Special Feature
THE PROMISE

Reengineering Care with KP HealthConnect

By George C Halvorson

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Many of America's health care costs, financial and otherwise, result from its current paper-based approach to maintaining patient records. This nonsystem often leads to inconsistencies in patient care (poor quality) and dysfunctional information transmission systems (inefficiencies). It is an outmoded, ineffective support system for caregivers. A fully computerized system, including patient-specific medical records, reminders, and treatment protocols, is needed to provide complete information about each patient to the caregiver in the exam room. That electronic tool is the missing link between current inconsistent care and best care. After years of experimentation and development, these tools are now ready for practical use by caregivers, and multispecialty group practices (including prepaid group practices) are the logical environment for the initial large-scale use of these approaches.

Poor Quality and Inconsistencies

Evidence compiled by researchers from several high-profile organizations—including the Institute of Medicine, the National Committee for Quality Assurance, RAND, and the Dartmouth Atlas Project—points toward the fact that the actual delivery of health care in this country too often varies from science-based best practice.[1-6] Study after study of health care performance shows wide variations in both treatment approaches and care outcomes—with levels of performance inconsistency that would be unacceptable in any other area of the American economy.

Some specific examples of variation from best practice include the following:

- Heart disease is America's number one killer (approximately one person dies each minute from a coronary event),[6] yet nearly half of America's heart attack patients do not receive the most effective follow-up care.[1]
- More than 6% of the American population has diabetes,[6] but fewer than half of America's diabetics receive the levels of care necessary to reduce or prevent complications.[5]
- High blood pressure (hypertension) is the most treatable cardiovascular disease; however, roughly 40% of America's hypertension patients do not receive the most current and appropriate levels of care, resulting in 68,000 premature deaths each year.[5]

Another sad fact for the current practice of medicine is that with rare exceptions, no one external to the caregiver or patient has an ongoing quantitative sense of whether or not the approaches used are effective or add optimal value for a given patient or for populations of similar patients. Unless care is so out of line as to constitute malpractice—an extremely rare event—there is almost no process in most settings for determining what is or is not working in any comparative sense for individuals or groups of patients or for any aggregation of caregivers.

In fact, using today's nonsystematic methods of communicating new medical science, it can take many years for a valuable new best practice to become the routine standard of care. As noted, the normal compliance level with best practice typically falls short for many important care approaches. No other industry or portion of the economy takes anywhere near this long to disseminate new approaches. Most industries retool yearly, if needed. Reengineering is a constant fact of life. Health care has been a glaring exception to that rule.

Dysfunctional Information Transmission

Quality deficiencies and inconsistencies are exacerbated by the fact that the noncomputerized care improvement processes used by most providers and health plans rely on the distribution of paper-based patient status reports and information about best care. Attempting to distribute pieces of paper about these topics to each caregiver is at best inconsistent and at worst expensive, time-consuming, and frustrating. Care sites are typically unconnected, and passing on best-practice information at a one-on-one, doctor-to-doctor, teacher-to-caregiver level can be a logistical nightmare even in a group practice setting.

Health care is an information-dependent profession that is operationally handicapped by a remarkably dysfunctional information transmission nonsystem. In an era when practically every other major segment of the economy relies on computers for data flow, decision support, and production improvement, health care still stores all-important patient-based data on inaccessible, incomplete,

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sometimes inaccurate, and frequently illegible paper files. Filing systems are almost always set up and segregated by individual care providers or treatment sites, not by individual patients. In this country, a patient who receives care from three separate doctors generally ends up with three separate paper folders, with different contents, located in three separate metal file boxes.

Dysfunctional information transmission means that neither physicians nor patients nor researchers can benefit from the full spectrum of useful or timely data. Keeping up to date on current best practices is difficult. Doctors who want to keep up on medical research in their specialty are confronted by information overload; an estimated 1500 medical articles are published each day, and there are about 4000 health-related journals to choose from.[7] It is simply beyond the ability of any single physician to keep up with all this information, let alone remember it when confronted with a patient for whom that information would be relevant.

As a result, when the typical solo-practice doctor enters an exam room to see a patient, s/he often has no systematic tools at hand to remind him/her of the patient's specific needs or the full scope of care most appropriate to the patient's particular diagnosis, condition, and treatment plan. The physician typically relies on memory for large portions of each patient's current and future treatment regimen—including dosages of drugs and duration of therapies. The physician seldom, if ever, receives any systematic follow-up information about the patient or the patient's compliance with care. The patients themselves often leave the exam room trying hard to remember the four or five key points that the doctor told them about their follow-up care.

The Solution: Computerized Caregiver Support Tools

Anyone who looks closely at the inconsistency of health care practice must conclude that computerized caregiver support tools—

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including "electronic," "automated," or "computerized" medical or patient record systems and treatment protocols—are the best way of achieving optimal care for large numbers of patients. These tools can make best care easier and more likely to occur.

Giving physicians, other health care practitioners, and researchers appropriate access to this information is the key to moving care delivery and quality to the next level of performance. Each physician should be able to quickly track the care given to each patient against the very best and most current protocols. This system should enable them to remember what tests need to be done, what drugs need to be prescribed, what follow-up care needs to be accomplished, and even when referral to specialty care is advisable. The data system also needs to be accessible to medical researchers so that they can tell, on an ongoing basis, which drugs are working, which procedures are creating value for the patient, and which technologies are leading to the very best improvements in patient outcomes.

Another critical function of a clinical information system is to generate complete and easy-to-use information for patients about their condition and their care. The information for each patient can be programmed to be culturally competent and multilingual, reducing the misunderstandings and miscommunications that now occur far too often in an increasingly diverse society. In the best situation, the system should also provide patients with direct, confidential access to their own medical history and information—along with patient-focused medical protocols and best practice information.

Benefits of Computerized Caregiver Support Tools: The Evidence

New and more reliable computerized caregiver support tools (or clinical information systems) have the potential to achieve

many of the ideal system qualities described in the Institute of Medicine's Crossing the Quality Chasm report.[1] In a comprehensive analysis of the peer-reviewed literature, Raymond and Dold found strong evidence to support the notion that such systems do in fact improve safety, efficiency, timeliness, and quality.[8-12] They also found that these systems have potential for improving service and patient satisfaction through enhanced communication and information sharing.

In their review of nearly 100 published studies spanning 30 years of research, Raymond and Dold document improvements in preventive health services, disease management, drug prescribing and administration, documentation of data, access to clinical information, and avoidance of medical errors—all resulting from the use of clinical information systems.[8]

Clinical information systems also show promise for increasing administrative efficiency through improved work flow and time savings, streamlined information storage and access, and enhanced billing efficiency.[8] Use of electronic medical records saves resources, including physician and clerical staff time,[13] storage space,[14] and ultimately money.[15]

The successes have all resulted from at least a partial computerization of care: in each case, the computer was used to enhance a particular aspect of care delivery. But the impact of a complete care support tool has yet to be fully tested. There is every reason to believe that the more complete systems will achieve even more success than the partial systems tested to date.

Pioneers of Clinical Information Systems

Although most health care practitioners and institutions in the United States are not yet ready to implement clinical information systems, a few have positioned themselves as pioneers in their use of such systems.[9] Multibillion-dollar technology investments are being made by Kaiser Permanente (KP), the Mayo Clinic, Intermountain Health Care, the Henry Ford Health System, and Geisinger Clinic, among others.[a] Group Health Cooperative has demonstrated through research the value of automated records in improving chronic care management; in particular, diabetes care.

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KP's own work with clinical information systems dates back over 40 years to 1961 when Morris Collen, MD, a founding partner of The Permanente Medical Group and the first director of the organization's research arm, piloted a computerized medical records system in San Francisco (see page 34). This effort ultimately provided researchers with a vast database of member health conditions, which is still used by researchers today to study care delivery.[16-17]

Although withdrawal of federal funding prevented the regionwide deployment of Dr Collen's automated record system, KP has continued to innovate in the use of information technology to improve care.[17] Within the organization, computer-based technologies have included an automated appointment booking and registration system (PARRS) piloted in 1977; a computerized hospital information system (ADT), in place by 1985; an outpatient pharmacy dispensing and tracking system (PIMS) implemented in 1988; and the Clinical Information Presentation System (CIPS), which began delivering real-time, patient-specific, clinical information to physicians' desktops in 1993.

Fulfilling Dr Collen's vision of a truly automated medical record, KP is currently investing nearly $3 billion over the next several years to build an integrated clinical information system for its more than eight million members nationwide. This system moves beyond electronic medical records and includes electronic documentation of patient visits, order entry for medications and procedures, and linking of inpatient and outpatient care. Kaiser Permanente estimates that when fully implemented, the new system will result in annual savings of approximately $500 million, due to cost avoidance, cost savings, and improved and more accurate reimbursement.[b]

Although only a small portion of the industry is currently on track to implement systemwide clinical information technology, a critical mass of multispecialty group practice users are choosing the same software vendor, including KP, Cleveland Clinic, Sutter Health, University of California at Davis, and Palo Alto Medical Foundation.[c] These developments may lead to increased opportunities for interoperability among care systems. Under the auspices of the Council on Accountable Physician Practices, some of these group practices are beginning to meet with each other to standardize data flow and share learning.[d]

Conclusion

Just about every informed observer of the health care system now recognizes and deplores what the Institute of Medicine identified as a vast and dangerous inconsistency of care.[1] We can reduce some of that inconsistency by making improvements in the context of our current medical processes and paper-based patient information systems. But we can't have highly reliable, up-to-date care and optimal value for the health care dollar until we have a complete electronic medical record for each patient and until we make usable, efficient clinical tools and information about each patient available to the physician at the exact point and time of care. Without such clinical information technology, the current cost burden will continue to grow, and vast numbers of patients will continue to receive inconsistent, often inadequate, and sometimes dangerous care.

Once best care has been demonstrated—through the use of computerized caregiver support tools by America's leading multispecialty and prepaid group practices—market competition will force the rest of American caregivers to follow (particularly if employers and government create appropriate market conditions). This will not happen until best care is thoroughly demonstrated, however. Because of their inherent advantages, prepaid group practices are natural laboratories for learning about the benefits and uses of these systems.

Reengineering of care support is an evolution, as opposed to a revolution. Once the benefits of clinical information systems become obvious to policymakers, purchasers, and the public, it is logical to expect that major segments of the health care delivery nonsystem will figure out how to work with payers or each other to create functional equivalents of the integrated approach. This should ultimately result in the building, in multiple settings, of virtually integrated groups and plans. Delivery systems with the size, scale, and incentives to overcome the barriers to technology adoption will likely emerge from mergers, acquisitions, and affiliations. Technology diffusion will accelerate as the clinical information system business case is repeatedly validated with measurable and significant return on investment and as successful strategies are replicated and found to be transferable across organizations.

Narrowing the performance gap between integrated and fragmented care will clearly require greater information connectivity, which does not come easily or cheaply. The ultimate beneficiaries, however, will be patients. ❖

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[a] See also: Coddington DC, Fischer EA, Moore KD. Strategies for the new health care marketplace: managing the convergence of consumerism and technology. San Francisco: Jossey-Bass, 2001.

[b] The total estimated annual savings is expressed in current dollars. The programwide estimate is based on an extrapolation from two board-reviewed business cases developed by Kaiser Foundation Health Plan, Inc: National Clinical Systems Planning Consulting, "Southern California Outpatient AMR Business Case" (February 2002) and "Regionalized HIS Business Case" (August 2003).

[c] The software vendor chosen by many of these organizations is Epic.

[d] For information about the Council of Accountable Physician Practices, go to: www.amga.org//CAPP.

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Notable Winners

History has demonstrated that the most notable winners usually encountered heartbreaking obstacles before they triumphed. They won because they refused to become discouraged by their defeats.

BC Forbes, 1880-1954, financial journalist, founder Forbes

KP HealthConnect provides care teams with access to patient information and the latest best practices all in one. The health information system securely connects more than 8.6 million people to their physicians, nurses, and pharmacists, personal information, and the latest medical knowledge. Before KP HealthConnect, paper records were available only 5 percent of the time in the emergency room in one region, according to Kaiser. "KP Health Connect has changed everything about the way I practice emergency medicine," said Steven Kohler, MD, chief of the emergency department at Kaiser Permanente in San Diego. - Selection from Connected for Health: Using Electronic Health Records to Transform Care Delivery [Book]. Redesigning primary care with kp healthconnect. By Ruth Brentari and Leslie Francis. Chapter Summary. This chapter describes a major initiative undertaken across Kaiser Permanente to redesign primary care practices in ways that could optimize the value of the electronic health record (EHR) while mitigating the new work demands associated with KP HealthConnect. The 21st Century Care Innovation Project proved effective in increasing various types of capacity in pilot sites, and many of the practice innovations that grew out of the initiative have been widely adopted. The chapter concludes with t Qualifying work experience means you've worked full-time in Canada in 1 of these National Occupational Classification (NOC) jobs: home child care provider - NOC 4411. experience as a foster parent doesn't count. or. home support worker - NOC 4412. experience as a housekeeper doesn't count. Tell us how much work experience you have to find out how to apply. You don't have any qualifying work experience.