



IHS' eye on
community care

The Indian Health Service's iCare is a simple but powerful tool for tracking chronic illnesses in individuals and communities

AP WIDEWORLD

BY ALAN JOCH

Hospitals today are rarely at a loss for raw data. A growing number of clinical and business technologies make it possible to build deep storehouses of data, siphoned from electronic health records and the applications that feed them, such as medical imaging and physician ordering systems.

But given the complexities of most analytical programs, primary caregivers face a challenge in translating that information into better care for patients and communities.

A solution has come from an unlikely source — a low-profile agency within the Health and Human Services Department with a fraction of the resources of its peer agencies or even some state hospital systems.

In May 2007, the Indian Health Service (IHS) released an analysis and reporting tool called iCare, which uses a graphical user interface and easy-to-build templates to help doctors and case managers identify patients who need special attention. The main targets are chronic illnesses such as diabetes, obesity and heart disease, which affect an alarming number of the 3.3 million American Indians and Alaska Natives IHS serves.

“Our goal is to imbue the electronic health record with the pa-

tient view, the community view, the population view as well as the provider view,” said Dr. Theresa Cullen, who oversaw iCare’s three-year, \$1.5 million development as IHS’ chief information officer. “We want to give providers information about what is going on in the community and, at the same time, see the patient as an individual.”

The tool can also develop the types of cost and outcome reports mandated by a 2006 presidential executive order promoting quality and efficiency in health care. Various pay-for-performance initiatives launched by the Centers for Medicare and Medicaid Services and other payer organizations also require such reports.

In addition to launching iCare at its 518 hospitals, clinics and other facilities, IHS makes the application available on its Web site (www.ihs.gov). That open approach to distribution is fueling iCare’s expansion beyond the agency’s facilities.

“I just didn’t have the time and the resources to manage all that data,” said Dr. Sarah Chouinard, medical director at Primary Care Systems in Clay, W.Va., one of the clinics in the Community Health Network of West Virginia that’s using iCare.



GETTY IMAGES

On the Navajo Reservation, Indian Health Service doctors often make house calls. IHS is working on a system to help doctors identify patients who need special attention.



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A solid technical foundation

IHS built iCare to run with the Resource and Patient Management System (RPMS), an EHR application adapted from the Veterans Affairs Department’s Veterans Health Information Systems and Technology Architecture. With the help of Aptiv Technology Partners, IHS created reporting and analysis tools using Microsoft’s .NET and Visual Studio 2005 development platform.

Although IHS distributes iCare under an open-source model,

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some technical requirements limit its use for now. Organizations that want to run iCare must also use RPMS and an object-oriented InterSystems Caché database.

Although many organizations are more familiar with relational databases, Caché is widely used in the health care arena, said Robert Lantz, director of business development at Aptiv. “We are evaluating the repurposing of iCare for use with other systems,” including alternatives to RPMS, he added.

The program also relies on a query manager that helps caregivers create and run data queries based on Boolean constructs for organizing information, such as asking how many 2- to 5-year-olds within a community have a body mass index (BMI) in an overweight range. Once the results appear, doctors can dig deeper into the sample to view the records of individual patients.

“You may want to know how many visits each had in the last six months and what’s the immunization status of these kids,” Cullen said. “You can then look at what kind of visits these kids are coming in for and send reminders to scheduling packages.” For example, if a doctor hasn’t seen a child in four months, he or she might want to schedule an appointment.

An information safety net

Whether a visit is prompted by an iCare search or initiated by the patient for a routine ailment such as a sore throat, doctors receive reminders to pay particular attention to any warning signs in the patient’s medical history that indicate a vulnerability to a chronic illness.

Such reminders represent one of the most important benefits of iCare, Cullen said, because they help doctors focus on a patient’s long-term health trend rather than an isolated issue. “We wanted [iCare] to provide a safety net” against tunnel vision, she added.

The reminders appear whenever clinicians log in to an RPMS health record. Case managers, nurses and other medical professionals can receive the notifications, too.

The iCare system also performs analyses of vital signs and other medical data and could flag patients as potentially having hypertension, for example, after a third visit with elevated blood pressure readings.

Clinics typically program iCare to comb through the database after business hours to avoid affecting EHR performance during patient visits. When it’s finished, the system displays a list of patients to screen for obesity, diabetes, hypertension, HIV/AIDS, asthma and other health problems — “the kinds of diagnoses that we know are affecting our patient population,” Cullen said.

She added that iCare only suggests diagnoses; the final decision belongs to the doctors. “We want to ensure that there is a human being who gives these diagnoses because they may have potential negative adverse impacts on life insurance and other areas,” she said.

Furthermore, by analyzing data about the health of the larger patient community, doctors might be able to combat the resignation that sometimes results when diseases such as asthma and

diabetes become widespread.

“There’s a failure to recognize that there’s a health problem because so many people have it,” Cullen said. “We see in communities that are plagued with high rates of diabetes a kind of resignation. People say, ‘Well, everybody’s diabetic. I’m going to be diabetic.’”

Early results are promising

IHS hasn’t quantified any benefits of iCare since it was launched in spring 2007, but Cullen said anecdotal information hints at its value.

“We encourage sites to give [disease trend] reports to the tribal health board and to work closely with the community to let it know when a norm is changing,” she said.

In addition, Cullen said, patients can use the reports to make better decisions about their care. For example, one regularly distributed report shows the percentage of older women at clinics who receive mammograms and colon cancer screenings.

“If I’m at a clinic where only 20 percent of women are getting mammograms, I as a consumer would like to know that,” she said. “Part of our goal with iCare is to make that data more accessible.”

Others are noticing iCare’s potential. The nonprofit Community Health Network of West Virginia, which runs clinics statewide, began using iCare late last year for reporting and case management. Part of the organization’s goal was to ease the administrative burden of managing federal grants, which require the clinic to regularly file Uniform Data System information with HHS. That information includes summaries of patient demographics, services provided, staffing ratios and productivity, and revenues.

Other reports directly address patient care. One recent sum-

mary highlighted diabetic patients with hemoglobin A1c test results that fall within acceptable levels. Doctors then flagged diabetes patients not on the list for follow-up actions, such as scheduling appointments, arranging visits with a diabetes educator or initiating a new medication regimen, Chouinard said.

Revised diagnoses and new lab results automatically update such reports. “Rather than building a new query, the docs can just go into iCare, hit that report and take a look at it any time,” she said.

The system is also helping the clinic manage its growing population of overweight children using automated analyses that show elevated BMI results. Without direct action from a doctor, the system puts those patients’ names on a call list for nutrition, diet and exercise classes.

But useful analytics require some significant upfront work. The clinic was already using RPMS, so the underlying framework was in place. But Chouinard and others spent much of the past year tailoring IHS report templates to their needs.

For example, some organizations track asthma patients by recording how many people experienced a flare-up in the past two weeks. Other organizations count the number of symptom-free days patients experienced in that time period. “There’s no difference clinically,” Chouinard said. “That’s just looking at whether the glass is half empty or half full. But each is a completely different query, so it’s been an annoyance that we have to rebuild these reports.”

That inconvenience is outweighed by the fact that once Chouinard builds a report template, she can store it in iCare for later use and share it with others in the network.

“We remain happy to build the reports because of the information it gives us in the end,” she said. “If it takes all morning to build an asthma report, who cares? You do it once, and you have it for as long as you’ll ever need it.” ■

An iCare primer

Developed by the Indian Health Service, iCare is an analysis and reporting tool that offers a user-friendly interface and templates for identifying chronic illnesses among patients and communities.

How it works: It analyzes medical data gleaned from electronic health records to suggest new diagnoses, spot community trends and create performance reports.

Technical requirements: The program is designed to work with the Resource and Patient Management System, an EHR application, and InterSystems Caché databases. IHS is considering incorporating support for other platforms.

— Alan Joch