



Roadmap for Clinical Decision Support development

The goal of Clinical Decision Support (CDS) is to provide the right information, to the right person, in the right format, through the right channel, at the right point in the workflow to improve healthcare decisions and outcomes. For example, CDS interventions can detect potential medical errors, suggest optimal clinical strategies, organise the detail of a plan of care, help gather and present data needed to execute this plan and ensure the best clinical knowledge and recommendations are utilised to improve health management decisions.

The environments where these capabilities could be applied are broad and encompass the full range of settings where health and healthcare decisions are made. These include but are not limited to, acute and chronic inpatient care facilities, the wide range of ambulatory care settings and even individuals' homes and other sites of daily activities. When deployed properly, CDS should involve input from and be well accepted by end users and should support rather than detract from their work flow. Likewise CDS should make business sense for and be implemented easily by those who provide it, implement it, and use it. Ultimately, CDS will reduce adverse events, improve health maintenance and chronic disease management, improve efficiency of healthcare services and reduce costs.

In 2005 the Office of the National Co-ordinator for Health Information Technology (ONC) approached the American Medical Informatics Association (AMIA) with a request for a tactical plan to guide federal and private sector activities to advance (CDS). AMIA established a CDS Roadmap Development Steering Committee to lead this effort. Their report, ***A Roadmap for National Action on Clinical Decision Support***, is available at www.amia.org/inside/initiatives/cds/cdsroadmap.pdf

The committee developed a framework to organise discussion on the myriad tasks and issues related to CDS. Following a workshop this framework evolved into three pillars and six strategic objectives for CDS. Given the complexity and scope of the issues associated with improving CDS in the United States, the roadmap does not explicitly address improving CDS beyond the US. However, the committee acknowledges that other countries (such as Australia, Canada and the United Kingdom) are also working on improving CDS as part of their national health information technology strategies. Thus there is an underlying assumption that the CDS efforts in the US will inform and be informed by work underway in those countries.

CDS provides clinicians, staff, patients or other individuals with knowledge and person-specific information, intelligently filtered or presented at appropriate times to enhance health and healthcare. It encompasses a number of tools and interventions such as computerised alerts and reminders, clinical guidelines, order sets, patient data reports and dashboards, documentation templates, diagnostic support and clinical workflow tools. CSD has been effective in improving outcomes at some health care institutions and practice sites by making needed medical knowledge readily available to knowledge users. Yet at many other sites CDS has been problematic, stalled in the planning stages, or never attempted. As a result, relevant medical knowledge that should be brought to bear is not always available or used for many health care decisions. This is an important contributor to the well documented problems and sub optimal performance of the US (and other) health care systems. Further, growing consumerism throughout society, along with efforts to shift the costs of care to patients and expand patient participation in health care decisions are driving increased patient and

(Continued on page 2)

Inside this Issue

Roadmap for Clinical Decision Support development	1
Creating Decision Support Tools that Work	3
Taking the next step up	5
Good collaborative care associated with improved outcomes	6
Use of Information Technology in OECD Countries	7
Seminar Programme	6

(Continued from page 1)

consumer demand for access to reliable medical information. Achieving desirable levels of patient safety, quality of care, patient centeredness, and cost effectiveness requires that the health system optimise its performance through consistent, systematic, and comprehensive application of available health related knowledge – that is through the appropriate CDS.

The roadmap recommends a series of activities to improve CDS capabilities and increase use of CDS throughout the United States health sector. The immediate goal of these activities is:

To ensure that optimal, usable and effective clinical decision support is widely available to providers, patients and individuals when are where they need it to make health care decisions.

The ultimate goal of these activities is to improve the quality of health care services and to improve health in the United States.

The road map identifies three pillars for fully realising the promise of CDS.

Best knowledge available when needed: the best available clinical knowledge is well organised, accessible to all, and written stored and transmitted in a format that makes it easy to build and deploy CDS interventions that deliver the knowledge

into the decision making process.

High adoption and effective use: CDS tools are widely implemented, extensively used and produce significant clinical value while making financial and operational sense to their end users and purchasers.

Continuous improvement of knowledge and CDS methods: both CDS interventions and clinical knowledge undergo continuous improvement based on feedback, experience and data that are easy to aggregate, assess and apply.

These pillars provide the framework for organising the many issues and tasks related to getting full benefits from CDS. Each pillar comprises two strategic objectives that correspond to the key components of next generation CDS capabilities. As a set, these strategic objectives identify the mechanisms by which this roadmap will help realise positive changes in the health system.

Challenges for Information System and Knowledge Developers

One of the major factors limiting the full adoption and impact of CDS is a lack of a common and transportable base of clinical knowledge and CDS interventions that can be easily and widely used in electronic health records and other clinical information systems. Largely non-standardised and independent approaches to creating and presenting clinical knowl-

edge and CDS interventions severely limit incorporation, re-usability, and interoperability in clinical information systems. There is not yet an explicit overarching vision for a suite of CDS related standards that will lead to widespread effective use of CDS interventions. Individual CDS standards that are available are generally not widely deployed and may not optimally address pertinent implementation challenges.

Yet an emerging set of evidence suggests that the economic value of CDS is considerable. A Centre for Information Technology Leadership (CITL) analysis of the value of computerised provider order entry (CPOE) in ambulatory settings found that the most profound impact arises with sophisticated clinical support. Advanced CPOE systems were estimated to cost nearly five times as much as basic CPOE, but were projected to generate over 12 times greater financial return.

The CITL model projected annual savings of approximately US\$44 billion from reduced medication, radiology, laboratory, and adverse drug events (ADE) related expenses and a reduction of more than 2 million ADEs annually with the nationwide implementation of ambulatory CPOE. Savings of this magnitude may also arise when CPOE technologies are adopted across every hospital. #

Pillar 1 Best knowledge available when needed.

Strategic Objective A: represent clinical knowledge and CDS interventions in the standardised formats (both human and machine interpretable) so that a variety of knowledge developers can produce this information in a way that knowledge users can readily understand, assess and apply it.

Strategic Objective B: collect organiser and distribute clinical knowledge and CDS interventions in one or more services from which users can readily find the specific material they need and incorporate it into their own information systems and processes.

Pillar 2: high adoption and effective use

Strategic Objective C: address policy/legal/financial barriers and create additional support and enablers for widespread CDS adoption and deployment.

Strategic Objective D: improve clinical adoption and usage of CDS interventions by helping clinical knowledge and information system producers and implementers design CDS systems that are easy to deploy and use, and by identifying and disseminating best practices for CDS deployment.

Pillar 3: Continuous improvement of knowledge and CDS methods

Strategic Objective E: assess and refine the national experience with CDS by systematically capturing, organising and examining existing deployments. Share lessons learned and use them to continually enhance implementation best practices.

Strategic Objective F: Advance care guiding knowledge by fully leveraging the data available in interoperable Electronic Health Records to enhance clinical knowledge and improve health management.

Creating Decision Support Tools That Work

“Involving the healthcare consumer in the management of their own health” is one of the catch phrases trotted out as part of a mantra of working smarter to improve the delivery of healthcare services. For the consumer to do so they are going to have to have access to decision support tools to inform their decision making. Americans are being required to take an active role in the decisions concerning their health care especially related to the selection of health plans and providers.

While we in New Zealand access healthcare differently, making the right decisions influences the health care we receive. A report prepared by Shaller Consulting for the California Health-Care Foundation and available at www.chcf.org/documents/insurance/CreatingDecisionSupportTools.pdf examines the range of decision support tools available to help make the right healthcare decisions, summarises the evidence regarding their use and effectiveness and offers possible strategies for overcoming some of the barriers to their more widespread and effective use.

The landscape of decision support tools is diverse with several types of tools serving a number of inter related functions and being offered in a variety of forms. There has been a recent proliferation of tools to assist with the choice of doctors, hospitals and other health care providers. These range from health care report cards that present comparative performance information on different health plans and providers, to providing directories that offer detailed information on physician's backgrounds and practice. There are also tools related to specific care and treatment choices aimed at helping patients answer questions about available treatment options. These often include patient decision aids that can be used alone or in combination with personal counselling by physicians and other professionals to understand alternatives, to consider the probability of different outcomes, and to clarify the values patients bring to issues of benefits and risks.

The primary role of decision support

tools is to help people make informed decisions by providing and managing information, clarifying preferences, and presenting trade offs involved in various possible choices. Within that primary role some of the major functions of decision support tools include:

Framing the decision. Many consumers find it difficult to know even how to begin thinking about an important health care decision. One important function of many decision support tools is to provide guidance concerning which criteria are important in making the decision. For example, one approach to framing the selection of a health plan is to suggest that quality factors are important in addition to cost and that disregarding quality could lead to adverse personal health outcomes. Tools that help frame a decision can do so either by providing the user with a set of criteria, or by helping users to generate their own. Framing can also serve to broaden the kinds of factors the consumer considers when making a decision.

Providing information in an unbiased way. Decision aids can present information in an unbiased and objective way in contrast to the information provided by parties with vested interests (such as providers and suppliers interested in steering consumers towards certain treatments or sites of care).

Storing, presenting and processing information. Some decisions are difficult for consumers due to the vast amount of potentially relevant information available. Decision support tools help the decision maker winnow a large set of options and thereby reduce the number of different information inputs to be factored into the decision.

Clarifying preferences. Some decision support tools assist the user to explicitly rate or rank available options based on personal preferences. This assistance is especially valuable for the many people who have difficulty determining what their true preferences are. Indeed many decision makers change or refine their preferences as the implications of the ratings are made more clear.

Guiding choices. This function involves combining identified preferences with information about the available choices. Decision makers are shown how to use their preferences to weight or narrow their options. Various methods are available for guiding users step by step through possible options from paper worksheets and checklists to interactive computer knowledge.

Not all tools include these functions; the particular functions included in a given tool depend in its purpose and type of decision being supported. For example, tools that help people choose among options to treat a medical problem may stress functions that help the users clarify the features that matter the most to them. The role of personal preferences has been shown to be especially important in choosing amongst options for treating conditions such as breast cancer and prostate cancer, where the different treatment options carry very different lifestyle implications.

Some tools, such as comparative report cards on health plan performance, tend to be quite limited in the functions they include; many report cards provide only unmediated information, often through complex data displays, and therefore ignore most of the other possible functions of decision support tools discussed above.

The functions served by these tools include framing the decision context for the consumer, providing essential data and background information, sorting and processing complex information, clarifying a patient's values and preferences and providing structured guidance through the process of decisions making. Formats range widely and include: print publications, videos, CD ROMS, audio guided work books, Web sites and personal counselling.

While a broad range of decision support tools exist, evidence regarding their use and effectiveness is quite limited. The results of studies that do exist is somewhat mixed. For example, the use of comparative reports on healthcare quality has grown rapidly in

(Continued on page 4)

(Continued from page 3)

recent years but relatively few evaluations have been conducted that might allow findings to be extrapolated broadly.

Experimental studies generally find that report cards can positively influence customer decision making when the information is easily understood. But the studies that have examined the effect of report cards on actual consumer behaviour have produced conflicting results. Some have found that health care quality information influences customer decisions, while others have concluded that it has no significant effect.

The availability of information for patients regarding their choice among specific care and treatment options is also expanding with many tools now available on the internet. Controlled trials have shown that such decision aids improve patient knowledge regarding options, enhance realistic expectations about various alternatives, reduce patient frustration with the decision making process, and stimulate people to take an active role in decision making.

Key barriers to effective use

Although the availability of decision support tools is increasing, a number of barriers impeded their widespread and effective use by health care consumers and providers. Many of these barriers arise from the design, content, format, and dissemination of the tools themselves, including:

- Lack of relevant content, such as comparative information on individual doctors and on the cost of health care services.
- Poor tool design and confusing presentation of complex information.
- Limited consumer awareness of information on physicians and hospitals, health plan decision support tools and other patient decision aids

Other barriers to effective use are related to the characteristics of the intended audience or to the structure of the health care system more broadly, such as:

- Low levels of literacy, especially among the elder and the poor.
- Lack of trust in the source of decision support – including em-

ployers, health plans and government agencies.

- Lack of on line access to Web based tools, particularly among the elderly and the poor.
- Health care practitioner's lack of time to engage in informed decision support with patients, practitioners lack of training in decision support skills, and the absence of reimbursement incentives that reward practitioners for engaging in decision support.

Strategies for promoting more effective use

The report discusses a number of strategies for addressing some of the tool design and dissemination barriers noted above.

Consider the decision context and audience. Tool developers need to understand the environment in which health care decisions are being made, as well as the needs and preferences of potential users of these tools. The nature, frequency, and the complexity of the decision should influence the kind of information provided and the way it is delivered. The characteristics of users should also influence both presentation strategies and dissemination channels.

Test early and frequently. Consumer testing, particularly focus groups and individual interviews with potential users, can play a major role in ensuring that a decision support tool satisfies a real need.

Craft appropriate content. The appropriate content for any particular tool will vary according to many factors, including the decision being supported and the characteristics of the intended audience.

Decision support tools should provide a clear and concise explanation of the purpose and use of the tool; a compelling motivational message that frames the value of the tool; references to familiar information with which users can readily identify; and clear explanations of complicated or technical concepts and terms.

Decision support tools come in many formats

The various functions of decision support tools can be accomplished through a variety of formats and media.

Printed booklets and worksheets. Used in numerous applications such as health plan report cards, provider directories, benefit comparison materials and self care guides.

Computer applications. Either on line or off (CD ROM) such as online enrolment tools, Web based provider directories (many of which offer personal profiles of providers and advanced search functions) and online consumer tools regarding care and treatment options related to specific conditions.

Audio and videotapes. Present information on treatment options and instruct patients in self management skills, many in the context of disease management or shared decision making programs.

Personal counselling or coaching from a trained advisor. Include "health coaches" working with chronically ill patients, community based outreach workers assisting beneficiaries in understanding benefit options, information hotlines and training seminars at the work site or in community

Make complex information accessible. Tool developers need to present sometimes complex information in ways that allow users to easily access relevant material, understand its key messages and implications, and make comparisons of appropriate options. Strategies for doing this include:

- Breaking down decisions into discrete steps;
- Simplify difficult trade offs (for example, by clarifying relationships between cost and quality);
- Making navigation easy, in both print and Web based media, through the use of simple figures, graphics and headings;
- Making information easy to evaluate through the use of performance ranking, symbols, summary tables, colour coding and narrative stories;
- Layering information by locating more general information early (in a written tool) or at higher levels (in the structure of a Web based tool);

(Continued on page 5)

Taking the Next Step Up



Perhaps the most compelling part of Dr Geoff Lorigan's presentation to our May Branch meeting was graduates of his programme in his audience who stood up and extolled the value they had gained from taking part. Geoff is Director of the Institute for Strategic Leadership; and previously Associate Dean at the University of Auckland, and Director of the University of Otago Advanced Business Programme. He was also the Director of the University of Auckland MBA and the University of Otago MBA; and held Professor of Strategy appointments at both universities.

As well as running very successful residential leadership courses, Geoff coaches and mentors CEOs, Directors and high potential individuals. He also consults widely to public and private companies in the areas of strategic planning, the

The most dangerous leadership myth is that leaders are born—that there is a genetic factor to leadership

The myth asserts that people have certain charismatic qualities or not. That's nonsense: in fact the opposite is true.

Leaders are made rather than born

Failing organisations are usually over managed and under led

Warren G Bennis

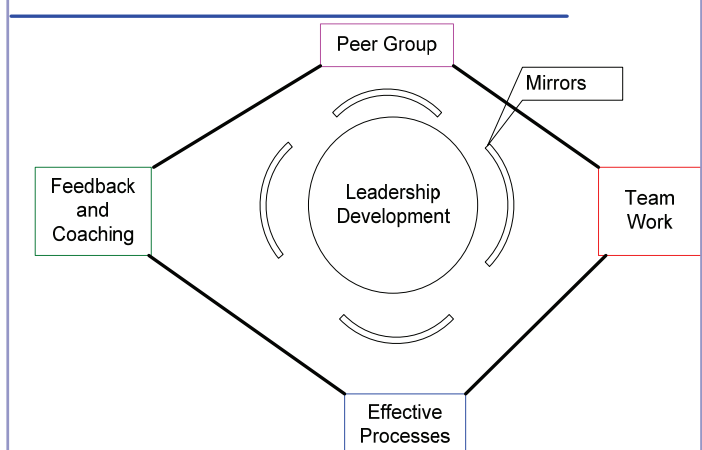
development of high performance teams, creating shareholder value and supporting technology start-ups.

In his presentation Geoff spoke about what it takes to make an effective strategic leader and then ran through how his Institute Leadership Programme operates. With four syndicates of no more than five participants – each syndicate supported by an experienced coach, each syndicate is able to undertake learning through an experiential process. This is far more effective than sitting through a “chalk and talk” session lead by some guru. In this environment participants find it is safe to experiment and enjoy enriched feedback from other programme members.

Geoff's presentation and details of his programme can be found at www.leadership.ac.nz/presentations.php

THE LP Coaching Model

Teamwork, Feedback, guidance, reflection



(Continued from page 4)

- Using easily understood categories or frameworks to convey complex information

Select an appropriate medium. For example, relatively simple choices are usually best supported through easy to use low tech media, such as printed information, worksheets or videos (all of which are more accessible to users without online access or skills). More complex choices, where the trade offs are less clear, may be better served by interactive CD-ROM or Web sites. Personal counselling, such as training clinicians in the requisite skills and using third party decision counsellors, is also useful.

Maximising awareness. Strategies for successful market-

ing and distribution include promoting tools through a comprehensive communications strategy. It is also important to build credibility and trust with users by creating or associating with a brand image that makes the tool recognisable and acceptable, or leveraging existing relationships with trusted advisors, including personal physicians and organisations such as religious institutions and cultural associations.

Make tools available when needed. Provide consumers with access to the tools at the point where they will be making a decision. There are certain “teachable moments” when consumers are most likely to need support, such as when they chose a new doctor or group practice, are diagnosed with a serious medical condition, or require a major procedure or new medication. #

Good Collaborative Care Associated with Improved Outcomes

In his preface to the July–September 2006 issue of the *Journal of Ambulatory Care Management*, Donald Berwick writes that health care in the United States is "neither patient-centred nor collaborative."

Berwick, president and CEO of the Institute for Healthcare Improvement, maintains that the "quality chasm" will not be closed without wholesale restructuring of the U.S. health system. To make care more patient-centred, it must be more proactive, inclusive, and customized to individual patients. To make it more collaborative, it must utilize teams of practitioners that share information among members and patients alike. In the *Journal*, articles discuss key issues central to achieving such fundamental changes.

In the article, "[Patients Report Positive Impacts of Collaborative Care](#)," Dartmouth Medical School's John H. Wasson surveyed with colleagues approximately 25,000 adults with common chronic diseases (like hypertension or diabetes) or dysfunction (like pain or emotional problems) about the collaborative nature of the care they receive. Respondents were considered to have "good" collaborative care if they received useful information about their condition from clinicians and if they reported being very confident about their ability to control and manage their condition. Patients who reported one of these criteria were described as having "fair" collaborative care, and those who reported neither as having "poor" care.

Only 21 percent of all respondents participated in good collaborative care, 36 percent attained fair collaborative care, and 43 percent experienced poor collaborative care. Those who experienced good collaborative care, say the researchers, are more likely to enjoy higher levels of provider continuity, easier access to care, and greater efficiency of care.

Good collaborative care was also strongly associated with better treatment outcomes, such as control of blood pressure, blood glucose, serum cholesterol, and pain management. It was also associated with greater use of

preventive services, like bowel cancer screening, and with less lost time at work and fewer sick days at home. "Good collaborative care," the researchers concluded, "is very likely to increase quality care and lower its costs."

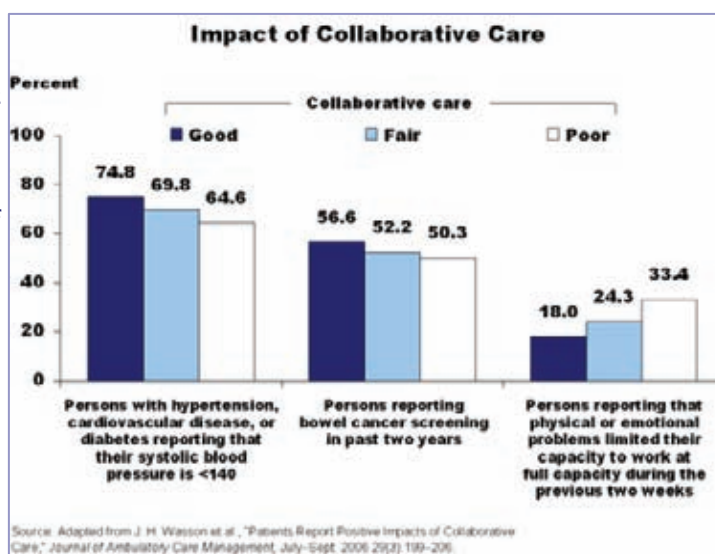
Planning for Patients' Care Needs

Planned-care management—disease management that includes preventive care as well as elements of self-care—is a cornerstone of patient-centred, collaborative care. Such care requires knowing both "what is the matter?" and "what matters" to patients, says John Wasson, lead author of the article, "Resource Planning for Patient-Centred, Collaborative Care." To construct a planned-care management strategy that serves patients on multiple levels, Wasson and colleagues examined data from [HowsYourHealth.org](#), a free online survey that helps people assess their health status and then tailors information to their particular needs. The researchers reviewed information from 13,271 older adults (aged 50 or older) who had at least one chronic disease or "bothersome" condition.

Wasson's team determined that many patients would do well with a low-intensity, self-care strategy consisting of a standard assessment, feedback to the physician, and tailored information for the patient. "As long as patients reliably receive information tailored to their needs and their clinician takes the feedback seriously, the patient should benefit," Wasson says.

A second, smaller group of patients would require telephone reinforcement and problem-solving from a member of the clinical team. Finally,

patients with low confidence or poor financial status may require additional support, possibly through one-on-one or group visits. While the researchers admit that it is not possible to provide all things to all patients, it is possible to "plan the delivery of the most effective management strategies to the most appropriate group of patients."



Business Coalitions Encourage Patient-Centred, Collaborative Care

In "Patient-Centred Collaborative Care: Employer-Led Business Coalition Vision for Action," Andrew Webber, of the National Business Coalition on Health, and Suzanne Mercure, of Barrington and Chappell, a health care consulting firm in Fredericksburg, Va., outline the ways in which employers and employer-led coalitions can build on the momentum for patient-centred care. Individual employers can provide employees and retirees with decision-support tools, coaching in preparation for physician visits, and worksite health programs. Employer coalitions, meanwhile, can inform and educate members about available tools for promoting patient-centred care—including pay-for-performance incentives, benefit plan design, and value-based purchasing—and provide leadership and support for community-based initiatives focused on patient-centred care. #

Use of Information Technology in OECD Countries

Despite having the highest per capita health care spending among industrialized countries the United States had fewer practicing physicians, practicing nurses, and acute care bed days per capita than the median country in the Organization for Economic Cooperation and Development (OECD). Nevertheless, U.S. health spending per capita was almost two and a half times the per capita health spending of the median OECD country. One proposal for both lowering health spending and improving quality is the adoption of health information technology (HIT). The United States lags as much as a dozen years behind other industrialized countries in HIT adoption—countries where national governments have played major roles in establishing the rule, and health insurers have paid most of the costs.

A new analysis supported by The Commonwealth Fund. In "[Health Care Spending and Use of Information Technology in OECD Countries.](#)" (*Health Affairs*, May/June 2006) Gerard F. Anderson, Bianca K. Frogner, Roger A. Johns and Uwe E. Reinhardt' discuss the key issues surrounding HIT implementation: creating incentives, ensuring interoperability, and easing the public's privacy concerns.

Health spending and GDP. Health economists have long recognized that health spending per capita is positively correlated with GDP per capita. If one takes as a benchmark a simple regression equation of health spending per capita (in purchasing power parities, or PPPs) on GDP per capita (in PPPs) over the OECD countries and excludes the United States and Luxembourg as outliers (assuming that GDP per capita were the only determinant of national health spending per capita), then U.S. health spending per capita would have been only \$3,673 in 2003, or \$1,962 less than it is now.

While Possible explanatory factors for the higher level of U.S. health spending include service use, administrative complexity, population age, threat of malpractice litigation, defensive medicine, and lack of waiting lists. the most compelling explanation remains, "It's

the Prices, Stupid." The United States has fewer hospital beds and physicians to treat patients and uses fewer inpatient hospital days than the median OECD country. Yet in 2003 the United States continued to pay much higher prices in three key health care components: physician visits, hospital stays, and pharmaceuticals.

HIT and spending control. In this paper the authors turn their attention to one proposed method of controlling health spending: the adoption of health information technology (HIT). Other countries have accepted the idea that HIT will lower health spending and improve outcomes and are at least four to thirteen years ahead of the United States in initiating national HIT programs. The centerpiece of most of these programs is the electronic health records (HER), but HIT also encompasses a wide range of services including telehealth, electronic ordering systems, decision support tools, networks, and infrastructure. U.S. physicians have been adopting computers, personal digital assistants (PDAs), the Internet, and Web sites at rates comparable to those of physicians in other countries.

The median growth rate for the United States healthcare spending (3.4 percent) for 1993–2003 is exactly the same as the median growth rate for all thirty countries in the OECD. The United States had two distinct periods of health spending during this period. Between 1993 and 1998, with the advent of managed care, it was able to hold health spending growth below the OECD median. However, from 1998 to 2003, after the bite of managed care had weakened, average annual growth was 4.6 percent, compared with the OECD median of 4.1 percent.

U.S. outpatient spending per capita is almost four times the OECD median and nearly double the second-most-costly country (Sweden). The trend in outpatient and inpatient spending over the past two decades suggests that U.S. policies to move as many services as possible out of the inpatient setting have been successful.

Although the United States is an early

adopter of new technology, once the technology has diffused, it appears to acquire technology at rates similar to those of other industrialized countries. For example, the United States had the same number of computed tomography (CT) scanners per million people as the median OECD country had in 2003, and nine other countries had more magnetic resonance imaging (MRI) machines per capita than the United States had. Also, the United States does not always provide the most sophisticated procedures. For example, while U.S. physicians performed the highest number of kidney transplants per 100,000 people in 2003, it was tied for fourth place in the number of heart transplants and was third in the number of liver transplants.

As noted, the United States lags behind several industrialized countries in the HIT area. Rigorous studies on the cost effects of fully wired health systems are lacking, even in countries that are leading the way and have moved in this direction partly for cost reasons. Thus, the U.S. status in this regard does not have a direct relationship to its relative performance in the area of health care costs. However, to the extent that HIT systems are cost-saving in the long run, the lack of an integrated, national IT system for health in the future could exacerbate the position of the United States relative to countries that are HIT leaders.

Several countries established committees to foster the adoption of HIT. Each of these countries has experienced difficulties implementing its HIT system, and the adoption process has been criticized by both providers and the public in those countries. Germany was the first country to start developing a national HIT network (1993) and also has the first expected completion date (2006). In 1997, Canada established the Advisory Council on Health Infrastructure and in 2001 launched Canada Health Infoway, a non profit organization. Canada Health Infoway expects to have EHRs for half of the population by the end of 2009. The United Kingdom has established the National Programme for IT

(Continued on page 8)

(Continued from page 7)

(NPfIT), the most expensive and perhaps the most comprehensive HIT system in development worldwide (and one that is experiencing many implementation problems). The program anticipates creating an integrated care record service, an electronic appointment system, and an electronic prescription transmission system and will build infrastructure and networks that will be accessible to all of the major health care providers by 2014. Norway and Australia have also established major HIT initiatives, and both countries have at least a six-year head start on the United States.

Involving Physicians

Physicians are crucial to the widespread adoption of HIT. U.S. physicians have been reluctant to adopt HIT primarily because they are concerned about lost productivity spent during training and inadequate financial incentives. Some researchers have estimated that start-up costs are \$40,000 per physician in small group or solo practices. To offset these increased costs, one suggestion is that public and private insurers pay physicians \$5 per submission of an EHR. This would cost Medicare an estimated \$4 billion per year. Others have suggested that pay-for-performance systems should reward providers that have HIT systems. Studies have also suggested that some costs could be offset through improved billing and coding.

Because of the importance of involving physicians, countries have adopted various approaches to increase physicians' participation. For example, Norway encouraged adoption through federal contributions to regional projects proposed by specific providers. Conferences and seminars were also conducted to inform and educate providers to ease the transition to an electronic system. England and Australia both encouraged implementation by identifying early adopters and using them to convince their colleagues of HIT's potential value.

The two countries also designed campaigns that addressed physicians' questions. For example, the Health-Connect campaign in Australia focused on clearly outlining the legal issues of participation, creating an easy step-by-step registration proc-

ess, and defining and addressing the capabilities providers need to effectively participate.

Countries with relatively simple health insurance contract payment structures, with standard nomenclatures that are easily operated electronically have found it easier to im-

to be able to access health records from all countries.

Germany's upgrade of its smart-card technology moves it toward the goal of portability. The technology allows authorized health professionals to access a centralized database holding patient data within a secure network

	US	Australia	Canada	Germany	Norway	UK
Initial year of national IT	2006	2000	1997	1993	1997	2002
Expected year of complete implementation	2016	Undefined	50% by 2009	2006	2007	2014
Estimate of total investment (as of)	\$125M	\$97.9M	\$1.0B	\$1.8B	\$52M	\$11.5B
Total investment per capita (as of)	\$0.43	\$4.93	\$31.85	\$21.20	\$11.43	\$192.79

*In U.S. dollars. ** In U.S. dollars. Per capita is based on 2003 population numbers

plement HIT systems. Australia, Canada, Germany, Norway, and the United Kingdom all began with fragmented and incremental processes, but over time realized the need for national HIT standards. These countries found that national efforts have the advantage of ensuring uniform privacy and confidentiality standards, guiding efficient development and implementation of technology, and providing grants and incentive programs to encourage HIT adoption.

Some countries have found that one danger of a fragmented approach to HIT implementation is a lack of interoperability among various HIT systems. This is particularly important for the management of people with multiple chronic conditions, whose care is often managed by multiple providers.

Germany and Norway have built their HIT programs using the standards of interoperability and privacy set by the eEurope 2002 and eEurope 2005 Action Plans. Their visions were to prepare their HIT systems for future levels of interconnectivity in electronic commerce, particularly for pharmaceuticals. A longer-term goal is to allow all clinicians in Europe

managed using public key infrastructure (PKI) technology. The provider signs legally valid electronic documents to store data within a chip on the smart card and then encrypts the data to allow their secure transmission. The new smart health card allows physicians to access networked databases that provide patients' complete medical histories.

Each country engaged in HIT has developed or is in the process of developing privacy and confidentiality standards. Germany's health initiative divides information into two parts: an administrative part that is obligatory (for example, co-payment status and paperless transmission prescriptions) and a medical part that is voluntary (for example, drug usage, current diagnoses, and previous surgeries). Germany's regulations allow patients to decide whether or not to release their medical part and which specific medical information to make available to whom. Norway recently adopted laws regarding health professionals' handling of confidential and electronic health information, and laws enforcing the integrity and security of EHRs. Canada developed a Pan-Canadian

(Continued on page 9)



New Zealand Institute
of Health Management
A Branch of the Australian
College of Health Service
Executives

For all inquiries re Branch
activities or membership contact
admin@nzihm.org.nz or
(09) 577 5477 Phone/Fax



Inform Editor Bruce Parkes

(Continued from page 8)

Health Information Privacy and Confidentiality Framework to suggest a set of core provisions for the collection, use, and disclosure of personal health information in both the publicly and privately funded sectors.

The cost of HIT adoption is a major concern in all of the countries. This is also the most difficult component to compare because of the various scopes and types of programs and funding mechanisms. In addition, cost estimates are often revised as a project progresses.

Often, initial estimates of the total cost for HIT implementation have been too low. For example, the Canadian government originally provided funds of \$420 million to Canada Health Infoway but now expects to spend to \$1.2 billion. The United Kingdom originally announced in 2002 that the NPfIT program would cost \$4.3 billion over three years but later more than doubled its estimate and time frame to \$10.8 billion over ten years. Norway and Germany have remained close to their original budgets.

In all of the countries, the cost of implementing an HIT program is borne by the government or health insurers, or both. It is recognized in these countries that the benefits and cost savings accrue primarily to patients and insurers, not to providers. Economists recognize that use of IT in health care has a strong public-goods component, which means that a particular stakeholder often does not reap the full social benefits produced by new HIT investment. Consequently, according to economic theory, the private sector will under invest in IT relative to its social benefits, which leads economists to recommend that public subsidies be used for the development of HIT systems, even though they will be used by private stakeholders. Also, the value of a particular HIT system installed by one stakeholder tends to increase with the number of other HIT systems installed elsewhere with which that stakeholder's HIT system can communicate. For these reasons, many industrialized countries have subsidized the application of HIT with public funds, albeit it on the condition that those HIT systems can interconnect. #

Seminar Programme

June 28th

@ Red Cross Offices, 2 Woodbine Ave, Green Lane
5:30p.m. for 6p.m.

Building a Boeing in Health

Andrew Terris

Non Members Welcome

Cost

Members Free

Non Members \$25

Our seminar programme is
supported by:



Our June speaker, Andrew Terris, is a director of Healix, he studied business and accounting at university and has significant experience in health. He has worked for many years as a project manager of high risk and complex health projects with a particular focus on process / programme management, risk management and quality assurance. Earlier in his career, Andrew worked for SAP Australasia and Ernst & Young on a number of large international projects for organizations such as Daimler Chrysler and Johnson and Johnson.



Healix is a New Zealand company whose people have a background in Health process and project management. They have harnessed the use of modelling tools for Health improvement. This is a chance to see how the HealthStrategy-Base has been created using the same toolset used by Boeing to design their 777 aircraft. The modelling tool is also used by, among others, the FDA. Hear about the use of this tool for mapping out health process improvement using multi-disciplinary teams, how to use it to prioritise expenditure on asset management and technology projects or to assess the fit of information strategy to meet organisational needs.

Contributions Welcome

1. The Auckland Branch welcomes contributions to **Inform** on subjects of interest to managers in the health and disability sector. Articles may be longer researched contributions, comments on current practice, or shorter notes and/or reviews. The range of possible subjects is very wide.
2. The maximum length is generally 3000 words. Shorter contributions are very welcome. Please include an e-mail address so authors can be contacted and a brief list of key points or an abstract.
3. Copy should be provided by e-mail or on a computer disk.
4. Contributions may be passed to the Editorial Committee for consideration.
5. Make submissions or contact the Editor for more information at admin@nzihm.org.nz