

eHealth and Its Contribution to Patient Safety

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In the Donbedian Model of structure, process and outcome, it is known that structural underpinnings and process improvements lead to remarkably better output. E.Health offers health care delivery significant opportunities to improve its systems and operations. The logical consequence will be error reduction and increased patient safety. This article highlights major efforts in E.Health that will contribute to improving health care delivery and eliminating medical misadventures.

Health Risk Appraisals

Health Risk Appraisals are a vital part of preventive care. Until genome analysis is possible, evaluating family history and lifestyle choices are medicine's best ways to assess future risk for health care consumers. This tool can provide guidance to patients and practitioners. It can guide people to change unhealthy behaviors and customize care plans offered by their doctors. The automation and storage of these tools in the E.Health world has dramatically improved their utilization. General health risk appraisals have spawned chronic disease associated HRA's focused on tertiary prevention. Health Risk Appraisals contribute to patient safety by identifying potential problems and migrating them.

Electronic Medical Record

The EMR is the Holy Grail for health care delivery and patient safety. Full automation of personal health records can eliminate errors of duplication or conflicting care like no other E.Health tools.

However, the EMR has run into many obstacles including: standardization, privacy, security, administrative complexities, and cost. Perhaps we will see greater usage of consumer driven medical records as the next iteration. There are many vendors offering variations of this product. Some are utilizing a smart card others a write-able CD-ROM while others offer a Web based password protected version. By placing the responsibility squarely on the shoulders of the patient, privacy and security concerns are reduced. On the other hand, the accuracy of self-reported information is debatable. Either way, having access to a single record of medical

information can have significant positive consequences for the health care consumer. A comprehensive medical history and review of systems can eliminate common oversights that lead to duplications in evaluation and treatment and the use of contraindicated care. A tracking of physical exams allows for monitoring signs and symptoms and enhances early diagnoses. Recording present medications, allergies, and immunizations prevents drug-to-drug reactions, allergic reactions, and infectious disease. In the long run, electronic medical records can become interactive and even interventional tools generating reminders for care, scheduling appointments for visits, and coordinating with other e.Care tools such as HRA's and trackers.

Practice Guideline Tools

Today, reference texts and CD-ROMs have compiled over 3000 professionally generated practice guidelines. Most provide practitioners with roadmaps of care based on clinical situations. They outline algorithms normally with an if-then logic. E.Health has incorporated this niche and has begun to bring it alive. In some cases, vendors are developing parallel practice guideline tools for doctors and patients to follow their care plans in unison. The future ability of physicians and consumers to follow their treatment recommendations against customized and even personalized flowcharts offers a great potential for error reduction, particularly regarding appropriate decision-making and errors of omission.

Trackers

E.Health has created automated formats for patients with chronic illness to follow their critical measurements, which monitor disease. For example, patients with diabetes record and track blood sugars, hemoglobin A1c's cholesterol levels, etc. Patients with asthma follow their peak flow measurements. Trackers allow consumers to enter their important measurements over time. Each measure can be assessed against acceptable ranges. Numbers that exceed safe parameters can call for the initiation of an action plan. In addition, trackers can graphically represent a measure or measurements over time to assist clinicians with treatment decisions. Mild but persistent upward drift of blood sugars would call for insulin or other medication

adjustment. Trackers have broad application to critical and hospital care. They replace the primitive charting done by interns using clipboards. Trackers reduce patient mishaps by activating action plans and alerting care providers when chronic or intensive care requires adjustment.

Pharmacy Tools

The Internet presently offers many pharmaceutical interactive and even interventional tools. If you are presently taking a chronic medication and concerned about taking other medications with it, either from a prescription or over the counter, there are programs which can assess that concern within the blink of an eye. The same is now possible for evaluating the safety of taking a drug in the presence of a chronic disease. There are even tools to evaluate the dangers of mixing herbal treatments with other medications or conditions. As these tools are integrated within pharmacy prescription dispensing, marked reductions in medication errors will take place. As consumers use these tools, more of the misuse of alternative medications should reduce as well.

Information at the Point of Care

E.Health has begun to employ the advanced XML format. This allows for improved manipulation of the written word. Instead of depending on key word references within larger texts, every sentence can now be tagged to diagnostic or procedural codes. As a consequence, the health delivery system should be able to deliver exquisite, detailed information as soon as a diagnosis is made or a procedure is contemplated. Providing content to consumers and ultimately practitioners in real time should greatly improve patient safety and compliance.

Solution-Based Health Consumer Content

We have entered the world of patient driven care as we embark on the 21st century. This has a great potential for improved patient safety and error reduction. Well-informed health consumers can sense potential care mistakes and prevent their occurrence. Many E.Health vendors are

providing access to health information that is solutions-oriented. It does not just discuss a hip replacement procedure, but rather it addresses common questions and decision-related issues. If and when to perform the procedure and which kind of implant may be appropriate. Solutions-oriented content empowers patients eliminating errors of commission and omission.

Secure Messaging

Increased communication between doctors and patients and doctors to doctors will improve health delivery. In fact, the #1 cause for malpractice suits is mis-communication. Email using secure messaging offers patients and physicians a new media to communicate. For non-urgent issues, this asynchronous interaction can be very convenient and also offers increased structure to improve the exchange of thought. With this new way for patients and doctors to clinically structure cogent questions and have them answered in a documented format, care delivery will improve. Increasing the meaningful exchange between patients and doctors, primary physicians and specialists or between specialists can dramatically improve patient safety.

Physician Selectors

The earliest versions of these tools have been driven by demographic information. The Internet offers many versions of these doctor-finder tools. Today, you can enter a zip code and a specialty and receive a list of such providers within a defined area. In the future, these tools will include performance data, including volumes of procedures done, satisfaction rates, and ultimately outcomes of care. From a patient safety standpoint, this will drive consumers to health care professionals with the best track records, decreasing the likelihood of poor results.

Health Plan Reporting

Web sites and employer Intranets are providing more information to employees and consumers regarding the quality of the health plan offerings. NCQA accreditation, URAC accreditation, and HEDIS performance are three important indices. People who participate in health plans which score higher are most likely to be treated by well-credentialed doctors, receive preventive

services, engage in an appropriate disease management program or obtain necessary follow-up to treatments. All of these have significant patient safety implications.

Summary

The web-based products emerging within the eHealth space will have a dramatic effect on patient safety and health care delivery. Much of medical care today is provided with minimal structure and varied processes. The above mentioned tool set offers physicians and physician executives improved architecture to deliver care. By assessing and predicting risk, automating guidelines, tracking disease, delivering information at the point of care, evaluating drug regimens, steering consumers to the health plans and providers with the best outcomes, and by facilitating communication these Internet efforts offer great promise. Initially as these separate tools are utilized there may be some confusion due to multiple databases and conflicting information. Nevertheless, patient safety will continuously improve as these tools become commonplace and more integrated with the electronic medical record.