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REPORT ON



Canada E-Health 2000

From Vision to Action

OCTOBER 22-24, 2000

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Canada E-Health 2000
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REPORT ON

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Preface

Canada E-Health 2000: From Vision to Action

Almost 400 of Canada's key health stakeholders gathered in Ottawa on October 22-24, 2000 to discuss progress in developing a national health infostructure and the challenges, priorities, and directions for the future.

The conference began with an opening plenary session dealing with recent key events and federal/provincial/territorial work to identify key directions for investment in health infostructure. Following this, participants broke into conference themed sessions on the Electronic Health Record, Telehealth, and Health Information, to focus more closely on the progress and issues facing their development. The closing plenary provided perspectives on the conference discussions for each theme with a focus on future directions.

More than 65 Canadian and international experts shared with participants their work, thoughts, "lessons learned" and advice on how to achieve success with e-health. An Info Fair highlighting federal, provincial, territorial and health organizations' initiatives in e-health showed that significant progress is being achieved across the country.

This report provides highlights from the two-and-a-half-day conference. More detailed information on the Canada E-Health 2000 conference is available on the website of the Office of Health and the Information Highway (OHIH) located at www.hc-sc.gc.ca/ohih-bsi/. Conference information can be found under "What's Available". This information includes the opening address by David A. Dodge (then Federal Deputy Minister of Health), the complete program, abstracts from the presentations, some actual presentations, speaker biographies, and the conference evaluation report. Additional information on many of the subjects touched upon in this report, such as the Vision 2020 Workshop Series, the Advisory Council on Health Infostructure, and the ongoing federal/provincial/territorial Advisory Committee on Health Infostructure (ACHI) can also be found on the OHIH website.

Important Note

This report synthesizes conference discussions into a narrative that presents an easy-to-read, informative, all-encompassing view of the e-health issues discussed at the conference. The comprehensive information on the specific presentations, available on the OHIH website (www.hc-sc.gc.ca/ohih-bsi/) may be viewed to supplement this report.

Introduction

Information plays a critical role in health and health care. Physicians and other health care professionals rely on accurate and detailed patient information and medical research to correctly diagnose and treat health problems. Patients depend on clear, professional advice about how to manage specific health problems or maintain their overall health. Families rely on information and support networks to help them deal with a loved one's illness. Medical researchers and public health officials rely on comprehensive data on population health as input for their research and surveillance efforts. Health administrators and policy makers require information on how well the health system is working in order to identify opportunities for improvement.

It is now widely recognized that information and communications technologies (ICTs) can facilitate the sharing of information throughout the health care system. In recent years, there has been considerable progress towards the development of a national health infostructure in Canada. Some of the key events have been: the report of the Advisory Council on Health Infostructure; the creation of a federal/provincial/territorial (F/P/T) Advisory Committee on Health Infostructure (ACHI); work by ACHI on a Blueprint and Tactical Plan to guide future development; and significant investments by Health Canada (e.g., the Health Infostructure Support Program, the Canadian Health Infostructure Partnerships Program, the National Health Surveillance Infostructure, the First Nations and Inuit Health Information System, the Canadian Health Network, the Roadmap Initiative, etc.) and by provinces/territories (e.g., alberta we//net, Saskatchewan Health Information System, etc.). Clearly, innovative work by all health jurisdictions is in progress.

196 lbs of new knowledge each year

Medical scientists now generate some 196 pounds of medical knowledge each year. Traditional reliance on memorized medical school material is increasingly unsatisfactory for both provider and patient.

C. Peter Waegemann
Medical Records Institute

V I S I O N T O A C T I O N

Consultation and collaboration have been cornerstones in the strategy to develop a national health infostructure. In 1998, Health Canada and Alberta Health co-hosted the "National Conference on Health Infostructure". As a follow-up to that conference and to take account of activity since then, in October 2000, Health Canada hosted a national conference on e-health.

The conference had two major objectives:

- To raise awareness and share information on activities, priorities, challenges and progress; and
- To stimulate action and collaboration towards a national health infostructure.

Canada E-Health 2000: From Vision to Action

Auspicious timing

Canada E-Health 2000: From Vision to Action was a natural follow-up to recent "Vision 2020" consultations conducted with some key stakeholders (physicians, nurses, health care administrators, and children's health care experts) about how information and communications technologies could best be employed to modernize Canada's health care system.

The timing was auspicious. Canada E-Health 2000 took place on the heels of a break-through First Ministers' agreement on health. That agreement includes a federal-provincial-territorial government commitment: to strengthen our health infostructure; to develop an electronic health record system; to enhance telehealth; to work collaboratively to develop common data standards to ensure compatibility of health information networks; and to ensure stringent protection of privacy, confidentiality, and security of personal health information. In support of the agreement, the Government of Canada has committed $500 million to an independent corporation to accelerate the adoption of information technologies in health care. Initially, the focus of the corporation will be on the development of the fundamental building blocks of the electronic health record.

With a shared vision, clear political will, and financial resources to move forward, Canada E-Health 2000 participants were motivated by a strong sense of momentum.

A broad spectrum of participants

Physicians, nurses, representatives of health associations, and health non-governmental organizations (NGOs), federal, provincial, and territorial government officials, health administrators, academics and researchers, privacy advocates, and some private sector representatives attended Canada E-Health 2000. This broad representation provided an excellent forum for an exchange of views among the various stakeholders in the health sector.

Over two-and-a-half days, more than 65 Canadian and international speakers (Annex A) contributed to 25 sessions on the key issues related to e-health and the three conference themes: Electronic Health Record (EHR), Telehealth and Health Information.

Health Canada Assistant Deputy Minister Denis Gauthier to e-health participants: "The conference gives us the opportunity to reflect and reconsider where we are going with e-health."

Health Canada Deputy Minister David A. Dodge spoke about "tapping into the vast potential that today's technology offers to support national health care renewal."

Participants discussed their e-health activities, priorities, and progress. They voiced their concerns and shared ideas about their directions and priorities. They met others like themselves who have embraced what technology offers to health and health care.

The conference was opened by Denis Gauthier, Assistant Deputy Minister, Information, Analysis and Connectivity Branch, Health Canada, who discussed how the conference was an opportunity to expand our thinking, knowledge, and ability to put in place the pieces that will eventually become a robust health infoway that will contribute to improving the health of all Canadians. David A. Dodge, then Deputy Minister of Health Canada, described e-health as a major re-engineering of Canada's health care system which was bigger, more complicated, and perhaps more important than any such effort ever undertaken in the past.

Info Fair highlights progress

The Conference featured an Info Fair that offered participants the chance to get a closer look at some of the successes in health sector ICTs (Annex B). They visited OHIH-sponsored booths on the Canada Health Infoway, as well as the upcoming EHR and telehealth initiatives databases. Participants had the opportunity to speak with representatives from various Health Infostructure Support Program (HISP) projects, Statistics Canada, the Canadian Institute for Health Information (CIHI), and a number of regional/provincial health initiatives, including the Western Health Information Collaborative, Saskatchewan Health Information Network, alberta we//net, and the Calgary and Brandon Regional Health Authorities.

Conference participants discussing e-health projects at the Info Fair.

The Road to E-Health

Canada has a long history of innovation to overcome the challenges of delivering health care in a geographically dispersed country. For over 40 years, Canadian health care professionals have tested increasingly sophisticated technologies in communities and regions across the country. Their goal has been to expand access to quality services, especially for those Canadians living in rural and remote regions.

Since the early 1990s, Canada's health leaders have been exploring how information and communications technologies can be employed more broadly to modernize Canada's public health care system (Annex C).

In its 1995 final report, *The Challenge of the Information Highway*, the Information Highway Advisory Council (IHAC) noted that technology can support and enhance our health care system by ensuring that all Canadians have equal and timely access to essential health services.

In 1996, CANARIE issued *Towards A Canadian Health Iway*, setting out the primary characteristics of a technology-assisted health system for Canada.

In 1997, the National Forum on Health issued a report, *Canada Health Action: Building on the Legacy*. The report articulated a vision of a national health information system that would support evidence-based decision-making by Canadians and their health care providers.

Also in 1997, the Advisory Council on Health Information was established to develop a Canadian vision for health infostructure and a strategy for achieving that vision. The Council was mandated to establish national priorities, identify challenges and barriers and recommend appropriate solutions.

In February 1999, the Council articulated its vision in *Canada Health Info*way*: Paths to Better Health*. The vision is one of a public empowered to make informed choices about their own health, integrated service delivery, and strengthened privacy protection. It highlights timely, relevant, useful information as the foundation for decision-making, service excellence, accountability, and better understanding of the determinants of health. It seeks to build on provincial and territorial health infostructures.

The vision articulates four strategic goals for a Canada Health Infoway:

1. Empowering the public to make informed decisions;
2. Strengthening and integrating health services;
3. Creating relevant information resources; and
4. Improving the protection of personal health information.

The Journey Ahead – A Blueprint and Tactical Plan

Neil Gardner, Executive Director, Saskatchewan Health, described the consultations and various steps involved in developing the Blueprint and Tactical Plan.

Neil Gardner, Co-chair of the Advisory Committee on Health Infostructure, set the stage for conference discussions by presenting ACHI's work to develop a *Canadian Health Infostructure Blueprint and Tactical Plan* to move e-health from vision to action. The Blueprint builds upon the people-focused vision articulated by the Advisory Council.

To develop the Blueprint and Tactical Plan, ACHI conducted a current state assessment on programs and projects already in place across Canada. Key technical components were identified. A gap analysis examined what is in place today and what is needed. Broad consultations were undertaken to identify priorities for future action.

The resulting Tactical Plan identified three key strategic directions: health information for the public, integrated provider solutions, and the electronic health record. All three directions are considered as priorities and need to be pursued. However, the EHR is seen as the critical gap requiring immediate attention. Key areas for action include the development of national EHR standards, consistent privacy policies/legislation, and coordinated implementation across all jurisdictions. Successful implementation of the EHR also hinges on the development of practical, integrated provider solutions which support information entry and retrieval by front-line health care professionals. More complete, dynamic health information for the public is also needed. This will, among other things require building on the success of the Canadian Health Network (CHN), linking it to integrated provider solutions and to the provincial/territorial self-care and telecare services already underway.

E-health priorities

- Electronic health record
- Integrated provider solutions
- Health information for the public

V I S I O N T O A C T I O N

The Blueprint and Tactical Plan emphasizes the importance of collaboration, risk management and benefit sharing among all stakeholders. Such cooperation is needed to ensure the approach is patient-centred, needs-driven, involves providers and patients as co-architects, and incorporates principles of accessibility, interoperability, privacy, confidentiality, and security.

E-Health and the Electronic Health Record

Better collection, management and use of patient health information

Many conference speakers noted that traditional paper-based approaches to collecting, storing, and using key patient health information are becoming barriers to high quality health care.

Physicians describe the typical primary care interaction as less than ideal. A patient's account of a problem may reflect memory lapses, lack of awareness about what is relevant, or even worry or embarrassment.

Difficulty associated with accessing relevant patient information is a constant source of concern among practitioners and a source of frustration for patients. Paper records may be incomplete and difficult to analyze. Ensuring that patients understand and remember key facts about their diagnosis and treatment can be difficult.

The following list indicates the kinds of information and tools that physicians have indicated they require:

- Integrated patient information;
- Summary information (e.g., problems and medications);
- A mechanism for timely/efficient communication among provider teams;
- A better way to provide patients with information; and
- Convenient access, training and support for computer-based work.

The Cochrane Collection

A critical factor in the success of the electronic health record and improved patient care is the use of high quality, accessible, readable, up-to-date health information. The Cochrane Collaboration is a reliable source of peer-reviewed, current systematic reviews and consumer synopses of health care intervention research. It and other evidence-based resources will enhance the decision-making of consumers as well as providers. Informed consumers will bring positive changes to the provider-patient relationship.

Dr. Kathleen Clark
The Canadian Cochrane Network and Centre

EHR offers benefits, but challenges to implementation exist

An electronic health record system offers a solution for addressing these needs as electronic records are more easily shared among provider teams. New hand-held telecommunication devices can greatly facilitate information collection and retrieval at the point of care. When linked with clinical decision support systems, the EHR can facilitate evidence-based diagnosis and treatment.

EHRs improve patient care

Electronic health records are rarely used for patient care but when they are, it is possible to improve patient care – particularly for those with chronic illnesses. More timely implementation of management strategies, as well as better communication with the patient and caregivers are two major benefits. The Internet can be used to employ electronic health records within a distributed care team.

Dr. Steven M. Edworthy
University of Calgary

V I S I O N T O A C T I O N

However, several speakers noted that the EHR is about more than just digitizing paper records. It represents a significant change in traditional health care approaches and requires significant up-front investment of time, energy, and money. Hence, there remain many challenges ahead in realizing a pan-Canadian EHR.

First, are the range of **technical challenges** related to developing the hardware, software, and technical supports to operate and maintain the EHR network. Interoperability of the EHR network is critical and will hinge on the development of consistent standards for data collection, storage, and retrieval across all jurisdictions. For the development of a user interface, key content elements such as the patient's problem list, the management strategies (including diagnostic testing, medications, and progress notes), and the consultation letter, will need to be captured. A structured problem list could be the means of helping the provider to navigate easily and intuitively through relevant summary patient information and to drill down to the necessary specific details. Data entry must be designed to help the user keep the data accurate and meaningful. External data sources, such as radiology departments and laboratory services, need to be electronically accessible, through secure, standardized data gateways.

Physicians Office Survey, September 1999

Physicians have not embraced the concept of EHR and are apprehensive about it. They appreciate the advantage the Internet offers them, but see only limited application to their clinical practice. Some aspects of computerization are seen as advantageous, but there is no single application that is recognized as crucial to initiating widespread adoption of the EHR.

Dr. William Haver
Lakeside Medical Clinic

V I S I O N T O A C T I O N

Second are the challenges related to the **financial resources** required to put the necessary equipment and expertise in place. Investment amounts are high. Risks and benefits must be allocated fairly among health system participants. An integrated and cooperative approach is needed to avoid redundancies or "re-inventing the wheel" in multiple jurisdictions. Providing adequate training and technical support is key to ensuring system reliability, realizing cost savings, and avoiding a prohibitive learning curve.

Third is the challenge related to **practitioner adoption** of new technologies. Getting the primary care physician, who is often the patients' first contact with the health care system, to "buy in" is critical. But achieving this will take more than mere money and clever software. At present some estimates indicate that only 3-5% of physicians are using electronic patient records. Therefore, if EHR is to become a reality, physicians

will need to be motivated to adopt new work practices and tools. They will need to see a strong business case outlining the tangible benefits. They will need assurances about the reliability of the technology, the appropriateness of the user-interface, available training, and technical supports. There can be no violation of the doctor-patient relationship. There can be no breach of privacy or confidentiality – real or perceived.

Clinical decision support

Electronic patient records integrated with clinical decision support systems are becoming a core component of health information management. If health care reform in Canada is to be successful, significant investment in these systems is urgently needed.

Dr. Matthew W. Morgan
University of Toronto

V I S I O N T O A C T I O N

EHR is already demonstrating its worth

Today, EHR is already proving its usefulness in practice environments across Canada. The Markham Stouffville Hospital, for example, has linked physicians, labs, and the hospital to a single electronic network, permitting fast and efficient electronic documentation of the health care interactions of some 40,000 patients. The Hospital has also implemented computerized administration, featuring point of care electronic documentation and filmless and paperless communications related to diagnostic imaging, radiology, mammography, and nuclear medicine testing.

Other projects such as Calgary's Foothills Medical Centre and the Peter Lougheed Centre are showing the utility of EHR as a support to clinical decision-making. As well, some 50 "chartless" medical practices are cutting their administrative costs by 10-15% by eliminating the workload associated with management of paper files, by increasing the legibility and the organization of chart content as well as by automating data entry.

E-health is about doing things better

Health is no different – technology will force us to re-examine the system. It's not just automating what we do now, it's about doing things better.

Dr. Mamoru (Mo) Watanabe
Canadian Society of Telehealth

V I S I O N T O A C T I O N

These and many other projects are showing that EHR benefits are concrete, measurable, and meaningful - more time spent with patients, increased utility of patient files, less superfluous paperwork, better and faster diagnosis and treatment plans, greater opportunities for consultation among providers, and a greater opportunity for patients to be partners in their own health care.

EHR for a better health care system

The EHR is widely cited as a critical key to modernizing health care in Canada. Speakers noted that the EHR will save resources and effort by eliminating sometimes risky or expensive duplicate testing and history taking. Through the use of the Internet, smart cards, and other information technology, patients will be able to access their own EHR and take on the role of "partner" in managing their own health. Finally, EHR stands to make a major contribution to health surveillance, medical research, and the measurement of system effectiveness by providing for the production of aggregate non-identifiable health information.

Telehealth Contribution to E-Health

Canada is on the leading edge of telehealth

Participants talked about how Canada has long employed telehealth to break down geographic barriers in health care. Today, there are dozens of active telehealth programs and pilot projects, as well as several province-wide networks in place. Telehealth is being applied to a wide variety of health services, such as nursing triage, diagnostic services, rehabilitation, consultations, and continuing education for health professionals.

For example, Info-Santé CLSC, a teletriage service throughout the province of Quebec, is currently handling 2.5 million calls per year, increasing citizens' capacity for self-care and contributing to more appropriate use of health services. Other projects, such as the IIU Telehealth Network in Nunavut, the National First Nations and Inuit Telehealth project, and Saskatchewan's Northern Telehealth Network, are increasing the timeliness and accessibility of health services in rural and remote areas. In doing so, they are minimizing the need for travel and lengthy stays away from home, effectively alleviating the burden on patients and their families.

Saskachewan Northern Telehealth Network

On-going planning, flexible programming, and extensive evaluating, combined with consistent and enthusiastic stakeholder involvement and meticulous operational management, has provided the northern Health Districts with a very favorable taste of telehealth technology. Riding on the many achievements and the lessons learned during the first year of telehealth in Saskatchewan, the provincial government and the participating Districts are now planning for implementation of new technology, additional programming, and expansion of services and sites.

Karen Levesque and Guy Paterson
Northern Telehealth Network Pilot Project

V I S I O N T O A C T I O N

IIU Telehealth Network in Nunavut

Nunavut has 27,000 citizens, about 85% of whom are Inuit, located in 26 communities scattered over approximately 24% of Canada's landmass. Nunavut is committed to providing improved access to appropriate services for residents and the IIU Network is one of the tools that will help reach this goal. In Inuktitut, IIU means "a tool to help people that are far away." Regular counselling sessions, specialty and follow-up clinics and educational sessions for clinicians are conducted by the Baffin Regional Hospital in Iqaluit via referral sites in Pond Inlet and Cape Dorset, Cambridge Bay and Gjoa Haven Health Centres.

Tina McKinnon
Department of Health and Social Services
Nunavut

V I S I O N T O A C T I O N

First Nations and Inuit Telehealth

To be completed in March 2001, this project is testing a variety of telehealth applications in five First Nations communities and identifying "lessons learned" about how to successfully implement telehealth in First Nations and Inuit communities. Lessons learned relate to managing expectations ("you can't do it all"), the human factor (lack of and unstable, available resources), the lack of adequate telecommunications infrastructure, and the need for integration and partnerships with other jurisdictions. These issues will be addressed in a First Nations and Inuit Strategic Vision for telehealth to be created by First Nations and Inuit decision-makers and community health providers.

Alexa Brewer
Health Canada

V I S I O N T O A C T I O N

A family's perspective on high-tech home care

For a family, the introduction of technology into homes may be intrusive, challenging, and may carry with it an additional burden of care. However, it also brings with it the opportunity to return to the comfort of home with one-button access to a specialized team of health care providers.

Dr. Nancy Young
Hospital for Sick Children

V I S I O N T O A C T I O N

Terry Fox Mobile Clinic

The interdisciplinary approach for physical rehabilitation outreach services can be augmented by using computer-based communication technology. This technology is used by the Terry Fox Mobile Clinic team for screening, consultations, follow-up and online education with clients/families and health professionals in the community. Offering low-bandwidth online service, and complemented by site visits, the Terry Fox Mobile Clinic is delivering occupational therapy, physiotherapy, nursing, and speech-language pathology outreach services at the right cost, at the right time, and in the right place.

Marcel Desrosiers
Terry Fox Mobile Clinic
Ottawa Rehabilitation Centre

V I S I O N T O A C T I O N

Still other projects, such as Toronto's Hospital for Sick Children Tele-Home Care Project and the West Prince, P.E.I. Telehospice Project, are demonstrating the capacity of telehealth to enhance the effectiveness of on-going monitoring and palliative care. These projects are confirming the benefits of delivering health care in the home where supportive family and friends surround the patient.

Practitioner education a key area for focus

The requirements of the health care profession necessitate that practitioners be continuous learners. However, today's explosions in medical/health knowledge and technology-related change are accelerating the requirements for continuous learning. As well, traditional classroom and apprenticeship learning models have become less practical solutions as practitioners cope with tight schedules and information overload.

The use of computers, telephone lines, the Internet, virtual reality and specialist software offers enormous potential to facilitate learning and "just-in-time" or "on-the-spot" information access. This is particularly true for practitioners in remote areas of the country.

What is needed is access to self-assessment and other tools to enhance practitioners' ability to engage in workplace-based learning.

Continuing Medical Education

The Northern Ontario Remote Telecommunications Health (NORTH) Network provides specialist consultations, continuing medical education and patient education via two-way videoconferencing. Important benefits include increased access to specialty consultations, reduced travel time for patients, cost savings for patients and the health care system, and reduced professional isolation for physicians practicing in northern and rural communities.

Dr. Robert Lester
NORTH Network
Sunnybrook and Women's College Health Sciences Centre

V I S I O N T O A C T I O N

Preparation of nurses

Extensive collaboration with nursing partners from the community and acute care settings, and with telehealth experts, has verified the need for formal telehealth education for Registered Nurses. The Centennial College Nursing Telepractice Certificate program provides just such training.

Kathryn Ellis
Centennial College of Applied Arts and Technology

V I S I O N T O A C T I O N

Cross-border remuneration issues

Motivated by concerns over health care utilization costs, most rules require that a physician actually see a patient in-person before billing for the services rendered. This approach is changing. A number of provinces including Alberta, Nova Scotia and Saskatchewan, have decided to reimburse physicians for telehealth practice on a broad basis. The outcomes of these "experiments", particularly the impact of telehealth on health care utilization and costs, will have a decisive influence on the future development of telehealth in this country.

Dr. Raymond W. Pong
Laurentian University

V I S I O N T O A C T I O N

Liability questions

When a health care practitioner accepts a call and provides medical advice to a patient, a duty of care is established and the provider is accountable for the advice given. What is less clear is whether that same duty exists when the caller is another practitioner or calling on behalf of someone else. And what are the requirements for follow-up with the patient after hang-up?

Patricia Mclean
Canadian Nurses Protective Society

V I S I O N T O A C T I O N

New Brunswick telehealth service outcomes

- 42% of callers given self-care advice
- 40% referred to walk-in clinics or their family physician
- 13% referred to Emergency
- 5% referred to other care providers
- 95% caller satisfaction levels

Lois Scott
Clinidata Corporation

V I S I O N T O A C T I O N

Policy, regulatory and legal issues must be addressed

Telehealth technology permits the health care provider in one location to provide service to a patient located elsewhere, possibly even in another province, without any direct contact with that patient. This raises questions related to cross-border licensure, reimbursement, and professional liability which will need to be addressed for telehealth to achieve widespread adoption. In some provinces physicians are reimbursed by their provincial health insurance plans for telehealth services. However, in other provinces they are not reimbursed by provincial plans and take part in telehealth activities on a voluntary basis or are paid through some alternative payment mechanism.

The Federation of Medical Licensing Authorities of Canada (FMLAC) has made recommendations to the provincial governing councils related to cross-border licensure of physicians for telemedicine. These recommendations were accepted by some but not all provinces. Thus, each province is on its own and some may require full registration with full requirements and payment of fees.

Evaluating telehealth effectiveness

Health stakeholders agree that telehealth projects must be patient-driven rather than technology-driven. That is, they must meet an identified, legitimate need, employ the simplest, least expensive technology that can do the job, and the tools must be shared among a network of trained and supported users. Telehealth projects must satisfactorily address the following questions:

- Does it adequately support patient-provider professional relationships?
- Is there a sense of security on the part of the patient?
- Does the service provide adequate caregiver support?

- For home care services, can they offer 24-hour support to the patient and family at home?
- What is the best process to involve patients, families, communities, volunteers and other health providers?
- What are the best protocols?
- What is the right care/technology mix?

Proven benefits for success

Telehealth will become increasingly commonplace as patients and health professionals recognize the enhanced access, speed and convenience that it offers. Patients will recognize that telehealth services can help them avoid costly travel and precious time away from home. Practitioners will recommend telehealth as a means of allowing their patients to be treated where family and community supports can accelerate recovery. Health care providers will increasingly look to telehealth solutions to support their continuing education needs. Potential funders and decision-makers will watch with interest the results of evaluations on costs, benefits, and effectiveness regarding existing programs and projects.

Telehealth evaluation must adopt a consumer's perspective

Existing e-based health information evaluations have focused on technology and information with little emphasis on the consumer's perspective and involvement. The five principles of consumer involvement (relevance, participation, active learning, autonomy support and access) provide a basis to guide the development, refinement and evaluation of e-based health information initiatives.

Dr. Harvey A. Skinner
University of Toronto

V I S I O N T O A C T I O N

Using Internet technology in telehealth

Telehealth must now enter the "networked" world by incorporating the benefits that are being realized through Internet applications and building the "virtual infrastructure" to support a broad base of providers and patients. Fortunately, there is a logical path of evolution for telehealth technologies into the Internet space and much experience in other industries to draw upon.

Linda Weaver
TecKnowledge Healthcare Systems

V I S I O N T O A C T I O N

Health Information for E-Health

Main source of health information is media, not doctors

Only 33% of Canadians cite the family doctor as their main source of health information. Of those polled, 45% said the media, including newspapers, magazines, the Internet and medical journals, was their main source of health information.

The Medical Post, July 7, 2000

V I S I O N T O A C T I O N

Comprehensive, trustworthy, and useful health information is fundamental to informed decision-making by patients and the general public, health care providers, and officials engaged in monitoring and protecting public health.

Patient and general public needs

Relevant, credible, timely, and easy-to-understand health information is key to empowering Canadians to manage their own health. Such information includes the latest health news and research, self-care information, resource directories to support better access to care, self-assessment tools, and links to physicians, teletriage call centres, and health discussion groups.

Canadian expectations are high

Survey results show that Canadians' expectations for Internet-based information and service are already quite high. Some 84% of Canadians want to ask doctors questions over the Internet. Over 80% want to make appointments online. Over 50% feel that referrals to specialists should be available by e-mail. Over 40% believe their prescriptions should be refilled over the Internet.

Health Insider
Cited by Denis Morrice
Canadian Arthritis Society

V I S I O N T O A C T I O N

Patients are pushing their health care providers to use the Internet. Internet searches performed by patients or their families are becoming commonplace additions to the medical office visit.

A number of projects are already providing Canadians with access to trustworthy information on healthier lifestyles, the prevention of disease, self-care, and the performance of the health system. For example, New Brunswick's symptom triage and health information service is providing citizens with 24-hour, toll-free access to nurses supported by decision support software. Veterans Affairs Canada has initiated projects at Royal Canadian Legions to teach veterans how to use the Internet to find information on health care options. The Canadian Cancer Society has created a toll-free information service that provides cancer information to patients, their families, the general public and health care professionals. As well, the Canadian Health Network is demonstrating the benefits of providing a single access window to existing resources of over 500 health NGOs across Canada.

Practitioner needs

Health care practitioners need relevant and reliable data about health care practices, including clinical support tools, data on best practices, clinical practice guidelines, the latest in medical research, and data on broad health trends in the communities they serve. They also require data and tools to support the business and administrative functions surrounding their work.

Practitioner attitudes towards the use of the Internet in the practice environment featured heavily in conference discussions. One of the critical factors that was seen to get physicians and other care providers to use this medium is to have a one-stop single access portal that will provide them with all the information they need.

England's Doctors.net.uk, and Nova Scotia's brand new DoctorsNS.com are revealing benefits for providers. The Canadian Nurses Association has been working on a portal for nurses. Indeed, over the past five years, numerous websites and online services for providers have emerged.

Keeping their attention

Gaining a thorough understanding of physicians' behaviour and attitudes towards the use of computer technology in the practice setting is essential. The creation, implementation, delivery, and promotion of a comprehensive Internet portal will be the key element to keeping physicians' attention.

Dr. Calvin Gutkin
College of Family Physicians of Canada

V I S I O N T O A C T I O N

NurseInfoNet

NurseInfoNet will respond to the knowledge and information needs of the nursing and health care community by providing access to data, information, and research findings, which can apply to nursing practice; influence policy; support evidence-based decision-making; and contribute to educational and research endeavours. A demonstation project is under way.

Sandra MacDonald-Rencz
Canadian Nurses Association

V I S I O N T O A C T I O N

Monitoring and protecting public health

Over the years, disease control programs have relied on a number of reporting systems, such as for communicable diseases, sexually transmitted diseases, tuberculosis, and others. While useful on a program-by-program basis, they have not been standardized or coordinated and are unable to share information when needed.

The fragmented approach to development, coupled with a heavy reliance on paper-based record keeping, has also meant that health surveillance systems have not been able to take full advantage of progress in information technology. Public health information systems have not had the capacity to exchange information electronically with private providers of medical services, such as clinics and laboratories. As a result, public health agencies have often received information slowly and incompletely.

How improved surveillance improves health

The public has increasing expectations for the protection of health at the same time that there is growing concern about emerging and re-emerging diseases and health hazards. The use of information and communication technologies holds great promise as a means of improving health surveillance, and thus the ability to prevent and control diseases.

Dr. David Mowat
Health Canada

V I S I O N T O A C T I O N

American Surveillance Initiative – NEDSS

The Centers for Disease Control and Prevention (CDC), together with its public health partners, have begun to implement the National Electronic Disease Surveillance System (NEDSS). NEDSS will gather health data automatically from a variety of sources in real time, monitor the health of communities, perform on-going analyses of trends, detect emerging public health problems, and provide information for taking public health action. By enabling public health agencies to use information technology more effectively, NEDSS will improve the nation's ability to identify and track emerging infectious diseases, including potential bioterrorism attacks, as well as to investigate outbreaks and monitor disease trends.

Dr. Robert Pinner
National Center for Infectious Diseases
Centers for Disease Control and Prevention

V I S I O N T O A C T I O N

The implications of the traditional approach to disease monitoring are no less troublesome in the chronic, non-communicable disease categories. Chronic diseases exert a significant burden on Canadian society, contributing to premature death, hospitalization and other health care costs, loss of productivity, and restriction in lifestyle activity. Canada lacks a comprehensive system for monitoring these diseases. The current "system" of chronic non-communicable disease surveillance in Canada is a patchwork of activities, each centred on specific diseases or conditions, such as arthritis, asthma, cancer, chronic obstructive pulmonary disease, diabetes, heart disease and stroke, and mental illnesses. Each of the diseases has significant features in common: risk factors and determinants, health services, and outcomes. There are also strong interrelationships between many chronic diseases (e.g., diabetes and heart disease).

E-health offers the potential to enhance capacity to monitor and protect public health through better health surveillance. Participants noted that public fears about emerging diseases and health problems are growing in parallel with their expectations that public health officials should be able to protect Canadians from these threats. Public health officials are also expected to be able to detect emerging health problems and to quickly provide the information needed for a wide range of health concerns such as communicable diseases, consumer product threats to health, and non-communicable diseases such as heart disease and arthritis.

Most agree that a common core platform of data collection and analysis will improve the effectiveness and efficiency of all disease surveillance efforts. Standardized definitions and access to pertinent databases will permit more useful analysis of information on incidence and prevalence of chronic diseases and injuries, risk factors and conditions, health policies, services and programs, and outcomes.

Participants agreed that collaboration among stakeholders in terms of indicator development, data collection, and dissemination of surveillance products will be a critical success indicator.

Accurate, trustworthy, and accessible health information is a critical component of e-health. It is important for the public, patients and their families, physicians and other health care providers, public health officials, researchers, health system administrators, and policy makers.

ProdTox

Poisoning represents the third most important cause of hospitalization for unintentional injury in children and youth under 20 years of age in Canada. The Canadian Poison Control Centres collect high-quality clinical data on poisoning cases originating from calls they receive via their toll-free telephone lines available 24 hours a day, 7 days a week. The ProdTox pilot project was initiated in early 1998 to demonstrate the feasibility of linking the data assets of two Poison Control Centres in British Columbia and Quebec. It is proving to be an extremely valuable source of data for surveillance that is being used across Canada to enhance regulatory, prevention and information programs.

Ron Sussey
Health Canada

V I S I O N T O A C T I O N

Canadian Community Health Survey

Statistics Canada launched a new survey this year to produce reliable results at the Health Region level. This information will help local health planners in making informed decisions on the development of programs and services. There are presently 133 health regions defined in the survey plus the three territories for which reliable data will be made available. During content development, consultations were conducted with hundreds of health care experts across Canada to identify what health information was required. Computer-assisted technology data collection makes it possible to tailor the collection instrument to each Health Region's needs. The Internet will be used to reach as large an audience as possible.

Marc Hamel
Statistics Canada

V I S I O N T O A C T I O N

Conclusion

Information communications technologies, from the alphabet and the printing press to the telephone and Internet, have been changing our lives for some 5,000 years. Even as we have come to recognize that technological tools can dramatically improve our lives, we are increasingly aware of the need to anticipate and manage their consequences. This is particularly true in health where technology and medical knowledge are both advancing rapidly.

A pan-Canadian approach is essential

Many Canadians worry about the idea of having their personal health records stored on a single mainframe in a central location. It is equally untenable to accept an expensive, uncoordinated, piecemeal swirl of activity that will produce a sea of non-interoperability in health information systems. A pan-Canadian approach is essential for success, and the collective will to proceed will be a fundamental determinant of whether success is ultimately realized.

Dr. Tom W. Noseworthy
alberta we//net

V I S I O N T O A C T I O N

Canada E-Health 2000 confirmed that e-health in Canada is more than just a vision. This conference showed that innovative health care professionals are already providing e-health to many Canadians. Participants showed that they are committed to promoting the use of information and communications technologies in the health care sector to maintain and improve the health of Canadians.

Many challenges lie ahead: adopting technology; policy development to address issues such as privacy, confidentiality, security, licensure, reimbursement, liability; managing organizational and cultural change; securing strategic investments; ensuring universal access; and infrastructure development.

Working together in a coordinated and collaborative manner, Health Canada and its partners will ensure we move "From Vision to Action".

Closing speakers at the Canada E-Health 2000 Conference (from left to right) Dr. Mamoru (Mo) Watanabe, Dr. Tom W. Noseworthy, Denis Morrice, and Denis Gauthier.

Annex A

List of Speakers

(in alphabetical order)

Dr. John Bachman
Family Practitioner and
Sanders Professor of Primary Care
Mayo Clinic
Rochester, Minnesota
United States

Dr. Neil Bacon
Medical Director
Doctors.net.uk
Abingdon, Oxon
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Jeannita Bernard
Acting Director
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Veterans Affairs Canada
Charlottetown, Prince Edward Island

Alexa Brewer
Director
Health Programs Analysis
First Nations and Inuit Health Branch
Health Canada
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Bonnie Britton
Supervisor
Special Programs
University Home Care
Greenville, North Carolina
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Dr. Craig Campbell
Director, Office of Continuing Medical Education
and Deputy Chair of Education
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University of Ottawa
Ottawa, Ontario

Johanne Carbonneau
Clinical Coordinator
Tele-Home Care Project
The Hospital for Sick Children
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Dr. John R. Carlisle
Deputy Registrar
College of Physicians and Surgeons of Ontario
Toronto, Ontario

Dr. Irma Clapperton
Officer in Charge
Programmation régionale des services
ambulatoires
Régie régionale de la santé et des services
sociaux de Laval
Laval (Québec)

Dr. Kathleen Clark
Co-Director
The Canadian Cochrane Network and Centre
Hamilton, Ontario

Dr. Louise Cloutier
President
Medical Society of Nova Scotia
Dartmouth, Nova Scotia

Laval Côté
Officer in Charge
Projet Carte santé
Régie de l'assurance maladie du Québec
Sillery (Québec)

Marcel Desrosiers
Occupational Therapist
Terry Fox Mobile Clinic
The Rehabilitation Centre
Ottawa, Ontario

David A. Dodge
Deputy Minister
Health Canada
Ottawa, Ontario

Lise Dunnigan
Service d'évaluation des politiques
et des programmes
Ministère de la Santé et des Services sociaux
du Québec
Québec (Québec)

Dr. Steven M. Edworthy
Associate Professor
Faculty of Medicine
University of Calgary
Calgary, Alberta

Dr. Rod Elford
Director
Digital Telehealth Inc., and
Canadian Society of Telehealth
Calgary, Alberta

Kathryn Ellis
Coordinator
Year II Diploma and Nursing Telepractice Programs
Centennial College of Applied Arts and Technology
Scarborough, Ontario

Dr. Jean-Paul Fortin
Associate Professor
Université Laval
Direction régionale de la santé publique de Québec
Sainte-Foy (Québec)

Neil R. Gardner
Executive Director
Corporate Information and Technology Branch
Saskatchewan Health
Regina, Saskatchewan
and Co-Chair, Advisory Committee
on Health Infostructure

Nancy Gault
Senior Consultant
Deloitte Consulting
Ottawa, Ontario

Denis Gauthier
Assistant Deputy Minister
Information, Analysis, and Connectivity Branch
Health Canada
Ottawa, Ontario
and Co-Chair, Advisory Committee
on Health Infostructure

Roger Girard
Health IT Consultant
HealthOptions Inc.
Calgary, Alberta

Dr. Michael Guerriere
Chairman and CEO
HealthLink Clinical Data Network Inc.
Toronto, Ontario

Dr. Calvin Gutkin
Executive Director and CEO
College of Family Physicians of Canada
Mississauga, Ontario

Marc Hamel
Chief
Canadian Community Health Survey
Health Statistics Division
Statistics Canada
Ottawa, Ontario

Dr. William Haver
Owner/Practitioner
Lakeside Medical Clinic
Saskatoon, Saskatchewan

Dr. Phillip Jacobs
Research Fellow and Professor
Department of Public Health Sciences
University of Alberta
Edmonton, Alberta

Dr. Alejandro (Alex) R. Jadad
Director
Program in eHealth Innovation
Rose Chair in Supportive Care
Professor, Departments of Health Administration
and Anesthesiology
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Yolaine Lapointe
Régie régionale de la santé
et des services sociaux de Laval
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Karen Levesque
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Northern Telehealth Network Pilot Project
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Sandra MacDonald-Rencz
Director
Policy, Regulation and Research
Canadian Nurses Association
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Dr. James R. MacLean
President and CEO
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Susan Margles
Executive Director
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Tina McKinnon
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Department of Health and Social Services
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Patricia McLean
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Dr. Matthew W. Morgan
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President and CEO
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Dr. David Mowat
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Ottawa, Ontario

Dr. David Musgrave
Private Primary Care Clinic
Courtenay, British Columbia

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Guy Paterson
Director
Information Systems and Telecommunications
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Director
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Irene Podolak
Partner
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Dr. Raymond W. Pong
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Dr. Dena S. Puskin
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Health Resources and Services Administration
US Department of Health and Human Services
Rockville, Maryland
United States

Myra Ramsay
Telehealth Coordinator
West Prince Health Authority
Alberton, Prince Edward Island

Dr. Peter Sargious
Manager
Health Informatics Unit
Alberta Research Council
Calgary, Alberta

Lois Scott
VP Clinical Services and Operations
Clinidata Corporation
Moncton, New Brunswick

Dr. Raymond Simkus
Primary Care Physician
South Fraser Health Region
Langley, British Columbia

Dr. Harvey A. Skinner
Professor and Chair
Department of Public Health Sciences and
Graduate Department of Community Health
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University of Toronto
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Ron Sussey
Project Manager
ProdTox
National Health Surveillance Infostructure
Population and Public Health Branch
Health Canada
Ottawa, Ontario

Dr. Paul Tang
Chief Medical Information Officer
Palo Alto Medical Foundation and
Vice-President, Epic Research Institute
Epic Systems
Los Altos, California
United States

Dr. Paul A. Tibbits
Captain, Medical Corp
Special Assistant to the Chief Information Officer
United States Navy
Falls Church, Virginia
United States

Dr. Ben Toth
Information and Knowledge Specialist
National Health Service Information Authority
Birmingham, United Kingdom

Anne Vezina
National Director
Cancer Information Service
Canadian Cancer Society
Toronto, Ontario

C. Peter Waegemann
Executive Director
Medical Records Institute
Newton, Massachusetts
United States

Dr. Mamoru (Mo) Watanabe
President and Chair of the Board
Canadian Society of Telehealth
Calgary, Alberta

Linda Weaver
Chief Technical Officer
TecKnowledge Healthcare Systems
Dartmouth, Nova Scotia

Dr. Elinor Wilson
Chief Science Officer
Heart and Stroke Foundation of Canada
Ottawa, Ontario

Dr. Nancy Young
Co-Principal Investigator
Tele-Home Care Project
Hospital for Sick Children
Toronto, Ontario

Annex B

List of Exhibitors

Health Canada
Canadian Health Network
Electronic Health Record and Telehealth Initiatives Databases
First Nations and Inuit Health Information System
National Health Surveillance Infostructure
Office of Health and the Information Highway

Health Infostructure Support Program
Keeweetinok Lakes Regional Health Authority #15
MOXXI-II Project, Royal Victoria Hospital

Other Federal Department
Statistics Canada

Other Health Organizations
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Brandon Regional Health Authority
Calgary Regional Health Authority
Canadian Institute for Health Information
Saskatchewan Health Information Network
Western Health Information Collaborative

Annex C

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