e-VOLVING TELEHEALTH: THE NEXT LEVEL

October 20-23, 2001
Westin Harbour Castle
Toronto, Canada

ON-SITE PROGRAM AND PROCEEDINGS BOOK

Telehealth 2001

THE 4TH ANNUAL MEETING OF THE CANADIAN SOCIETY OF TELEHEALTH

CANADIAN SOCIETY OF TELEHEALTH

SOCIÉTÉ CANADIENNE DE TÉLÉSANTÉ

The generous support of the Hospital for Sick Children Foundation has made the preparation and publication of this On-Site Program and Proceedings Book possible.

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WELCOME FROM THE PRESIDENT

Dear Delegate,

Welcome to the 4th Annual General Meeting of the Canadian Society of Telehealth. We hope that you will enjoy the content of this year's meeting and our selection of topics to suit the multidimensional interests of the attendees. We hope that you will come away with a feeling for the continuing evolution of Telehealth, and the integration of all forms of electronic healthcare into our healthcare system.

I hope that all members of CST will join us at the Annual Business meeting. We will be summarizing this year's many accomplishments and will be asking for your input into some ideas for the future. If you are not a CST member, please sign up, come to the business meeting, and begin to participate in CST affairs.

The Poster presentations and Industry Exhibits are other important aspects of this meeting. Please find time to visit and enjoy them during lunch or nutrition breaks, or at any other convenient time during your meeting schedule.

We look forward to getting together socially throughout these 3 days. We hope that you will enjoy renewing old friendships and meeting new colleagues at the Welcoming Reception on Sunday and at the Gala Dinner on Monday. One of the highlights of the dinner and the entire meeting will an informative and witty presentation from our Honoured Speaker, Dr. Peter Yellowlees from Queensland, Australia.

Robert M. Filler, MD, FRCSC
President, Canadian Society of Telehealth

WELCOME FROM THE CHAIR

Dear Colleagues and Friends,

I am delighted to welcome you to Canadian Society for Telehealth conference 2001, **"e-volving Telehealth: The Next Level".** This conference promises to offer an exciting program, which will encompass the many facets of telehealth. We will hear from speakers from across the country and internationally, as to the status of projects and programs, what is new and innovative in this field and the expectations of how telehealth will evolve to become an integrated part of healthcare.

I would like to extend a heartfelt welcome to Dr. Peter Yellowlees, from Australia, our distinguished speaker for the Gala Dinner, and to all traveling to Toronto. In these unsettled times, we truly appreciate your effort to attend this conference.

On behalf of the Scientific Program Planning Committee, welcome and enjoy the conference!

I look forward to meeting many of you throughout the conference.

Regards,
Andrea Battcock
Chair, Scientific Program Committee

PROGRAM SUMMARY

SATURDAY, OCTOBER 20th, 2001

08:00 – 17:00 - Registration ..... Queen's Quay Mural

SUNDAY, OCTOBER 21st, 2001

08:00 – 19:00 - Registration ..... Queen's Quay Mural
13:00 – 14:00 - CST Committee meetings ..... Queen's Quay/Bay
14:00 – 16:00 - CST Board Meeting ..... Pier 6
16:00 – 18:00 - Annual General Meeting ..... Frontenac Ballroom
18:00 – 20:00 - Welcome Reception ..... Metro Ballroom - Centre

MONDAY, OCTOBER 22nd, 2001

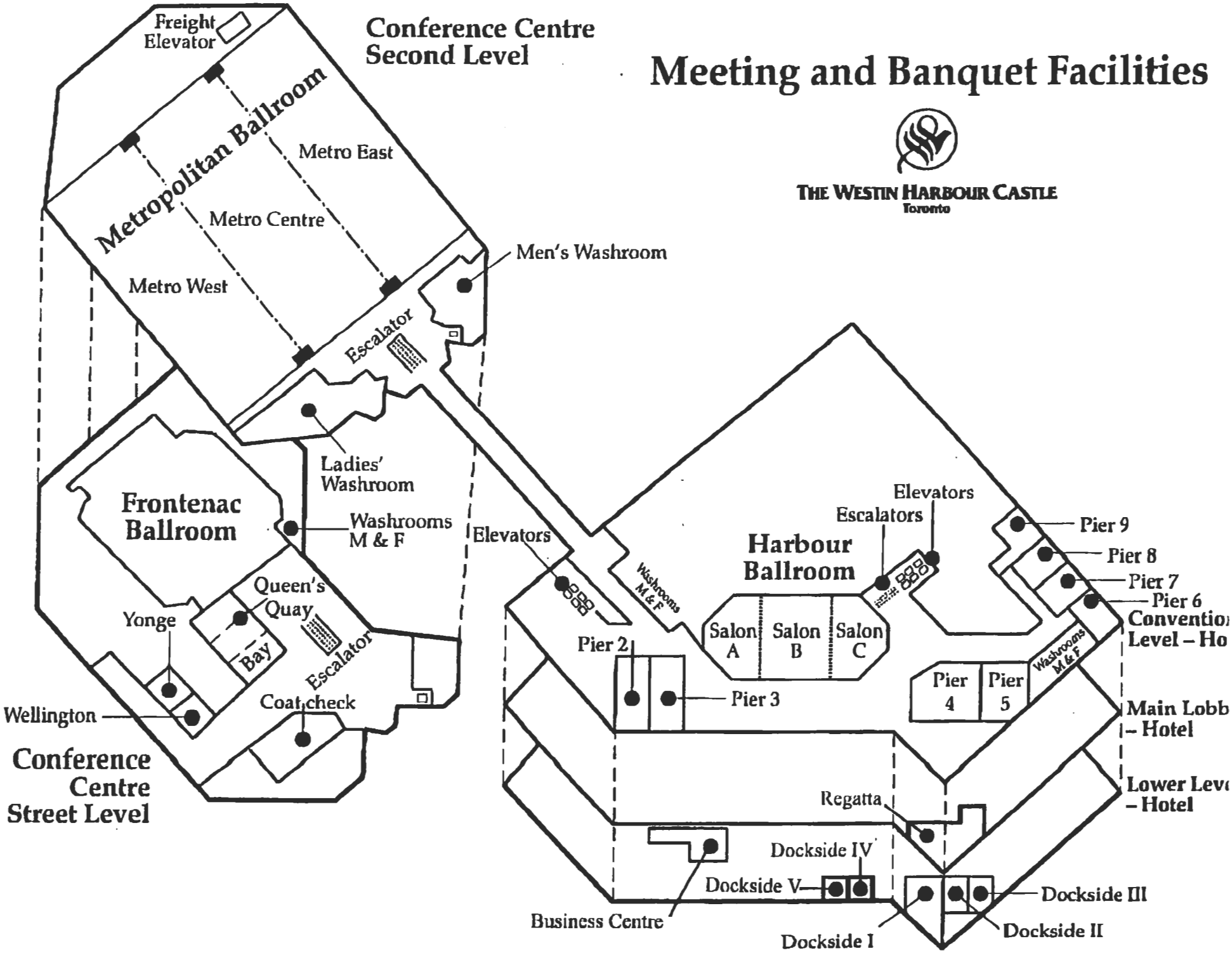
07:00 – 18:00 - Registration ..... Queen's Quay Mural
07:30 – 08:30 - Industry Delegate Breakfast ..... Metro Ballroom - Centre
08:00 – 19:00 - Exhibit Hall Open ..... Metro Ballroom - East
08:45 – 09:00 - Welcome & Opening Remarks ..... Frontenac Ballroom
09:00 – 09:30 - Keynote Speaker ..... Frontenac Ballroom
09:30 – 11:00 - Panel Discussion # 1 - Sustaining Telehealth ..... Frontenac Ballroom
11:00 - 11:30 - Nutrition Break ..... Metro Ballroom - East
11:30 - 13:00 - Concurrent Podium Session # 1 ..... Frontenac Ballroom
11:30 - 13:00 - Concurrent Podium Session # 2 ..... Dockside 3
11:30 - 13:00 - Concurrent Podium Session # 3 ..... Dockside 2
11:30 - 13:00 - Concurrent Podium Session # 4 ..... Metro Ballroom - Centre
13:00 – 14:00 - Lunch ..... Metro Ballroom - East
14:00 – 15:30 - Panel Discussion # 2 - Telehealth Initiatives in Canada- 2001(CHIPP Projects) ..... Frontenac Ballroom
15:30 - 16:00 - Nutrition Break ..... Metro Ballroom - East
16:00 – 17:30 - Concurrent Podium Session # 5 ..... Metro Ballroom - Centre
16:00 – 17:30 - Concurrent Podium Session # 6 ..... Frontenac Ballroom
16:00 – 17:30 - Concurrent Podium Session # 7 ..... Dockside 2
16:00 – 17:30 - Concurrent Podium Session # 8 ..... Dockside 3
18:00 – 19:00 - Gala Dinner Reception ..... Metro Ballroom - East
19:00 – 23:00 - Gala Dinner ..... Metro Ballroom - Centre

TUESDAY, OCTOBER 23rd, 2001

07:00 – 13:00 - Registration ..... Queen's Quay Mural
07:30 – 08:30 - Breakfast Roundtable Discussion ..... Queen's Quay
08:00 – 16:00 - Exhibit Hall Open ..... Metro Ballroom - East
08:45 – 09:15 - Keynote Speaker ..... Frontenac Ballroom
09:15 – 10:45 - Panel Discussion # 3 - Integrating Telehealth into the Healthcare System ..... Frontenac Ballroom
10:45 – 11:15 - Nutrition Break ..... Metro Ballroom - East
11:15 – 12:45 - Concurrent Podium Session # 9 ..... Bay
11:15 – 12:45 - Concurrent Podium Session # 10 ..... Frontenac Ballroom
11:15 – 12:45 - Concurrent Podium Session # 11 ..... Dockside 2
11:15 – 12:45 - Concurrent Podium Session # 12 ..... Dockside 3
12:45 – 14:00 - Lunch ..... Metro Ballroom - East
14:00 – 15:30 - Panel Discussion # 4 -Integrating Health Informatics and Telehealth ..... Frontenac Ballroom
15:30 – 16:00 - Closing ..... Frontenac Ballroom

Meeting and Banquet Facilities

THE WESTIN HARBOUR CASTLE
Toronto



GENERAL INFORMATION

ADMISSION POLICIES

Name badges are required to gain access to the scientific sessions, and exhibit hall. A proper name badge or ticket must be presented to gain access to all social events. Badges must be worn at all times.

REGISTRATION DESK

The registration desk is located in the Westin Habour Castle, Convention Centre, outside the Frontenac Ballroom. The registration desk hours are as follows:

Saturday, October 20, 2001	08:00 – 17:00
Sunday, October 21, 2001	08:00 – 19:00
Monday, October 22, 2001	07:00 – 18:00
Tuesday, October 23, 2001	07:00 – 13:00

EXHIBIT HALL

The exhibit hall, located in the Metro East Ballroom of the Westin Harbour Castle, Convention Centre, will be open during the following hours:

Monday, October 22, 2001	08:00 – 19:00
Tuesday, October 23, 2001	08:00 – 16:00

The Canadian Society of Telehealth wishes to express its gratitude towards the companies that have given their support by exhibiting at this year's Conference. Please take the time to visit the exhibitors.

SOCIAL PROGRAM

Delegates and companions will require a proper name badge or ticket for access into all events. Please note the dress for all events is business casual.

SUNDAY, OCTOBER 21, 2001

Welcome Reception, 18:00 – 20:00

Celebrate the start of a wonderful conference, immediately following the Annual General Meeting. Complimentary hors d'oeuvres and one drink ticket per person will be provided; a cash bar will be available.

MONDAY, OCTOBER 22, 2001

Industry Delegate Breakfast, 07:30 – 08:30

This breakfast will give industry delegates an opportunity to meet with a panel of key members from the e-Health and Telehealth User community to discuss their current needs and visions of the future. All industry delegates are invited to attend.

Gala Reception in the Exhibit Hall, 18:00 – 19:00

Enjoy the Gala Reception, while mingling amongst the exhibitors in the Exhibit Hall. Come and enjoy the networking opportunities! One drink ticket per person will be provided; a cash bar will be available.

Gala Dinner, 19:00 – 23:00

The Westin Harbour Castle will be hosting this year's Annual Gala Dinner. Dr. Peter Yellowlees, a world expert in telehealth from Australia will be the honoured speaker.

TUESDAY, OCTOBER 23, 2001

Breakfast Roundtable Discussion, 07:30 – 08:30

This breakfast gives conference delegates an opportunity to choose an area of telehealth that interests them and participate in a discussion with an expert in that area. The themes for these discussions are International Partnerships, Telehealth Interoperability, e-Health Innovation, Telehealth in Other Countries, The Role of the Private Sector in Canadian Telehealth. Please note, this event is sold out!

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EXHIBITOR LISTING (Alphabetical by Company Name)

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3M Canada Company	207
Adcom Videoconferencing	203
AMD TeleMedicine	205
CanTalk Canada	214
Cifra Medical Inc.	212
Clinidata Corporation / Healthline Systems	219
Computing Devices Canada	211
Health Canada – Office of Health & The Information Highway	217
Health Frontier / Colabnet	225
Healthworks TMS / GE Capital IT Solutions	216 / 218
Marconi	209
McKesson Health Solutions Canada Inc.	213
MediSolution Ltd	200
Saint Elizabeth Health Care	202
Tandberg Canada	210
VNCI	204

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MediSolution Ltd	200
Saint Elizabeth Health Care	202
Adcom Videoconferencing	203
VNCI	204
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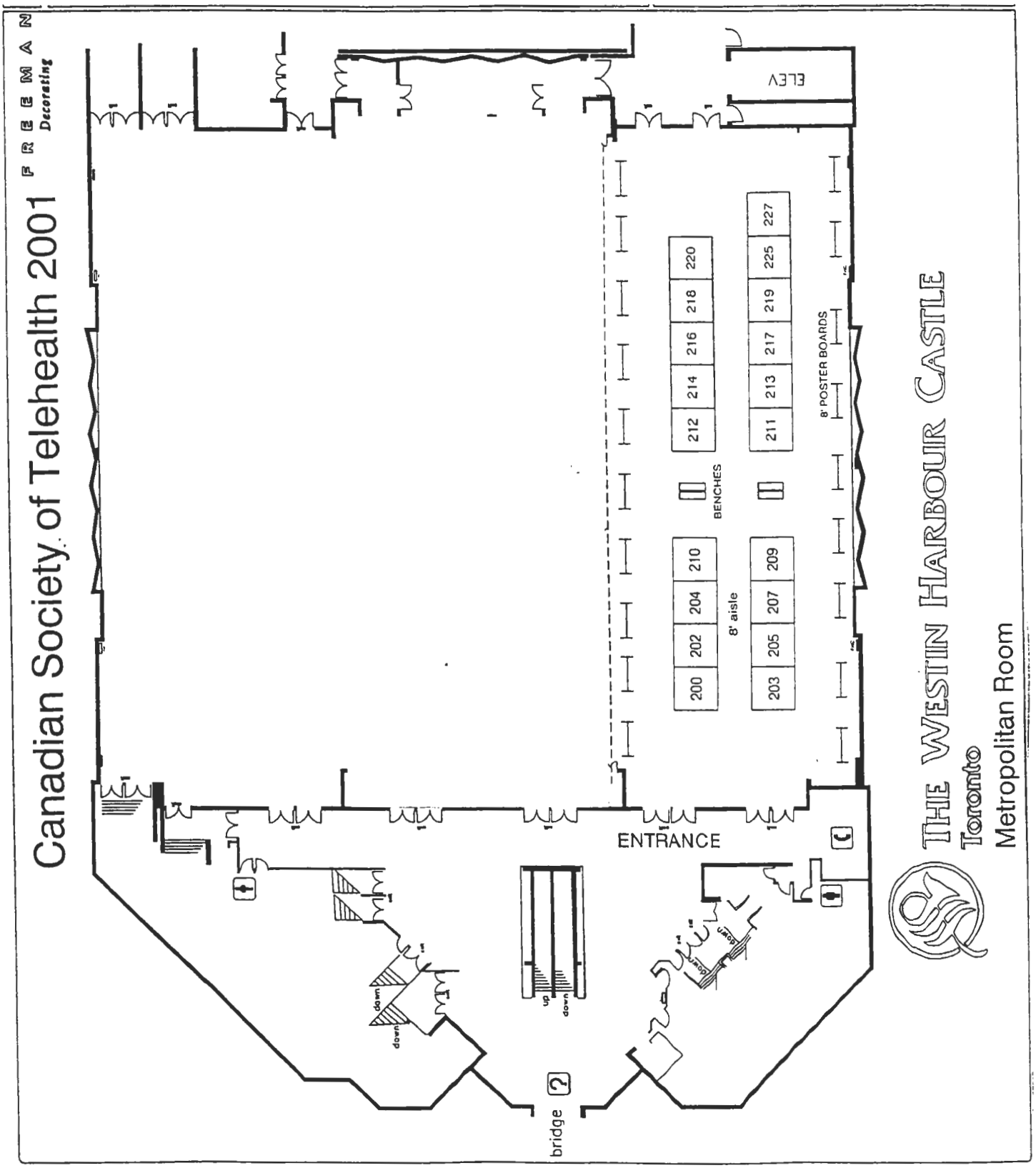
Cifra Medical Inc	212
McKesson Health Solutions Canada Inc	213
CanTalk Canada	214
Healthworks TMS / GE Capital IT Solutions	216 / 218
Computing Devices Canada	217
Clinidata Corporation / Healthline Systems	219
Health Frontier / Colabnet	225

2001 EXHIBITOR FLOOR PLAN



Distinguished Speakers

Edward M. Brown, M.D.
Director, N.O.R.T.H. Network
(Northern Ontario Remote Telecommunications Health Network)
Sunnybrook & Women's College Health Sciences Centre
Toronto, Ontario

Mariana Catz, MHSc
Director, EHR and Telehealth Division
Office of Health and the Information Highway (OHIH)
Information, Analysis and Connectivity Branch (IACB)
Ottawa, Ontario

Anthony Chu
Director, Innovation and Investment Division
Office of Health and the Information Highway (OHIH)
Information, Analysis and Connectivity Branch (IACB)
Ottawa, Ontario

Trevor Cradduck, Phd.
President, The Keston Group
Alberta *Well*net
Edmonton, Alberta

Robert M. Filler, M.D., F.R.C.S (C), O. Ont.
President, Canadian Society of Telehealth
The Hospital For Sick Children
Toronto, Ontario

Dr. Jean Paul Fortin
Laval University
Sainte Foy, Quebec

Alex Jadad, M.D. Phd.
Director in e-Health Innovation
University Health Network -Toronto General Hospital
Toronto Ontario

Penny Jennett, M.D.
Professor, Faculty of Medicine
Head, Health Telematics Unit
University of Calgary
Calgary, Alberta

Helen Johns
Associate Minister of Health and Long-Term Care
Toronto, Ontario

Tina McKinnon
Nunavut Telehealth Coordinator
Department of Health and Social Services
Iqaluit, NT

Sarah Muttit, MD, FRCPC, FAAP, MBA
Director, Tecknowledge Professional Services Group
Division of Adcom Videoconferencing
Toronto, Ontario

Herbert Orlik, M.D., F.R.C.P.C
Acting Chief of Psychiatry,
Physician Leader and Staff Psychiatrist
IWK Health Centre
Halifax, Nova Scotia

Bill Pascal, Director, General
Office of Health and the Information Highway,
Health Canada
Ottawa, Ontario

Carl Robbins, M.D.
Chair TETRA/Telemedicine
Health Sciences Centre, Faculty of Medicine
Memorial University of Newfoundland
Health Sciences Centre, Faculty of Medicine
St. John's, Newfoundland

Andrew Sage
Director of Marketing
Cisco Systems Canada
Toronto, Ontario

Richard Scott, M.D.
Associate Professor, Faculty of Medicine
Department of Community Health Sciences,
Telehealth Program
University of Calgary
Calgary, Alberta

Shirlee Sharkey
President & CEO, Saint Elizabeth Health Care
Markham, Ontario

Keith Sheppard
President, ColabNet
St. John's, Newfoundland

Andrew Siman
Practice Leader, e-Health
Deloitte Consulting
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David Strong, M.D., F.R.C.P.C.
Regional Community Medicine Consultant
First Nations and Inuit Health Branch, Health Canada
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Paul Ting
Vice President, Business Development
Saint Elizabeth Health Care
Markham, Ontario

Ann Tinker, RN, MN
International Product Marketing Manager
3M Health Information Systems
Salt Lake City, Utah

Peter Yellowlees, MD, BSc, MBBS, FRANZCP
Professor, Head of Department of Psychiatry
Director, Centre for Online Health
University of Queensland
St. Lucia, Australia

PROGRAM DETAILS

MONDAY, OCT0BER 22nd, 2001 – MORNING SESSION

07:00 – 18:00 Registration
07:30 – 08:30 Industry Delegate Breakfast
Chair: Dr. Robert Filler, President CST
08:00 – 19:00 Exhibit Hall Open
08:45 – 09:00 Welcome & Opening Remarks
Dr. Robert Filler, President CST
Helen Johns, Associate Minister of Health and Long-Term Care
09:00 – 09:30 Keynote Speaker, Bill Pascal OHIH/Health Canada
"Evolution and Future of Telehealth in Canada "
09:30 – 11:00 Panel Discussion # 1 - Sustaining Telehealth
Moderator:
Dr. Carl Robbins, Chair TETRA/Telemedicine, Memorial University of Newfoundland
Panelists:
Dr. Herbert Orlik, Tele-Mental Health Program, IWK Health Centre, Nova Scotia
Dr. John-Paul Fortin, Direction regional de la sante publique de Quebec et l'Universite Laval
Mariana Catz, Director, EHR and Telehealth Division, Health Canada
11:00 - 11:30 Nutrition Break
11:30 - 13:00 Concurrent Podium Session # 1 – Special Session – Northern Communities Telehealth
Concurrent Podium Session # 2 – Interoperability and Technology
Concurrent Podium Session # 3 – e-Health
Concurrent Podium Session # 4 – Telehomecare - I
13:00 – 14:00 Lunch – visit poster displays and exhibit hall

KEYNOTE SPEAKER # 1

BILL PASCAL,
OHIH/HEALTH CANADA

EVOLUTION AND FUTURE OF TELEHEALTH IN CANADA

Monday, October 22, 2001

09:00 – 09:30

Bill Pascal

BIOGRAPHY

Mr. Pascal is the Director General, Office of Health and Information Highway which has responsibility for coordinating, facilitating and managing health infostructure-related activites both within Health Canada and with external stakeholders. He is an engineer, accountant and urban planner by training and over his career with the Federal government has worked with Health Canada, Transport Canada, the Privy Council Office and on several major government projects. He recently received the Lieutenant Governor's Medal of Distinction in Public Administration, Office of Health and Information Highway, Health Canada, Ottawa, Ontario

PANEL DISCUSSION # 1:
SUSTAINING TELEHEALTH

Moderator:
Dr. Carl Robbins, Chair TETRA/Telemedicine, Memorial University of Newfoundland

Panellists:
Dr. Herbert Orlik, Tele-Mental Health Program, IWK Health Centre, Nova Scotia
Dr. John-Paul Fortin, Direction regional de la sante publique de Quebec et l'Universite Laval
Mariana Catz, Director, EHR and Telehealth Division, Health Canada

Monday, October 22, 2001
09:30 – 11:00

Carl Robbins, MD, MBA

BIOGRAPHY

Carl W. Robbins, MD, MBA received his medical education from Dalhousie University and an MBA from Memorial University of Newfoundland.

Dr. Robbins is Professor of Family Medicine and Chair of the Telehealth and Education Technology Resource Agency (TETRA) of Memorial University of Newfoundland. He has maintained an interest in the delivery of health care services to rural and isolated environments for more than thirty years. This included a ten-year period as medical practitioner in rural Newfoundland and Labrador. During his time in Labrador he participated in Memorial's early telemedicine research and development projects with satellite and terrestrial technologies.

Prior to his current appointment he has served as Chair of Family Medicine and Vice–Dean Professional Development at the faculty of Medicine.

He maintains active medical practice, was a member of the Federal Ministerial Advisory Council on Health Infostructure in 1998-99, and is currently a member of the Federal Advisory Committee on Health Infostructure and the Ministerial Advisory Council on Rural Health.

Herbert Orlik, MD, FRCPC

BIOGRAPHY

Child and Adolescent Psychiatrist

Co-ordinator of Travelling Clinics and Telepsychiatry, and
Interim Senior Physician and Chief of Psychiatry,
Mental Health Program, IWK Health Centre

Acting Head, Division of Child and Adolescent Psychiatry, and
Director of Undergraduate Education,
Department of Psychiatry, Faculty of Medicine, Dalhousie University
Halifax, NS, Canada

SUSTAINING TELEHEALTH – PROGRAM PERSPECTIVE

Objective: To ascertain current acceptability and future use of telemedicine in child and adolescent mental health service delivery.

Methods: Selected literature; ongoing evaluation of service by questionnaire; focus group.

Results: High acceptance by patients, families, clinicians. Concern by consultees that it not replace having one's own specialist on site.

Conclusions: Sustainability relates to integration with other service methods, to acceptance, to removal of technical, HR and regulatory barriers, to widespread buy-in and to demonstrable advantages over other service delivery methods. "Use it or loose it."

John Paul Fortin, MD, MPH, MBA, Cspq

BIOGRAPHY

Laval University, Quebec Regional Direction of Public Health, Quebec National Institute of Public Health, Center for organizations informatization (CEFRIO)

Dr Fortin is a specialist in public health (Laval University: 1980). After five years as a physician-counselor at the Public Health Department of Laval University (1975-1980), he has taken direction functions at the Ministry of Social Affairs (public health and health planing: 1980-1983) and also at the Regional Board of Health and Social Services of Quebec (planing, evaluation and information systems: 1991-1992). He was the principal technical counselor for the European Regional Board of the World Health Organization (WHO, Morocco: 1984-1985), the special counselor at the Quebec Commission Inquiry on health and social services (Commission Rochon, 1986-1987) and finally, he was an expert-member of the Federal, Provincial and Territorial Advisory Committee on Population Health (ACPH) (1996-1999).

Since 1993, he has been professor at the Social and Preventive Medicine Department of Laval University and a counselor-physician at the Quebec Regional Direction of Public Health. He is also a member of the Quebec National Institute of Public Health and an associated researcher for the CEFRIO. He leads a research and evaluation team on health technological innovation adoption and diffusion. He was responsible for the "Health Card experimental project in Rimouski" (1991-1996), the evaluation of "Telecardiology and Teleradiology Network of Eastern Quebec project" (1997-1998), and the evaluation of the "Telepsychiatry project in Chaudières-Appalaches" (1999). He has been the director of the evaluation team of the "Magdalene Islands demonstration project: Teleheath for a population needs" (1999-2000).

Dr Fortin is also the principal researcher of the demonstration project "Quebec Integrated Electronic Record in Oncology" (DRIOQ, 1999-2001) and the principal evaluator of the inter-university evaluation team for the implantation of the "Quebec Child Telehealth Network" (1999-2002).

SUSTAINING TELEHEALTH - TELEHEALTH IN QUEBEC: VISION AND ORIENTATIONS – PROVINCIAL PERSPECTIVE

In the last ten years, telehealth has shown its importance in Quebec health system through projects such as the Eastern Quebec Telehealth Network, the Interregional Network of Telemedicine, Mother-Child Network and the Quebec Child Telehealth Network. These projects and others have highlighted the potential of telehealth for professionals from different specialities, for the health care organisation and, most of all, for the patients.

In the context of a major health system transformation process, the ministry of Health and Social services has created a "Table Ministérielle sur la Télésanté" that involved representatives from professional organisations, institutions, projects' clinical leaders and evaluators. The "Table Ministérielle" was meant, within the Ministry 2001-2004 strategic plan, to set up favourable conditions to gradually insert telehealth into the professional practice and health care services organisation, so that its aims to improve communication between professionals, and between professionals and their patients, to improve health care services quality and access, to encourage recruitment, retention and continuous education of professionals, to optimise resources utilisation and to improve regional autonomy, could be achieved.

This communication will highlight the global framework components that emerge from the past and present experiences. It will summarise major learnings from the telehealth projects, the vision, orientations, strategies and recommendations that arise from the "Table Ministérielle" and its consultation process, as well as some mechanisms implemented to support innovation.

Mariana Catz, MHSc

BIOGRAPHY

Ms. Catz brings over 15 years of both private and public sector expertise. She is currently on secondment to the Office of the Health Information Highway at Health Canada leading the Electronic Health Record/Telehealth Division. She remains the Chief Information Officer at Baycrest Centre for Geriatric Care in Toronto, one of Canada's largest Academic Health Centres and has been very involved in creating new understanding of Health Information needs for the Aging Population.

She held numerous senior positions both in Canada and Internationally as Technical Officer at the World Health Organization in Geneva, Chief Information Officer at the Centre for Addictions and Mental Health in Toronto, Consultant with Computer Sciences Corp in the United States, Manager of IM Planning at University Health Network and Policy and Planning Associate to the Ontario Minister of Health's Special Advisor on Long-Term Care Reform.

Ms. Catz holds a Masters in Health Science from the University of Toronto. She is a tutor in that Faculty in the Canada's Health Systems and Health Policy class, lectures at the Health Informatics Program at the University of Victoria and is actively involved in numerous community boards and committees in the health sector

SUSTAINING TELEHEALTH – FEDERAL PERSPECTIVE

CONCURRENT PODIUM SESSION # 1:
SPECIAL SESSION
NORTHERN COMMUNITIES
TELEHEALTH

Monday, October 22, 2001

11:30 – 13:00

1

THE FIRST NATIONS TELEHEALTH RESEARCH PROJECT : SETTING THE STAGE - WHY GET INVOLVED IN FIRST NATIONS TELEHEALTH?

Ernie Dal Grande and Valerie Gideon, PhD, First Nations and Inuit Health Branch (FNIHB), Health Canada, Ottawa; Wayne Boyce, Manitoba, and Josee Lavoie, Saskatchewan.

FNIHB operates the 6th largest health jurisdiction in Canada, operating in every province. Under the constitution, responsibilities to deliver certain health services on-reserve is a federal responsibility and this is discharged via Health Canada through a $1.3 billion dollar budget. Community-based health services and limited public health care services are carried out under a variety of delivery mechanisms. Depending on the province or region within a province, federal health services are today being delivered by either federally employed staff or by First Nations and Inuit employed staff and organizations, both operating in conjunction with provinces in an intricate relationship.

This service delivery reality will be discussed in the context of the National First Nations Telehealth Research Project sponsored by the Health Transition Fund from September 1998 to March 2001. The management by FNIHB of five very different community-based projects in five provinces has resulted in many lessons learned and critical success factors which have been documented in relation to community readiness, funding, management of health care educational practice, technology policy, role clarification and risk management.

2

THE FIRST NATIONS' TELEHEALTH RESEARCH PROJECT : IMPLEMENTATION - THE COMMUNITIES SPEAK

Cookie (Mary) Simpson, Fort Chippewan, Alberta; Brian Ballantyne, Southend, Saskatchewan, and Josephine Berens, Berens River, Manitoba.

Representatives from three of the communities involved in the telehealth research project - Berens River, Southend and Fort Chipewyan - will discuss the issues and challenges faced in managing and implementing their telehealth projects. Human resource challenges, community empowerment and buy-in, leadership support as well as capacity building, technological barriers, management relationships with service providers, impact on community health delivery and public awareness strategies as well as project sustainability are significant issues when telehealth is introduced in First Nations communities. Pertinent examples will be drawn from three of the communities involved in the project.

3

THE FIRST NATIONS' TELEHEALTH RESEARCH PROJECT : EVALUATION PROCESS AND RESULTS

Natalie Kishchuk, Jocelyne Picot, Geneviève Cimon, Kaisa McCandless, Infotelmed Communications Inc and McGill University, Montreal

The evaluation of the First Nations Telehealth Research project addressed three questions:

1. what are the impacts of Telehealth on patient and community access to needed, quality care?;
2. what role does Telehealth come to play in health services delivery?; and
3. how does Telehealth link with existing health resources in the province and region?

Using both qualitative and quantitative methods negotiated with each participating community, the evaluation involved case studies of Telehealth in each participating community as well as a cross-site analysis. Data were collected from: ongoing monitoring of Telehealth sessions at both ends of the Telehealth connection; patient satisfaction assessment;

and in-depth interviews with key informants including health center personnel in the participating communities and in their linked tertiary and secondary centers (physicians, nurses, managers, other types of health professionals involved in Telehealth); community representatives (elders, local government representatives); and federal and provincial agency representatives.
To date the evaluation has analyzed information from 927 Telehealth sessions involving 176 patients, 110 patient satisfaction questionnaires, and 43 key informant interviews with 65 individuals in a dozen locations. The presentation will include an overview of the methodologies used, preliminary evaluation results, and the lessons learned about evaluating Telehealth.

4

THE FIRST NATIONS' TELEHEALTH RESEARCH PROJECT : THE STRATEGIC DIRECTION FOR FIRST NATIONS AND INUIT TELEHEALTH – PART OF THE ABORIGINAL HEALTH INFOSTRUCTURE

Alexa Brewer, First Nations and Inuit Health Branch, Health Canada, Ottawa

In 1999, the federal Minister of Health's Advisory Council on Health Infostructure mandated Health Canada to oversee the development of an Aboriginal Health Infostructure (AHI) as an autonomous and distinct institutional development strategically interlinked with the Canada Health Infoway. In March 2001, Health Canada's FNIHB launched the development of the AHI in partnership with the Assembly of First Nations, the Inuit Tapirisat of Canada, the Métis National Council and the National Aboriginal Health Organization. Telehealth has been identified as a strategic direction of the AHI. A National First Nations and Inuit Telehealth Working Group was established this Fall to outline the vision and strategic Blueprint/Tactical Plan for future deployment, including establishing priorities, exploring salient issues and elaborating policies.

5

ALBERTA FIRST NATIONS ADDRESS DIABETES: THE 'SLICK' PROJECT

Dr. E. Toth (University of Alberta). Dr. D. Strong (FNIHB), and the Alberta First Nations Diabetes Implementation Committee

First Nations communities in Canada are profoundly impacted by diabetes. Depending on the age, sex and specific population group, the prevalence of diabetes in First Nations people is 22% to 54%, far higher than for other populations.
Complications due to diabetes may lead to limb amputations, blindness, and renal failure, and approximately 80% of premature deaths are due to cardiovascular disease. Alberta First Nations are committed to reducing the burden of the disease and are creating innovative solutions to the problem of geographic isolation and reduced access to services. The SLICK project will be part of that solution as its focus is to provide access to screening for these complications in a timely and secure fashion for First Nations clients.
SLICK will deploy two vans equipped with advanced information and communications technologies to all 44 Alberta First Nations communities for the purposes of implementing the Canadian Diabetes Association clinical practice guidelines. Screening will include the capture of digital, three dimensional, retinal images and their transfer to specialists for examination. The vans will also carry lab equipment to screen for metabolic, renal and cardiovascular complications by testing client's blood and urine. Communities are expected to integrate these screening services into their pre-existing diabetes prevention, care and treatment programs.

6

PROVIDING ISOLATED COMMUNITIES OF THE CANADIAN NORTH WITH EMERGENCY SUPPORT SERVICES THROUGH TELEHEALTH

A.J.(Braam) deKlerk, MB. CH.B., DA, DCH, Dip. Obst (SA); D.A. McLeod, Ph.D., A. Sutherland, CCHRA – Inuvik, NT Canada

The Inuvik Regional Health and Social Services Board (IRHSSB) delivers services to the residents of 13 communities of the Northwest Territories within a land claim area of 1.25 million square kilometres. Clients living in isolated communities access emergency services from community health nurses and may be medevac'd to larger centres after consultation with a physician by telephone. Because inclement weather and distance may cause unavoidable delays in assessment and treatment, the ability to offer emergency support services by telehealth has been identified as a high priority. The North West Territories' WestNet Telehealth Program has been in operation since June 1998. In this three-year period the program has completed over 900 clinical and 600 non-clinical sessions; gained expertise in delivering scheduled specialty services; explored a number of creative uses including wheelchair assessments and gastroscopies; assessed patient and medical professional acceptance; explored delivery of social health services such as foster child placement planning, mental health counselling and professional support. Within the telehealth implementation presently underway, the IRHSSB will pilot the use of telehealth in remote communities. The goal is to eventually provide emergency support services to isolated healthcare providers. Telehealth in remote areas presents a number of challenges including a lack of local technical expertise in the community; turnover of professional care providers; immature and/or inadequate telecommunication systems; and difficulty obtaining smoothly integrated medical devices with telehealth applications that function well in a sub-optimal environment. This presentation outlines plans to systematically develop community and institutional capacity in the remote areas served. The goal is to develop the ability to offer emergency support services to these remote communities.

CONCURRENT PODIUM SESSION # 2:
INTEROPERABILITY
AND TECHNOLOGY

Monday, October 22, 2001

11:30 – 13:00

7

TELEHEALTH INTEROPERABILITY - A CANADIAN COLLABORATION

Trevor D. Cradduck, Dale Bergman, Ralph Ulmer; Calgary, Alberta, Canada

The issue of interoperability between telehealth systems has been recognized as one of the key barriers to the growth of telehealth services and the telehealth industry in Canada.
In Alberta a number of pilot projects amalgamated to form the provincial network and this implies a multi-vendor environment. The Alberta Research Council (ARC) has been working in concert with alberta We//net to ensure that the equipment deployed in Alberta does meet a minimum set of technical requirements.
There is a need to move beyond this provincial base and, to that end, discussions have been initiated among the western provinces and also at the national level. A two-day workshop was organized by the Canadian Society of Telehealth (CST) and hosted by the ARC in Calgary in February, 2001. This workshop resulted in a report that can be accessed on the CST web site – http://www.cst-sct.org/library/interoperability.pdf. This report describes the challenges and provides recommendations as to how the issues of interoperability at the technical, clinical and policy levels may be approached.
The issue of interoperability is not unique to the Canadian environment and the ARC has been approached by a number of agencies both within and outside Canada with a view to assisting in a resolution to these problems. By working with such organizations as the Canadian Standards Association, the Canadian Institute for Health Information and other federal and provincial agencies the ARC is seeking means by which standards for interoperability might be achieved on a pan-Canadian basis.

8

REQUIREMENTS ELICITATION – THE FIRST STEP TO TELEHEALTH INTEROPERABILITY STANDARDS

P.D. Brockway, D. Bergman, Calgary, Alberta, Canada

Purpose: To ensure the use of new technologies, the needs of providers and recipients must be well addressed when determining technical requirements. This presentation describes a method of eliciting user requirements leading to the definition of technical specifications.
Introduction: The Alberta Research Council Telehealth Interoperability Laboratory develops and tests telehealth interoperability standards. Interoperability is the ability of two or more telehealth systems to interact with one another and exchange data according to a prescribed method in order to achieve predictable results. Ensuring interoperability is a multi-step process and eliciting user requirements is the first step. **Method:** To elicit user requirements, an all day focus group was used, based upon The Canadian Institute of Cultural Affairs' ORID Group Facilitation method. ORID uses a series of questions that follow a specific, logical sequence to direct the group's thoughts towards making a decision. The questions are divided into four types: Objective (gather directly observable facts), Reflective (uncover emotions and feelings associated with the facts), Interpretive (identify what is significant or meaningful) and Decisional (identify decisions or actions to be taken). The ORID method was incorporated into a three-step process for requirements elicitation: Context Setting, Building the Framework and Defining and Categorizing Components. Context Setting utilized a Focused Conversation Method to focus participants on the telehealth application and used a distinct set of ORID questions. Building the Framework and Defining and Categorizing Components used a combined set of ORID questions in a Workshop Method. Building the Framework outlined the critical components of a telehealth system and arranged them into themes. Defining and Categorizing Components further described the critical components and categorized them as being either necessary or optional.

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TELEHEALTH INTEROPERABILITY: THE NEXT STEPS

Dale Bergman, Trevor D. Cradduck, Ralph Ulmer; Calgary, Alberta, Canada

The inability of Telehealth systems to interoperate has been recognized as one barrier to the potential growth and wide spread adoption of Telehealth within the health care delivery system. One common difficulty that is repeatedly experienced with the interoperability of Telehealth systems is the standardization by which Telehealth systems exchange information. Most Telehealth systems today exchange information using the following two methods of communications: synchronous (real-time), and/or asynchronous (store-and-forward). Typically, synchronous or real-time communications are implemented by Telehealth systems using standard audio and/or video conferencing methods to which there are many well-established standards set primarily by the International Telecommunications Union (ITU). However, there are few if any standards that are specific for Telehealth that deal with asynchronous or store-and-forward communications of health related information.

To deal with this issue, the Alberta Research Council (ARC) through its Telehealth Interoperability Laboratory is working with standards organizations and vendors on developing a Telehealth Data Exchange Standard. A Telehealth Data Exchange Standard would provide a framework that would allow Telehealth systems to create, send, receive, and interpret the exchange of health related information between Telehealth systems. This type of a standard would be extremely beneficial in accelerating the interoperability between Telehealth systems manufactured by different vendors.

10

DEVELOPMENT OF AN IP STETHOSCOPE

Pierre Dupont, Sainte-Foy Quebec

Telemedicine can be defined as the transmission of sounds, images and/or data for diagnostic purposes. These data allow a medical practitioner to assess the health condition of a patient. In this regard, the stethoscope is one of the main tools of the practitioner: it is therefore natural that this type of apparatus be one of the mandatory peripherals of a telemedicine system. Considering the technical characteristics of the sounds obtained during the auscultation (the signal frequency), specific technical requirements must be met.

In this regard, the types of audio encoding used by the videoconferencing protocols (H.320 and H.323) cannot be used for the transmission of stethoscope sounds since they do not cover the entire audio spectrum generated by stethoscopes. Many companies have therefore worked on the development of electronic stethoscopes for telemedicine. Taking into account that most telemedicine networks use dial-up links (such as ISDN, SW-56, POTS), the usage of that kind of links has been a natural choice for the transmission of the signal of these stethoscopes.

We face now the emergence of telemedicine networks that work entirely over IP links (such as ATM, frame-relay, satellite, etc.) that prevent the use of stethoscopes designed for dial-up links. This paper presents the work performed by Cifra's engineering group for the development of an IP stethoscope.

11

MOBILE INTERNET CHRONIC ILLNESS MANAGEMENT

Nick Zamora, OPTIUM Digital Solutions, Toronto, ON, Canada

OPTIUM Digital Solutions has created a communication platform that provides a continuous feedback loop between a patient and their care provider utilizing innovative mobile and Internet technologies (PDA's, Pagers, Cell Phones, etc.). Our focus is on improving the health status of patients through increasing patient usage of Digital communication. To achieve this mission, OPTIUM has developed the Disease Self-Management Network (DSMN), a technology platform for the management of chronic illness.

Currently over 90 million North American's suffer from some form of chronic illnesses. Studies have shown that treatment for chronic illnesses consumes approximately 70% of healthcare costs (approx $700 billion annually in the US alone). Numerous international studies have shown that disease management programs can significantly decrease the medical costs of chronic illnesses. This is seen as an opportunity to utilize technology to achieve significant improvement in health outcomes in a cost effective manner. Disease management is currently estimated to be a $350M business in the US. With the development of Internet and web-based technologies this market is expected to grow to $50-100B in the next 10 years.

Currently, OPTIUM and its partners have received a Canadian federal grant to enhance the technology platform as well as evaluate its clinical and cost benefits with a study involving 100 diabetes patients at two healthcare sites. Patients will use PDA's and the web to input their diabetes information so that their healthcare providers can view the data in easy to view charts, graphs and tables, irrespective of location. This project begins in September 2001 and is being run at the Children's Hospital of Eastern Ontario and the Charles H. Best Diabetes Centre.

12

EVALUATION OF THE IMPACT OF PERSONAL DIGITAL ASSISTANTS (PDA's) ON THE WORKFLOW OF HEALTHCARE PROVIDERS IN THE MANAGEMENT AND TREATMENT OF PATIENTS WITH PNEUMONIA IN A HOSPITAL SETTING

P. Jennett; N. Datta, R. Leung, L. Bialy, C. Puddu, R. Hayward, F. Lau, P. Sargious, R. Talavera, Calgary, Edmonton, Alberta, Canada

The purpose of the study is to evaluate the impact of personal digital assistants (PDA's) on the workflow of healthcare providers in the management and treatment of patients with pneumonia in a hospital setting. Subject participants include nurses hired specifically for the Community Acquired Pneumonia (CAP) initiative (N = 6) as well as General Internal Medical (GIM) Residents (Edmonton and Calgary).

The study objectives are to: 1) investigate the impact of PDA use and non-PDA use on the management and treatment of patients with pneumonia using in-depth interviews and focus groups with CAP nurses and GIM residents and 2) to obtain basic demographic information pertaining to personal digital assistant use from CAP nurses and GIM residents through the use of a Technology Survey.

Qualitative (identifying concepts organized into themes) and quantitative (measures of central tendency-means; dispersion-standard deviation; percentages) analyses of results were conducted. Results indicate that: 1) orientation and training of healthcare workers in the use of PDA's is essential for the management and treatment of pneumonia 2) state of readiness of healthcare workers needs to be assessed prior to the implementation of PDA's within the healthcare system and 3) PDA's may be viewed primarily by healthcare workers as a data collection tool as opposed to a patient management tool. These findings suggest that expectations in research (academic versus real-life) need to be clearly defined prior to the implementation of a study; readiness in the use of PDA's needs to be assessed; and population focus needs to be clearly delineated.

CONCURRENT PODIUM SESSION # 3:
E-HEALTH

Monday, October 22, 2001

11:30 – 13:00

13

INTEGRATING TELEHEALTH SOLUTIONS WITH EMERGING TECHNOLOGY MODELS

V. Otley, Portland, Maine, United States

WITHDRAWN

14

CORPORATE VENTURING IN HEALTHCARE

Dr. Raymond Rupert, Centre for Applied Health Informatics, Sunnybrook Hospital, Toronto

Corporate venturing is a new process being adopted by healthcare companies and organizations to promote innovation. There is a realization that innovation is essential for private companies to remain competitive and public organizations to become sustainable. The surprise is that the rate of innovation has to approach the speed of innovation of private equity venture funders. Unfortunately, organizational structure, culture and incentive systems do not allow for transformational innovation to occur in many organizations. The solution is for organizations to adopt the process used by venture capitalists in managing innovation. The corporate venture capital approach uses a dedicated innovation fund and a portfolio approach. When this is combined with discovery-based planning, organizations can successfully adopt disruptive technologies and succeed in becoming innovative.

15

APPLICATIONS SERVICE PROVIDERS IN TELEHEALTH

L.E. Weaver, Dartmouth, Nova Scotia, Canada

Telehealth is a clinical information technology that allows healthcare providers to deliver care to patients 'at a distance'. When it is well integrated into routine clinical practice, telehealth can dramatically improve both the efficiency and the cost effectiveness of the healthcare system by moving people and information 'virtually' rather than 'physically'. This breaks down distance barriers both large and small, while providing necessary access to healthcare services.

e-Health extends telehealth into the 'networked' world – by incorporating the benefits that are realized through networked applications. In this way, common management, network and technology infrastructure can support the broadest possible base of healthcare providers and users. The success of e-Health is dependent on the development of a uniform core infrastructure (communications and applications) that will successfully support a broad base of users and provide optimal efficiency.

Application Service Providers (ASP's) offer applications on a subscription basis via a widely available network infrastructure. The ASP model promises lower cost of individual ownership by essentially outsourcing the information technology infrastructure to support a given software application, and then 'renting' the application through a subscription fee based on usage. Smaller organizations, without sufficient financial or human resources, and larger organisations, interested in outsourcing, find immediate appeal in this model.

As telehealth applications become more network-centric and web-based, an ASP approach may provide a common basis for sharing the cost of developing and managing telehealth applications. Healthcare has fairly unique concerns related to (1) the storage and access to personal health information, and (2) time delays in accessing information when providing care. Modified ASP infrastructures can provide one with a cost effective future solution.

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OPEN SOURCE: AN EVIDENCE BASED APPROACH FOR EVOLVING E-HEALTH APPLICATIONS

Joseph Dal Molin, e-cology Corporation, Toronto, Ontario, Canada

The paper will discuss how the open source health care community, through groups such as the Open Source Health Care Alliance (OSHCA) www.oshca.org, are establishing Internet based facilities and resources as well as gathering together multidisciplinary health care experts to develop and evolve e-health solutions using an open, collaborative, evidence-based, peer review approach. The goal is to combine the strengths of the open source business model with the scientific rigor and health outcome focus of the evidence based medicine model. The paper will review how the open source model closely mimics the evidence-based approach. It will describe the processes and facilities to implement this approach. It will review some examples of existing applications that are following this approach, and lastly will take a brief look into the significant strategic implications that this approach will have on e-health.

17

DIGGING UP THE INFORMATION HIGHWAY: DIRT OR DIAMONDS?

Corina R. Dumitru,M.D., M.Sc.(Medical Informatics),Alejandro R. Jadad, M.D., D.Phil.,F.R.C.P.C. Toronto, Ontario, Canada

A survey was conducted of 1070 patients attending the 3 hospitals that form the University Health Network (UHN) in Toronto: the Princess Margaret Hospital, Toronto Western Hospital and Toronto General Hospital.

The objective of the study was to assess the relationship between patients' socio-demographic and cultural background, and their *awareness* and *use* of the Internet, as well as their *interest* and *views* of this technology as a source of health information and a means for communication with health professionals.

We used a structured questionnaire that was administered by research staff to all eligible patients attending high-volume ambulatory clinics in the UHN hospitals.

The 1070 patients came from over 75 countries, and spoke 50 languages and dialects as their mother tongue. Ten percent of the patients said that they had not heard about the Internet. More than half (60%) of those who were aware of the Internet said that they have also used it. Over two thirds (68%) of them reported that they were using it to find health related information and 74% were interested in using e-mail or web sites as a means of communication with health professionals.

Patients born in Canada or those who had English as their first language were more likely to have heard of the Internet, to have used the Internet, and to have shared the health related information found via the Internet with health professionals ($p<0.0001$).

18

CLOSING THE KNOWLEDGE GAP: LINKING PROFESSIONALS IN HEALTHCARE FOR BOTTOM LINE RESULTS

John Végh, Toronto

Healthcare professionals know that they must develop better techniques to manage content and knowledge, which is increasingly becoming their greatest asset. Organizations currently create and maintain knowledge in isolated systems targeted at specific workgroups. For users outside of the workgroup, that knowledge is virtually invisible. Their only options are to spend time looking for it, recreate it, or do their job without it. Each of these options has a price: time, energy and bad business decisions.

Innovative organizations are examining how they can better manage their intellectual capital. This emerging field, called Enterprise Content Management (ECM), addresses the broad

process of locating, organizing, transferring and more efficiently using the data, information and expertise within an organization.

Significant return on investment has been projected, and as a consequence the market for knowledge management tools is growing and many vendors of information-oriented products are introducing new knowledge management products or re-labelling their existing products as Enterprise Content Management (ECM) systems. Vendors of all manner of tools from intranet development tools to document management systems to search engines are calling their products knowledge management systems, without regard to what that means. Without new technologies specifically designed to implement the revolutionary changes in the way knowledge workers create, communicate and manage knowledge and enterprise information, a Enterprise Content Management system has little chance of improving enterprise knowledge sharing.

CONCURRENT PODIUM SESSION # 4:
TELEHOMECARE - I

Monday, October 22, 2001

11:30 – 13:00

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MONITORING PATIENTS @ HOME

Sachpazidis, Ilias, Cognitive Computing and Medical Imaging, Fraunhofer Institute, Darmstadt, Germany

This paper describes a robust platform for *real-time* remote monitoring of patients at their home by doctors at the hospital. The platform is based on state-of-the-art medical sensors (Bluetooth enabled sensors) and telecommunication (GSM/UMTS). It is integrated into a user-friendly co-operative distributed environment that enables the following functionalities:

- Health monitoring sensors that have the ability to measure quickly and easily vital parameters such as blood pressure, pulse rate, temperature, oxygen saturation(Sp02) , and 12 lead ECG's. All of the sensors are wearable (with the patient able to walk around the house or outside), and can convey the recorded data over Bluetooth short-range wireless communication to any Bluetooth enabled device (desktop computer or a pocket PC).
- Real time remote monitoring of the patient. Recordings from each medical sensor are immediately transmitted to the clinic over GSM/ UMTS, allowing the clinic to monitor the patient in real time and take action if something goes wrong.
- Conserving safety issues. A Virtual Private Network (VPN) is set up during data transfer between the patient's home computer and the central server at the clinic.
- The User Interface (UI). For clinical needs, the UI enables complete control of the system by the operator. For patient needs, password protected records are available for access via the Internet.

The system is addressing to two major patient groups:

- Patients recovering after hospital treatment (e.g. post-surgery monitoring at home during the final stage of the recovery), and,
- Chronically ill patients who, as part of their daily routine, have to conform to prescribed therapy (Medical Dispenser Apparatus).

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THE VIRTUAL HOMECARE VISIT: USING BROADBAND CONNECTIVITY TO SUPPORT REMOTE HOMECARE DELIVERY

Sandra Lowenstein, Kanata, Ontario, Canada

WITHDRAWN

21

MULTI-PURPOSE INTELLIGENT PATIENT DISTANCE MONITORING

K. Pecko, R. Gauthier; Montreal, Quebec, Canada

WITHDRAWN

22

IMPLEMENTATION OF A HOME MONITORING SERVICE FOR CHF PATIENTS: ASSESSMENT OF DELIVERY MODELS AND ECONOMIC SUSTAINABILITY

K A Stroetmann, Bonn/Germany; S Schmitt Aachen/Germany; V N Stroetmann, Bonn/Germany; C Westerteicher, Böblingen/Germany

Socio-economic and health sector trends, like a 50% to 80% increase of the old age dependency ratio by 2025 in most industrialised countries or the dramatic growth of some chronic diseases, will pose hitherto unknown economic and health system problems. For many years, telecare has been heralded as a key remedy: the market potential is huge, the cost savings are substantial, but almost all ventures have failed so far.
The world-wide unique *T*rans-*E*uropean *N*etworks Programme "Implementation of a *H*ome *M*onitoring *S*ystem" TEN-HMS project, is based on a large-scale, long-term, randomly controlled research experiment to provide scientific proof of the potential of home monitoring to improve (1) medical outcome, (2) the patients' QoL, and (3) cost efficiency and continuity of care for the health system.
For initial success, an optimal integration into present health system structures in various countries is mandatory, and options for service delivery modes will be discussed. Evaluation of the costs and benefits of home monitoring are being considered from the perspectives of patients, medical professionals, payers/insurance, IT providers and society at large, and will be outlined.
Economic sustainability will be *the* key success factor: and a cash flow analysis - based on empirically founded assumptions – will be presented to show that, in connection with the "right" market entry strategy, home monitoring is finally a viable business case and should become acceptable to all health system players concerned. However, in the longer term, the new paradigm of seamless, patient-centred care requires new, more efficient service delivery models integrating all aspects of the health services value chain - from information and prevention up to long-term care.

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TELEHEALTH HOMECARE FOR END STAGE RENAIL DISEASE PATIENTS: A USER REQUIREMENTS ANALYLSIS

V N Stroetmann, Bonn/Germany ; K A Stroetmann, Bonn/Germany

More than 1M people worldwide receive dialysis treatment. This will double within 10 years (7% growth). For clinical treatment, annual costs are up to CAD 65k, whereas home delivery (with improved medical outcome and QoL for patients) reduces costs by up to 50%. Despite this, there exists a long-term trend (country dependent) towards less home delivery.
The market potential for improved homecare through e-health delivery processes was assessed using a quality function deployment (QFD) approach for surveying user requirements. Six dimensions were identified: a) capture of vital parameters/signs; b) medication compliance procedures c) communications with patients; d) monitoring of home environment, and patient education; e) record keeping and reporting; f) problems seen/visions of the future.
For each dimension, a list of items was developed, and for each of these items the interviewees (nephrologists in Germany interviewed in person or over the phone) were given the option to indicate the importance of the item. User requirements were analysed for three groups of patients: haemodialysis (HD); peritoneal dialysis (PD); pre-dialysis. Doctors were asked to identify those groups of patients (age, co-morbidities, etc.) that might benefit most from home monitoring.
Detailed survey results on all user requirements dimensions will be presented. Home monitoring of three vital data were ranked highest (blood pressure, body weight, heart rate; plus fluid volumes for PD). Hypertensive patients received higher priorities than those with diabetes or at the pre-dialysis stage. However, in spite of its clear advantages for some patients, present fee-for-service reimbursement structures are a barrier for home dialysis. Under a Managed Care or Capitation régime with different economic incentives, e-health approaches would provide definite stimuli to reverse the trend of declining homecare for ESRF patients.

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NEW TECHNOLOGIES & NEW POSSIBILITIES IN HEALTH MONITORING

Peter E. Range, Business Manager, TeleHealth Business Unit, Motion Media Technology Ltd.

Telehealth is an essential part of a future healthcare delivery system in which health promotion, disease prevention, treatment and care are all inter-linked. 'Opening Doors for Older People', a new project in West Lothian Scotland, is a business consortium working in conjunction with West Lothian Council delivering 'best of breed' technology to improve 'the quality of life' of its older citizens. These citizens have the luxury of living in their own homes whilst receiving a level of care until now, only available in hospital, assisted living or institutionalized homes.

The solution will integrate a combination of technologies, including videophone technology, social & community alarms, sensor devices & special software to allow caregivers to manage chronic disease patients from the comfort of their home efficiently, effectively, and economically.

Devices and sensors in the home transmit and record daily lifestyle activity, patient video and audio data along with medical data from bedside monitoring devices to a central call station, often managed by nurse practitioners. Information will be incorporated into a database that uses trend analysis software to track patient progress against projected norms. Assessment tools will allow nurses and case managers to develop a comprehensive plan of care tailored for the individual patient.

A decision to allow a client to remain at home via the use of appropriate technological support must be justified against the risk of allowing them to do so. The implications of failure of the technology must also be addressed and managed effectively in order to provide a safe and reliable care service. Investigators have developed a set of design rules that represent good practice and should be followed in order to improve the reliability and safety of systems.

PROGRAM DETAILS

MONDAY, OCTOBER 22nd, 2001 – AFTERNOON SESSION

14:00 – 15:30 Panel Discussion # 2 - Telehealth Initiatives in Canada- 2001 (CHIPP Projects)
Moderator:
Anthony Chu, Director in Charge of the CHIPP Program, Health Canada
Panelists:
Dr. Ed Brown, Program Director, NORTH Network Expansion, Ontario
Dr. David Strong, Health Canada, University of Alberta "SLICK" Project
Tina McKinnon, Telehealth Coordinator, The IIU Network, Nunavut
Andrew Sage, Director of Marketing, Cisco Systems

15:30 - 16:00 Nutrition Break

16:00 – 17:30 Concurrent Podium Session # 5 – Telehomecare – II
Concurrent Podium Session # 6–Distance Learning(Education and Videoconferencing)-I
Concurrent Podium Session # 7 – Sustainability, Integration, and Lessions Learned - I
Concurrent Podium Session # 8 – Outcomes and Evaluation

18:00 – 19:00 Gala Dinner Reception in the Exhibit Hall

19:00 – 23:00 Gala Dinner
Honour Speaker: Dr. Peter Yellowlees – "I talked to my fridge...and was healed."

PANEL DISCUSSION # 2:
TELEHEALTH INITIATIVES IN CANADA - 2001
(CHIPP PROJECTS)

Moderator:
Anthony Chu, Director in Charge of the CHIPP Program, Health Canada

Panellists:
Dr. Ed Brown, Program Director, NORTH Network Expansion, Ontario
Dr. David Strong, Health Canada, University of Alberta, "SLICK" Project
Tina McKinnon, Telehealth Coordinator, The IIU Network, Nunavut
Andrew Sage, Director of Marketing, Cisco Systems

Monday, October 22, 2001
14:00 – 15:30

Anthony Chu

BIOGRAPHY

Anthony Chu is the Director of the Innovation and Investment Division of the Office of Health and the Information Highway, Health Canada. He has served in a number of senior positions at Treasury Board of Canada, including as Director of Strategic Planning and Blueprint Management with the Office of the Chief Information Officer and Director of Financial Information Strategy.

Ed Brown, MD

BIOGRAPHY

Dr. Brown is a practicing emergency physician. He is the founder and Director of the N.O.R.T.H. Telemedicine Network (Northern Ontario Remote Telecommunications Health Network) which he has been developing since 1994. The N.O.R.T.H. Network provides patient consultations and professional education over a distance, using two-way video and electronic medical devices. The project is currently undergoing a 2 year expansion which will make it one of the largest and most advanced telehealth networks in Canada.

Dr. Brown worked as a consultant to Ontario's Ministry of Health and Long-Term Care developing the Smart Systems for Health, a province-wide electronic health network. He currently sits as a board member of the Canadian Society of Telehealth. Prior to founding the N.O.R.T.H. Network, Dr. Brown was Associate Faculty at the Institute for Clinical Evaluative Sciences in Ontario (ICES.)

TELEHEALTH INITIATIVES IN CANADA – 2001
NORTH NETWORK EXPANSION, ONTARIO

The N.O.R.T.H. Network provides patient consultations and professional education over a distance, using two-way video and electronic medical devices. The project is currently undergoing a 2 year expansion which will make it one of the largest and most advanced telehealth networks in Canada. This presentation will describe the Network's experience to date as well as its expansion plans and progress.

David Strong, MD, FRCPC

BIOGRAPHY

Health Canada, University of Alberta, "SLICK" Project
First Nations and Inuit Health Branch, Health Canada
Tsuu Tina, Alberta

TELEHEALTH INITIATIVES IN CANADA - 2001
UNIVERSITY OF ALBERTA "SLICK" PROJECT

Tina McKinnon

BIOGRAPHY

Tina McKinnon is currently working as the Manager of Telehealth Services for the Department of Health and Social Services, Government of Nunavut. Tina is a passionate advocate for the potential of Telehealth in the Arctic and serves on several territorial and national committees. To date Tina has implemented five Telehealth sites in Nunavut, as well as, led the development of a comprehensive application for funding to expand Telehealth

services in Nunavut, which received the 3rd highest award in Canada. Tina is coordinating the project for Nunavut, which will implement an additional 10 sites in the territory as well as develop a comprehensive Telehealth program including a needs based training program.
Tina has traveled to Australia and to Newfoundland to support the signing of a Memorandums of Understanding with each of these jurisdictions. Prior to heading North Tina worked for ten years as a Health Record Technician in Toronto hospitals and is a certified CQI facilitator. Tina will provide an overview of The IIU Network, including the peeks and pitfalls encountered since the network's inception in 1999.

TELEHEALTH INITIATIVES IN CANADA 2001
THE IIU NETWORK, NUNAVUT - BRIDGING THE GAP

There is a gap between the health care Canadians receive in the South and care available in the North. We call this the Digital Divide.
In Nunavut the suicide rate is 6 times the national average, the issue is not the quality of care but the access to appropriate services for our residents. The IIU Network is a tool that Nunavut will utilize to bridge the gap between our residents' need and the access to services.
Telehealth/telemedicine is the tool that health practionaires and social service providers can utilize to access the services such as specialized medical care, psychiatric services, regular follow-up encounters with physicians and scheduled family counseling. These much needed services may be provided in our communities in a culturally appropriate way.
The cost sharing initiative facilitated by Health Canada enables Nunavut to move towards bridging this gap.

Andrew Sage

BIOGRAPHY

Director of Marketing
Cisco Systems
Toronto, Ontario

TELEHEALTH INITIATIVES IN CANADA 2001
HEALTH CARE BY WIRE

By enabling cost effective Telehealth and Distance Learning, the Internet will increase the efficiency and the effectiveness of our health care system in Canada. Now that the hype of the short-lived dot com era has cleared, we see some very practical applications for technology in remotely delivering learning and patient care that simply were not possible a few short years ago. This short session will point to some of these applications and briefly outline the technological advances that have made them possible.

CONCURRENT PODIUM SESSION # 5:
TELEHOMECARE - II

Monday, October 22, 2001

16:00 – 17:30

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E-HEALTH APPLICATIONS FOR DISEASE MANAGEMENT

Barbara Johnston, MSNL&M, Sacramento, California

Health Care organisations in the United States, as in many other countries, are being strained by a significant growth in its elder generation who are consuming health care resources in unprecedented numbers. There is a national mandate to both improve access to quality health care and be fiscally responsible. There are simply too many consumers, not enough nurses, and insufficient resources available to support current strategies. TeleMedicine technologies have been introduced into Home Health Agencies as a practical solution to dealing with these challenges for the past several years. As eHealth continues to evolve we are seeing remote technologies utilised to improve outcomes and to control costs in disease management programs. In this presentation a variety of TeleMedicine technologies used in the non-acute care setting will be explored. Key elements of the discussion will include access, quality of care, cost effectiveness, patient satisfaction, and patient-centred technologies.

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VIDEO CONFERENCING FOR HOME BOUND SENIORS: FOUR YEARS OF RETROSPECT WITH A SIMPLIFIED HOME-BASED STATION

Marie Madeleine Bernard, M.D., Mathias Fruhwirth, P. Eng., Ottawa (ON)

Over the last decade more convincing evidences are indicating that isolation leads to increased morbidity and morality. This becomes a major concern when considering the status of frail seniors who no longer have the ability to freely commute nor to remain part of the main stream of family and community life.
The PACE 200 International Foundation's mandate is to produce "Programs for the Autonomy and Communication for the Ederly" PACE 2000 programmed and adapted a video conferencing equipment for the needs of private users, particularly for frail seniors and individuals with disabilities. The "personal mode VC station" is geared at everyday use by homebound individuals who need no prior technical experience. Subject: Over the past four years, the participants of VC sessions were essentially seniors in their eighties and nineties, residents of Long Term Care institutions (Centre d'accueil Champlain, and the Perley and Rideau Veterans' Health Centre) – single retirees in their seventies living in their home, - newly landed immigrants (Reception house, Catholic Immigration Centre), and – students enrolled in the physiotherapy program, social sciences & psychology programs, University of Ottawa (Joan McComas, PT, PhD; Philippe Cappeliez, PhD.) and high school students (Almonte High School, Rideau school, Nepean High school.) Material & Methods: PACE 2000 conducted 3 surveys – in 1997 (56 participants) – winter 1998-1999 (60 participants) – 2001 (67 participants in long term VC programs), 2 evaluations of intergenerational educational programs in a virtual classroom and one medical trial for the follow up of seniors in their home after orthopaedic surgery. Results show excellent ratings in the coordinators in the success of a VC communication on a room setting, the importance of intergenerational applications for homebound users. Cross-cultural and recreational programs usually require 2-4 sessions before optimum involvement, whereas physiotherapy coaching and tele-home follow up generate immediate receptivity and compliance. Conclusions: Simplified Video Conferencing stations for home users could become an indispensable adjunct of supportive housing for seniors and of Long Term Care services.

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PAEDIATRIC TELE-HOMECARE: INTERIM OBSERVATIONS AND TRENDS FROM AN OPERATIONS MANAGEMENT PERSPECTIVE

C.P. Churchill, C. Daniels, N.L. Young, K. Keilty-Lau, P..T. Dick, and the Tele-HomeCare Project Group – The Hospital for Sick Children, University of Toronto, ON, Canada

Background: The TelehomeCare (THC) project, currently under study at the Hospital for Sick Children, provides a range of supports to families in their homes through an integrated approach to service delivery by home and hospital care providers. This presentation will focus on the challenges and opportunities, from a management perspective, when providing service for highly complex and diverse patient populations.

Methods: The THC project provides care to children through a hospital monitoring centre that is staffed by registered nurses and supported by video-conferencing and remote vital signs monitoring equipment. The clinical service records were reviewed to describe the clinical conditions and service requirements of these children.

Results: The population in this study to date has been children aged 0 to 14 years with diverse and complex medical conditions and subacute monitoring needs. Most have required frequent monitoring of heart rate, blood pressure, respiratory rate, oxygen saturation, weight and temperature. This service has typically begun with multiple contacts per day weaning to once a day over a 6-week period. The scope of expertise required to support these children and families is broad.

Conclusions: The service is an adjunct to traditional homecare services that facilitates the transition from hospital to home for children who are unique in the high acuity of their care needs. Key areas for discussion include matching current technological capabilities with patient complexity, developing transitional skills for RN's, and the potential for monitoring dependency.

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PAEDIATRIC TELE-HOMECARE: PARTICIPANTS' HEALTH AND PREFERENCES FOR TRANSITIONAL CARE

J. Bennie, P.T. Dick, O. Tennis, N.L. Young – The Hospital for Sick Children, Toronto, Canada

Background: Tele-Homecare (THC) uses video-conferencing technology and collaboration between home and hospital based care providers to support children with sub-acute care needs as they make their transition to the community. The THC project began as a randomized controlled trial in May of 2000. This presentation will discuss the completed the baseline data. These families come from a broad range of socio-economic and ethnic backgrounds. Data gathered at baseline indicates that caregivers have strong preferences for the method of care their child receives. The preference for Tele-Homecare, 3 had no preference score across the 24 families was 4.35 (SD 1.72). The IFS data indicates that families experience a significant impact on family. The HRQOL indicates caregivers perceive their child's quality of life as poor.

Discussion: Preliminary data suggests during the period of transition of child from hospital to home, caregivers have a significant preference for the method of care received. The impact of transition on families may be associated with the unique qualities that appear during this time such as the perception of poor quality of life for children and the desire for additional support. The concurrent finding of these qualities provokes consideration of the relationship between these characteristics.

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PAEDIATRIC TELE-HOMECARE: QUALITATIVE IMPACT ON CHILDREN AND FAMILIES

W.S. Barden, P. Dick, P. McKeever, N.L. Young and the Tele-HomeCare Project Group. The Hospital for Sick Children, University of Toronto, Toronto, ON, Canada

Background: The Tele-HomeCare (THC) project, currently under study, uses integrated clinical services, remote monitoring and video-conferencing to provide transition care for children with sub-acute care needs in the community. To date, the majority of children have been convalescing from severe cardiac, respiratory and/or neurologic illnesses. A key component of this research is a qualitative evaluation. The objective of this component is to describe the breadth of family and patient experiences with THC.

Methods: A qualitative method was utilized to capture the impact of THC. Semi-structured interviews were conducted with subjects, who were the primary caregivers of the child receiving THC. Each subject was interviewed at three different transitional phases: pre-discharge from the acute care facility, two weeks after starting THC in the community, and two weeks following discharge from THC. All data was transcribed verbatim and subjected to a content analysis.

Results: To date, ten subjects have participated in the series of interviews. The subjects have been predominantly mothers. Their children are extremely diverse in clinical age and ethno-cultural background. Despite this diversity, several key themes have emerged. Examples include: increased sense of security, improved continuity of care, decreased disruption in family life. These themes are supported by consistent statements across time periods and subjects. Example quotes from families' experiences will be provided in the presentation.

Conclusions: These preliminary results suggest THC is a method of care that enhances support and quality of care, and eases the transition to community care for families with convalescing children with subacute care needs. However, the qualitative component requires further confirmation, and additional interviews are ongoing. In future, interviews will be completed with health care practitioners who have provided care to complement the information provided by families.

CONCURRENT PODIUM SESSION # 6: DISTANCE LEARNING (EDUCATION AND VIDEOCONFERENCING) - I

Monday, October 22, 2001

16:00 – 17:30

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E-LEARNING FOR TELEHEALTH PROFESSIONALS

Steve Lawrence, Major Account Manager of Healthcare, Cisco Systems, Toronto, ON, Canada

Healthcare organizations and Telehealth Network Systems must constantly adapt to the rapid pace of innovation. Workforce skills and knowledge need constant refreshing – despite severe time constraints and tight budgets.
E-learning is helping turn change into an advantage by taking existing knowledge and packaging it in a more accessible, customized, learner-centric form. This presentation will discuss how you can develop a successful e-learning model for your healthcare delivery organization.

32

EVALUATION OF THE UTILIZATION OF TELEHEALTH FOR A REHABILITATION PAEDIATRIC ORTHOPAEDIC CE UPDATE

W.S. Barden, A. Anthony, R. Damignani. The Hospital for Sick Children, Toronto, ON, Canada

Background: The importance of continuing education (CE) is well documented in the literature. However, participation in CE is often expensive and usually requires time away from work and home. In October 2000, The Department of Rehabilitation Services at The Hospital for Sick Children (HSC) conducted a one-day, lecture based paediatric orthopaedic CE update providing current information on a variety of paediatric orthopaedic conditions. To provide an opportunity for northern Ontario physiotherapists to participate in the conference, by minimizing their travel cost, the update was transmitted simultaneously to a northern Ontario city. Two audiences were at this meeting: 1) HSC (update site) and 2) northern Ontario (Telehealth site). **Objectives:** The primary objectives of this work were to evaluate the utilization of Telehealth as a CE medium and its cost effectiveness.
Methods: All participants at the Telehealth site (n = 10) were provided with an evaluation form. This form evaluated each speaker and the impact of Telehealth on each presentation. In addition, 10 participants from the HSC audience, from a variety of geographical locations, were given the same evaluation form to evaluate the impact of the presence of Telehealth on the main audience. All subjects were also requested to document the relevant costs of attending this update. Descriptive statistics were utilized to analyze the data.
Results: Eight of 10 evaluation forms from the Telehealth site were returned. All evaluation forms from the HSC audience were returned. Preliminary data suggests that the Telehealth audience was very satisfied with this forum and significant cost savings were reported. The HSC audience did not reveal any detrimental impact of the presence of the Telehealth audience or equipment. Results from this study will be presented.

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"HEALTHY LINKS" - NEW TELEHEALTH SERVICES FOR SENIORS

H. Bilas; D. Conn, Toronto, Ontario, Canada; E. Longueville; L Richey, Peterborough, Ontario, Canada

Distance can mean nothing when it comes to delivering expert clinical care to long-term care facilities. Through the use of inexpensive technologies such as personal computer-based videoconferencing and Internet Telephony, consultations and education can be dispensed on a wide range of health care issues.
Fairhaven Home, a municipal long-term care facility in Peterborough, Ontario and Baycrest Centre for Geriatric Care, a multi-level health care system in Toronto, Ontario launched a pilot telehealth project in 2001. The objectives were to develop successful clinical and professional development applications for long-term care that use an Internet based telehealth

approach, use communication technology to enhance services, and help local community partners access knowledge.
Today, few existing Canadian telehealth applications take advantage of Internet connectivity. Most run over multiple ISDN or other broadband telecommunication links, require costly workstations and are found primarily in the acute care sector. The "Health Links" partnership between Baycrest and Fairhaven is an innovative approach to on-line health care and continuing education for the long-term care sector. It represents the emergence of virtual partnerships for senior care.
This presentation highlights the background, the consumer-level technology used, and the initial findings regarding the strategic value and satisfaction with the applications from the perspective of both the referring and consulting sites. Implications for sustainability and the potential diffusion of this model conclude this presentation.

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WRAPPING E-HEALTH MULTI-MEDIA AROUND RURAL AND REMOTE COMMUNITIES TO SUPPORT DEVELOPMENT IN AGIN AND HEALTH

David Patrick Ryan, Ph.D., Toronto, Ontario, Canada

As urban centres prepare for the boom in aging demographics in 2020, the future is already here in rural and remote regions of Canada. Yet there is a dramatic shortage of health professionals knowledgeable in aging and health and significant obstacles to their retention and recruitment. To provide clinical and educational services and to overcome obstacles to retention and recruitment, a comfortable blanket of e-health multi-media programming is wrapping itself around a remote community in Northern Ontario. The bundle of media includes videoconferencing, web casting, a web-based knowledge transfer centre, online needs assessments and teaching case studies, email, chat and bi-directional training visits. Participants include physicians, multidisciplinary teams, seniors, and local community service groups. The framework reflects an emerging model of changing health behaviour through broad spectrum multi-mediated community development.

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THE USE OF TECHNOLOGY TO SUSTAIN THE ENGAGEMENT OF LEARNERS BEYOND A SINGLE EVENT

B. Sadovy, D. Buller & R. Tiberius, Toronto, Ontario, Canada

Internet technology is widely used because it provides instant delivery and exchange of information, as well as continuous access. The continuous access feature of the Internet enables the engagement of learners to be sustained beyond a single event.
Two cases are reported: 1. archiving medical education rounds to extend their usefulness beyond the presentation, and 2. engaging graduate students in an on-line discussion forum to sustain involvement between classes.
1. The Ontario Medical Education Network holds medical education rounds monthly. The topics and ideas discussed at the rounds are videotaped, digitized, and made available on a local website. Thus the rounds become an archive that can be viewed at any time. The number of visitors to the site suggests that the archive may serve the audience long after the rounds are over. The approach to publishing on-demand rounds and some of the data that support its success, will be presented.

2. The second case consists of a graduate course that was put on-line using a courseware program. Learners experienced no difficulty in using the course syllabus, schedule, reading material, resources and assignments, but they were too inhibited to use an on-line discussion forum to discuss course papers or related ideas. They were apparently reluctant to expose their ideas publicly in this forum. The approach used to overcome this inhibition was a kind of "weaning program" in which postings were gradually moved from anonymous to identifiable. By the end of the course, and even beyond the course, the students eagerly participated in an on-line forum. The strategy used to engage learners in this on-line discussion, and some data to support its success, will be presented.

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DEVELOPMENTAND EVALUATION OF AN EDUCATIONAL WEBSITE TO ASSIST MEDICAL STUDENTS WITH HISTORY TAKING AND CASE REPORT WRITING SKILLS

J. Bradley, J. Nyhof-Young, R. Macdonald, H. Clarke, E. Colak; University of Toronto, Toronto, Ontario, Canada

WITHDRAWN

CONCURRENT PODIUM SESSION # 7 : SUSTAINABILITY, INTEGRATION, AND LESSONS LEARNED - I

Monday, October 22, 2001

16:00 – 17:30

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SECRETS OF SUCCESS – LESSONS LEARNED FROM THE NORTH NETWORK TELEMEDICINE PROGRAM

Williams, R.; Fenton, C., Timmins & District Hospital – Timmins, ON
Brown, E.; Roston, B., Sunnybrook & Women's College HSC – Toronto, ON

Within 3 years of its inception in 1998, the NORTH Network Telemedicine Program expanded from four sites to 14 sites linking north-eastern and Central Ontario, and Toronto. During this period, patient consultations rose from 10 per month to over 70 per month, and a CHE series for health professionals increased from biweekly presentations to 8 presentations per month to meet demand. The program is currently undergoing expansion to an additional 43 sites including several First Nations communities and a referral centre in Winnipeg for patients living in the extreme northwest area of the province.

Several factors have contributed to the success of the NORTH network program and the acceptance of telemedicine as a means of delivering medical care and education in participating communities. Community needs, a streamlined referral process, and the types of consultations/specialties amenable to telemedicine will be discussed. Strategies with respect to existing referral pattems will be reviewed. These strategies led to a 'spin-off' benefit that included the dissolution of some practice barriers.

Finally, the importance of ongoing communication with stakeholders cannot be underestimated – the role of key site personnel as the 'eyes and ears' of the local patient/medical community to ensure on-going communication will be discussed.

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DEVELOPING A TELEHEALTH PROGRAM AT A PAEDIATRIC, TERTIARY CARE FACILITY

Kathryn Crone, CHEO, Bryan Makara, CHEO, 401 Smyth Rd., Ottawa, Ontario, Canada

The development of the telehealth program at CHEO, a Canadian, Paediatric, tertiary care facility, will be presented. This endeavour reinforced the hospitals strategic goal; to continuously improve the quality of health services to meet the needs of our patients, families and communities. Local experience in developing the program will be shared, from purchasing the equipment to now providing specialty services to rural and community hospitals as a member of the Eastern Ontario Telehealth Network. (EOTN). Lessons learned, success stories, and future initiatives for program growth and development will be presented.

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FACTORS AFFECTING CONTINUING EDUCATION DELIVERY VIA TELEHEALTH: AN ALBERTA REVIEW.

C. Anderson; T Cradduck – Edmonton, Alberta, Canada

This paper gives an overview of a report requested by alberta We//net to provide their Provincial Telehealth Committee with a better understanding of continuing education (CE) needs via Telehealth and to identify possible means to address those needs.

The intent of the review was to survey needs for CE as perceived by members of Health Authorities and other parties, both of whom need and deliver CE in the health care sector, in order to determine how to use Telehealth facilities and who is accessing those programs.

Findings from the data collected between January and March 2001 are summarized. These findings focus on the identification of:

- Current providers and receivers of CE via Telehealth within the Health Authorities
- needs of, drivers for, and barriers to CE via Telehealth

- human resource support and
- needs expressed for provincial coordination

Regulated Health Professions and competency requirements as a result of new provincial legislation are also addressed.

Issues, suggested solutions and recommendations are presented. The manner in which this information is being used to further CE via Telehealth within Alberta is highlighted.

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COMMUNITIES OF PRACTICE AND LEARNING: ARE LARGE-SCALE DEPLOYMENTS FEASIBLE?

Basia Siedlecki, Penny Jennett

Acknowledgements: Dr. J. Parboosingh, Ann Russell, Andree Longpre

Increasingly, various health care systems are exploring community and team learning in professional contexts as options defining possible future configurations of CME. The need for well-developed and functioning communities of learning within medical institutions is undeniable. Early reports suggest that they are effective in fostering reflective practice and in bridging disciplines and hierarchical barriers within institutions and health care systems, thus building effective cross-disciplinary teams. It is hoped that such teams will function as units of practice, learning and research. This type of learning is supported and augmented through technology, specifically computer networks. Research in education suggests that computer mediated communication is often effective in removing barriers to learning and communication. As well, maturing technologies are increasingly capable of supporting the needs of medical communication that often requires large bandwidths and appropriate security. The emerging culture of on-line communication supports team building and development. The purposes of this paper are to: summarize past research efforts in the area of technology mediated, medical professional development in a practice setting; explore the conceptual and theoretical issues underlying these efforts; and to identify areas for future research in the practical application of this mode of learning systemically, nationally, and internationally.

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TELECENTRES FOR EDUCATION AND COMMUNITY HEALTH (TEACH)

P. Dwyer, K. Sheppard, C. Robbins, & S. Goobie, St. John's, Newfoundland, Canada

Aim: To develop, implement and validate a model for delivering primary health care and health education over distances using information and communications technology (telehealth).

Rationale: Challenges involved in delivering health services to residents of rural and remote regions of Canada include inadequate access to information and services, the difficulty of recruiting and retaining health care providers, and high costs. Innovations in information technology, however, are beginning to present solutions to these challenges. The Telecentres of Education and Community Health (TEACH) project was designed to demonstrate that information and communications technologies could be used to support enhanced primary health care in three rural communities in Newfoundland and Labrador (Twillingate, Goose Bay and Port aux Basques).

Key Findings: The TEACH project successfully provided an information technology base upon which the province could support a multi-year project to enhance primary health care.

Implications: Projects such as TEACH, which offer alternative service delivery options for rural and remote communities, should not be viewed solely in terms of cost savings for the health care system. Instead, they should be viewed as ways to get better services and health outcomes within existing budgets through the reallocation of resources.

Methodology/Data Collection: The project involved: 1) an analysis of scheduling documents and reports from the participating sites; 2) the completion of evaluation forms by users; 3) semi-structured interviews with key parties.
Presentation: Specific topics will be discussed, including an overview and brief history of TEACH; the rationale and goals of the project; the various technologies utilized to support activities; a review and discussion of challenges; advantages and disadvantages of utilising a multi-media system in the delivery of telehealth and tele-education; and evaluation results and their implications.

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HOSPITAL TO HOME MONITORING – AN EXAMPLE OF TELEHEALTH SUSTAINABILITY

K. Palmer, J. Parrott, R. Scott*, D. Garnett – Saint John, New Brunswick, and *Calgary, Alberta, Canada

The New Brunswick Heart Centre (NBHC) has increased clinician access and enhanced timeliness of care offered to the post-operative cardiac surgery patient population that it serves. Responsible for tertiary care within the province of New Brunswick, NBHC, in conjunction with technology partners, developed a telehealth modality to address a previously unmonitored phase of recovery post discharge.
Designed to address a 32.3% re-access rate to emergency departments coupled with a subsequent 16% readmission rate, this telehealth modality allows clinicians to conduct real time, interactive, telehealth assessments via the plain old telephone system (POTS).
Using the telehealth modality, known as the "Home Unit", a three lead ECG, NIBP, and SPO2 are transmitted daily with the push of a single button. Video interactivity and assessments are facilitated by the use of the videophone portion. This technology allows the Heart Centre to be proactive versus reactive in the detection and treatment of atrial fibrillation, wound management and fluid overload.
Given that a high percentage of patient and family concerns are stress related, the 24 hour 'immediate access' to a clinician at the Heart Centre also acts as an excellent support mechanism. As patients access the Heart Centre with difficulties and are referred onward, their 'care loop' is further closed by the clinician being able to provide pertinent data to the receiving hospital, thereby ensuring an accurate readmission history. The high satisfaction rate of both clinicians and patients has enabled this project to transition into a sustainable program. The NBHC recently celebrated its 500th virtual visit.

CONCURRENT PODIUM SESSION # 8: OUTCOMES AND EVALUATION

Monday, October 22, 2001

16:00 – 17:30

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A STUDY OF VIDEOCONFERENCING IN TELEHEALTH IN CANADA

Hussein Noorai, CCOHTA, Ottawa. Jocelyne Picot, Montreal, Quebec

This paper will report on a study of videoconferencing (VC) in telehealth in Canada that was undertaken in the summer of 2000. Published by the Canadian Coordinating Office of Health Technology Assessment (CCOHTA) in May 2001, the study is based, in part, on self-reported responses to a questionnaire that was distributed to 8 programs across Canada. The report also includes a synthesis of project evaluation reports and other materials provided by the respondents. In addition, a literature review of 40 outcome studies drawn from over 270 articles and reports from 1998 to present was performed to evaluate the efficacy of VC. The presentation will provide a summary of the literature survey as well as an overview of the 8 programs, the technologies used, the applications, costs and levels of utilization, the impact on patient care, assessments by users, and the range of broad national issues that were identified. The broad national issues are focused on planning, user training and education, policy, implementation and organizational issues, human resource issues, access and ethics. A summary of lessons learned will be reported along with some conclusions and future directions for VC in telehealth in Canada.
(Note: this paper will be complemented by a poster presentation.)

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TELENEPHROLOGY: FROM A PILOT PROJECT TO A SUSTAINED VIRTUAL SATELLITE

Suzanne Robichaud, Moncton, N.B., Canada; Jocelyne Picot, PhD, Montreal, QC, Canada

WITHDRAWN

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SEARCH FOR THE DEPENDENT VARIABLE: CUMULATIVE MEASURES OF TELEHEALTH SUCCESS

Marilynne Hebert, Ph.D. Health Telematics Unit, University of Calgary – Calgary, Alberta, Canada

Health service innovations have been adopting general evaluation frameworks that are flexible enough for individual projects and yet allow some measure of consolidation of results at provincial and federal levels. The Health Transition Fund, a $150 million fund distributed by the federal government from 1997 – 2000, identified 5 dimensions for evaluation: quality, health status, cost-effectiveness, integration and transferability.

The influential IOM framework and other telehealth studies have generally focused on quality, cost and access as the key measures of success. The telehealth pilot projects to date demonstrate that certain technologies are cost-effective methods of service delivery. However, anecdotal and research evidence from IS failures literature support that highly successful IS in one organization may not be as successful in another. Many of the same factors that affect implementation success also affect transferability and integration.

Application of the Health Transition Fund framework to the telehealth literature clearly demonstrates which areas have stronger evidence supporting selected applications. The two areas of integration and transferability have been less of a focus and yet are critical to understanding the adoption of telehealth technologies into mainstream health care.

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THE MAGDALENE ISLANDS' DEMONSTRATION PROJECT : TELEHEALTH FOR A POPULATION NEEDS

JP Fortin, A Cloutier, L Provost, MP Gagnon.

The Magdalene Islands' demonstration project aimed at conceiving and investigating a telehealth network in order to meet the needs of its population. Within 13 months, more than 14 different applications had been used by 7 Regional and University Hospitals. Seven (7) of the nine (9) specialists and sixteen (16) of the nineteen (19) general practitioners of the requesting Hospital have used the system. One hundred and sixteen (116) persons have benefited from it. Sixty per cent (60%) of the requests were for emergency and transfer purposes. Twenty three per cent (23%) of the patients avoided transfer.
This communication will describe the main findings emerging from the project with respect to the project's initiation and progress, the utilisation of the technology, and its effects. It will also highlight some of the key conditions related to the continuation of this project and to the diffusion of telehealth technologies in the health care system. Finally, it will clearly demonstrate the relevance of integrating evaluation to the introduction process of such a new project.

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THE QUEBEC CHILD TELEHEALTH NETWORK: IMPLEMENTATION AND EARLY RESULTS.

A Cloutier, M Béland, N van Doesburg, M Bellavance, JP Fortin. Quebec, Montreal, Sherbrooke.

In 1997, pediatric cardiologists from 4 university hospitals (UH's) joined forces to organize the framework of the Quebec Child Telehealth Network QCTN. In 1998-9, the 32 chosen regional centers (RC's) and the 4 UH's were equipped for transmission of echocardiographic studies and to allow two-way viewing of personnel and families during transmissions.
In the year 2000, a total of 114 transmissions were performed: 92 (81%) for new diagnoses, and 22 (19%) for follow-up. The most active RC's were those located more than 100 km from the nearest UH (77% of transmissions) and those with established satellite pediatric cardiology clinics or a previous referral pattern to one of the UH's (67% of transmissions). Telehealth avoided immediate transfers in 33/114 (29%) and elective visits in 57/114 (50%). Telehealth confirmed cardiac problems treatable in the RC in 11/114 (10%), and identified congenital heart defects requiring transfer in 7/114 (6%). Studies were judged adequate in all but 2 cases (2%). Four children (4%) required transfer for other pediatric problems.
This communication will describe the utilization of the technology up to mid 2001 and its effects. It will also highlight the major factors that influenced its utilization.

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COST-BENEFITS ASSESSMENT METHODOLOGY OF TELEMATICS PROJECTS IN MEDICINE

G. Borghi - Health General Direction of Lombardy Region, Milan (Italy)
M. Marzegalli – Cardiology Dept. – "S. Carlo Borromeo" Hospital, Milan (Italy)
M. Fregonara - Government Sanitary Office for Territorial Health and Social Services, Monza (Italy)

The comparison between resources (in terms of costs) and results (in terms of benefits) is used for estimating the economic impact of a project, providing a choice among different solutions. In general, a telematics program in medicine should include a Costs and Benefits Analysis (CBA) on the project's involved population: physicians, specialists and patients. The

CBA must investigate all aspects and possible effects derived by the introduction of the new modality or service, in order to identify those projects offering most benefit.
During the Project European "TeleRegions SUN2", the application TeleAssessMed has been developed for the evaluation of telematics projects in medicine using CBA methodology. The dedicated software acquires all the information needed to analyse a project from different perspectives: patients' quality of life; care cost saving; modification of treatment; costs and time of 'actors' movements; patients' wasting of time; psychological discomfort; improper admissions or examinations to hospitals or emergency department; and other correlated costs.
The TeleAssessMed approach estimates the global increase in the health state through the value which patients, their family, physicians and service organisations attribute to these parameters apart from the economic consequences due to new facilities. TeleAssessMed is particularly useful in the analysis and evaluation of different or alternative projects that could have varying global benefits. The application can be used both "ex ante" (prospective analysis of telematics projects) and "ex post" (retrospective analysis of implemented telematics projects).
The methodology has been focused on the project impact, measured through the evaluation of costs and social benefits, and on the assessment of all the possible effects, included the intangible benefits for the involved people and the direct/indirect effects on the Public Health Service budget.

PROGRAM DETAILS

TUESDAY, OCTOBER 23rd, 2001

07:00 – 13:00 Registration

07:30 – 08:30 Breakfast Roundtable Discussion

Topic # 1: International Partnerships

Moderator: Dr. Penny Jennett, Health Telematics Unit, University of Calgary

Topic # 2: Telehealth Interoperability

Moderator: Dr. Trevor Cradduck, Telehealth Director, Alberta Wellnet

Topic # 3: e-Health Innovation

Moderator: Alex Jadad, Director in e-Health Innovation, University of Toronto

Topic # 4: Telehealth in Other Countries

Moderator: Dr. Peter Yellowlees, Director, Centre of Online Health, University of Queensland

Topic # 5: The Role of the Private Sector in Canadian Telehealth

Moderator: Andrew Siman, Practice Leader, e-Health, Deloitte Consulting

08:00 – 16:00 Exhibit Hall Open

08:45 – 09:15 Keynote Speaker, Alex Jadad, Director in e-Health Innovation, University of Toronto
"The Global e-Health Network: Using Research to Speed Up the Inevitable"

09:15 – 10:45 Panel Discussion # 3 - Integrating Telehealth into the Healthcare System

Moderator:

Paul Ting, Vice President, Business Development, Saint Elizabeth Health Care

Panelist:

Shirlee Sharkey, President & CEO, Saint Elizabeth Health Care

Keith Sheppard, President, ColabNet

Dr. Peter Yellowlees, Director, Centre of Online Health, University of Queensland

Dr. Sarah Muttit, Director, Tecknowledge Professional Services Group, Division of Adcom Videoconferencing

10:45 – 11:15 Nutrition Break

11:15 – 12:45 Concurrent Podium Session # 9 – Clinical Care and Disease Management

Concurrent Podium Session # 10 – Distance Learning (Education and Videoconferencing) – II

Concurrent Podium Session # 11 – Sustainability, Integration, and Lessons Learned – II

Concurrent Podium Session # 12 – EPR, HIS, and Readiness

12:45 – 14:00 Lunch - visit poster displays and exhibit hall

14:00 – 15:30 Panel Discussion # 4 -Integrating Health Informatics and Telehealth

Moderator:

Richard Scott, Associate Professor, Faculty of Medicine, University of Calgary

Panelist:

Andrew Siman, Practice Leader, e-Health, Deloitte Consulting

Ann Tinker, International Product Marketing Manager, 3M Health Information Systems

Andrew Szende, CEO, Electronic Child Health Network, The Hospital for Sick Children

15:30 – 16:00 Closing

KEYNOTE SPEAKER # 2

DR. ALEX JADAD
UNIVERSITY OF TORONTO

THE GLOBAL E-HEALTH NETWORK: USING RESEARCH TO SPEED UP THE INEVITABLE

Tuesday, October 23, 2001

08:45 – 09:15

Alex Jadad, MD DPhil FRCPC

BIOGRAPHY

Dr. Jadad is a 38-year old Colombian-born physician, patient advocate, researcher and educator. In 1994, he received a Doctor of Philosophy degree at the University of Oxford, becoming one of the first physicians with a doctorate in knowledge synthesis. In 1995, he moved to Canada and joined the Department of Clinical Epidemiology & Biostatistics at McMaster University, where he was Professor and Chief of the Health Information Research Unit and Director of the McMaster Evidence-based Practice Centre. In October 2000, he moved to Toronto. His research focuses on the strategies to enhance the health system, through state-of-the-art technology, to help people access and use the knowledge and services they require to meet their health-related needs, regardless of who or where they are. He has been the recipient of a National Health Research Scholars Award, from Health Canada; 'Canada's Top 40 Under 40' awards, and a Premier's Research Excellence Award.

THE GLOBAL E-HEALTH INNOVATION NETWORK: USING RESEARCH TO SPEED UP THE INEVITABLE

The rapid developments in information technology are outpacing the ability of the health system to keep up and adapt. They are also creating widening gaps between those who have and those who do not have efficient access to technology and knowledge. This is happening both within and across countries, and across all groups of decision makers. This is a scenario common to many technologies in the world but within the context of the health system, one that we can ill afford to ignore.

Canada is in a unique position to play a leadership role in the globalization of health care and the promotion of eHealth innovation. Few countries have principles to guide their health systems that are as strong and valued as the Canada Health Act, few have invested so much in technology, have such a strong private sector interested in information technology and have a population that is so eager for it. Most importantly, Canada is perhaps the most diverse country on earth, allowing the efficient study of eHealth innovations with participation from people from different backgrounds, cultures and languages.

In this session, I will highlight the opportunities that exist in Canada to create a unique network of people, simulated environments and living laboratories to accelerate the design, prototyping and testing of eHealth Innovations, with an emphasis on telehealth. I will describe how this network could:

- Act as a mini-model of the world to promote a rigorous study of telehealth innovations not only in Canada but worldwide.
- Facilitate a needed shift in the research and development process from the traditional bench-to-bed model to research and development that occur at the point of need, along the continuum of health and health care, i.e. from academic institutions to patients' homes.
- Create opportunities for education, training and job development in Canada.
- Promote and sustain collaboration among health care organizations, educational institutions, the public sector, industry and the community.
- Foster the use of eHealth Innovations that promote health, equity in health and the transformative effects of health in society.

PANEL DISCUSSION # 3: INTEGRATING TELEHEALTH INTO THE HEALTHCARE SYSTEM

Moderator:
Paul Ting, Vice President, Business Development, Saint Elizabeth Health Care

Panellists:
Shirlee Sharkey, President & CEO, Saint Elizabeth Health Care
Keith Sheppard, President, ColabNet
Dr. Peter Yellowlees, Director, Centre of Online Health, University of Queensland
Dr. Sarah Muttit, Director, Tecknowledge Professional Services Group, Division of Adcom Videoconferencing

Tuesday, October 23, 2001
09:15 – 10:45

Paul Ting

BIOGRAPHY

Throughout the last nineteen years in the healthcare industry, Paul Ting has explored both externally in the marketplace for strategic growth opportunities and internally within the organizations for advancement in operational effectiveness.

As the Vice President of Business Development at Saint Elizabeth Health Care, Mr. Ting contributed to exponential business expansion for the organization over the last few years through enabling teams of talents in business development, clinical specialties, human resources, quality improvements and systems. Mr. Ting brings to this role with his extensive leadership experience in service management, operational analysis and business development. Mr.Ting complements his gifts with great enthusiasm and energy.

Mr. Ting earned a Bachelor of Nutrition and Food Science from the University of Toronto and a Bachelor of Administrative Studies from the York University.

Shirlee Sharkey

BIOGRAPHY

As President and Chief Executive Officer since 1992, Shirlee Sharkey has provided progressive, visionary leadership for Saint Elizabeth Health Care, a major provider of home and community-based health care in Ontario. Under her direction, Saint Elizabeth Health Care has more than doubled its revenues, expanded its number of product lines and almost tripled its number of service delivery centres. Saint Elizabeth Health Care's success is also attributed to the fact that Ms. Sharkey has ensured that the original client-centred mission, dedication to excellence and compassionate spirit of the organization created in 1908 remain just as important today.

Saint Elizabeth Health Care reflects Ms. Sharkey's own energy, passion and flexibility. The organization embraces the challenges presented by the changing health care environment and needs of clients and responds to them in innovative ways. Saint Elizabeth Health Care leads the industry in its incorporation of technology to promote client independence and satisfaction, improve clinical outcomes and create efficiencies in service delivery. One of the first home care organizations in Ontario to be awarded an accreditation by the Canadian Council on Health Services Accreditation (CCHSA), Saint Elizabeth Health Care has achieved many firsts and is recognized as an innovator. More recently, Ms. Sharkey was awarded the Who's Who in Health Care Award (Health Care Provider category) by Canadian Healthcare Manager.

With a vision to champion breakthrough advances in home care and effect positive change within the industry, Ms. Sharkey is in high demand as a committee member, association leader and conference speaker. She has authored several articles in both national and international home and health care magazines and is well recognized for her views on innovation and technology in the health care industry. Ms. Sharkey is currently the President of the Registered Nurses Association of Ontario (RNAO), Elected Vice-Chair of the World Homecare and Hospice Organization and a Board Member of The Change Foundation, in addition to George Brown College. She also holds the position of Past President of both the Canadian Home Care Association (CHCA) and the Ontario Nurse Executives (ONE).

Ms. Sharkey holds a Masters of Health Science in Health Administration (M.H.Sc.) from the University of Toronto, a Bachelor of Arts (B.A.) and a Bachelor of Science in Nursing (B.Sc.N.) from the University of Windsor. She is an Assistant Professor at the Faculty of Nursing and is cross-appointed to the Faculty of Medicine (Department of Health Policy, Management and Evaluation) at the University of Toronto. She is also a Certified Health Executive (C.H.E.) of the Canadian College of Health Service Executives.

INTEGRATING TELEHEALTH INTO THE HEALTHCARE SYSTEMS – e-HEALTH AND DISEASE MANAGEMENT

Unlike other industries that are embracing the opportunities of the new environment, the health system is challenged by integration of services and structures and limitations in advancing innovative approaches. In spite of this, it is a marvelous time of opportunity to embrace technology and advance knowledge building, responsiveness and customization of services and supports.

Home care is in a unique position to propel a new philosophy, and new model and the transformation to a more consumer focused yet sustainable health system. The application of ICT's in home care provides the opportunity to advance and shift the scope and focus of home care, and in turn, influence the entire health system. Knowledge building is perhaps the slowest area of ICT application to evolve, yet possibly the richest in terms of potential.

This panel session will showcase examples of customized Internet-based technology applications for clients and their families, as well as for health care providers. Also, the philosophy behind their creations and initial evaluations results will be discussed. The presentation will demonstrate the value of equipping individuals and families with the health information and services they need for greater control, understanding and assurance to effectively and confidently manage their health conditions will be discussed.

Keith Sheppard

BIOGRAPHY

ColabNet
St. John's, Newfoundland

INTEGRATING TELEHEALTH INTO THE HEALTHCARE SYSTEM - WIRELESS HOMECARE PROJECT IN NEWFOUNDLAND

The Mobile Home Care Platform (MHCP) is an integrated suite of technologies to allow Nursing and Home Support agencies to provide and capture information at the point of service provision. The solution is combination of desktop computers, handheld devices, and the wireless (cellular) transmission of data between the office and the service providers in the field. The product integrates the scheduling of visits, client information, service protocols, materials management, and 3rd party billing into the day-to-day operations of a Home Care delivery organization.

The goal of the MHCP is to improve quality and consistency of service to Home Care clients, while dramatically reducing the associated paperwork and billing issues for the provider agency. The ability to transfer data to and from the worker in the field improves efficiency; and the related calendar, e-mail, and contact databases allow the worker to be more autonomous in the field, while actually increasing and improving communication with the office.

Development of the MHCP technology has been complete and the product is now in its initial field trials with Home Care providers. These trials will continue into the Fall of 2001, leading to the full commercial release of the product.

Peter Yellowlees, MD, BSc, MBBS, FRANZCP

BIOGRAPHY

University of Queensland
St. Lucia, Queensland

INTEGRATING TELEHEALTH INTO THE HEALTHCARE SYSTEM – LEARNING FROM THE AUSTRALIAN EXPERIENCE

The experience of telehealth programs in Australia will be reviewed, with an emphasis on the principles required to successfully develop and integrate them into the wider health care system. The specific experience of the Queensland Telemedicine Network, which after five years operation, now regularly averages about 2000 hours per month of clinical and educational usage, will be highlighted. Telehealth programmes are rather similar to humans in the way that they are planned, developed, grow and ultimately die or disappear. To achieve good life expectancy for a telehealth programme there appear to be three major needs: (1) *Nurturing*, which includes the provision of money, ideas, education, training and innovation; (2) *Experience*, which involves an integrated management process, the achievement of long and wide patterns of usage, the development of updated policies and procedures and the involvement of multiple disciplines; (3) *Success*, which involves evidence of outcomes, evaluation and research, and most important, the sharing of information through scientific and popular press publications, and conferences and collaborations with internal and external groups. The future of telehealth in Australia is at a watershed. There are now a substantial number of programmes, and there has been a large amount of financial and human investment in telehealth around the nation. There is however no forum for national leadership, no national association and little support at Federal Government level. This may not ultimately matter, though, as the move to high bandwidth environments through internet2, in the setting of increasing expertise and understanding of the needs of distributed computing systems working on the business model of the enterprise, will mean that there will be less barriers to telehealth integration in future, and will lead inevitably to the development of virtual global health systems. In 10 - 20 years time we will look back at early telehealth development and see it as having been a useful learning experience as we work in an integrated health system, with much more emphasis on health promotion supported by new knowledge from the fields of molecular biology and bio-informatics, where patients and doctors make daily choices about whether consultations and care occur in either virtual or face to face environments.

Sarah Muttitt, MD

BIOGRAPHY

Sarah Muttitt is a University of Alberta medical school graduate with Canadian and U.S. certification in Pediatrics. She has extensive clinical, research and administrative experience in the field of neonatology obtained during appointments at the Hospital for Sick Children in Toronto and the University of Alberta Hospitals in Edmonton. She also has extensive private sector experience in research, promotion and market development for innovative medical technologies. She completed her MBA from the Ivey Business School at the University of Western Ontario, London. In 1998, she joined TecKnowledge Healthcare Systems Inc., a market leader in the creation, implementation and management of telehealth solutions. In addition to establishing their Western Canadian regional sales and project office, Dr. Muttitt provided a wide range of consulting services including project management, operational planning, service modeling and design, clinical validation and program evaluation. Following the partnership of TecKnowledge with ADCOM Videoconferencing, Dr. Muttitt assumed the

Directorship of the Professional Services Division responsible for providing consulting services to support the successful implementation of telehealth programs. She has proven leadership skills in both the medical and business fields and has demonstrated a strong commitment to the development of telehealth best practices to support the successful integration of telehealth into healthcare delivery.

INTEGRATING TELEHEALTH INTO THE HEALTHCARE SYSTEM – INTEGRATION: IS THE PRIVATE SECTOR LISTENING?

As operational telehealth experience has broadened, focus has shifted from the feasibility and deployment of technology to the integration of technology. Understanding of this term, 'integration', varies among telehealth stakeholder groups, as do solutions. Equipment vendors are promoting 'integrated' technologies, network providers are building 'integrated' networks, and healthcare managers are seeking 'integrated' service delivery. In developing telehealth applications, we speak of 'integrating' telehealth technology into clinical workflow. Are we all on the same path? There is great suspicion – even hostility in some quarters – about the involvement of the private sector in any aspect of healthcare. Despite this, there are many examples of successful initiatives where the unique strengths of both the public and private sectors have been brought together to achieve ambitious goals – goals that either would have had difficulty achieving alone. Key success factors include well-chosen projects, common goals, effective management (both style and structure), good working relationships at each interface between the two sectors, and clear accountability. With commitment and communication, there is real opportunity to work together in evolving the telehealth industry towards 'integration'.

CONCURRENT PODIUM SESSION # 9:
CLINICAL CARE AND
DISEASE MANAGEMENT

Tuesday, October 23, 2001

11:15 – 12:45

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CUSTOMIZED TELE-HEALTH VIDEO CONFERENCING SYSTEMS FOR USE BY HOME BOUND SENIORS: INSTRUMENTATION AND RELIABILITY.

Mathias Fruhwirth, P. Eng., Marie-Madeleine Bernard, M.D., Ottawa (ON)

Introduction: The PACE 2000 International Foundation provides home bound seniors with a real-time video-conferencing (VC) link to health centres and to various community organizations. Two VC modules were designed by PACE 2000: A video conference-based goniometer (VCBG), as a part of a hospital VC module, and a personal mode, with customized video-display set up and simplified access for frail seniors, people with disabilities and persons who have no computer experience. VCBG was created to measure range of motion (ROM) via VC, thereby facilitating rehabilitation in a home setting.

Description of instrumentation: The PACE 2000 VC Equipment consists of a personal computer, a hardware codec, a PACE 2000 interface design, an integrated camera and microphone, and a large, easy-to-use trackball especially designed for seniors with arthritis. The Hospital module shares the same functions as the Personal module, in addition to the use of the VCBG. A file for each participant in the proper position, the image is captured on screen by the computer. Angle measurements are done by loading these images on-screen. Once the landmarks are identified, the PACE 2000 unit automatically measures the joint angle.

Results: The Personal module is readily accepted by frail seniors and fosters compliance to medical follow up. PACE 2000's VCBG proves to be a highly reliable tool when taken within or between therapists. Conclusions: In an aging population with a three-fold increase in physiotherapy needs just over the past year in the Ottawa area, rehabilitation and home-based video conferencing may become inseparable for the years to come.

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BAYCREST TELEHEALTH SERVICES FOR THE ELDERLY: CHALLENGES AND OPPORTUNITIES

D. Conn; H. Bilas, Toronto, Ontario, Canada

Baycrest Centre, an internationally recognized leader in the field of geriatrics and aging located in Toronto, offers the healthcare community staff expertise, extensive and innovative programs and services, and an internationally recognized research base.

In 1999, Baycrest Centre established a new clinical-business initiative, Telehealth Services and embarked on a journey where few long-term care facilities have gone before – to the brave new world of virtual senior care. Baycrest's interest in telehealth can be traced to the strategic direction of "Reaching Out, Reaching North, and Knowledge Transfer".

No Canadian province has yet made significant efforts to bring telehealth to the long term care sector, but the case can be argued that this sector needs it the most. Seniors with the most complex and greatest number of health problems are often in facilities with the fewest licensed professionals.

What will long term care make of telehealth? What benefits does telehealth offer today to the LTC sector? How to best harmonize what consumers demand, what technology suppliers have to offer, and what healthcare can afford and is willing to make high priority? The challenge to Baycrest is to fully leverage internal knowledge and information thereby producing advances and strategic advantage in health service delivery. This presentation will highlight and elaborate on our program's principles, key issues, goals and deliverables, needs, and our strategic directions (educational services, health services, technology platform, and partnerships).

We are charged with remaining vigilant about looking not only at the technology itself and at how it is used for senior care, but also in defining what value it brings, and who pays for what. We must commit to the task of developing the right applications, and learning together.

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URBAN-RURAL TRAUMA TELEMEDICINE LINKAGE FOR EDUCATION AND CONSULTATIONS: LESSONS LEARNED

Ho K, Brown R, Bradley C., Gareau A., Harrison D., Kirkpatrick A., McLaughlin M., Purssell R., Simons R., Vancouver, B.C., Parnell T., Shockey L, Cranbrook B.C.

Rural physicians and nurses can benefit from information and communication technologies (ICT) by having their urban counterparts assisting them in acute trauma management in real time and in professional development through videoconferencing continuing health education (CHE). This joint project between Vancouver General Hospital, a tertiary hospital and the trauma center in British Columbia, Canada, and Cranbrook Regional Hospital, a secondary hospital located in a rural community in the province, had a two prong approach: Cranbrook health professionals triggered multimedia videoconferencing consultations on demand by using a videophone to connect with on call trauma and emergency specialists at the Vancouver General Hospital; and biweekly trauma rounds via ISDN videoconferencing, using historical trauma cases as case-based learning activities. This study demonstrated that telemedicine videoconferencing rounds are effective CHE activities for rural professionals and promote bonding between the two communities. Videophone is easy-to-use and an economical scouting instrument to determine the logistics of ICT equipment placement and ergonomics prior to full-scale deployment of higher end and more expensive videoconferencing equipment. However, the videophone's video quality is not ideal for carrying out real time trauma case management. Trauma case volume from one rural community was too low to warrant a dedicated, 24 hour on call coverage by urban professionals.

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TELEONCOLOGY

Mary Beth LeBlanc, Regional Coordinator – Nova Scotia Telehealth Network – Sydney, Nova Scotia

Telehealth applications are on the rise in Nova Scotia. The newest one in the eastern area of the province is Teleoncology. This clinical application was developed to provide a means for the only medical oncologist in the region, who is located in Sydney, to provide consultative services to patients in Antigonish, which is two hours away.

Previously, the medical oncologist traveled to Antigonish on the day of the clinic to provide the service. With increasing patient consultations, it was felt that Telehealth could meet both the physician's and the patient's needs.

Utilizing a collaborative approach, a team of personnel met to develop a process allowing the medical oncologist to interview patients. This application introduced a new role for a family physician. It is hoped that this new method of delivering service will be integrated into the present system.

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USE OF TELEMEDICINE TO PROVIDE PEDIATRIC CRITICAL CARE INPATIENT CONSULTATIONS TO UNDERSERVED RURAL NORTHERN CALIFORNIA

Robert Dimand, James Marcin, Harry Kallas, Cynthia Parke, Thomas Nesbitt, Steven Struve. Departments of Pediatrics and Family Practice, University of California, Davis, 2516 Stockton Blvd., Sacramento, CA, USA

Rural Northern California is underserved for Pediatric Intensive Care Units (PICUs), with 600 miles separating the PICU in Sacramento, CA and the nearest PICU north in Portland,

OR. Mercy Redding Hospital is the main hospital serving rural northern CA and has attempted several models to accommodate critically ill children; most recently hiring a single Pediatric Intensivist, which failed due to lack of subspecialty support. Telemedicine was implemented between the PICU at UC Davis Children's Hospital and the adult ICU at Mercy Redding Hospital. The goal is to transfer the 50% most critically ill children to UC Davis, while keeping the less critically ill children in Redding with telemedicine PICU consultation. Additionally, 3 rural emergency rooms have been added to this network to allow consultation and triage from the ER.

As of this writing, 40 children have had 55 telemedicine consults, all have survived. Most of the patients had medical diagnosis, several trauma patients received consultation as Mercy Redding is the regional trauma centre. PICU transfers from this region increased from 19 in 1997 to 70 in 2000.

This program represents a new model of delivery of Pediatric Critical Care to an underserved large rural area, one of the first inpatient ICU uses of telemedicine consultation. Future plans include expanding the rural network for acutely ill and injured children by adding a number of rural emergency rooms to the PICU program and expanding it to the Pediatric Emergency Room at UC Davis Children's Hospital.

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EXPERIENCE AND RESULTS OF AN INTERMEDIARY CARE SERVICE FOR STABILISED HEALTH PATIENTS

M. Amigoni, G. Borghi - Health General Direction of Lombardy Region, Milan (Italy). M. Fregonara - Government Sanitary Office for Territorial Health and Social Services, Monza (Italy)

The successful Di.C.I.T. (Department of Telematics Intermediary Care in domiciliary hospitalization) project, co-funded by Italian Health Services in 1999 and ended in April 2001, used telemedicine to rationalize the allocation of primary care resources and to satisfy essential requisites of the sanitary services reorganization: continuous care; assistance humanization; increasing care appropriateness; saving money in service disbursement.

The project involved management of stabilized heart patients during the domiciliary period, after the hospitalization, with the following aims: assistance of the patients at home with equal effect; prevention of aggravations or relapses of the patient's physical condition; reduction of the improper admissions to hospital and to E&R Dept.; and monitoring the quality-of-life of the patient during this period.

The project examined different issues: clinical (monitoring prescriptions and examinations during the stabilized period); health (give back to GPs their main role in management of domiciliary patient care); social (remove useless prolongation of the hospitalization and its uneasiness); organization (encourage collaboration between GPs, specialists and Reference Hospitals maximizing the transfer of patients' information); and economic (meaningful resource saving with equal efficiency).

The process by which Di.C.I.T. is used in practice, via PSTN or GSM network, will be described.

Di.C.I.T. demonstrates the practicability of using telemedicine as a technological and organizational solution for the prevention, care, and monitoring of stabilized patients during the domiciliary care period.

CONCURRENT PODIUM SESSION # 10 : DISTANCE LEARNING (EDUCATION AND VIDEOCONFERENCING) - II

Tuesday, October 23, 2001

11:15 – 12:45

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USING INTERNET-BASED TELEHEALTH TECHNOLOGY FOR CONTINUING EDUCATION: THE WRITE ONCE – PUBLISH EVERYWHERE APPROACH

E.D. Lemaire, Ottawa, Ontario, Canada

The 'Write Once – Publish Everywhere' approach for creating and disseminating continuing education content was developed to help rural and urban health care providers deal with physical rehabilitation issues. Using this approach, front-line health care educators can create multimedia content in accessible desktop presentation software such that it can stand on its own, but also be effective as a slide presentation. These education modules can then be easily published to a computer projector, desktop video conferencing whiteboard, web site, Internet streaming media, CD-ROM, and slides/overheads/printouts. Evaluation of the web-based option for content delivery was supported by high ratings for content, organization, relevance, and satisfaction. Most subjects were comfortable or preferred this method of accessing educational content. Graphics content was considered an important part of the on-line modules. Similar results were found for sessions delivered over a NetMeeting-based conferencing connection. The Web-based and "Internet desktop conferencing" options of the Write Once – Publish Everywhere approach was shown to be effective at addressing the goal of providing continuing education at the right time, the right place, and at the right cost.

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VIDEOCONFERENCED GRAND ROUNDS FOR SPECIALIST CME: FOUR YEARS' EXPERIENCE IN NOVA SCOTIA

M. Allen, J. Sargeant, B. O'Brien, M.E. MacDougall. Halifax, NS, Canada

Providing continuing education (CME) to specialist physicians presents problems in areas like Nova Scotia where small numbers of specialists practice in scattered communities. Their small numbers make it difficult for them to leave their communities for CME, and also make it impractical to send teachers from major centres to their communities. In major centres, clinical departments conduct regular grand rounds for education, dissemination of research, and promoting collegiality. Videoconferencing has made it possible to distribute these rounds to community specialists, but has raised issues that must be addressed for rounds to provide the maximum educational value.

This presentation will provide an overview of videoconferenced rounds in Nova Scotia over the past four years and will include:

- Results of needs assessments of community specialists and university-based clinical departments.
- Results of a detailed evaluation of a series of videoconferenced grand rounds
- Issues raised by the evaluation such as: involving community specialists in planning rounds; training presenters in videoconferencing techniques; and ensuring adequate technical and organizational support.
- Importance of making videoconferenced rounds meets the criteria for accreditation under the Maintenance of Certification requirements of the Royal College of Physicians and Surgeons of Canada.

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A BUSINESS CASE FOR THE VIRTUAL HEALTH EDUCATION CENTRE

R.V. Johnston,* E. Igras*, T.D. Cradduck**; *Calgary, Alberta, Canada,
**Edmonton, Alberta, Canada

The establishment of the Alberta Telehealth Network has provided opportunities to improve information exchange and collaboration among care providers. The Telehealth Network is also being used for delivering some continuing education programming on an intra- and inter-provincial basis.

To enhance the opportunities for the delivery of continuing education services and collaboration among health care professionals, a Business Case for the Virtual Health Education Centre has been developed. This virtual information centre will be available to professional and research organizations, health facilities and individual care providers via the Internet through utilizing multicasting and multimedia streaming technologies. It will be open and accessible to authorized users, yet assure sufficient confidentiality and privacy to assist in continuing health education and dissemination of health-related information. It will greatly expand the capabilities offered by the Telehealth Network.

In this presentation, we discuss the Business Case for the Virtual Health Education Centre, the strategy for its implementation, the opportunities to be realized, and possible applications and services.

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A VIRTUAL HEALTH EDUCATION CENTRE: REQUIREMENTS AND POTENTIAL SOLUTIONS

E. Igras*, R.V. Johnston*, T.D. Cradduck**; *Calgary, Alberta, Canada,
**Edmonton, Alberta, Canada

There is a growing interest in using the Internet to deliver continuing health education services and facilitate collaboration among health care professionals. The Business Case for the Virtual Health Education Centre developed in Alberta, defines the framework for the delivery of multimedia content with the use of the Internet-based multicasting technology taking into account the diversity of stakeholders and their needs, and the existing providers and receivers of the continuing education services.

While the use of the Internet to provide distance education and collaboration services has been in existence for some time, the delivery of these services in the health care sector on a province-wide scale is quite unique. Furthermore, this new delivery system must coexist and interoperate with the existing continuing education programs and delivery systems. This imposes a very specific set of performance, security, quality, interoperability, operational and technology requirements on the Virtual Health Education Centre.

These requirements, along with the candidate solution, are presented, and the possible implementation strategies and risks associated with the deployment of the Virtual Health Education Centre discussed.

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SURGICAL EDUCATION USING NETWORKED HAPTO-VISUAL SYSTEMS

Kevin Smith, CSIRO-MIS & NRC-IIT Canberra, Australia

The 1990's saw the development of modern haptic (or force feedback) devices. The combination of haptic devices and 3D graphics has enabled a range of experimental and commercial surgical simulators to be developed. In Australia, CSIRO started research into hapto-visual systems in 1996 for use in the mining industry. This resulted in the development

of a hapo-visual workbench in 1997 with collocated hapto-visuals. In the last two years we have been researching the application of hapto-visual systems to medical education. This has been focused on 'standalone' systems. Recently, CSIRO has received substantial support from the Australian Government for a 'CANARIE' like project. One of testbeds within this project is for networked hapto-visual-acoustic environments with an emphasis on surgical and medical education. Two of the planned experiments are: high fidelity surgical simulation using a remote high performance computer for the real time simulation of human tissue mechanics, and the sharing of surgical instruments over the internet so that trainers and trainees can both see and 'feel' the same surgical simulation.

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THREE YEARS EXPERIENCE WITH ONLINE CONTINUING MEDICAL EDUCATION: WHAT HAVE WE LEARNED?

Joan Sargeant, Michael Allen, Greta Rasmussen, Halifax, Nova Scotia, Canada

Since 1998, Dalhousie University Office of Continuing Medical Education (CME) has provided and evaluated interactive accredited CME programs in the Internet. The programs address clinical problems and include content, images, cases, quizzes, relevant links and a case-based electronic discussion group, are available for one month, and take about two-three hours to complete. To receive CME credit, participants must post at least two messages in the electronic discussion and complete the evaluation.

This presentation will describe the results of the evaluations, including participation statistics, satisfaction with content and design, ease of use, technical issues, usefulness of the electronic discussion, and to discuss lessons learned.

In three years, 435 individuals have participated in the 15 online programs. Results indicate that they are satisfied with the content, cases and electronic discussion, and find them relevant to their practice. They make technical suggestions to improve navigation of the module and ease of use of the electronic discussion.

Although the number of physicians completing the programs has increased over the three years and most report finding them very useful, it remains that only a small percentage of physicians are using them. Earlier research indicated that technology remains a barrier and that encountering technical problems of any type is a deterrent to participating, in spite of technical help being readily available. For 2000-2001, 86% of participants reported their computer skills as "average". Demographic statistics also indicated that more female physicians (62%) complete the online programs than male (38%), and that over 50% of participants have been in practice for 10 years or less. Discussion will address possible reasons for results such as these, the challenges they present, and "next steps" for providing accredited, interactive online CME.

CONCURRENT PODIUM SESSION # 11 : SUSTAINABILITY, INTEGRATION, AND LESSONS LEARNED - II

Tuesday, October 23, 2001

11:15 – 12:45

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LESSONS LEARNED: TWO MARITIME TELE-HEALTH PROJECTS

E.P. Weiss MD FRCPC MBA, Providence Health Care, Vancouver, B.C. (formerly South-East Healthcare Corporation, Moncton, N.B.)

WITHDRAWN

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TELEPSYCHIATRY: ONTARIO – ENHANCEMENT OF COMMUNITY SERVICE

Jeffrey S.B. Hawkins, Parry Sound, Ontario and Elizabeth Manson, Toronto, Ontario

The purpose of a telepsychiatry initiative is to bridge geographic and other barriers to provide timely and culturally sensitive access to care. We are now able to integrate this new technology into health care and have moved from initial questions of feasibility and viability to making telepsychiatry a sustainable and integral part of the local service delivery system, which will ultimately strengthen the effectiveness of children's mental health providers in the community. To achieve this, one must define and measure the effectiveness of this technology and its impact on local caregivers.

This presentation identifies the needs and requirements of a community from the perspective of its children's mental health system. It will examine how the Ontario telepsychiatry initiative is responding to identified needs through a series of community involvements and participation. Along with the model of service, the process of integrating telepsychiatry into the local community mental health team will be discussed. Particular attention will be given to the efficacy of site visits, the role of a Steering Committee, the importance of an educational program and the ongoing evaluation process.

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AFTER-HOURS TELEPHONE TRIAGE: STRATEGIES AND METHODS TO IMPLEMENT AN INTEGRATED MODEL

M. Ryan and J. Gaudet, Toronto, Ontario, Canada

Telephone Triage involves a symptom-based assessment that leads to a determination of acuity and safe and appropriate advice to the caller. This assessment can include general self-care and health information, as well as referral of a caller to an appropriate health care provider and setting. While telephone triage occurs in a variety of settings across the continuum of care, telephone triage offered "after-hours" presents unique challenges and opportunities. This presentation reviews the strategies and methods developed to successfully partner with the Family Health Networks (previously known as the Primary Care Networks) in the provision of an integrated model for the delivery of an after-hours telephone service for a rostered patient population. In particular, it highlights the issues and challenges associated with meaningful collaborative relationships with the Family Health Network providers, and in launching an after-hours telephone triage service within Ontario.

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ESTABLISHING A SUSTAINABLE & VIABLE TELEHEALTH PROGRAM IN SASKATCHEWAN CANADA

Audrey Huziak, Telehealth Coordinator, Meadow Lake, Sask.

The Northern Telehealth Network (NTN) started in 1999 as an eight-site pilot project that spans a large geographical distance in Northern Saskatchewan. Saskatchewan is a sparsely

populated province in the mid-western part of Canada. The NTN has experienced a successful pilot project, and has since expanded its program considerably. With growth of a project come various challenges. A few of the challenges that have been experienced by the NTN include such issues as : ensuring that the needs of many different communities with different health care needs and diverse cultural backgrounds are being met; integrating telehealth technology into existing health care systems; developing partnerships with other telehealth programs provincially and federally; and encouraging individuals and communities to make a change to their traditional way of practicing and receiving health care.
The NTN has not seen these types of challenges as obstacles; rather, they have been used in creating and maintaining our vision. The vision of telehealth in Saskatchewan is to improve access to health care and education – which will ultimately improve the health and welfare of the people of our province. The Northern Telehealth Network's multi-faceted program is managed in a manner that allows it and it's programming to be sustainable and viable.
This presentation will share how these challenges were dealt with to create a sustainable and viable telehealth program.

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EU–CANADA–GERMANY TELEHEALTH INITIATIVES - PAVING INTERNATIONAL LINKAGES FOR THE FUTURE

M. Watanabe, and P. Jennett. Health Telematics Unit, University of Calgary – Calgary, Alberta Canada

Telehealth is an international phenomenon. By sharing global experiences and knowledge about new applications and technologies much can be gained. In keeping with this, Canada has agreed to work with the EU and with Germany to collaborate on activities that will ensure that telehealth is effectively used in meeting the needs of the public, patients, health professionals, and the health systems. Within these agreements, International experts in telehealth and health information technologies, including representatives from the public, private, professional, and academic sectors, are meeting to discuss the implementation of sustainable telehealth solutions that can contribute to the social and economic future of participating countries. Collaboration is encouraged through workshops, conferences, and action teams. Core objectives are to: transfer knowledge and expertise in telehealth, to share best practices, and to explore collaborative partnerships/projects. This presentation will highlight the initial outcomes from these two initiatives. For the EU-Canada project, progress specific to two areas will be reviewed: 1) Northern (rural/remote) telehealth and 2) Wireless technologies. The Germany-Canada overview will emphasize e-home care, mobile Internet and associated security standards, and the evaluation of social/economic benefits. Upcoming opportunities to become involved in these International initiatives will be outlined.

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AN EXTERNAL REVIEW OF THE NOVA SCOTIA TELEHEALTH NETWORK

Sarah Kramer, Halifax, N.S, Canada

The 42-site Nova Scotia TeleHealth Network (NSTHN) has been operational since January of 1998. In the fall of 2000, several significant events led the Nova Scotia Department of Health (DOH) to conduct an external review of the management and operations of the NSTHN. This presentation will describe the rationale for conducting the review as well as its scope. An overview of the results of the review and its recommendations will also be provided. In addition, an update on the current status of the NSTHN will be given.

CONCURRENT PODIUM SESSION # 12: EPR, HIS, AND READINESS

Tuesday, October 23, 2001

11:15 – 12:45

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REGIONALLY ACCESSIBLY SECURE CARDIAC HEALTH RECORDS

S.T. Cheung, R. Marsh, I. Smith. Ottawa, Ontario, Canada

Information and communication technology today allows the development of electronic health records (EHR's) that can be readily available across a region, across the country, or indeed around the world.

This paper will describe the Regionally Accessibly Secure Cardiac Health Records project being undertaken at the University of Ottawa Heart Institute (UOHI). This project will put in place a system that will allow regional clinics and hospitals to electronically refer patients to UOHI and then follow the patient's progress while they are receiving treatment at UOHI. It is expected that this system will not only improve operations at UOHI and the regional hospitals but will also form a basis for this and similar systems to make health records more readily available across the region or in fact to almost anywhere in the world where they are required. Eventually, such systems could allow individual patients to access their own health records.

At a time when one can have secure access to one's bank account from most of the developed world, it is discouraging that speedy access to a patient record is normally unavailable across a city let alone in another country. To determine if the healthcare industry can learn from the success of other industries, the development and implementation of an information system, which allows the global sharing of aviation safety and flight monitoring information among commercial airlines, will also be examined.

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WHO ARE YOU? WHERE HAVE YOU BEEN?

A.K. Tinker, RN MN, Jim Steward, Lili D. Levesque

The challenge of healthcare is to maximize the resources (people and financial) to provide the safest and most appropriate care to the patient. The process starts with accurate timely patient information. Today, patients have numerous choices of where healthcare is delivered and the test is to integrate all the information from the various locations. The rewards are having linked patient data from all locations of care, accessible to all requiring the information from the patient to the registrar to clinical providers.

Being able to review previous encounters with the patient is more efficient than having the patient recreate their history of healthcare at each new location of care. Providing historical data enhances the decision-making process by having disparate encounter records organized for quick review.

Roadblocks to integration of healthcare information include information systems deficiencies [systems may differ as to how data fields are defined (description and field length) and user-entry (the associated value) is accomplished], poor data quality [some systems may require double-checking (Master Person Index [MPI] look-up) whilst others do not], and duplicate patient record creation, each leading to errors in decision-making.

Having an Enterprise Master Person System overcomes the differences of data representation in different systems. It will also support the assignment of trusted-sources so sites may determine which MPI update or add is acceptable to update or add to the global information system. Perhaps the most important value is the patient satisfaction in streamlining the registration process to a review of information rather than full entry for each new location. It's reassuring to the patient when their healthcare records are kept current and their full history of visits are readily accessible to the care providers.

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PERSISTANT SECURITY AND USE TRACKING, NOT JUST DELIVERY SECURITY

Merv Matson, Calgary, Alberta, Canada

EMR Security and Use Tracking

↓ Technology Protects, Tracks →	During Net Delivery	Until First Use	Every Time, Everywhere
Channel eg VPN	Yes		
Lock-Unlock eg PGP	Yes	Yes	
Persistent	Yes	Yes	Yes

This presentation discusses three general technologies for securing and tracking EMRs (Electronic Medical Records), digital objects like text, image, audio, video or data files. They have different trust characteristics, and therefore different system engineering imperatives and application restrictions. These differences are compared and contrasted and the implications are explored in the presentation. Briefly, with

- Channel Security the EMR is transported in a secure channel through the Net. It cannot leak enroute, but arrives at its destination insecure and can leak from there in many ways. The initial delivery is tracked, but no use or redistribution is tracked.
- Lock-Unlock Security the EMR is secured (locked, encrypted) before transport through the Net. The first user must unlock (decrypt) it, and then ... as Channel.
- Persistent Security the EMR is always secured. The reader is made 'trusted' – to allow only authorized access and permitted operations. Every use is authorized and tracked, every time, everywhere.

In the Channel and Lock-Unlock approaches the EMR can be

- sent or hacked back out over the Net after delivery, say as an email attachment.
- copied to a floppy disk and carried away.
- copied with the reader program used to display it to a legitimate user, then sent out unprotected.

By contrast, although a Persistently secured object may leave the legitimate destination, it is unusable by an unauthorized user and therefore not a breach of security.

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USE OF ELECTROIC PATIENT CARE REPORTING IN THE EMS ENVIRONMENT

Peter Robertson and Trevor Strome, Edmonton, Alberta

WITHDRAWN

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A TECHNOLOGICAL AND ORGANISATIONAL FRAMEWORK FOR CONTINUITY HEALTHCARE SERVICE

S. Cordeddu, M. Fregonara, E. Puttini - Government Sanitary Office for Territorial Health and Social Services, Monza (Italy)

In Italy during the weekdays' nights and the weekends, a Continuity Healthcare Service (CHS) is operative for urgent (non emergency) needs and to manage typical requests: information on healthcare services, psychological and social assistance, medicinal prescriptions, sanitary advice, GP examinations, urgent care problems, and suspect emergency requests. The ASL-MI3 (a government sanitary office for territorial health and

social services which covers a one-million-people district) has recently reorganized the CHS, and aims at creating a territorial capillary, using Territorial Doctors (TD's) instead of GP's, in order to decrease the waiting time, reduce the activation and intervention time, improve the competence of the interlocutors, and to guarantee the quality of the service.
The DAISIES (Distributed And Interoperable/Integrated System for continulty healthcarE Service) project is a technology-based model for the organization and the management of the whole CHS process in a wide and populated area, with particular attention to health assistance, sanitary support and urgent problems. DAISIES objectives are: to guarantee an elevated and qualified presence in the territory; to assure the continuity of the health care; to realize "a filter" to manage the CHS activities and to reduce activation and intervention time of GP's and the improper admissions to Emergency Departments; to offer a more efficient and effective quality of service through optimized resource use; to facilitate access to the information of territorial healthcare and social service; and to make available the patients' clinical information for all the sanitary actors, while guaranteeing the security, integrity and safety of the patients' data transfer.
This presentation will describe the DAISIES reorganization and its units, and emphasize the full potential that use of ICT through DAISIES will offer.

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INSTRUMENT DEVELOPMENT IN TELEHEALTH READINESS

Andora Jackson, Penny Jennett (1), Theresa Healy (2), Arminee Kazanjian (3), Kendall Ho (3), Robert Wollard (3), Joanna Bates (3) (1) University of Calgary, Calgary, AB, (2) University of Northern British Columbia, (3) University of British Columbia, Vancouver, B.C.

Starting in 2001, the Alliance for Building Capacity, a national consortium of rural/remote communities, along with academic and health institutions, began the development of a community-based community-driven Telehealth Readiness Mode/Framework. One of the greatest barriers in rural and remote communities to successful telehealth implementation is the state of readiness of such communities to adopt these programs. It has been increasingly clear that the successful introduction of information technology systems into health care requires the examination of complex social, political, organization, and infrastructure factors. Theories of innovation suggest that multiple factors are at play to determine success or failure, although the interactions and relationships between these factors and readiness for innovation adoption are not clear.
This paper will examine the concept of telehealth "readiness" from the perspective of the literature on innovation theories and models. It will detail: 1) specific principles and criteria for monitoring and evaluating "readiness", 2) the initial models/approaches for assessing telehealth readiness within the rural/remote communities, and 3) the criteria for "measurement" tool development.
Data collection through focus groups is being conducted to establish the variables and phenomenon that will be introduced into the final "readiness" tool. These factors include, but are not limited to, Information and Communications Technologies characteristics of availability, affordability, and support for ICT infrastructure; Practitioner and Workforce factors of training, workflow, and facilities access; and Patient/Public factors of access, content and perceived relative advantage.

PANEL DISCUSSION # 4:
INTEGRATING HEALTH INFORMATICS AND TELEHEALTH

Moderator:
Richard Scott, Associate Professor, Faculty of Medicine, University of Calgary

Panellists:
Andrew Siman, Practice Leader, e-Health, Deloitte Consulting
Ann Tinker, International Product Marketing Manager, 3M Health Information Systems
Andrew Szende, CEO, Electronic Child Health Network, The Hospital for Sick Children

Tuesday, October 23, 2001
14:00 – 15:30

Richard Scott, MD

BIOGRAPHY

Department of Community Health Sciences, Telehealth Program
University of Calgary
Calgary, Alberta

Andrew Siman

BIOGRAPHY

Andrew Siman is the Practice Leader for e-Health at Deloitte Consulting. He is widely recognized for his leadership role in advancing the introduction of information and communications technologies in complex environments.

Andrew has over twenty-five years of senior-level experience in both the private and public sectors. He was the founding Director General of Health Canada's Office of Health and the Information Highway.

Other federal departments that he has worked in include Industry Canada where he was responsible for championing information highway to serve the needs of Canadians in the fields of education, health and public access. He was also responsible for developing the Federal Government's response to the report and recommendations of the Industry Minister's Information Highway Advisory Council.

In addition to his career with the Government of Canada, Mr. Siman has held senior executive positions in Canada's telecommunications and management consulting sectors.

Andrew holds a Bachelor of Engineering degree from McGill University and a Masters degree in Business Administration from the University of Western Ontario.

INTEGRATING HEALTH INFORMATICS AND TELEHEALTH – IF I HAD $500 MILLION

Recent years have seen Canadians becoming increasingly concerned about the future of our nation's health care system. As well, the past several years have witnessed various efforts to encourage the use of information and communications technologies to address some of these concerns, by enhancing access, improving quality, and increasing efficiency. These efforts have evolved through various stages, from hype, to specific initiatives, through the Y2Kproblem, and then a renewed focus on identifying barriers.

Currently, much discussion is taking place about the level of progress that has been made to date. Comparisons are being made between Canada and other countries such as the United Kingdom and Australia. Articles are being written about reasons why we have not had more success. Many are frustrated by the reluctance of health professionals to use information systems. A general consensus seems to be emerging that we have been marginally successful at best and that expectations have not been met.

Nevertheless, discussions regarding future prospects continue: papers continue to be written; committees continue to be formed, and calls for action continue to be tabled. Meanwhile, some new money is finding its way into the system. In the midst of much frustration there is perhaps more focused and realistic enthusiasm and determination than ever before.

So what do you do with $500 million? What don't you do? What, in fact, can you do? What goals do you set and which principles do you adopt? Do you focus on the longer term or on the short term, or both? Do you establish a funding mechanism or a mechanism for change? Do you concentrate only on information and communications technologies, or do you further limit your focus to electronic health records? Fundamentally, what impact do you wish to have on the health of Canadians?

The presentation proposes a strategy and action agenda on what could be done with $500 million. It will address today's concerns, while building on lessons learned over the past several years. In approaching the concept of change leadership several missing links will be identified. The presentation proposes that these links, which have generally not played major roles in the past, will be pivotal in bringing about change.

Ann Tinker

BIOGRAPHY

Ann Tinker is currently employed as an International Product Marketing Manager at 3M Health Information Systems in Salt Lake City, Utah. Before obtaining this position she was in the Product Marketing department for 8 years. Ann has also worked as a Nursing Development Project Manager, a Principal System Analyst, and a Product Planner, Assistant Nursing Director, and a Staff Nurse.

Ann is also an Adjust Professor at Brigham Young University in Provo, Utah. She has been teaching selected classes to Senior and Graduate nursing students since 1982.

Ann Tinker received her Bachelor of Science in Nursing from Brigham Young University. In 1980 she received her Master of Nursing from the University of Washington.

INTEGRATING HEALTH INFORMATICS AND TELEHEALTH – WHO ARE YOU? WHERE HAVE YOU BEEN?

The challenge of healthcare is to maximize the resources (people and financial) to provide the safest and most appropriate care to the patient. The process starts with accurate timely patient information. Today, patients have numerous choices of where healthcare is delivered and the test is to integrate all the information from the various locations. The rewards are having linked patient data from all locations of care, accessible to all requiring the information from the patient to the registrar to clinical providers.

Being able to review previous encounters with the patient is more efficient than having the patient recreate their history of healthcare at each new location of care. Providing historical data enhances the decision-making process by having disparate encounter records organized for quick review.

The roadblock preventing integration of healthcare information is that all information systems are neither created nor installed consistently. Each system may differ as to how data fields are defined (description and field length) and user-entry (the associated value) into the system. Another hindrance may be the quality of data entered; some systems may require double-checking (Master Person Index [MPI] look-up) or open entry of data (no checks and balances or predefined selection lists). Misleading data may result in errors in decision-making. Without duplicate record tools it would be easy to create multiple patient records rather than having a unified single record with all the patient's encounters grouped together.

Having an Enterprise Master Person System overcomes the differences of data representation in different systems. It will also support the assignment of trusted-sources so sites may determine which MPI update or add is acceptable to update or add to the global information system. Perhaps the most important value is the patient satisfaction in streamlining the registration process to a review of information rather than full entry for each new location. It's reassuring to the patient when their healthcare records are keep current and their full history of visits are readily accessible to the care providers.

Andrew Szende

BIOGRAPHY

Andrew Szende is Chief Executive Officer of eCHN, the electronic Child Health Network.
Mr. Szende has a management and communications background in the private and public sectors. As a management consultant, he facilitated the creation of the Rouge Valley Health System. Earlier, he was an assistant deputy minister of health, associate secretary of the Cabinet, and Ontario's chief economic and trade representative in Hong Kong.
The electronic Child Health Network is a project of The Hospital for Sick Children and the Ontario Government. It is the first network in Canada that enables member organizations to merge patient information from different sites, protect the patients' privacy and confidentiality, and help children receive the right care at the right time as close to home as possible. eCHN also disseminates the latest research findings to health care providers and helps educate children and their families about children's health.
The current members of the network are The Hospital for Sick Children, Orillia Soldiers' Memorial Hospital, Rouge Valley Health System, Saint Elizabeth Health Care, St. Joseph's Health Centre, Bloorview MacMillan Children's Centre, and The Credit Valley Hospital. The network's aim is to link all children's health services in Ontario.

INTEGRATING HEALTH INFORMATICS AND TELEHEALTH – ELECTRONIC CHILD HEALTH NETWORK

The *electronic* Child Health Network (*e*CHN): New initiatives to permit the flow of health data and information across the continuum of care, to multiple sites and providers

- How does a physician at Hospital A find out what happened last week at Hospital B?
- How do patients avoid having to start from scratch every time they visit a new healthcare provider site?
- How can professionals at community hospitals have access to the latest treatment guidelines and educational updates from the major referral centres?
- How can patients get access to the latest health care information?

POSTER PRESENTATION ABSTRACTS

Monday, October 22, 2001
13:00-14:00

Tuesday Oct 23, 2001
12:45-14:00

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TACKLING TELEHEALTH STAFFING SHORTAGES USING EMERGING TECHNOLOGY SOLUTIONS

S. Smith, Portland, Maine, United States

WITHDRAWN

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EPRM CONCEPTS TAKE TELEHEALTH TO THE NEXT LEVEL

V. Otley, Portland, Maine, United States

WITHDRAWN

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E-HEALTH PROSPECTS: ONLINE CANADIANS' PERSPECTIVE

M. Ennamorato, D. Radjevic, Toronto, Ontario, Canada

WITHDRAWN

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CHIPP: A TELEONCOLOGY MODEL FOR A COMPREHENSIVE CERVICAL CANCER SCREENING PROGRAM USING ICTs

Author: Suzanne Robichaud, Moncton, N.B. Canada

WITHDRAWN

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WIRELESS PATIENT LOCALIZATION CONCEPT

Y. Pellet, Nice France; M. Williams, Tampere, Finland

Whether it is to be conducted in a retirement home or a hospital, monitoring patients is an essential issue for hospital personnel. Individuals requiring close monitoring of their movement are to be found in virtually every domain of medical and healthcare. In the case of home-based healthcare, where family members are in charge of the monitoring, the problem can become critical. For the time being; the monitoring of such individuals is mainly achieved through human supervision, it is therefore unreliable, prone to errors, and of limited comfort to the person that is being monitored.

Positioning technology has been with us ever since the commercialization of satellite positioning and recent development has seen the arrival of network and W-LAN localization. Tracking technologies – whether they are network or satellite based – can and will provide solutions to the patient localization issue.

However, as they stand, each of those technologies taken individually is limited and does not match the strict requirements that should be asked of a monitoring system in terms of security and reliability.

A global universal solution, though, could still be within our reach by piling up the available positioning technology – as well as the ones coming in the near future – onto one single common platform. This platform could very well be the mobile phone.

Considering that the mobile terminal has a lot to offer in terms of hardware capabilities, and considering the fact that it is now an established friendly consumer product which is at the centre of all commercial and standardization development, the coming together of the mobile terminal technology and the positioning technology can bring forth the ultimate solution to patient localization.

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EXPANDING EDUCATIONAL OPPORTUNITIES IN TELEHEALTH NURSING

Doris McLean, Kathy Ellis, Toronto, Ontario

Centennial College offers an On-Line Post RN Nursing Telepractice Program. The program in partnership with the University of Quebec, consists of 5 courses – Informatics in Nursing, Assessment and Communication in Telepractice, Ethical and Legal Issues in Telepractice, Theory and Practice and a 2 week preceptorship in an area of Telehealth. This comprehensive distance learning program is being revised to reflect a broader scope of practice for nurses in Telehealth. The Ethics and Legalities course is being expanded to prepare nurses to work across international borders. The Theory and Practice component will not be restricted to Teletriage, but will include information and application opportunities in Telehealth and Telehome monitoring. These new dimensions will also be incorporated into the preceptorship.

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CANADIAN SOCIETY OF TELEHEALTH EDUCATION AND WORKSHOP COMMITTEE

K. Crone, Children's Hospital of Eastern Ontario, Ottawa, Ontario Canada;
C Rogers, Dalhousie University Department of Psychiatry, Halifax, Nova Scotia Canada; C. Flewelling, The Hospital for Sick Children, Toronto, Ontario, Canada;
A. Battcock, Committee Chair, St. John's Newfoundland, Canada

The Canadian Society of Telehealth Education and Workshop Committee was established in 1998 and provides education to the membership of the Canadian Society of Telehealth. This poster presentation will detail the mandate, mission, structure, membership, and organization of the Canadian Society of Telehealth Education and Workshop Committee. The presentation will also provide information on activities to date and activities and initiatives planned for the upcoming year.

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TEACHING APPLIED ANATOMY TO MEDICAL STUDENTS USING LIVE INTERACTIVE LAPAROSCOPIC SURGERY

M. Anvari, MD, L. Durst. RN, C. Gill and T. Rickwood. Hamilton, Ontario, Canada

Advances in telecommunications now allow students to receive anatomical and surgical training on a live patient during physical examination or surgery, without being physically present in the room. The authors offered a series of seven anatomy and surgery training sessions involving live telesurgery to 100 medical students at McMaster University between April 2000 and June 2000. In each session, a laproscopic cholecystectomy was transmitted live to a conference room, where students interacted directly with the surgeon through audio and visual mediums. At the end of each session, students were asked to evaluate the educational value of the components of the session. On a scale of one (poor) to ten (excellent), the average score for "didactic lectures" was 8.9 (std. dev. 123), and for "watching live surgery" was 9.6 (std. dev. 0.73). The authors' findings show that telesurgery has high educational value for medical students studying surgery and anatomy.

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USING TELSURGERY AS A TOOL IN CONTINUING EDUCATION OF SURGEONS.

M. Anvari, MD, L. Durst and T. Rickwood. Hamilton, Ontario, Canada

Advances in telecommunications now allow students to receive surgical training in a live patient during surgery, without being physically present in the room. Between January 2000 and June 2001, the authors offered a series of laparoscopic training courses for surgeons, involving several components, including didactic lectures, computer simulation, animal surgery was transmitted love to a conference room, where course participants interacted directly with the surgeon through audio and visual mediums. At the end of each session, participants were asked to evaluate the educational value of the components of the session. On a scale of one (not valuable) to five (valuable), the average score for didactic lectures was 4.3 (std. dev. 0.64), for animal lab hands-on surgery was 4.6 (std. Dev. 0.67) and live surgery was 4.5 (std. dev. 0.73). The authors' findings show that telesurgery has a high educational value for surgeons studying surgery and anatomy, comparable to that of didactic lectures and animal surgery.

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TELEPRESENCE: CAN WE MAKE IT BETTER?

C. Flewelling, Toronto, Ontario, Canada

Telehealth facilitators are perceived as being experts in the field and are often asked to provide advice on how to best utilize telemedicine. An ongoing challenge for telehealth facilitators is creating a comfortable "virtual" atmosphere for the individual participants in a videoconference. In developing this ambience the participants need to look beyond the technology and have a sense that they are actually in the same room. Telepresence is the characteristic of the videoconference that creates this feeling of closeness between participants.

In order to achieve this goal, we need to understand the factors that may influence telepresence, patient consultations and education sessions. This presentation will identify factors that will have an impact on telepresence and discuss solutions to optimize their effect.

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THE G8 HEARTH HEALTH PROJECTS DATABASE: TESTING THE COMPATIBILITY OF AN INTERNET-BASED RESOURCE WITH HEALTH PROMOTION PLANNING PROCESSES

N. Hanusaik, J.L. O'Loughlin, A. Ryan, A.C. Edwards, R. West, D. Harvery, R. Cameron, in association with the G8 Promoting Heart Health Telematics Project. Montreal, Que., St. John's Nfld., Winnipeg, Man.; Waterloo, Ont., Canada.

WITHDRAWN

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A STUDY OF VIDEOCONFERENCING IN TELEHEALTH IN CANADA

Hussein Noorai, CCOHTA, Ottawa Jocelyne Picot, Montreal, Quebec

This paper will report on a study of videoconferencing (VC) in telehealth in Canada that was undertaken in the summer of 2000. Published by the Canadian Coordinating Office of Health Technology Assessment (CCOHTA) in May 2001, the study is based, in part, on self-reported responses to a questionnaire that was distributed to 8 programs across Canada. The report also includes a synthesis of project evaluation reports and other materials provided by the respondents. In addition, a literature review of 40 outcome studies drawn from over 270 articles and reports from 1998 to present was performed to evaluate the efficacy of VC. The presentation will provide a summary of the literature survey as well as an overview of the 8 programs, the technologies used, the applications, costs and levels of utilization, the impact on patient care, assessments by users, along with a range of broad national issues which were identified. The broad national issues are focused on planning, user training and education, policy, implementation and organizational issues, human resource issues, access and ethics. A summary of lessons learned will be reported along with some conclusions and future directions for VC in telehealth in Canada.

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DEVELOPING A RURAL MEDICAL HOME FOR CHILDREN WITH SPECIAL HEALTH CARE NEEDS

JP Marcin, RB Mawis, JC Ellis, TS Nesbitt, RJ Dimand; Sacramento, California, USA

Introduction: Children with special health care needs (SHCN) living in rural, underserved regions pose an extraordinary challenge to the establishment of a paediatric medical home. The University of California, Davis, in Sacramento, California, established a paediatric telemedicine clinic in a rural region to address this matter. The objectives of this study were to prospectively assess the perceptions of telemedicine among families with children with SHCN, and then to assess their satisfaction of telemedicine consultations after the program was initiated.

Methods: Families of 42 children with SHCN, and more than 3.9 subspecialty visits per year in Sacramento during 1998, participated in a pre-telemedicine survey. After establishing the paediatric subspecialty telemedicine clinic, satisfaction surveys were completed by the parent and rural provider (Likert scale, 1 to 5). Results of this survey were compared to the University's Satisfaction Survey Database as a reference.

Results: For families participating in the pre-clinic survey, there were perceived advantages to the telemedicine subspecialty clinic, including a reduction in travel time (83% traveled> 1hour each way) and lost work (40% missed a complete day of work for an appointment). 53% stated that they would be very likely to use telemedicine; 20% stated that they would not be likely to use telemedicine. During the 8 month period after the opening of the telemedicine clinic, 52 completed consultations for 25 patients were conducted. 30% of the scheduled appointments were missed. Patients and providers that participated were very satisfied with scores of 4.4 and 4.8, respectively, which were similar to other telemedicine clinics (4.7 and 4.8, respectively).

Conclusions: Development of a rural medical home for children with SHCN is feasible with telemedicine. Pre-telemedicine surveys are helpful in anticipating perceived benefits, patient reception, and clinic needs.

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WHAT WE KNOW - WHAT WE NEED TO FIND OUT : EVALUATION OF THE NORTH NETWORK, PHASE 1

Roston, B; Brown, E.; Sunnybrook & Women's College HSC – Toronto, ON
Williams, R.; Fenton, C.; Timmins & District Hospital – Timmins, ON

The NORTH Network was launched in 1998 to address health care concerns in Northern Ontario, including decreased access to specialty care, discontinuity of care, higher hospitalization rates than the provincial average, high cost of patient/physician travel, and difficulties recruiting and retaining physicians.

To determine if project objectives were met, questionnaires were completed by patients, their referring physicians, and the specialists who provided consultative services. Questions covered satisfaction, costs, reasons for referral, appropriateness of consults and alternative treatment choices if telemedicine had not been available. Patient demographics included age, sex, employment status, and income level.

Findings indicated that telemedicine is a cost-efficient method of providing real medical care in a timely manner to the satisfaction of all involved, as well as an effective means of supporting and educating health care professionals in rural and remote areas.

However, the impact of tele-specialist intervention on health outcomes, hospitalization rates, and government subsidized programs is still unknown. As telemedicine expands, increased sample sizes, will provide an opportunity for longitudinal studies and record linkages with other databases, and increase the outcome validity and generalizability of findings.

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A COLLABORATORY MODEL FOR TELEHEALTH RESEARCH:

Penny Jennett and Andora Jackson; Health Telematics Units, University of Calgary, Calgary, AB

A "Collaboratory" is a place where researchers work together, despite disparate disciplines, sectors, time zones and locations. The nature of Telehealth, with its mélange of clinical, operational/organizational, and technical elements, makes for a very broad research, training, and development field particularly suited to a collaboratory environment.

The Health Telematics Unit (HTU), University of Calgary, a collaboratory is being developed to house national and international research collaboration and training to advance Telehealth investigations. Of the 17 research projects active at the HTU, 10 involve national and international partners. In particular, we have established collaborative research in four categories: Policy and Social Benefits Research, Outcomes Research, Technology Research, and Test-Bed or Pilot/Feasibility Research. Further, training at six levels, including graduate studies and continuing professional education, is available.

International and national research is fostered at the HTU, including collaboration with European Union, Germany, Greece, Australia, Spain, and the United States. These initiatives have a strong focus on public-private sector partnerships, while maintaining a strong research focus.

This poster will explore the collaboratory concept, describe some of the research and training activities being offered within the HTU Collaboratory, and the opportunities for participation available to the national and international community.

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EASTERN ONTARIO TELEHEALTH NETWORK

K. Crone, J. Wren (Ottawa, Canada)

The Eastern Ontario Telehealth Network (EOTN) links 19 hospitals via specialized telecommunication technologies. Through the federally funded Canadian Health Infrastructure Partnerships Program (CHIPP), three lead hospitals in the Ottawa region provide clinical and educational support to 16 primary care providers in rural areas. Through the medium of telehealth, this unique project offers access to cardiac care (Ottawa Heart Institute), paediatric care (Children's Hospital of Eastern Ontario), as well as long-term, complex continuing, palliative, and rehabilitation care (SCO Health Service). This presentation will explore how the project was implemented; creating the EOTN, signing partnership agreements, establishing a telecommunications network, purchasing the equipment, obtaining commitment and buy-in from physicians, and providing actual consultations/education services.

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LEGAL IMPLICATIONS, RISKS AND RISK MANAGEMENT FOR NURSES IN THE DELIVERY OF TELEHEALTH SERVICES

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The emergence of telehealth as a viable mode of health care delivery has changed the ways many nurses are now providing health services to the public in Canada and internationally. While nurses in remote communities have been utilizing telecommunications in their health care roles for decades, as have nurses in poison control centres, the scale of these activities is expanding dramatically at the present time. This is in part due to technological advances, but is also due to efforts to reduce health care costs and to consumer demand for easily accessible and reliable health information and services. The number of nurses involved in the delivery of telehealth services is increasing rapidly at this time, and while there are exciting possibilities continually emerging in this field, it is important to be aware of the legal, regulatory and professional challenges inherent in this role.

The presenter of this paper is a nurse and a lawyer and a Professional Liability Officer at the Canadian Nurses Protective Society (CNPS). CNPS is concerned with the legal issues and risks facing nurses in telehealth roles, among others, and with the development of risk management strategies to assist nurses in providing safe, effective telehealth care.

Telehealth is a rapidly evolving field and nurses are playing an increasingly major role in the delivery of telehealth services. This presentation will identify some of the legal risks and issues in the delivery of health care via telecommunications and will explore ways to minimize those risks to ensure that telehealth services are provided safely and effectively and that quality of care is maintained.

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TELEHEALTH RESEARCH AND ETHICAL PRINCIPLES ?

Richard Scott, Ph.D. Health Telematics Unit, University of Calgary – Calgary, Alberta, Canada

A fundamental requirement of all research involving humans is the need to obtain 'informed consent' from a prospective study participant before any study-related activity is undertaken. Another fundamental requirement is the need for IRB (Institutional Review Board) approval of any proposed research prior to even initiating the study.

In reviewing guidelines from recent federal and other funding sources (Health Transition Fund, OHIH, CANARIE) none make an explicit statement that IRB approval or informed

consent of participants is required. Further, anecdotal comments from colleagues lead to the conclusion that awareness of such requirements is limited to nil. This lack of awareness or adherence represents a major ethical concern for the telehealth research community.
International and national guidelines exist that govern the conduct of research involving humans, and that provide clear guidance concerning IRB approval and the required content for informed consent forms. A brief historical and practical introduction to the ethical principles of research and the IRB process will be provided. Thereafter, relevant guidelines will be introduced and discussed and the specific requirements for informed consent forms will be presented. The issue of multi-centre studies will also be addressed.
As telehealth matures, so to does the frequency of telehealth research studies. It is essential that all such studies comply with what are accepted ethical standards in Canada and elsewhere.

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IMPROVING COMPREHENSION OF COMPLEX MEDICAL MANAGEMENT BY INFORMATICS

RL Panton, WS Yong, BL Gallie. Toronto

Background: We have observed that effective communication of diagnosis, prognosis and treatment for a complex disease such as retinoblastoma is tied intimately to fully informed consent and optimal medical management.
Method: A retinoblastoma-specific database was designed to collect all clinical data at source. Automated scripts were generated to extract critical treatment details and time lines and in an excel worksheet create a longitudinal graph of each affected eye categorized by the tumor stage at diagnosis.
Results: The treatment course of each of 63 patients with a total of 100 affected eyes was entered into the retinoblastoma clinical database. A simple graphic projection of the treatment paths necessary for other children with the same stage of tumor will be used to communicate to parents 1) the possible treatment paths that their child may follow; and 2) an understanding of the predictive value of statistics and relative risk. These graphs might provide families with a clear rationale and warning of relapse or necessary change in therapeutic plan, depending on treatment response. The graphical display of summary data will be evaluated to determine its impact on patient understanding and levels of stress.
Conclusions: Parents of children with chronic illnesses such as retinoblastoma routinely ask when their child will be "cured". The long term, multimodality nature of treatment is hard for them to fully understand. The graphical display of treatment paths provided by the direct link of clinical data to the process of communication with parents and patients may facilitate the informed consent process and the effective delivery of treatment.

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INTEGRATED CARDIAC HOME MONITORING PROJECT

S. Roth, P. Taylor, L. Calhoun, L. King (Toronto, Canada)

WITHDRAWN

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CHILD PSYCHIATRIC CONSULTATION TO UNDERSERVICED AREAS – REPORT OF FIRST ONE HUNDRED CASES

Elsa A. Broder, MD, FRCP(C), Toronto, Nikki Martyn, MED, Toronto

There is a severe shortage of child psychiatrists across Canada, and in particular, in rural and northern areas. Beginning in the summer of 2000, the Ministry of Community and Social Services funded the Division of Child Psychiatry of the University of Toronto, to provide consultative services via interactive television to 10 sites across northern Ontario.

Clinical data will be presented in this poster on the first 100 cases seen covering the reason for consultation, who attended, DSM-1V diagnoses, age and sex distribution and recommendations made, including input around medication.
A trend appears to be emerging for sites that have a mixed mandate of both mental health and protection responsibilities, for their client/patients to be younger and more seriously disturbed.
How to be truly helpful is an issue and how to match recommendations with capabilities of the workers. Education is sorely needed with guidance on how to meet the needs of their troubled youth. Initial endeavours to respond will be described.

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TELEHEALTH PROVIDES EFFECTIVE PAEDIATRIC SURGERY CARE TO REMOTE LOCATIONS

G. Miller and K. Levesque – Saskatoon, Saskatchewan, Canada

Purpose: The aim of this study was to document the experience and patient satisfaction of providing paediatric general surgery consultations and follow-up appointments to remote locations via audiovisual telecommunications technology.
Methods: From January 2000 to April 2001 sixteen consecutive paediatric general surgery clinics were reviewed for the type of patient (new or review), the diagnosis, the adequacy and accuracy of the evaluation and the ability to formulate a plan. In the first year, first time users (patients) were requested to complete a satisfaction survey of 15 questions. Responses to 13 questions were recorded on a 4-point scale and 2 questions required a yes or no response.
Results: 118 appointments were scheduled. 20 patients cancelled. There were 45 new patient consultations. 33 patients were scheduled for surgery of which 21 are completed and 12 are pending. There were no surgery cancellations. There were 42 patients seen in 53 follow-up sessions. 36 surveys of a possible 53 were available for analysis. The mean rating of the overall treatment experience at Telehealth was 3.47 (95% confidence interval 0.17%). 100% responded they would use Telehealth again and would recommend it to another person.
Conclusions: Telehealth is an effective and acceptable way to provide Paediatric General Surgery clinics to remote locations.

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ENHANCING TELEHEALTH INITIATIVES USING A VIRTUAL CALL CENTER

S. Smith, Portland, Maine, United States

WITHDRAWN

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THE USE OF TELECARE TO INCREASE INTEGRATION ACROSS A COMPLEX AND DIVERSE HEALTH REGION

M. Stewart, Senior Operating Officer, Community Health Services and Capital Health Link, S. Letourneay, Director, Capital Health Link, Edmonton, Alberta, Canada

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