-based medicine approved by the hospital and its medical staff and delivered through guidelines, order sets and alerts, helps the physician in diagnostic workups, treatment planning and risk management. In addition, automatic medication checking with nationally recognized clinical knowledge bases greatly reduces the chance of adverse drug events. For the physician, this unified interface offers a workstation where results can be obtained, medical knowledge can be accessed and orders can be entered.

As indicated above, handheld computers are quite popular among physicians. They are easy to use, portable and provide great functionality when properly configured. Applications exist that offer physicians patient census, current test results and even clinical knowledge bases. The portability of the technology closely matches the workflow of physicians where a hospital bed, nursing station or an examining room is the work desk.

Recent advances in cell phone technology have merged pagers and phones, which are both familiar and widely used by physicians, with handheld computers, yielding a new "Swiss Army Knife" for physicians. Wireless Internet and LAN technologies coupled with these new devices offer physicians universal access to patient information, facilitating a rapid response to changes in patient conditions that might require a change in treatment.

SUMMARY

Physician adoption of technology requires a respect for current workflow and a deep understanding of physician needs. Physicians require access to patient information and an ability to communicate any potential responses to that information. Modifying the technology, rather than the physician, and coupling this strategic functionality within the mobile workflow of a physician, delivers the benefits that drive adoption.

Author Biography:

Barry P. Chaiken, MD, MPH, Vice President of Medical Affairs, McKesson Information Solutions, has more than 16 years of experience in medical research, epidemiology, continuous quality improvement, utilization management, risk management, healthcare consulting and public health. Dr. Chaiken is currently on the Board of Directors of ABQAURP.

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