Telehealth CSCT 2002

THE 5TH ANNUAL MEETING OF THE CANADIAN SOCIETY OF TELEHEALTH

VANCOUVER

OCTOBER 3-5, 2002
SHERATON VANCOUVER WALL CENTRE HOTEL

e-Health Care:
What Constitutes Return on Investment?

CONFERENCE PROCEEDINGS

WELCOME

From the President

Dear Colleagues,

As President of the Canadian Society of Telehealth (CST) I would like to take this opportunity to invite you to attend our 5th Annual General Meeting and Conference, e-Health Care: What Constitutes Return on Investment? We have enjoyed tremendous success and growth of our annual conference over the last few years, and all indications suggest that this year will be the best one yet. The Division of Continuing Medical Education, University of British Columbia Faculty of Medicine is helping us with the organization and implementation of this year's conference.

We are very fortunate to have Ms. Linda Lizotte-McPherson, President and CEO of Canada Health Infoway Inc. giving the opening keynote address on Friday October 4th. Her presentation will focus on the vision of the Canada Health Infoway and its many implications for the Canadian Healthcare system within the theme of "Return on Investment for Telehealth", focusing not only on the return on investment of dollars and the business case, but return on investment that would occur in the broader sense of better health care and an improved delivery system.

The scientific program will contain over 60 peer-reviewed presentations with contributions covering the fields of discipline, disease, and technology related to e-health (in its broadest sense). The number of abstracts received and their breadth of topic have allowed us to select top quality papers and posters which inform the theme of 'What Constitutes Return on Investment' and support future debate by revealing the diverse nature of ROI – beyond just $$. The opening reception and the CST Gala Dinner are part of the program again this year and we have ensured that there will be ample opportunity to network and learn informally with colleagues.

I would like to thank all the sponsoring organizations for their continued support of the CST. It would be almost impossible to hold a Conference of this nature without the support provided by the industry. We will once again feature exhibitors showcasing the latest developments in technology and services – another group without whose support this meeting would not be possible.

On behalf of the CST Board of Directors, I look forward to welcoming you to the 2002 CST Annual Meeting. I encourage you to plan to take part in this exciting chapter for telehealth in Canada – the conference is a time to renew old acquaintances and to make new friends and a time to learn from colleagues across Canada and beyond.

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

From the Chair

Dear Colleagues,

As Chair of the Scientific Program Committee for this year's conference, I extend to you, on behalf of the committee, a warm welcome to the city of Vancouver and to the conference, "e-Health Care: What Constitutes Return on Investment?"

Presentations at our conference are for a broad audience, as diverse as our membership – academics, health care professionals, government, industry and special interest sectors. Each has valuable perspective and information to convey. With this in mind, we have planned an exciting and thought provoking program. We have been very fortunate to secure a wide range of talented and informative speakers from Canada and abroad who will be facilitating and presenting on relevant and stimulating topics. In response to previous conference feedback we are continuing with four interactive panel presentations, each with a different perspective on Return on Investment. Through the support of sponsorship, we will be incorporating three presentations by video-conference. The perspective of Canadian rural communities will be featured, as well as that of our colleagues in Australia.

New to the conference agenda for 2002 are the CST Pre-Conference Workshops – these small group sessions will be conducted by successful industry leaders and are designed as practical sessions. An unprecedented collection of abstract submissions will give participants an extensive exposure to a robust diversity of telehealth activities from across Canada and around the world.

Due to popular demand, the breakfast roundtables that we pioneered last year, which were oversubscribed and received tremendously positive feedback, are back this year – with more topics! In summary, this year's program promises content, in depth dialogue, networking opportunities, and an unprecedented exposure of ideas and insights from international participants.

The Sheraton Vancouver Wall Centre Hotel is an outstanding venue located in the heart of downtown Vancouver – close to both cultural and natural attractions. Nearby amenities are sure to complement your CST 2002 experience.

On behalf of the Board of Directors of the CST and the Scientific Program Committee, I trust that you will find this years conference inspiring and a positive "return on your investment"!

Sincerely,
Chris-Anne Ingram
Chair, Scientific Program Committee
Canadian Society of Telehealth

e-Health Care:
What Constitutes Return on Investment?

The Canadian Society of Telehealth (CST) is delighted to invite you to participate in it's fifth annual conference, that will take place October 3-5, 2002 in Vancouver, British Columbia. The conference will address an issue of vital and timely importance – determining what constitutes Return on Investment (ROI) by examining what 'value' e-health has for its varied stakeholders and how it differs amongst them. Clinical, academic, industry and government delegates will respond to this crucial question through a varied program which includes pre-conference workshops, panel discussions, concurrent sessions, and breakfast roundtables.

e-HealthCare – What Constitutes Return On Investment? will offer you opportunities to network and learn about recent advances in e-Healthcare. Delegates from around the world, representing all health disciplines, are welcome to attend.

The term e-Health is being adopted by many groups as an overarching term that encompasses the use of all information and communications technologies (ICTs) in supporting health and healthcare. In response to this trend, we have adopted this term within the Conference theme.

Who Should Attend This Meeting?
The most important decision-makers involved in telehealth – YOU: Healthcare practitioners in all fields, Healthcare administrators, Politicians, Private sector service providers, Industry Academics, Evaluators, and Advocacy groups.

Canadian
Society of
Telehealth

Société
Canadienne
de Télésanté

ABOUT THE SOCIETY

The Canadian Society of Telehealth (CST) is the first Canadian non-profit health association devoted to Telehealth. The organization promotes all aspects of telehealth, also termed e-Health, which is the use of information and communications technologies to deliver health care over large and small distances. The CST is proud to be the acknowledged Canadian leader in multi-disciplinary and inter-sectoral education and, discourse in telehealth. Launched in 1998, past CST conferences have attracted more than 350 delegates, and the 5th conference, in Vancouver, October 3-5, 2002, promises to be even bigger!

The vision of the CST is to be the nation's leader in the promotion of Telehealth and an advocate for its integration into the healthcare system to improve the health of all Canadians.

OUR OBJECTIVES ARE:

1. To serve as a forum for the collection, exchange and dissemination of information related to telehealth;
2. To work, cooperate, and liaise with other organizations, institutions, governments, governmental organizations, individuals, societies, and corporations involved or concerned with the development and implementation of telehealth activities, health care and health care services, and to encourage cooperation among them;
3. To assist in the education of individuals, organizations, corporations, and society with respect to telehealth;
4. To promote the advancement of telehealth opportunities and technologies, and their application for the benefit of Canadians and others;
5. To promote and encourage the use of telecommunications and related technologies in the delivery of health care and health education;
6. To promote the use of telehealth in order to improve the health care system, assist in the improvement of access to health care delivery, and to benefit the participants in the health care system;
7. To encourage telehealth research; and
8. To undertake such other activities as may be incidental and conducive to the foregoing objects and not inconsistent therewith.

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- Richard Ivey Foundation
- Hospital for Sick Children Foundation
- Healthworks TMS/GE Capital IT Solutions

Membership in the Canadian Society of Telehealth is open to individuals and organizations interested in telehealth. CST members come from a wide variety of backgrounds including clinical providers, program managers, healthcare researchers, students, institutional administrators, health informatics professionals, telehealth service consultants, government, and technology providers. For a list of membership benefits, costs and application forms please visit the CST Website at www.cst-sct.org or contact Judy Hunter at (403) 220-6488.
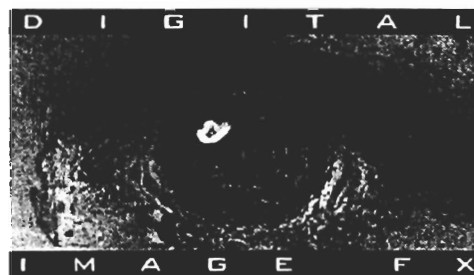
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Telephone (604) 822-2121
Fax (604) 822-5055

Martha C. Piper, Ph.D
President and Vice-Chancellor

September 19, 2002

Dear Conference Delegates:

On behalf of The University of British Columbia, I would like to welcome you to *e-Health Care: What Constitutes Return on Investment*, the fifth annual conference of the Canadian Society of Telehealth.

Information and communication technologies (ICT) have a tremendous impact on the way we approach education and clinical service delivery in health care. The University of British Columbia is committed to ICT, as is demonstrated by our Medical School's collaboration with the University of Northern British Columbia and the University of Victoria, in which ICT plays a pivotal role in facilitating the medical trainees' opportunity to absorb rural-based clinical experiences while being supervised by rural and urban health professionals.

To further act as an agent of change, ICT can bring various health professionals together to share their clinical expertise with others, provide quality and convenient continuing health education to rural and urban health professionals, and to promote a multidisciplinary team-based practice to better serve the patients and health consumers in various communities. To this end, UBC joins its provincial and national partners in having a robust e-strategy for wide bandwidth telecommunication through ORAN and CANet.

With the increasing integration of ICT into the fabric of our everyday lives, this conference offers a fine opportunity to explore the return on investment of e-healthcare strategies. The University's Faculty of Medicine is proud to host the Canadian Society of Telehealth's delegates at this important and timely gathering.

I hope you find this conference to be inspirational and thought provoking, and I wish you well in your discussions.

Yours sincerely,

Martha C. Piper

Message from Premier Gordon Campbell

On behalf of the Province of British Columbia, welcome to Vancouver and to the fifth Annual Meeting and Conference of the Canadian Telehealth Society.

The British Columbia government is keeping its commitment to build a sustainable health care system that puts patients' needs first. At the same time, we're working to build on our province's growing reputation as a world-class technology centre. These two priorities come together in the delivery of telehealth options, as we act to provide innovative solutions that deliver quality health services to British Columbians in their communities.

The challenges we face in health care today can only be addressed by advancing new solutions and encouraging innovations in service delivery. This conference provides an excellent opportunity for British Columbia to explore some of the new solutions being developed across Canada.

My thanks for your continued work on an issue of great importance for all Canadians, and my best wishes for a successful and productive conference.

Sincerely,

Gordon Campbell
Premier

Oct 5-7, 2003
The Westin Nova Scotian Hotel
Halifax, NS

DU 5 AU 7 OCTOBRE 2003
L'HÔTEL WESTIN NOVA SCOTIAN,
HALIFAX (NOUVELLE ÉCOSSE)

Watch for details coming soon to: www.cst-sct.org. *Join us on the east coast in the beautiful city of Halifax!*

CONFERENCE SECRETARIAT

The UBC Division of Continuing Medical Education is the official Conference Manager for the 2002 conference. If you have any questions or concerns please see the registration desk outside the Junior Ballroom (Exhibit Hall):

UBC Division of CME, #105-2194 Health Sciences Mall, Vancouver, BC V6T 1Z3
www.cme.med.ubc.ca Tel: 604-822-7301

About Vancouver

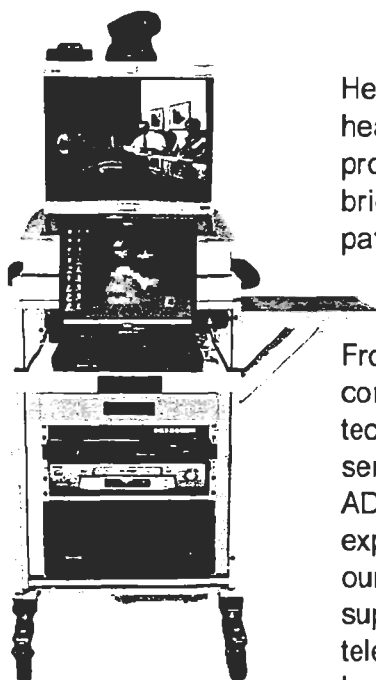Vancouver is one of the most modern cities in the world, just over 115 years old, which lies nestled between sea and mountains in the south-western corner of Canada's most westerly province, British Columbia. Its physical setting and features against a backdrop of natural wonder make it easily one of the most attractive cities in Canada. The hilly terrain it's built on and the many bridges offer beautiful views of the ocean, sheltered bays and of the city itself. The parks are numerous and large. One – Stanley Park – is the size of the downtown business area. Sandy beaches dot the shoreline and, like the towering mountains just out of the city, can be used for sports and recreation. Few cities can match Vancouver for its number and variety of interesting sights. Vancouver unites urban excitement with outdoor adventure like no other city in the world. A vast and beautiful outdoor playground that encompasses the entire gamut of natural and urban adventures. From skiing on snow-dusted mountains, to sailing, fishing, and windsurfing in one of the world's most picturesque harbours, to a night at the symphony.

Vancouver is very cosmopolitan, a meeting ground of Western and Oriental cultures with a strong west coast aboriginal culture. The port, the busiest on North America's west coast, operates all year round in the beautiful and practical natural harbour. The United States border is just 40 km to the south.

What's On!

Sports

Vancouver Canucks vs. Phoenix Coyotes, October 6th at 7 pm at General Motors Place; please visit: *www.canucks.com*

Art, and Museums

- *Gillian Wearing: A Trilogy* – July 13-October 27; *Vancouver Art Gallery*. Wearing uses photography and video to explore the intimacies and complexities of human relationships. Her work is frank and provides and unnerving portrayal of contemporary British life. Info: *604-662-4700*; please visit: *www.vanartgallery.bc.ca*
- *Paul Wong: From the Collection* – July 13-October 27; *Vancouver Art Gallery*. Paul Wong is a Vancouver multimedia artist who explores personal and cultural identity. Info: *604-662-4700*; please visit: *www.vanartgallery.bc.ca*

Theatre

- *Tony and Tina's Wedding* – January 1-ongoing ; *St. Andrew's Wesley Church & Century Plaza Hotel*. The wildest, wackiest Italian wedding you will ever experience. Thursday, Friday and Saturday nights. Tickets: *604-280-4444*
- *Yuquot, The Centre of Our World* – January 26-October 29; *Vancouver Museum*. On the west coast of Vancouver Island there is a place of immense beauty in the summer and inhospitable and violent pacific storms in the winter. This place is Yuquot, and it has been the home of the Mowachaht-Muchalaht First nations people since the

PROGRAM SUMMARY

Thursday, October 3, 2002
0900-1200 - Pre Conference Workshop *(Developing a Business Case)*..Pavilion Ballrooms AB
1300-1600 - Pre-Conference Workshop *(Building Strategic Alliances)*...Pavilion Ballrooms AB
1300-1600 - Pre Conference Workshop *(Advanced Networks for Telehealth 101:*
     How to Implement Telehealth Concepts)..Parksville
1400-1600 - CST Board Meeting *(Closed Meeting)*...Port McNeill
1600-1800 - CST Annual General Meeting *(CST Members Only)*...Pavilion Ballroom C
1800-2000 - Welcome Reception..Junior Ballroom, and Foyer

Friday, October 4, 2002
0700-0815 - Industry Breakfast...Port McNeill
0800-1900 - Exhibit Hall open..Junior Ballroom
0830-0900 - Opening Addresses...Pavilion Ballroom
0900-0930 - Key Note Speaker...Pavilion Ballroom
0930-1100 - Panel Discussion # 1: ROI: Amidst the Changing Face of Telehealth...........................Pavilion Ballroom
1100-1130 - Nutrition Break..Junior Ballroom, Junior Ballroom Foyer, and Parksville
1130-1300 - Concurrent Podium Session #1 *(Clinical Care and Disease Management - I)*...................Port McNeill
1130-1300 - Concurrent Podium Session #2 *(Outcomes and Evaluation - I)* ....Orca
1130-1300 - Concurrent Podium Session #3 *(Sustainability and Integration - I)*..Finback
1130-1300 - Concurrent Podium Session #4 *(Telehomecare - I)*...Pavilion Ballroom
1300-1400 - Lunch...Junior Ballroom, Junior Ballroom Foyer, and Parksville
1400-1530 - Panel Discussion #2: ROI: Keys to Increasing Utilization...Pavilion Ballroom
1530-1600 - Nutrition Break..Junior Ballroom, Junior Ballroom Foyer, and Parksville
1600-1730 - Concurrent Podium Session #5 *(Policy - I)*..Port McNeill
1600-1730 - Concurrent Podium Session #6 *(Return on Investment (ROI) - I)*................................Pavilion Ballroom
1600-1730 - Concurrent Podium Session #7 *(Clinical Care and Disease Management - II)*.................................Orca
1600-1730 - Concurrent Podium Session #8 *(Outcomes and Evaluation - II)*...Finback
1800-1900 - Gala Dinner Reception..Junior Ballroom
1900-2300 - Gala Dinner..Pavilion Ballroom

Saturday, October 5, 2002
0730-0830 - Breakfast Roundtable Session #1a *(Global Policy Issues)*...Port McNeill
0730-0830 - Breakfast Roundtable Session #1b *(Global Policy Issues)*...Port McNeill
0730-0830 - Breakfast Roundtable Session #2 *(Telehomecare)*...Port McNeill
0730-0830 - Breakfast Roundtable Session #3 *(Encouraging Educational and Clinical Use of Telehealth)*....Port McNeill
0730-0830 - Breakfast Roundtable Session #4 *(Communications: To IP or not to IP)*...........................Port Alberni
0730-0830 - Breakfast Roundtable Session #5 *(Discovery Analyses in Health Services-Data Mining in 2002)*..Port Alberni
0730-0830 - Breakfast Roundtable Session #6 *(Stress..Burnout..Survival Strategies for the Telehealth Professional)*.Port Alberni
0730-0830 - Breakfast Roundtable Session #7*(Searching for the Answers! Financial Sustainability*
     and Telehealth: A Telelearning Discussion)...Port Alberni
0800-1600 - Exhibit Hall open..Junior Ballroom
0845-0915 - Key Note Speaker...Pavilion Ballroom
0915-1045 - Panel Discussion #3: ROI: Global e-health - Telehealth 'in Action'.................................Pavilion Ballroom
1045-1115 - Nutrition Break..Junior Ballroom, Junior Ballroom Foyer, and Parksville
1115-1245 - Concurrent Podium Session #9 *(Sustainability and Integration - II)* ....Orca
1115-1245 - Concurrent Podium Session #10 *(e-Learning)*..Port McNeill
1115-1245 - Concurrent Podium Session #11 *(Policy - II)*...Finback
1115-1245 - Concurrent Podium Session #12 *(Return on Investment - II & Technology Development)*....Pavilion Ballroom
1245-1400 - Lunch...Junior Ballroom, Junior Ballroom Foyer, and Parksville
1400-1530 - Panel Discussion #4: Proving Value: How Do You Demonstrate ROI?........................Pavilion Ballroom
1530-1600 - Closing Ceremonies...Pavilion Ballroom

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PAVILION BALLROOM FOYER AB

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PAVILION D

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PAVILION A

KITCHEN

HORNBY STREET

CORRIDOR TO HEALTH CLUB

JUNIOR BALLROOM FOYER AB

JUNIOR BALLROOM

JUNIOR D

JUNIOR C

JUNIOR B

JUNIOR A

JUNIOR BALLROOM FOYER CD

COAT CHECK

PARKSVILLE

NORTH TOWER THIRD FLOOR

TO NORTH TOWER LOBBY

CHARTROOM

GRAND BALLROOM (BELOW VOLUNTEER SQUARE)

NELSON STREET
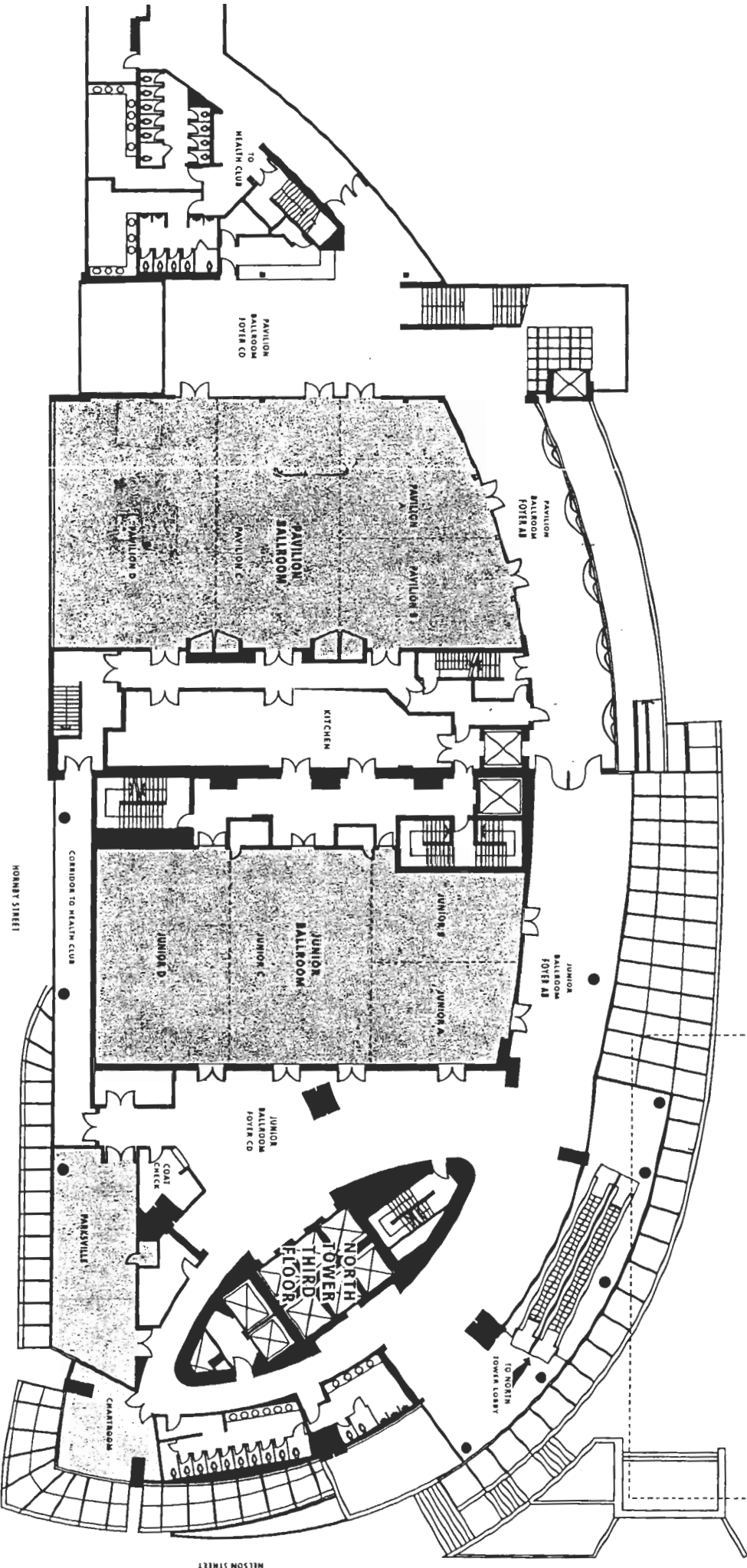
General Information

Admission Policies
Name badges are required to gain access to the scientific sessions and the 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 Foyer of the Junior Ballroom at the Sheraton Vancouver Wall Centre Hotel. The registration and information desk is open for the following hours:

Thursday October 3   *0830 to 1900*
Friday October 4   *0700 to 1900*
Saturday October 5   *0700 to 1400*

Exhibit Hall
The exhibit hall, located in the Junior Ballroom, will be open during the following hours:
Friday October 4   *0800 to 1900*
Saturday October 5   *0800 to 1600*

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.

Thursday October 3, 2002
Welcome Reception: *1800-2000*   *Junior Ballroom*
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.

Friday October 4, 2002
Industry Breakfast   *0700-0815*   *Port McNeill Room*
A special presentation from Dr. Alastair MacGregor, Shriners Hospitals for Children. Pre-registration is required. This event is SOLD OUT.

Gala Reception in the Exhibit Hall   *1800-1900*   *Junior Ballroom*
Enjoy the Fala 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   *1900-2300*   *Pavilion Ballroom*
The Sheraton Vancouver Wall Centre Hotel will be hosting this year's Annual Gala Dinner. Dr. Milton Wong will be the honoured speaker.

Saturday October 5, 2002
Breakfast Roundtable Discussions   *0730-0830*   *Port McNeill Room*
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 discussion with an expert in that area. Please note all sessions are SOLD OUT. Tickets are required for admittance.

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Telehealth ✦ 2002

EXHIBIT AND BOOTH ASSIGNMENT BY BOOTH NUMBER

Company	Booth No.
Adcom Videoconferencing	1
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HomMed	3
PathNet Services Ltd.	4
Eyelogic Systems Inc.	6
March Networks Corporation	7
Video Network Communications Inc.(VNCI)	8
AMD Telemedicine	9 & 10
Saint Elizabeth Health Care	12
Vitel Net	13
Second Opinion Software	16
McKesson Health Solutions Canada Inc	17
BC HealthGuide & BC Bedline	18
Tandberg Canada Inc.	20
Clinidata Corporation / Healthline Systems	21
Person to Person Health Systems Inc.	22
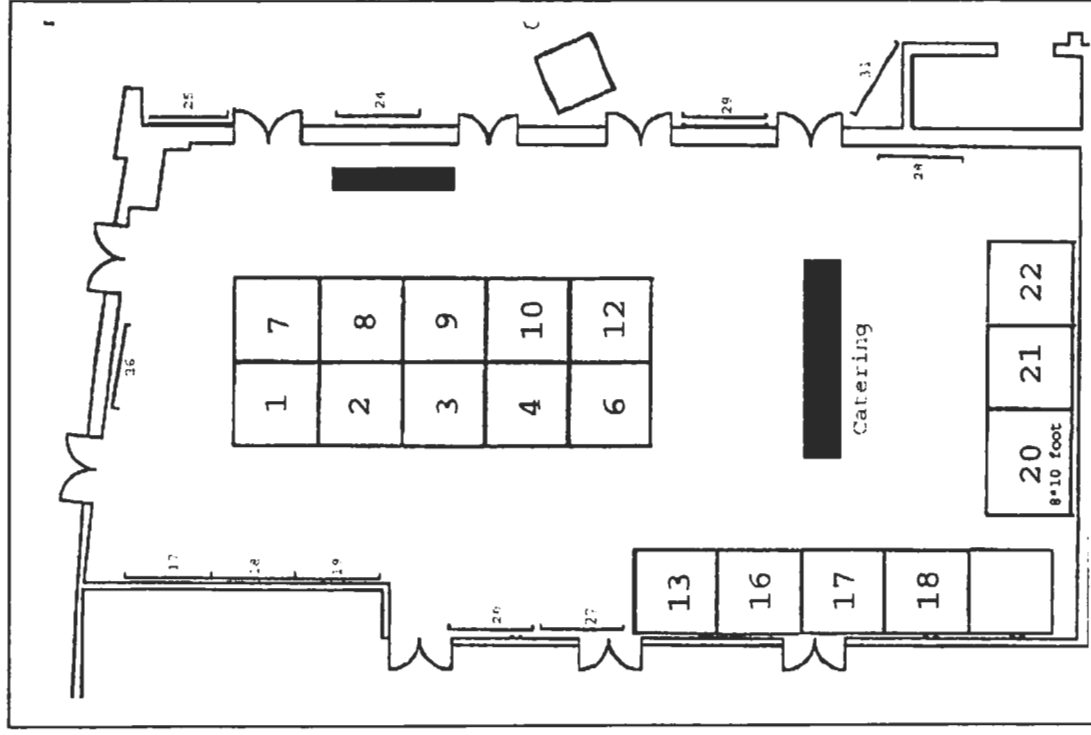
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Website: http://www.adcom.ca

AMD TELEMEDICINE

AMD Telemedicine is the worldwide leading supplier of telemedicine devices and peripherals with over 2000 installations in 40 countries. AMD has the experience and expertise to service all of your "connected" medical device needs. AMD provides complete installation and technical support, and training and repair services, worldwide.

Website : http://www.amdtelemedicine.com

BC HEALTHGUIDE PROGRAM, VICTORIA BC

The BC HealthGuide Program is an integrated self –care telehealth program for all BC residents 24/7, including the BC NurseLine, BC HealthGuide OnLine and the BC HealthGuide Handbook.

Website : http://www.bchealthguide.org

BCBEDLINE, VICTORIA, BC

The BC Bedline provides 24/7 call centre and website to enable physicians and healthcare to locate an available hospital bed and facilitate the transfer of acute and seriously ill patients to the right level of care.

Website: http://www.bcbedline.ca

CLINIDATA CORPORATION

Clinidata Corporation is Canada's leading provider of Telecare Services. Operating four health call centers, Clinidata employs over 300 Registered Nurses and provides telecare services to 15 million Canadians. Clinidata provides a comprehensive range of quality, professional telehealth services which clients can access on a 24-hour basis, in the official language of their choice, by calling a toll-free number.

Website: http://www.clinidata.com

EYELOGIC SYSTEMS INC

Presenting the ultimate in Remote Sight Testing technology, the Eyelogic System provides fully automated measurements. It eliminates operator error to provide the most accurate assessments. It produces a full-page report detailing interactions with the test subject along with statistical evaluation of the responses allowing the maximum use of geographically remote assistants.

Website : http://www.eyelogic.com

HOMMED

The HomMed Health Monitoring System collects and transmits complete patient vital sign measurements and subjective question responses to a central station via either internal modem or wireless technology for daily clinical review and assessment. Multiple, simultaneous peripheral attachments are possible. Patient data can be trended for up to six months, allowing a full care path review.

Website: http://www.hommed.com

MARCH NETWORKS OTTAWA, ONTARIO

The March Networks Home Telehealth Solution enables remote nursing visits and vital sign monitoring through the use of interactive video, voice, and data transmissions over a high-speed broadband IP network. Through prevention, early intervention, and services like health monitoring and education, clients are able to maintain their health from the comfort of their homes.

Website: http://www.marchnetworks.com/healthcare

McKESSSON HEALTH SOLUTIONS CANADA, INC

McKesson Health Solutions Canada, Inc. provides CareEnhance Services, which are outsourced call center and Web-based care management programs that deliver customer relationships and medical cost reductions. The CareEnhance suite of services includes 24 x 7 Nurse Triage, population-based Disease Management such as Asthma, Diabetes and Congestive Heart Failure, health Counseling and Online and Outbound Services. We will evaluate your needs and structure an easy-to-implement, scalable program that meets your objective and provides a safe, flexible care environment.

Website : http://www.mckesson.com

PATHNET SERVICES

PathNet is a secure Internet based system designed to consolidate medical information from separate sources, streamline data representation and act as a portal for the healthcare community.

PathNet provides diagnostic information in the right place at the right time, enhancing continuity of patient care and helping reduce laboratory utilization.

Website: http://www.pathnet.ca

PERSON TO PERSON HEALTH SYSTEMS INC

Person to Person's systems (FDA and CSA approved) allows healthcare providers to directly video visit a patient in their home and simultaneously perform multiple vital sign tests. P2P also provides a broadband wellness kiosk that has been specifically designed to support corporate wellness initiatives.

Website: http://www.p2phealthsystems.com

SECOND OPINION SOFTWARE LLC

Second Opinion Software offers a family of software/hardware products that dramatically improve information sharing within medical communities. We provide sustainable/scaleable interactive videoconferencing solutions, medical scopes and peripherals that facilitate the capture / storage of high-resolution images and clinical specialty data in a secured patient folder.

Website: http://www.2opinion.com

TANDBERG TELE-HEALTHCARE SOLUTIONS

Providing health care services in today's world includes constant pressure to increase the quality of patient care, reach new markets, provide new services and control costs. TANBERG Tele-HealthCare Solutions have aided medical professionals in increasing patient care by ensuring that they are doing what they do best.... treating patients.

Website: http://www.tandberg.net

VITEL NET

ViTel Net, an enterprise telemedicine/e-health solutions provider and systems integrator, offers a suite of scalable, customizable, Internet and wireless-based solutions. ViTel Net offers cross-platform applications... from "PACS to Pocket PC".

Website : http://www.vitelnet.com

VIDEO NETWORK COMMUNICATIONS

VNCI is a leading-edge visual networking provider helping customers in healthcare realize dramatic time and cost savings by delivering two-way, TV-quality video communications to desktops, operating rooms and doctors offices – without upgrading the infrastructure. The VNCI System combines live broadcast, multipoint videoconferencing, video-on-demand, and wide area connectivity – delivering real-time medical content.

Website: http://www.vnci.net

Telehealth 2002

EXHIBITOR LISTING (Alphabetical by Company Name)

COMPANY	BOOTH LOCATION
▶ Adcom Videoconferencing	01
▶ AMD Telemedicine	09&10
▶ BC HealthGuide & BC Bedline	18
▶ Clinidata Corporation / Healthline Systems	21
▶ Eyelogic Systems Incorporated	06
▶ HomMed	03
▶ Health Canada - Office of Health & The Information Highway	02
▶ March Networks Corporation	07
▶ McKesson Health Solutions Canada Inc.	17
▶ PathNet Services Ltd	04
▶ Person to Person	22
▶ Saint Elizabeth Health Care	12
▶ Second Opinion Software	16
▶ Tandberg Canada Inc	20
▶ Vitel Net	13
▶ Video Network Communications Inc(VNCI)	08

EXHIBITOR LISTING (Numbered by Booth Number)

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▶ Tandberg Canada Inc	20
▶ Clinidata Corporation / Healthline Systems	21
▶ Person to Person	22
▶ BC HealthGuide & BC Bedline	18

DISTINGUISHED SPEAKERS

Michael Allen, MD
Director Special Projects
Dalhousie University CME
Halifax, Nova Scotia

Carol Anderson
Principal, CA Consulting;
Telehealth Education Coordinator, Alberta Wellnet
Edmonton, Alberta

Christopher Armstrong
HIV/AIDS Policy Officer
Canadian International Development Agency
Health, Population, & Nutrition
Hull, Quebec

Barry L. Burke
Region Director Ontario Public
Cisco Systems Canada Company
Toronto, Ontario

Chuck Burt
Director, New Business Development
Ontario Enterprise Markets
Bell Canada
Kitchener, Ontario

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

Michael Calyniuk CA, CPA
Lead Partner, Technology
TICE Industry Practice Group
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Vancouver, British Columbia

Trevor Cradduck, PhD
President, The Keston Group
Edmonton, Alberta

Paul Dick, MD, FRCSC
Assistant Professor, Pediatrics, University of Toronto;
Staff, Pediatrics, The Hospital for Sick Children
Toronto, Ontario

Russell D'Souza, MD
Director & Consultant Psychiatrist
Continuing Care Psychiatry Program
Central East Area Mental Health;
Senior Research Fellow
Mental Health Research Institute, Parkville, Melbourne;
Honorary Senior Lecturer
Department of Psychological Medicine
Monash University
Melbourne, Australia

Patricia Dwyer, RN MSc (c)
Associate Director
TETRA Program
Faculty of Medicine
Memorial University of Newfoundland
St. John's, Newfoundland

Robert M. Filler, MD, FRCSC (C), O. Ont
President, Canadian Society of Telehealth
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Marilynne Hebert, PhD
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Faculty of Medicine
University of Calgary;
Program Director – Pan-Canadian PhD/Postdoc Training Program
in Health Informatics (CIHR Training Grant)
Calgary, Alberta

Kendall Ho, MD, FRCPC
Associate Dean and Director, Division of Continuing Medical Education;
Assistant Professor, Division of Emergency Medicine
The University of British Columbia
Vancouver, British Columbia

Penny Jennett, MD
Chair, Canadian Society of Telehealth International Committee;
Professor, Faculty of Medicine;
Head, Health Telematics Unit
University of Calgary
Calgary, Alberta

Phil Jennings
HNData Project Director
Information Management Group
Ministry of Health Services & Ministry of Health Planning
Province of British Columbia
Victoria, British Columbia

Harry Karlinsky, MD, MSc, FRCPC
Director, Continuing Medical Education and Professional Development
Department of Psychiatry;
Faculty Associate, Office for Faculty Development & Educational Support
Faculty of Medicine
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Vancouver, British Columbia

Linda Lizotte-MacPherson
President and Chief Executive Officer
Canada Health Infoway Inc.
Montreal, Quebec;
Toronto, Ontario

Sarah Muttitt, MD, FRCPC, FAAP, MBA
Director & Senior Telehealth Consultant
TecKnowledge Professional Services
(A Division of Adcom Videoconferencing)
Edmonton, Alberta

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Chief Executive Officer
Cogent Integrated Solutions Inc.
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Chief Information Office
Vancouver Coastal Health Authority;
Professor, Department of Medicine
The University of British Columbia
Vancouver, British Columbia

Ronald K. Poropatich, MD
Colonel, US Army;
President, American Telemedicine Association;
Senior Clinical Advisor, Clinical Applications Division
Telemedicine & Advanced Technology Research Center (USAMRMC)
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Angie Sutherland
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Inuvik, Northwest Territories

Doreen Tennant, RRT
Regional Rehabilitation Manager
Vegreville Health Unit
Lakeland Regional Health Authority
Vegreville, Alberta

Robert Vigneault
National Infostructure Manager
FNIHIS, Health Canada
Ottawa, Ontario

Linda Weaver
L.E. Weaver Consulting Inc.
Halifax, Nova Scotia

Robert K. Webster
Vice-President, Sales & Marketing
March Networks Healthcare Applications
Ottawa, Ontario

Milton K. Wong
Chancellor, Simon Fraser University;
Founding Investor, ALI Technologies;
Chairman, HBSC Asset Management Canada Ltd.;
Founder, The Laurier Institute
Vancouver, British Columbia

PROGRAM DETAILS

FRIDAY, OCTOBER 4, 2002 – MORNING SESSION

06:30 – 18:00	Registration
07:00 – 08:15	Industry Delegate Breakfast
	Speaker: Dr. Alastair MacGregor
	Associate Medical Director for
	Clinical Information Systems
	Shriners Hospitals for Children
	International Headquarters
	Tampa, Florida
	Topic: "EHR Across Jurisdictions and Time Zones – What Are The Limiting Factors in Deployment?"
08:00 – 19:00	Exhibit Hall Open
08:30 – 09:00	Welcome & Opening Ceremonies
	The Honourable Colin Hansen, Minister of Health Services,
	Province of British Columbia
	The Honourable Stephen Owen, Secretary of State
	(Western Economic diversification)
	Indian Affairs and Northern Development), Government of Canada
	Dr. Martha Piper, President and Vice-Chancellor,
	The University of British Columbia
	Dr. Robert Filler, President, Canadian Society of Telehealth
09:00 – 11:00	Keynote Speaker: Linda Lizotte-MacPherson,
	President and CEO of Canada Health Infoway Inc.
09:30 – 11:00	Panel 1: ROI: Amidst the Changing Face of Telehealth
	Moderator: Dr. Sarah Muttitt, Director & Senior Telehealth Consultant
	TecKnowledge Professional Services (A Division of ADCOM)
	Panelists: Dr. Ed Brown, N.O.R.T.H. Network
	Linda Weaver, L.E. Weaver Consulting Inc. *(Via Video-conference)*
	Michael Calyniuk, Lead Partner, Technology,
	TICE Industry Practice Group, PricewaterhouseCoopers LLP
	Barry Burke, Region Director Ontario Public Sector,
	CISCO Systems Canada
11:00 – 11:30	Nutrition Break
11:30 – 13:00	Concurrent Podium Session # 1: *Clinical Care and Disease Management - 1*
	Concurrent Podium Session # 2: *Outcomes and Evaluation - 1*
	Concurrent Podium Session # 3: *Sustainability and Integration - 1*
	Concurrent Podium Session # 4: *Telehomecare - 1*
13:00 – 14:00	Lunch – visit poster displays and exhibit hall

<u>CST Conference – Industry Breakfast</u>

OCTOBER 4, 2002   7:00 A.M. – 8:15 A.M.

Topic: **EHR across jurisdictions and time zones – what are the limiting factors in deployment?**

Speaker: *Dr. Alastair MacGregor*
Associate Medical Director for
Clinical Information Systems
Shriners Hospitals for Children
International Headquarters
Tampa, Florida.

Physician Executive, Cerner Corporation.

Sponsored by: Clinidata   *HealthLine Systems Inc.*™

Dr. Alastair MacGregor is a Physician Executive with Cerner Corporation and is also presently the Associate Medical Director of Clinical Informatics at the International Headquarters of Shriners Hospitals for Children, in Tampa Florida. Dr. MacGregor provides leadership for organizational change management, including standardization, design and implementation of clinical information systems. He is also responsible for the introduction of EHR to the 22 Shriners Hospitals throughout North America.

Dr. MacGregor was formerly a medical consultant with the British Columbia Ministry of Health, where his work included clinical practice guidelines, primary care reform models and requirements for an electronic medical record system.

He received his medical degree from the University of Glasgow and his formal medical career was in anesthesiology and family medicine. His work in Scotland included national and regional initiatives in data quality, clinical practice guidelines, electronic medical records and connectivity between clinics and hospitals.

KEYNOTE SPEAKER # 1

LINDA LIZOTTE-MACPHERSON
PRESIDENT AND CEO
CANADA HEALTH INFOWAY INC.

**AN OVERVIEW OF THE CANADA HEALTH INFOWAYS'
VISION TO FOSTER AND ACCELERATE THE DEVELOPMENT
AND ADOPTION OF ELECTRONIC HEALTH INFORMATION
WITH COMPATIBLE STANDARDS AND COMMUNICATION
TECHNOLOGIES ON A PAN-CANADIAN BASIS**

Friday, October 4, 2002

09:00 – 09:30

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Linda Lizotte-MacPherson

BIOGRAPHY

The Chief Executive Officer of the Canada Health Infoway Inc., Linda Lizotte-MacPherson has for the past nineteen years held senior executive positions in the information technology sector in both the private and public sectors. She was formerly President of Sapient Canada Inc. and AMS Management Systems Canada, Inc. As part of an executive interchange she served as the Chief Information Officer for the Government of Canada from 1998 to 2000 where she was responsible for the development and launch of its e-Services strategy, managing a $4 billion annual budget and leading a community of 12,500 IS professionals. She is the recipient of numerous awards, including the 2000 E-Commerce Leadership Award, the Distinction Award - Excellence in Management of Information Technology in the Public Service (1999), the Ottawa Carleton YWCA Women of Distinction Award (Business Category, 1999) and the 1997-98 *Who's Who Among Top Executives in North America*.

Canadian Society of Telehealth.. N O T E S

PANEL DISCUSSION # 1:
RETURN ON INVESTMENT: AMIDST THE CHANGING FACE OF TELEHEALTH

Moderator:
Dr. Sarah Muttitt, Director & Senior Telehealth Consultant, TecKnowledge Professional Services

Panelists:
Dr. Edward M. Brown, Director, N.O.R.T.H. Network, Sunnybrook and Women's College Health Sciences Center

Linda Weaver, L.E. Weaver Consulting Inc. (via Video-conference)

Michael Calyniuk, Lead Partner, Technology, TICE industry Practice Group, PricewaterhouseCoopers LLP

Barry L. Burke, Region Director Ontario Public, Cisco Systems Canada Company

Friday, October 4, 2002
09:30 – 11:00

Sarah Muttitt, MD, FRCPC, FAAP, MBA

BIOGRAPHY

Dr. Sarah Muttitt is the Director and Senior Telehealth Consultant with TecKnowledge Professional Services, a Division of ADCOM Inc. She has more than twenty years experience in the healthcare industry with a clinical background in pediatrics and neonatology and private sector experience in the development and implementation of innovative healthcare technologies. She is a University of Alberta medical school graduate, holds subspecialty certification in both Canada and the US, and completed her MBA from the Ivey Business School at the University of Western Ontario in 1999. Dr. Muttitt has been active in telehealth since 1998 when she joined TecKnowledge Healthcare Systems, establishing their Western Canadian regional sales and project office. Since that time, Dr. Muttitt has applied her clinical expertise and business management skills to the planning and implementation of more than a dozen telehealth programs across Canada and the US. She currently leads a nine-member team providing training and consulting services to support the successful integration of technology into the corporate, education and healthcare settings.

Edward M. Brown, MD

BIOGRAPHY

Dr. Edward M. Brown is a practicing emergency physician. He is the founder and Director of 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).

"Building the Case for Telehealth"

Linda Weaver

BIOGRAPHY
L.E. Weaver Consulting Inc.
Halifax, Nova Scotia

"Sustaining a Telehealth Industry" *(via Video-conferencing)*

Michael Calyniuk, CA, CPA

BIOGRAPHY
Lead Partner, Technology
TICE Industry Practice Group
PricewaterhouseCoopers LLP
Vancouver, British Columbia

"Can the Business Case for Telehealth be Improved?"

Barry L. Burke

BIOGRAPHY

Barry Burke joined Cisco Systems in August 1999 as Region Director, Ontario Public Sector, Enterprise line of business. He is responsible for government enterprise sales in Ontario, including the provincial government, provincial agencies, municipalities, education, health care, and public utilities. Prior to joining Cisco, Barry Burke spent 19 years at Nortel Networks in a variety of positions, most recently as Director Sales, for voice and data solutions. Mr. Burke has an MBA from the University of Ottawa. He is a member of ITAC, sits on advisory committees with Sheridan, Seneca, and Durham Colleges, and the Schulich School of Business at York University, and is actively engage in assisting the Public and Catholic Boards. In health care he represents Cisco as a member of COACH and works with OHA. Mr. Burke lives in Mississauga and is married with two wonderful children and has two very happy dogs. He enjoys, golf, marital arts, cottage life, and riding his custom Harley Davidson.

"The Communications Infostructure – Transition to IP and Implications"

The question is not will the communications infostructure be transitioned to IP, but when? The implication is better patient care. The value of the transition comes from the fact that a converged IP infrastructure enables applications that will allow physician, nurses, and care-givers to interact in a seamless fashion that increases their productivity. Sounds like a wish, but it indeed is becoming a reality. The starting point is Convergence of the Network foundation to merge Voice, Video, and Data onto one IP Network. This opens the door to advanced applications that enhance communications between doctors and nurses, allowing sharing of knowledge and information, mobility, improved patient safety, and quality of care. For the patient it can be critical in an emergency situation that the team be informed in real time of vital information via multimedia and varied access points to insure a positive outcome.

The presentation will explore the ROI of Convergence such as:

Lower cost of total ownership:
= lower operating cost
= lower cost of application development
= lower maintenance and distraction
= leverage of investment

Enhanced communication to create strategic improvements:
= staff productivity
= patient care
= mobility
= information sharing

Case studies of organizations that have or are implementing IP Converged Networks

The conclusion is that the faster we move to IP and Convergence the sooner the benefits to Staff and Patience can be realized. The implication is better care.

CONCURRENT PODIUM SESSION # 1:
CLINICAL CARE AND DISEASE MANAGEMENT

Friday, October 4, 2002
1130-1300

Session #	Session Title	Location
1	**Clinical Care and Disease Management – I**	**Port McNeil Room**
1.1	**JUST IN TIME SUPPORT: PHYSICIANS' PERCEPTIONS OF ON-DEMAND EMERGENCY AND TRAUMA TELECONSULTATIONS - RURAL COMMUNITY IMPACT** Ho K, Jarvis-Selinger S, Novak Lauscher H, Rhodes S, Cunningham J, Purssell R, Simons R, Taulu T, Windle C, Linton G, Parnell T, Kotlarz J, Rysavy J, Bradley C, Malhotra D. Division of Continuing Medical Education, Faculty of Medicine, University of British Columbia, #105 – 2194 Health Sciences Mall, Vancouver, B.C., Canada V6T 1Z4	
1.2	**OUTCOMES OF PAEDIATRIC CRITICAL CARE INPATIENT TELEMEDICINE CONSULTATIONS TO A RURAL ADULT INTENSIVE CARE UNIT** Dimand R, Marcin J, Kallas H, Struve S, Nesbitt T. University of California – Davis, Sacramento, CA, USA 95817	
1.3	**AN EVALUATION OF COMPREHENSIVE TELEHEALTH DISEASE MANAGEMENT PROGRAMS FOR CLIENTS WITH DIABETES** Lefebre N[1], Walsh E[2]. [1]Saint Elizabeth Health Care, 90 Allstate Parkway, Suite 300, Markham, Ontario, Canada L3R 6H3; [2]Vancouver Coastal Health Authority	
1.4	**TELEDERMATOLOGY: THE NORTH NETWORK EXPERIENCE** Lester R[1], Brown E[1], Gamer P[2], Affleck R[3], Roston B[1]. [1]NORTH Network, Sunnybrook & Women's College Health Sciences Centre, Toronto, Ontario, Canada M4N 3M5; [2]Kirkland and District Hospital; [3]Lady Minto Hospital	
1.5	**CARE CLOSER TO HOME: THE SOUTHWESTERN ONTARIO TELEHEALTH NETWORK (SWOT-N)** Lloyd S, Robinson D, MacLean N. Southwestern Ontario Telehealth Network, Westminster College, University of Western Ontario, 361 Windermere Road, London, Ontario, Canada N6G 2K3	
1.6	**CHRONIC DISEASE MANAGEMENT USING E-HEALTH PRINCIPLES** Palmer K, Reid L. Atlantic Health Sciences Corporation, PO Box 2100 400 University Avenue, Saint John, New Brunswick, Canada E2L 4L2	

JUST IN TIME SUPPORT: PHYSICIANS' PERCEPTIONS OF ON-DEMAND EMERGENCY AND TRAUMA TELECONSULTATIONS - RURAL COMMUNITY IMPACT

Ho K, Jarvis-Selinger S, Novak Lauscher H, Rhodes S, Cunningham J, Purssell R, Simons R, Taulu T, Windle C, Linton G, Parnell T, Kotlarz J, Rysavy J, Bradley C, Malhotra D. Division of Continuing Medical Education, Faculty of Medicine, University of British Columbia, #105 – 2194 Health Sciences Mall, Vancouver, B.C., Canada V6T 1Z4

Purpose: The Trauma/Emergency/CME Telemedicine project provides real-time, on demand videoconferencing for the clinical co-management of acutely ill rural patients and professional development opportunities to rural physicians and nurses. The aim of this presentation is to document the experiences of rural physicians who accessed just in time teleconsultations with emergency physicians at a large urban hospital (i.e., consultative site).
Methods: This pilot project went "live" on February 4, 2002 and will conclude September 30, 2002. The pilot was limited to two rural sites being linked to one consultative hospital. Rural physicians accessing the consultative service were interviewed post-case to gain understanding of their overall perceptions of the utility of teleconsultation in emergency settings. The semi-structured interviews were process-oriented and focused on successes, challenges, and formative feedback on the use of the system, benefits and drawbacks of videoconferencing, and overall quality of clinical advice.
Results: As of June 30th, rural physicians initiated forty-four teleconsultations. Eighteen interviews were conducted with physicians who had participated in teleconsultations that lasted longer than 20 minutes. Focusing on longer sessions facilitated rich discussion connected to system use. Preliminary content analysis revealed that on-demand videoconsultation in an emergency setting provided various benefits, including: avoiding patient transfer, availability of colleague and expert advice, and reassurance of clinical decision making.
Conclusions: Continuing data collection and analysis at the end of the pilot period will confirm the utility of teleconsultation in providing comprehensive care to patients in all areas of British Columbia through a virtual network of specialists on demand.

OUTCOMES OF PAEDIATRIC CRITICAL CARE INPATIENT TELEMEDICINE CONSULTATIONS TO A RURAL ADULT INTENSIVE CARE UNIT

Dimand R, Marcin J, Kallas H, Struve S, Nesbitt T. University of California – Davis, Sacramento, CA, USA 95817

Purpose: This study evaluates Paediatric Intensive Care Unit (PICU) based telemedicine consultations to an adult intensive care unit (ICU) on critically ill children in a rural setting. This program was designed to fill a void for rural Northern California after a solo paediatric intensivist relocated. The goal is to evaluate severity adjusted outcomes in children receiving telemedicine consults.
Methods: Telemedicine patients, all children in the ICU during the telemedicine era, and patients during the solo paediatric intensivist era (historic controls) had Paediatric Risk of Mortality III (PRISM III) scores collected 12 hours after admission. PRISM III is a highly validated database used to provide severity adjusted mortality rates and length of stay data benchmarked to 33 PICUs. A "z" score is reported that is normalised to the mean severity adjusted outcome and represents the number of standard deviations from the mean; a negative z score is a lower rate than predicted.

Results: 47 children received 70 telemedicine consults: mortality $z = -2.15$, benchmark 6-7/33; length of stay $z = -1.84$, benchmark 15-16/33. 180 total children during telemedicine era: mortality $z = -2.23$, benchmark 6-7/33; length of stay $z = -3.49$, benchmark 10-11/33. 116 historic control patients: mortality $z = -2.39$, benchmark 6-7/33; length of stay $z = -1.84$, benchmark 15-16/33.

Conclusions: This study demonstrates that a PICU based telemedicine program providing live consultation to a rural adult ICU can result in mortality and length of stay outcomes comparable to (or better than) severity adjusted national benchmark data from PICUs.

3

AN EVALUATION OF COMPREHENSIVE TELEHEALTH DISEASE MANAGEMENT PROGRAMS FOR CLIENTS WITH DIABETES

Lefebre N[1], Walsh E[2]. [1]Saint Elizabeth Health Care, 90 Allstate Parkway, Suite 300, Markham, Ontario, Canada L3R 6H3; [2]Vancouver Coastal Health Authority.

Introduction: Information and communication technologies are facilitating the rapid exchange of knowledge, and are enabling consumers to have fast, easy access to a wealth of health care information from around the world through the Internet. Advances in web based technology and the explosion of information on-line now impact the way that we deliver health education and care. This presentation will describe how two organizations are examining their return on investment as they implement and evaluate a comprehensive web based disease management (DM) program for clients with one chronic disease: diabetes. DM is 'a system of coordinated healthcare interventions and communications for populations with conditions in which patient self-care efforts are significant'.

Description: This study, originally implemented within a home health care environment, is now being conducted within an acute care out patient setting. Key informant interviews, focus group techniques and questionnaires will be used to examine this e-health application on client outcomes, quality of care, and provider and client satisfaction.

Results: The economic impact will be assessed using administrative data on length of visits and number of contacts.

Conclusion: The results to date suggest that the introduction of innovative web based technologies improve outcomes for nurses and clients while at the same time reduce costs. The knowledge obtained in this study about this use of e-health has broad application to other chronic diseases. e-Health has the potential to substantially reduce both the social, as well as the economic costs to society of chronic diseases.

4

TELEDERMATOLOGY: THE NORTH NETWORK EXPERIENCE

Lester R[1], Brown E[1], Garner P[2], Affleck R[3], Roston B[1]. [1]NORTH Network, Sunnybrook & Women's College Health Sciences Centre, Toronto, Ontario, Canada M4N 3M5; [2]Kirkland and District Hospital; [3]Lady Minto Hospital

Purpose: To review the results and experience of over 1000 teledermatology consultations.

Introduction: Since 1998, a single dermatologist has provided teleconsultations to NE Ontario. Dermatology continues to be one of the most requested specialties referred to the NORTH Network.

Methods: Patients are referred by their family physician. The family physician and/or telehealth nurse accompanies the patient during the consultation. The time allotted is dependent on the problem.

Conclusions: The range of diagnoses, gender, and age distribution is similar to that found in a routine dermatological office. A formal evaluation of 239 patient consultations was undertaken. Management advice accounted for the majority of referrals (65.6%), followed by diagnostic evaluation (19.7%), follow-up (11.5%) and other reasons (3.2%). Patients and physicians alike found the quality of the image and sound acceptable, and were usually comfortable taking part in a teleconsultation. A minority of patients preferred a more traditional visit format. Each consultation takes 30% to 50% longer than a face-to-face visit. Without telemedicine, approximately 75% of the patients would have been referred out of town and 9% would await a visiting dermatologist. The remaining patients would continue to be managed by the family physician. Almost 84% of patients were eligible for government travel grants, and of those one-third would require a travel grant for a companion. Our experience supports the growing documentation that teledermatology is an effective means of diagnosing cutaneous disease and can be delivered in an environment, which provides both high provider and patient satisfaction.

5

CARE CLOSER TO HOME: THE SOUTHWESTERN ONTARIO TELEHEALTH NETWORK (SWOT-N)

Lloyd S, Robinson D, MacLean N. Southwestern Ontario Telehealth-Network, Westminster College, University of Western Ontario, 361 Windermere Road,
London, Ontario, Canada N6G 2K3

Introduction: This presentation will outline the approach being used to introduce videoconferencing across a 40-site network within the 10 county region of Southwestern Ontario focusing on the clinical, technological and evaluative components.

Description: An IP based video conferencing network is being deployed under Health Canada's CHIPP Program to improve access to health care resources across the region. The SWOT-N project has three components: clinical, technological and evaluative. Clinically, the goals are to - increase access to tertiary consultation services for remote communities; increase access to education and support for health care professionals in under serviced areas; and, reduce travel time for clinicians and patients. Technologically, the SWOT-N is incorporating an IP based network linking the forty hospital sites within the region. The system has been developed to be user friendly for clinicians. Innovative click-to-meet © software is being used to schedule and connect videoconference users. The network integrates into the existing hospital environments allowing it to be ubiquitous within the 40 organisational structures. The evaluation component will focus on clinical outcome measures as well as on the operational efficiencies (from a patient care perspective) being realised through this initiative.

Results: The preliminary results are very positive. Clinical staff are excited and committed to using the technology across 3 clinical programs, geriatrics, renal dialysis, and oncology. These results will provide clinical outcome data within telehealth.

Conclusion: A user-friendly IP network is a sustainable solution to providing clinical consultation through video conferencing.

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CHRONIC DISEASE MANAGEMENT USING E-HEALTH PRINCIPLES

Palmer K, Reid L. Atlantic Health Sciences Corporation, PO Box 2100 / 400 University Avenue, Saint John, New Brunswick, Canada E2L 4L2

Introduction: Prior to the use of Atlantic Health Sciences Corporation's (AHSC) home grown Telehealth Modality IRIS (Integrated Real-time Imaging and data Solution), Clinical Dieticians

were required to travel by ferry and overnight stay on the remote island of Grand Manan to facilitate scheduled patient consultations the following day.

Description: IRIS was initially developed and deployed for Tele-Emergency purposes in November 2001. AHSC's travelling Dietician quickly recognised the potential resource savings for dealing with those patients less acutely ill as well.

Results: January 2002 saw the adoption of telehealth by Clinical Dieticians to increase access to and for their patients. Now, between one and seven patients are seen per week versus eight patients per month with traditional travel. Island travel has been "virtually" eliminated, as have the associated expenses.

Conclusion: Telehealth has facilitated increased productivity through more effective use of Dietician's time, particularly in the event of "no show" patients. The cost effective IP technology allows for more timely access to quality care and has visibly improved the continuum of care by increasing the frequency of appointments for this patient population.

CONCURRENT PODIUM SESSION # 2:
OUTCOMES AND EVALUATIONS - 1

Friday, October 4, 2002
1130-1300

Session #	Session Title	Location
2	**Outcomes and Evaluation – I**	**Orca Room**
2.1	**VIDEOCONFERENCE BASED GONIOMETER AND LONG TERM TELE-ASSISTED PHYSIOTHERAPY EXERCISE PROGRAM FOR HOMEBOUND SENIORS** Bernard M-M[1], Pelletier J[1], Meunier L[1], Brown S[2]. [1]PACE 2000 International Foundation, Ottawa, Canada, K1Y OT9; [2]Family Physiotherapy Centre, Ottawa, Canada K1M 7X3	
2.2	**NORTHERN ONTARIO'S TELEPHONE TRIAGE PILOT PROJECT: DESCRIPTION OF CALLERS** Hogenbirk JC, Pong RW, Lemieux S, McFarland V. Centre for Rural and Northern Health Research, Laurentian University, 935 Ramsey Lake Road, Sudbury, Ontario, Canada P3E 2C6	
2.3	**WHEN IS A PICTURE WORTH A THOUSAND WORDS?** Kaufman T. Chief Executive Officer, Second Opinion Software, 1225 West 190th Street, Suite 275, Gardena, Los Angeles, California, United States 90248	
2.4	**USING T.120 APPLICATION SHARING FOR REMOTE PROSTHETIC DEVICE CONTROL** Lemaire ED, Fawcett J, Nielen D, Smith CS[1]. Institute for Rehabilitation Research and Development, The Rehabilitation Centre, 505 Smyth Road, Ottawa, Ontario, Canada K1H 8M2; [1]Smith Prosthetics Services Ltd.	
2.5	**SCREENING FOR DIABETIC RETINOPATHY IN JAMES BAY, ONTARIO: A COST-EFFECTIVENESS ANALYSIS** Maberley DAL[1], Walker H[2], Koushik A[3], Cruess AF[2]. [1]University of British Columbia, Department of Ophthalmology, Vancouver, B.C., Canada V5Z 3N9; [2]Queen's University, Kingston, Ontario; [3]McGill University, Montreal, Quebec	
2.6	**DEVELOPING A COMPREHENSIVE FRAMEWORK TO EVALUATE TELEMEDICINE** Roston B[1], Goel V[2]. [1]NORTH Network, Sunnybrook & Women's College Health Sciences Centre, Toronto, Ontario, Canada M4N 3M5; [2]University of Toronto	

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VIDEOCONFERENCE BASED GONIOMETER AND LONG TERM TELE-ASSISTED PHYSIOTHERAPY EXERCISE PROGRAM FOR HOMEBOUND SENIORS

Bernard M-M[1], Pelletier J[1], Meunier L[1], Brown S[2]. [1]PACE 2000 International Foundation, Ottawa, Canada, K1Y OT9; [2]Family Physiotherapy Centre, Ottawa, Canada K1M 7X3

Introduction: Community care will undergo significant changes in the next two decades as a result of changing demographics and of the availability of new technologies. A Videoconference Based Goniometer (VCBG) was designed by the PACE 2000 Foundation to measure Range of Motion (ROM) via videoconferencing, thereby facilitating rehabilitation in a home setting.

Description: A pilot telephysiotherapy evaluation and follow up trial was conducted for 25 homebound seniors, aged 78 ± 6 years, using the VCBG. 22 seniors (12 women and 10 men) completed a 3 months physiotherapy exercise program and evaluation questionnaires at baseline and 3 months, of which 17 completed VCBG evaluations at baseline and 3 months.

Results: Seniors' appreciation for the physiotherapy exercise program rated: 9.1 ± 2.4 (on a scale of 0-10), for the VC connection: 7.9 ± 3.1 and 8.5 ± 1.9 for the feedback they received from the VCBG evaluations.

Conclusions: Age is no longer a limiting factor for the adoption of VC based physiotherapy evaluations and follow-up in a home setting. Affordable and customised VC stations may offset the need for institutionalised care.

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NORTHERN ONTARIO'S TELEPHONE TRIAGE PILOT PROJECT: DESCRIPTION OF CALLERS

Hogenbirk JC, Pong RW, Lemieux S, McFarland V. Centre for Rural and Northern Health Research, Laurentian University, 935 Ramsey Lake Road, Sudbury, Ontario, Canada P3E 2C6

Purpose: To describe callers to the Direct Health / TéléSanté pilot project (July 1999 - March 2001). This teletriage service was staffed by registered nurses and was available to Northern Ontario residents, 24 hours/day, 7 days/week. Callers described their symptoms to a teletriage nurse who used clinical guidelines and nursing experience to arrive at a recommendation.

Methods: The Centre for Rural and Northern Health Research mailed ~6000 questionnaires and received 44% in reply.

Results: Most calls were made from 8 a.m. to midnight, with a peak at 4-8 pm. About 92% of the calls were for advice on symptoms and the remainder were for information only. Overall, 89% of callers were female. Most callers were 17-34 years of age (50%) or 35-49 years of age (33%). Approximately 44% of callers had called for themselves. The 66% of the callers who had called on behalf of another person typically called for their child, aged 16 years or less. About 86% of callers spoke English at home (12% spoke French) and 97% spoke English during the call (3% spoke French). About 31% of the callers had a Grade 9-12 education while another 24% had completed community college, CEGEP or nursing school. Approximately 47% of callers had a total household income of $20,000 - $59,999 per year. Fifty-four percent of callers lived in cities and 28% in towns.

Conclusions: Callers tended to be predominately English-speaking, female (17-49 years old) and living in cities or towns, which differs from the population of Northern Ontario.

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WHEN IS A PICTURE WORTH A THOUSAND WORDS?

Kaufman T. Chief Executive Officer, Second Opinion Software, 1225 West 190th Street, Suite 275, Gardena, Los Angeles, California, United States 90248

Purpose: There are many different technologies available to acquire digital still images and video clips. These range from scanning in 35mm pictures (prints or slides), capturing images from video devices using capture cards, and acquiring images using digital cameras. The purpose for this presentation is to report on a study to quantify the quality and practicality of acquiring, managing, and communicating still images and video clips in today's digital world.

Methods: A variety of different technologies and instruments were used to acquire still images and video clips. The size of each uncompressed and compressed image was documented and compared. The estimated time of transmission was also documented using a variety of communication technologies.

Results: The size of images ranged from 20K to 20Megs. The transmission times ran from a few seconds to multiple hours. The quality of the images varied depending on light, optics, and the technology used.

Conclusions: The technology to use to acquire still images and video clips is not a question of quality but rather a question of practicality. The best image quality available is sometimes not practical. How the images are transmitted is just as important as the technology that is used.

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USING T.120 APPLICATION SHARING FOR REMOTE PROSTHETIC DEVICE CONTROL

Lemaire ED, Fawcett J, Nielen D, Smith CS[1]. Institute for Rehabilitation Research and Development, The Rehabilitation Centre, 505 Smyth Road, Ottawa, Ontario, Canada K1H 8M2; [1]Smith Prosthetics Services Ltd.

Introduction: Telehealth has the potential to be a valuable tool for technical and clinical support of computer controlled prosthetic devices. This pilot study examined the use of Internet-based, desktop video and data conferencing for remote configuration of the Otto Bock C-Leg (computer stand-phase controlled trans-femoral prosthesis).

Methods: Application Sharing was used to remotely run the device configuration software and live audio/video was used to evaluate effects of setting modifications. Initial tests involved connecting two computers running Microsoft NetMeeting over a local area network (IP protocol). Over 56Kbps, DSL/Cable, and 10 Mbps LAN speeds a prosthetist remotely configured a client's C-Leg by using Application Sharing, Live Video, and Live Audio. Secondary tests were conducted from Ottawa and Toronto using a 28 Kbps modem connection between a notebook computer and a desktop system.

Results: At the 28 Kbps Internet-connection speed, NetMeeting's application sharing feature was not able to update the remote software window fast enough to display dynamic peak toe loads and peak knee angles. These values are critical for proper configuration.

Conclusion: These results support the use of Application Sharing with Live-Video support as an accessible and cost-effective tool for remote assistive device configuration, provided that sufficient Internet data transfer speed is available.

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SCREENING FOR DIABETIC RETINOPATHY IN JAMES BAY, ONTARIO: A COST-EFFECTIVENESS ANALYSIS

Maberley DAL[1], Walker H[2], Koushik A[3], Cruess AF[2]. [1]University of British Columbia, Department of Ophthalmology, Vancouver, B.C., Canada V5Z 3N9; [2]Queen's University, Kingston, Ontario; [3]McGill University, Montreal, Quebec

Introduction: Diabetic retinopathy is a common complication of diabetes that occurs asymptomatically, but therapies are available for vision threatening stages. Canada's First Nation population has a higher prevalence of diabetes and is more geographically isolated than the broader Canadian population. Recently, retinal photography has emerged as a technology that may be able to replace ophthalmologist screening for this population. Photographic screening bears added expenses associated with equipment purchase, but has the potential of being operated by technicians in remote settings.

Methods: We performed a cost-effectiveness evaluation of two different diabetic retinopathy screening programs for the provision of retinal evaluations. The cohort of Cree individuals with diabetes from Western James Bay comprised the population of interest. Programs were compared on costs, visual outcomes, dollars per sight-year saved, quality-adjusted life years (QALYs), and dollars per QALY. Estimates were also made of the costs that would be associated with screening all isolated First Nations individuals with diabetes in Ontario.

Results: From the perspective of the health care system, a mobile camera system was preferable to the present ophthalmologist-based program. Sixty-seven sight years were gained over 'no program' at a cost of $3,900 per vision year and $15,000 per QALY. Generalizing these results to the province of Ontario, a mobile camera system could allow most isolated First Nations people with diabetes to be screened for 5-years for approximately 1.2 million dollars.

Interpretation: A mobile, retinal photographic camera is a cost-effective means of providing screening for diabetic retinopathy in isolated cohorts of individuals.

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DEVELOPING A COMPREHENSIVE FRAMEWORK TO EVALUATE TELEMEDICINE

Roston B[1], Goel V[2]. [1]NORTH Network, Sunnybrook & Women's College Health Sciences Centre, Toronto, Ontario, Canada M4N 3M5; [2]University of Toronto

Purpose: To address the overall objectives of the NORTH Network telemedicine program including improved access to medical specialty care for remote communities, reduced costs associated with long distance travel and decreased health professional isolation by developing a comprehensive evaluation framework that provides:

1. meaningful information on the processes and implementation of a telemedicine program,
2. a means to assess the impact of telemedicine on accessibility, health outcomes, and costs to patients, the health care system, and employers, and,
3. an understanding of the determinants of community and user acceptance of telemedicine.

Methods: Program objectives outlined in the NORTH Network Business Plan were listed and categorised under improvements to health services, health and related impacts, integration of health services, cost-effectiveness, and service delivery. Information that addressed program objectives was identified. Indicators of the required information were determined and sources of these indicators were identified. Data sources include provincial health data, user questionnaires, program software utilities, program statistics, key informant interviews, and focus groups.

Results: A multidimensional framework was developed to provide information on program objectives. The framework identifies information required to determine whether program

objectives are met, the indicators and sources of this information, and the outcome associated with each data element. Data collection is now underway.

Conclusion: This framework may provide some guidance in developing a comprehensive evaluation strategy that will lead to a better understanding of the impact of telemedicine and help to inform decisions on the role of telemedicine in the Canadian health care system.

Canadian Society of Telehealth... N O T E S

CONCURRENT PODIUM SESSION # 3:
SUSTAINABILITY AND INGEGRATION - 1

Friday, October 4, 2002
1130-1300

Session #	Session Title	Location
3	**Sustainability and Integration – I**	**Finback Room**
3.1	**DEVELOPING COUNTRIES: SOCIAL, CULTURAL, AND ECONOMIC ISSUES AND THEIR INFLUENCE ON TELEHEALTH RESEARCH** Palacios M, Scott RE. Telehealth and e-Health Research and Training Program, Health Telematics Unit, Department of Community Health Sciences, Faculty of Medicine, University of Calgary, G204 Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 1N4	
3.2	**ENGAGING THE PUBLIC IN HEALTH INFORMATICS- WHETHER, WHY, WHO, HOW, WHEN?** Paterson G[1], Marche S[2]. [1]Saskatoon District Health, 701 Queen Street, Saskatoon, SK, Canada S7K 0M7; [2]Dalhousie University	
3.3	**EAST MEETS WEST: COMPARISIONS IN TELEHEALTH** Anglin CR[1], Ryan BR[2]. [1]BC Telehealth Program Evaluation, University of Victoria, P.O. Box 3050 Victoria, British Columbia, Canada V8W 3P5. [2]Health Infostructure Atlantic, Halifax	
3.4	**BC TELEHEALTH MATERNAL-CHILD/PAEDIATRIC PALLIATIVE CARE PROGRAM – PROCESS AND IMPACT** Siden HB [1,2], Brien CJ[2], Kunic Z[2]. [1]Department of Paediatrics, University of British Columbia; [2]Children's & Women's Health Centre of British Columbia, 4500 Oak St, Vancouver, B.C., Canada V6H 3N1	
3.5	**PSYCHOSOCIAL DETERMINANTS OF TELEHEALTH ADOPTION BY PHYSICIANS OF THE QUEBEC CHILD TELEHEALTH NETWORK (RQTE)** Gagnon M-P, Godin G, Fortin J-P, Gagné C. Université Laval, Sainte-Foy, Canada G1K 7P4	
3.6	**THE ESSENCE OF TELEHEALTH READINESS IN RURAL COMMUNITIES: FACTORS AND CHALLENGES** Jennett PA[1], Jackson ATK[1], Healy T[3], Kazanjian A[2], Linn G[2], Ho K[2], Woollard R[2], Haydt SM[1], Bates J[2]. [1]Health Telematics Unit, University of Calgary, 3330 Hospital; Drive NW, Calgary AB T2N 4N1; [2]University of British Columbia; [3]University of Northern British Columbia	

Session #3 - Sustainability and Integration – I

DEVELOPING COUNTRIES: SOCIAL, CULTURAL, AND ECONOMIC ISSUES AND THEIR INFLUENCE ON TELEHEALTH RESEARCH

Palacios M, Scott RE. Telehealth and e-Health Research and Training Program, Health Telematics Unit, Department of Community Health Sciences, Faculty of Medicine, University of Calgary, G204 Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 1N4.

Introduction: The potential of telehealth in developing countries is vast, e.g. health education, training of caregivers, and expert consultation. For success it must be introduced, researched, and implemented in a culturally sensitive and aware manner. This study highlights the current lack of culturally sensitive telehealth research in developing countries.

Method: Review of the literature regarding 1) social, cultural, and economic issues, 2) research initiatives and funding, and 3) optimal uses, each related to telehealth in developing countries.

Discussion: In concert with developing countries, the International Telecommunications Union (ITU) has identified desirable telehealth activities. The literature shows significant telehealth research in developing countries, some of which is congruent with ITU recommendations. Much of the research is funded by the private sector (e.g. foundations, and the pharmaceutical and information and communications technology industry), and designed and executed by the academic sector. Such research appears driven by donor / investigator interest, rather than national priorities for health and research of the host country. In contrast to developed countries, the social (e.g. literacy), cultural (e.g. traditional medicine), and economic (e.g. per capita GDP) characteristics of developing countries suggests the current approach to telehealth research and intervention in developing countries is inappropriate. Prior research is required into the risks and benefits for the target population, and consideration of issues such as readiness, applicability, and adaptability must be considered in relation to social, cultural, and economic differences.

Conclusion: There is a need for more culturally informed, carefully implemented, and well managed telehealth research in developing countries.

ENGAGING THE PUBLIC IN HEALTH INFORMATICS- WHETHER, WHY, WHO, HOW, WHEN?

Paterson G[1], Marche S[2]. [1]Saskatoon District Health, 701 Queen Street, Saskatoon, SK, Canada S7K 0M7; [2]Dalhousie University

Introduction: Having an effective process for creating, implementing, and maintaining health information standards and systems serves the interests of everyone. A relatively small community of professionals from a variety of sectors continues to contribute significant energy in this domain; often beyond the resource commitments of the organizations in which they work. The current approach to health informatics in Canada relies heavily on what amounts to a substantial volunteer effort. It is unclear how sustainable this approach is, and how effective it can be in the medium to long term.

Description: Eventually, the public is going to have to have greater and greater interest in the general topic of the electronic health record and telehealth, if only for reasons of improving quality and access to care as well as issues related to privacy and security. The questions emerge: in what way will the public engage in the discussion; what factors might encourage such engagement; will a leading advocacy group emerge; and what will be the ultimate influence on funders and decision makers?

Results: It will be important for all involved to connect the significance of health informatics to the primary issues of interest to Canadians: quality of care, accessibility, and portability. We

believe there is a clear and genuine connection between effective health informatics and these characteristics of the health care system.

Conclusions: Given the risk and benefits of public advocacy, some thought and action by those involved in e-health and telehealth development, standards, processes and deployment is required.

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EAST MEETS WEST: COMPARISIONS IN TELEHEALTH

Anglin CR[1], Ryan BR[2]. [1]BC Telehealth Program Evaluation, University of Victoria, P.O. Box 3050 Victoria, British Columbia, Canada V8W 3P5. [2]Health Infostructure Atlantic, Halifax

The Canada Health Infostructure Partnerships Program (CHIPP) funded a number of telehealth projects across Canada. The British Columbia Telehealth Program established a multidisciplinary network of clinical, continuing education, and administrative telehealth applications to link tertiary centers to and with regional health facilities that support primary and secondary health service delivery. The total budget was approximately $9 M.

Health Infostructure Atlantic (HIA) implemented 'Tele-i4' (inter-provincial integration of images and information) across Atlantic Canada during the CHIPP time frame. This consisted of deploying specialised Picture Archiving and Communication Systems (PACS) in selected locations across Atlantic Canada. The total budget was approximately $13M. Further, networks were linked between regions and across provinces to support the usual patterns of referral and consultation across Atlantic Canada.

The two projects share important similar characteristics including similar geographic coverage; the size of the budget; the goal to support within these constraints health care in rural regions through services that span many jurisdictions; and to establish sustainable telehealth services within a very constrained time frame. They differ in other respects, such as the explicit objective of integration with other networks for HIA and the independence of the BC Telehealth program from a number of other initiatives in this province.

The speakers will describe their projects and discuss some of the challenges and lessons learned in implementing, managing and evaluating these large, complex telehealth projects. Further, they will explore some of the issues that had to be addressed to ensure that these projects are sustainable over time.

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BC TELEHEALTH MATERNAL-CHILD/PAEDIATRIC PALLIATIVE CARE PROGRAM – PROCESS AND IMPACT

Siden HB [1,2], Brien CJ[2], Kunic Z[2]. [1]Department of Paediatrics, University of British Columbia; [2]Children's & Women's Health Centre of British Columbia, 4500 Oak St, Vancouver, B.C., Canada V6H 3N1

The BC Telehealth Program is a CHIPP sponsored program implementing telehealth throughout British Columbia. It had two major components: ER/Trauma/CME and Maternal-Child Care /Paediatric Palliative Care (MCC/PPC). We describe the implementation process for the MCC/PPC applications with a focus on the Community Development, Needs Assessment, and Design processes and lessons learned.

This presentation will describe the impact of CHIPP and Ministry of Health funding on the implementation of Telehealth in British Columbia. This funding enabled a project management approach to the multi-jurisdictional delivery of new telehealth services across BC. The approach included the definition of a standardised system architecture, extensive community consultation, team development, process design, validation and refinement.

The MCC/PPC program was founded upon the existing Telehealth program at Children's & Women's Health Centre of B.C. Seven clinical applications were identified through a Community Development process. Needs Assessment and Design brought together over 100 individuals

(with a core group of 85 team members) in 12 organizations across 10 communities. Four Health Authorities were involved. This was successfully accomplished with an aggressive timeline. 104 pieces of equipment (edge devices and peripherals) and a new network were deployed.

Telehealth implementation established or expanded programs in Cardiology, Child Development and Rehabilitation, Medical Genetics, Maternal Foetal Medicine, Neonatology, Nutrition Services, Oncology and Paediatric Palliative Care. Each of these in turn developed clinical, educational and administrative applications.

The presentation will also provide updated information regarding program activity, as of September 2002, and preliminary evaluation data as available.

PSYCHOSOCIAL DETERMINANTS OF TELEHEALTH ADOPTION BY PHYSICIANS OF THE QUEBEC CHILD TELEHEALTH NETWORK (RQTE)

Gagnon M-P, Godin G, Fortin J-P, Gagné C, Université Laval, Sainte-Foy, Canada G1K 7P4.

Purpose: The implementation of a vast telehealth network in paediatric cardiology in Quebec (RQTE), with a possible expansion to multiple clinical applications, requires health professionals' involvement. In this regard, it is important to identify the psychosocial determinants that influence adoption of telehealth by physicians in order to better understand the factors enabling or constraining the integration of this technology into their daily practices.
Methods: A questionnaire has been distributed to all of the physicians working in the 32 requestor hospitals of the RQTE (n =3800) to identify the psychosocial determinants of their intention to adopt telehealth in their practice. The study is based upon Triandis' Theory of Interpersonal Behaviour (TIB), a conceptual framework particularly relevant to examine the determinants of new information and communication technologies adoption by individuals. According to the TIB, intention of physicians to adopt a new technology is defined by attitude, affect, perception of social norms, personal normative belief, habit, and factors that could facilitate or constrain utilisation of this technology.
Results and Conclusion:
A total of 501 usable questionnaires were returned (14%). The regression analysis performed has identified five psychosocial determinants of telehealth adoption: role beliefs, affect, habit, personal norm, and social norm. The total proportion of variance explained by the model was 60%. Thus, the relevance of telehealth for practice, positive feelings towards telehealth utilisation, past experience, and personal as well as social norms are highly associated with physicians' intention to adopt this new technology into their practice.

CONCURRENT PODIUM SESSION # 4:
TELEHOMECARE - 1

Friday, October 4, 2002
1130-1300

Session #	Session Title	Location
4	**Telehomecare – I**	**Pavilion Ballroom**
4.1	**CAN TELEHOMECARE PROVIDE QUALITY CARE FOR CHILDREN WITH COMPLEX CARE NEEDS?: CHILD & FAMILY OUTCOMES** Dick PT, Bennie J, Young NL, and the Tele-HomeCare Project Group. The Hospital for Sick Children, Toronto, Ontario, Canada M5G 1X8	
4.2	**GERIATRIC CARE: KEY FACTORS FOR THE SUCCESSFUL USE OF CUSTOMISED VIDEOCONFERENCING BY HOME-BOUND SENIORS** Fruhwirth M[1], Angus DE[2], Bernard M-M[1]. [1]PACE 2000 International Foundation, 80 Harmer Ave. N, Ottawa, Ontario, Canada K1Y 0T9 (Programmes for Autonomy and Communication for the Elderly); [2]School of Management, University of Ottawa	
4.3	**STAKEHOLDER READINESS FOR TELEHOMECARE: MULTIPLE VIEWS OF ROI** Hebert MA[1], Paquin MJ[2], Iversen S[1]. [1]Health Telematics Unit, University of Calgary, G204 Health Sciences Centre, 3330 Hospital Drive, NW, Calgary, Alberta, Canada T2N 1N4; [2]Care in the Community – Home Care, Calgary Health Region	
4.4	**USING TELEMEDICINE TO MANAGE HEART FAILURE PATIENTS** McKee BR. Charleston Area Medical Center Institute, 3110 MacCorkle Avenue, SE, Charleston, West Virginia, USA 25303	
4.5	**POST SURGICAL HOME MANAGEMENT BY TELEHEALTH** Siden HB[1], Young LE[2], Tredwell SJ[1], Payne CM[1]. [1]University of British Columbia, Children's & Women's Health Centre of British Columbia, Vancouver, B.C., Canada V6H 3N1; [2]University of Victoria	
4.6	**PAEDIATRIC TELEHOMECARE: IT'S VALUE IS NOT MONETARY** Young NL, Barden W, McKeever P, Dick PT and the Tele-HomeCare Project Group. The Hospital for Sick Children, Toronto, Ontario, Canada M5G 1X8	

Session #4 - Telehomecare – I

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THE ESSENCE OF TELEHEALTH READINESS IN RURAL COMMUNITIES: FACTORS AND CHALLENGES

Jennett PA[1], Bates J[2], Jackson ATK[1], Healy T[3], Kazanjian A[2], Linn G[2], Ho K[2], Woollard R[2], Haydt SM[1]. [1]Health Telematics Unit, University of Calgary, 3330 Hospital; Drive NW, Calgary AB T2N 4N1; [2]University of British Columbia; [3]University of Northern British Columbia

Introduction: Telehealth Readiness is the degree to which a community is ready to participate and succeed with telehealth implementation. This project identified the core factors of telehealth readiness in rural and remote communities. It outlined perceived risks to readiness and possible solutions.

Methodology: Four community domains were defined (public, patient, practitioner, and organizational). Sixteen key informant interviews, 2 community awareness sessions, 5 focus groups, and 2 in depth interviews were audio taped and transcribed. Data was analyzed using a qualitative phenomenological approach (Heidegger 1962). Analysis led to the construction of the "essence" of telehealth readiness for rural environments. Both program and implementation theories were used to organize the data. Perceived risks to readiness and proposed solutions were documented.

Results: Data indicate four levels, of readiness within rural settings including: Core Readiness: identification of need/dissatisfaction with status quo; Engagement: a state of questioning and risk assessment; Structural Readiness: building efficient structures/supports; and Non-readiness: lack of need/failure to recognize need. Specific details regarding levels will be discussed and examples of solutions to perceived risks will be shared.

Conclusion: This research identifies an initial typology for telehealth readiness for rural environments using a qualitative approach and theoretical framework. A number of solutions to perceived risks to readiness were proposed. Study results have strong implications for future telehealth implementation in rural areas. Providing a better understanding of telehealth readiness in rural communities may make it possible to determine the "readiness" status of communities before inappropriate telehealth investments are made.

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CAN TELEHOMECARE PROVIDE QUALITY CARE FOR CHILDREN WITH COMPLEX CARE NEEDS?: CHILD & FAMILY OUTCOMES

Dick PT, Bennie J, Young NL, and the Tele-HomeCare Project Group. The Hospital for Sick Children, Toronto, Ontario, Canada M5G 1X8

Introduction: Tele-HomeCare (THC) is an experimental service for children with complex-care needs. Following discharge from hospital, professionals from a children's hospital and community services use video-conferencing and remote monitoring to jointly care for children following discharge. But, does the child's quality of life (QOL) and function improve following discharge? Do parents of children with poorer health at discharge report lower satisfaction and worse impact on family with THC?

Methods: Over 2 years, 60 children with a variety of complex-care needs participated in THC. The child's health related QOL, functional status, and impact on family were measured prior to discharge from hospital and at weekly intervals during THC. Satisfaction with THC was measured 2 weeks after completion of THC. Changes in QOL, function, and impact on family over time will be evaluated. The effect of the child's condition, discharge QOL and function on satisfaction with THC and impact on family will also be assessed.

Results: Following completion of the trial in August, the data will be analysed. Preliminary analysis at the halfway point in 2001 indicated that mean QOL improved with discharge from hospital into THC, without adverse impact on the family.

Conclusions: Ensuring that the child's health improves with discharge from hospital to THC will complement parental reports of quality of care. This analysis will also help establish which families may benefit the most from THC, and whether there are some for whom THC may be inappropriate.

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GERIATRIC CARE: KEY FACTORS FOR THE SUCCESSFUL USE OF CUSTOMISED VIDEOCONFERENCING BY HOME-BOUND SENIORS

Fruhwirth M[1], Angus DE[2], Bernard M-M[1]. [1]PACE 2000 International Foundation, 80 Harmer Ave. N, Ottawa, Ontario, Canada K1Y 0T9 (Programmes for Autonomy and Communication for the Elderly); [2]School of Management, University of Ottawa

Introduction: Home-bound seniors are Canada's fastest growing population. Already frail seniors fall short of home care services and have fewer access to long term care institutions. The home care budget will become unmanageable by public funding unless it identifies new approaches. Since 1997, seniors in their apartments or long term care institutions in the Ottawa region, have been steadily using customised videoconferencing links to health centers, schools and various community organizations. The purpose of this presentation is to provide a five year analysis and retrospect on the key factors of success and failures, when supplying telehealth solutions to frail seniors.

Description: Various IT models were tested in 1996-1997 during three surveys (total 229 seniors) and led to the design of personal videoconferencing (VC) units with simplified access for seniors with disabilities. Since 1999, VC users have been participants of the growing "Intergenerational Virtual Village". In light of the reports of four telehealth projects and of yearly evaluations of the recreational and cross-cultural programs, we are examining the pros and cons as well as structural and cultural barriers to the VC involvement of seniors.

Results: Main prerequisites for successful videoconferencing in a geriatric population are threefold: non-intrusive, readily accessible technologies; inducing of nonverbal communication and health related support; guaranteed privacy and confidentiality.

Conclusions: In an aging population with increasing needs for home care, simplified VC for home users could become an indispensable adjunct of supportive housing and long term care services for seniors.

STAKEHOLDER READINESS FOR TELEHOMECARE: MULTIPLE VIEWS OF ROI

Hebert MA[1], Paquin MJ[2], Iversen S[1]. [1]Health Telematics Unit, University of Calgary, G204 Health Sciences Centre, 3330 Hospital Drive, NW, Calgary, Alberta, Canada T2N 1N4; [2]Care in the Community – Home Care, Calgary Health Region

Introduction: Widespread adoption of telehomecare has not occurred for a number of reasons including a "readiness to change." The introduction of telehealth technologies in improving healthcare was considered within a structure-process-outcome quality of care framework.

Methods: The objective of this 12-month case study was to determine readiness to adopt telehomecare within Calgary Health Region. A qualitative approach was used to collect data through focus groups with clients and nurses as well as telephone interviews with physicians and managers. The data were analyzed using an iterative and interpretational approach.

Results: From a structural perspective, nurses and clients were comfortable with technical reliability, while physicians were more sceptical about data "fidelity." Clients were enthusiastic about using the technology in their care process, where nurses and physicians focused more on the hands-on aspects of homecare. Managers were interested in gaining efficiencies and improving allocation of resources. Important outcome measures for clients included independence and freedom from scheduled nurses' visits, where nurses and physicians focused on measurable clinical outcomes. Managers focused on cost-effectiveness, although all groups wondered who would pay for such a service.

Conclusions: Integration of telehomecare into wider practice and sustainability may depend on synchronised readiness of a broad range of stakeholders. This has implications for implementation strategies, measures of success and perceived ROI. Study results provide insights into structural changes required as well as how potential users think about the process and outcomes of care.

Acknowledgements: Study support through the Calgary Health Region Annual Research Competition (2001) is gratefully acknowledged.

USING TELEMEDICINE TO MANAGE HEART FAILURE PATIENTS

McKee BR. Charleston Area Medical Center Institute, 3110 MacCorkle Avenue, SE, Charleston, West Virginia, USA 25303

Introduction: The primary objective of telemonitoring for heart failure (HF) patients was to reduce the cost and incidence of emergent care needs and hospitalization by daily "vital signs" monitoring and early medical intervention. Secondarily, patients' perceived quality of life before and after telemonitoring was assessed.

Methods: A networked telemonitoring information system was employed to provide daily non-invasive monitoring of vital signs (blood pressure, pulse, weight, oxygen saturation) in seven New York Heart Association Class II-III patients. The device transmits collected data to the clinic base station. Clinical staff reviews data daily, calling those participants whose vital signs exceed set parameters to make interventions as indicated. The Minnesota Living with Heart Failure Questionnaire (LHFQ) was used to assess quality of life pre- and post-monitoring.

Results: When fully utilizing 7 telemonitors in HF patients for a one-year period, overall cost savings were $34,059 ($4,866 per monitor per year). Mean annual hospitalizations and ER visits decreased by 1.6 and 3.7, respectively; whereas clinic visits increased by 3.3. This represents potential to shift care of chronically ill patients out of emergency rooms and into continuity clinics. Median LHFQ scores improved after monitoring (60 vs. 65 before).

Conclusion: Improved quality of life, cost savings, decreased hospitalizations, and more efficient use of outpatient healthcare resources were demonstrated in this pilot project.

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POST SURGICAL HOME MANAGEMENT BY TELEHEALTH

Siden HB[1], Young LE[2], Tredwell SJ[1], Payne CM[1]. [1]University of British Columbia, Children's & Women's Health Centre of British Columbia, Vancouver, B.C., Canada V6H 3N1; [2]University of Victoria.

Background: Length of hospital stay has been shortened and families face an increased burden of post-operative care following surgery. Telehealth can be used to address this issue.

Objectives: Compare two technologies, telephone and videophone, in facilitating health communications; explore these interactions from the perspectives of all participants; and combine quantitative and qualitative methods for analysis.

Methods: Patients were randomised to a telephone or videophone follow-up call that was recorded, as were interviews completed at follow-up clinic visits. Transcribed documents and family/nurse logs were imported into appropriate computer programs.

Results: 43 patients were enrolled (21/videophone, 22/telephone) including healthy patients with idiopathic scoliosis and patients with multi-handicap/complex medical conditions. Repair of idiopathic scoliosis comprised 67% of total surgeries with the majority as posterior repair. 7% of patients had a primary diagnosis of spondylolisthesis. Ages ranged from 2-17 years (median 15). Included in each arm were a small number of single parent families. Videophone use requires significantly more time than telephone use (22 minutes versus 14.5 minutes, $p < 0.03$).

Conclusions: The videophone provides a portable, easy to use system to enable communication with image; the interaction is well received; it may be very helpful in selected patients. Two unanticipated action items were identified with ongoing resolution: 1) pain management in the transition period between hospitalization and home and 2) creation of an additional nursing position to manage discharge planning and teaching.

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PAEDIATRIC TELEHOMECARE: IT'S VALUE IS NOT MONETARY

Young NL, Barden W, McKeever P, Dick PT and the Tele-HomeCare Project Group. The Hospital for Sick Children, Toronto, Ontario, Canada M5G 1X8

Background: There are unique challenges in discharging children with complex care needs from hospital. The Tele-HomeCare (THC) project is intended to support these children as they make the transition to home. This presentation describes families' and patients' experiences with THC.

Methods: Semi-structured interviews were conducted with 18 families at 3 time points: (a) prior to discharge from hospital; (b) at home while receiving THC; and (c) 2- weeks following discharge from THC. In total, 48 interviews were completed (18 pre-discharge, 17 home, and 13 post-discharge). All interviews were transcribed verbatim and subjected to qualitative analysis.

Results: Several key themes emerged. Parents frequently spoke about their anxiety and being overwhelmed both during their time in hospital and in anticipation of taking their child home. THC eased this anxiety by providing peace of mind, an increased sense of security and a "direct life-line" back to the hospital team. The children benefited from continued access to clinical specialists and "hospital-like" quality of care at home, and the social/psychological advantages of home. THC also accelerated the return to normal functional activities for other family members. The net effect of THC was described as the *re-unification of the family at home* without compromise in clinical care.

Conclusions: Tele-HomeCare successfully supports the transition to community care for children with special care needs. It enables children to have the best of both worlds: complex care by specialists and the warmth of home. THC appears to be a worthwhile return on investment for these children.

PROGRAM DETAILS

FRIDAY, OCTOBER 4, 2002 – AFTERNOON SESSION

14:00 – 14:00   Panel 2: ROI: Keys to Increasing Utilization
                        Moderator: Ryan O'Connor, CEO, Cogent Integrated Solutions Inc.
                        Panelists: Dr. Trevor Cradduck, President – The Keston Group Consulting Inc.
                                    John Schinbein, CIO, Ministry of Health Services & Ministry of Health
                                          Planning, Province of British Columbia
                                    Doreen Tennant, Regional Telehealth Coordinator
                                    Angie Sutherland, Telehealth Coordinator, Inuvik Regional Health
                                        and Social Services Board *(with Video-conference to Holman,*
                                        Northwest Territories)

1530 – 16:00   Nutrition Break

16:00 – 17:30   Concurrent Podium Session # 5: *Policy – I*
                        Concurrent Podium Session # 6: *Return on Investment (ROI) – I*
                        Concurrent Podium Session # 7: *Clinical Care and Disease Management – II*
                        Concurrent Podium Session # 8: *Outcomes and Evaluation – II*

18:00 – 19:00   Gala Dinner Reception

19:00 – 23:00   Gala Dinner

PANEL DISCUSSION # 2:
RETURN ON INVESTMENT: KEYS TO INCREASING UTILIZATION

Moderator:

Ryan O'Connor, Chief Executive Officer, Cogent Integrated
     Solutions, Inc.

Panelists:

Dr. Trevor Cradduck, President, The Keston Group,
     Alberta Wellnet

John Schinbein, Chief Information Officer,
     Ministry of Health Services & Ministry of Health Planning,
     Corporate Shared Services, Province of British Columbia

Doreen Tennant, Regional Rehabilitation Manager,
     Vegreville Health Unit, Lakeland Regional Health Authority

Angie Sutherland, Telehealth Coordinator,
     Inuvik Regional Health and Social Services Board
     (via Video-conference to Holman)

Friday, October 4, 2002
14:00 – 15:30

Ryan O'Connor

BIOGRAPHY
The founder and CEO of Cogent Integrated Solutions Inc. (*www.cogent-is.com*) is Ryan O'Connor. Ryan has a background in IT Project Management and 12 years direct clinical experience specifically relating to case management, child protection, mental health and long term care for seniors. Before founding Cogent, Ryan lead the successful development and implementation of a clinical information system across the Province of British Columbia for the provincial government. As a senior manager within the BC health care system, Ryan led the residential and community programs at a 50 bed psychiatric facility in Burnaby for several years. Ryan holds a Bachelor of Arts from Simon Fraser University and is a member of the Case Management Society of America.

Trevor Cradduck, PhD

BIOGRAPHY
Trevor Cradduck spent the greater part of his academic career as a medical physicist in nuclear medicine. He closed that career as the Chair of Nuclear Medicine for 10 years at the University of Western Ontario, London where he continues to hold a Professor Emeritus position in the Department of Diagnostic Radiology and Nuclear Medicine. Upon retiring from his hospital and university positions Trevor formed his own consulting group, The Keston Group, which comprises nineteen independent consultants in seven different countries. The focus of the five Canadian Associates of The Keston Group is in telehealth and Trevor served as Director of Telehealth for the Alberta Telehealth program from 1999 until early this year. More recently Trevor has been engaged in the development of standards for telehealth equipment and has represented the Alberta Research Council and Canada at the International Standards Organization. As well as serving on several national committees concerned with interoperability issues in telehealth, Trevor is co-chair of the NIFTE project. He also holds an Adjunct Professorship at the University of Calgary.

"Technical Interoperability: National and International Perspective"

Return on investment may be perceived to depend on a number of factors. Utilization is, perhaps, top of the list since it is a measure of the extent to which equipment is considered to provide a useful function. Sustainability in terms of continued support is another issue since, again, unless a network is deemed to be providing a return on the investment the funds for continued operation are unlikely to be forthcoming. Measures of that value are both the value to society as a whole and financial savings to both patients and health care providers.
However, none of these metrics can be applied if the equipment fails to communicate with other systems in a useful and meaningful way. It is from that premise and the fact that Alberta is a multi-vendor network that it has been desirable to ensure technical interoperability within the province. From functional requirements the Alberta Research Council has derived technical requirements which can be tested for compliance against international and industry standards. Those requirements have been accepted at the provincial level by HISCA.

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At the national level, considerable financial investment has been made by both the federal government and various provincial and local authorities under the umbrella of the CHIPP program. A committee has been established by the CHIPP program with the intent of reducing the risk of a lack of interoperability among the many projects so that they do not become "islands" of telehealth. Also at the national level there is the NIFTE project funded by the Richard Ivey Foundation to develop a framework for the development of guidelines and standards within the clinical and organizational structures of telehealth as well as the technical layer. Ultimately it is expected that much of the work being done within the NIFTE project will find its way into Canada's health care accreditation program.

At the international level, in 2000 Canada was invited by a committee of the ISO to develop technical standards for telehealth. This has resulted in the ARC acting as the lead in drawing together a group of Canadian experts for the purposes of developing several documents relating to technical requirements that are presently being reviewed and voted upon by the wider international community.

John Schinbein

BIOGRAPHY

John Schinbein has over 29 years experience in the British Columbia Health System in both clinical and management positions. Recent positions in the Ministry of Health have been as the Information Management Group's Director of Client Services and then its Executive Director. His current role is that of the Chief Information Officer for the Ministries of Health Services and Health Planning. He is the Province's representative on the Western Health information Collaborative and the National Advisory Committee for Health Infostructure as well as the co-chair of its Health Surveillance Working Group. In addition to his professional work, John has been actively involved in the academic and not for profit community for over 20 years holding positions on a number of advisory and policy committees including Dalhousie and Royal Roads Universities, the Justice Institute of British Columbia and the British Columbia Institute of Technology. He has been a management consultant as well as a clinical and management educator. John holds a Masters Degree from Royal Roads University and is a graduate of the University of Victoria.

"Increasing the use of ICTs: A CIOs Strategy"

The Health Sector in Canada is undergoing fundamental reform to deliver health services that are better and more cost-effective. The sector is vast and complex with many stakeholders, often with competing interests. Demands consistently exceed available resources. Health has been much slower than other sectors in embracing information and communications technologies to improve service delivery, increase efficiency and reduce costs.

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While technology holds significant promise to improve many aspects of health service delivery and reduce costs, it will entail considerable investment, changes to long-standing care provider work practices and addressing issues of privacy and confidentiality of personal health information. Technology has a checkered history; while there have been many successes, there have also been notable failures. In a time where healthcare is struggling to meet ever increasing public expectations, care provider shortages and spiraling system costs, investments in technology must be carefully considered and the risks managed.

Information and communication technologies can be valuable tools in the continual struggle to deliver quality services that meet the health consumers' needs in a timely and cost effective way. Some of the strategies that will increase project success and acceptance of ICTs that will be discussed are:
- alignment with the organization's strategic direction,
- driven by either a service or business need
- led by the users,
- kept small and results focused
- learn from others and avoid the bleeding edge
- actively manage the politics
- use strong project management
- continuous communication.

Doreen Tennant

BIOGRAPHY
Doreen Tennant is an experienced clinical manager within Rehabilitation Services for a period of twenty years. She has been involved in hands on clinical practices in all sectors of health care in both rural and urban communities. She is a health care professional who is committed to continuing education and the growth of her profession. She enjoys challenges and opportunities for innovative solutions to providing health care. Doreen has been involved in Telehealth in the Lakeland Regional Health Authority since 1993, till present. The Lakeland Region is a rural health region, serving a population of 100000 residents.

"Successful Implementation for Stakeholders"
The Lakeland Regional Health Authority is located in North–Eastern Alberta serving a population of 100,000 residents. The region has been instrumental in implementing a regional telehealth system to assist the organization in the delivery of health care services. The technology has greatly assisted with improved access to services for its residents, recruitment and retention of staff and the general day to day operation of the health authority business. The organization has demonstrated a "Return on Investment" in Telehealth Operations and will share how such measurements have been made.

Angie Sutherland

BIOGRAPHY

Angie Sutherland is the Telehealth Coordinator for the WestNet Telehealth Network in Inuvik, Northwest Territories, and is responsible for the coordination, implementation and ongoing support of sites in the Inuvik region. Angie has been in the North for eight years and has a background in Health Records Administration. She has been actively involved in the growth of NWT telehealth services since their initial inception in 1998 with the implementation of a project connecting three NWT sites. Angie has contributed to a steady growth in the provision of services by telehealth from a few tentative offerings four years ago to the present wide range of service delivery, which includes both health and social services, education sessions and various administrative uses. Recently, Angie has been responsible for the implementation of telehealth in Holman and Deline, two remote communities of the Inuvik region. In her presentation Angie will discuss the human face of return on investment and the importance of the commitment of local staff and the community to the growth of telehealth in remote sites. The bulk of her presentation will be a facilitated conversation with members of the Holman community discussing their initial experience with telehealth and how they see telehealth will be of use to their community in the future.

"The Human Face of Return on Investment: The Community of Holman Speaks"
(with Video-conference to Holman, Northwest Territories)

CONCURRENT PODIUM SESSION # 5:
POLICY - 1

Friday, October 4, 2002
1600-1730

Session #	Session Title	Location
5	**Policy – I**	**Port McNeil Room**
5.1	**THE DEVELOPMENT OF A NATIONAL FRAMEWORK OF GUIDELINES FOR TELEHEALTH: PROJECT OVERVIEW** Parker-Taillon D[1], Cradduck T[2], MacDonald-Rencz S[3], Pong R[4], Jennett P[5], Brockway P[6], Finley J[7]. [1]National Initiative for Telehealth Guidelines, Ottawa, Ontario, Canada K1R 7S8 ; [2]The Keston Group; [3]Canadian College of Health Service Executives; [4]Centre for Rural and Northern Health Research; [5]Health Telematics Program, University of Calgary; [6]Alberta Research Council; [7]Dalhousie University	
5.2	**A DATA MINING MODEL FOR THE MINISTRY OF HEALTH SERVICES** Jennings PH. Information Management Group, Ministry of Health Services, 1515 Blanshard St., Victoria, BC, Canada V8W 3C8	
5.3	**THE ABC'S OF TELEHEALTH: THE NORTH NETWORK TRAINING PROGRAM FOR TELEHEALTH COORDINATORS AND MEDICAL DIRECTORS** Nickoloff A, Fenton C, Sherrington L. NORTH Network, Sunnybrook and Women's College Health Sciences Centre, Toronto, Ontario, Canada M4N 3M5	
5.4	**CONVERGENCE OF STANDARDS IN TELEHEALTH AND THE ELECTRONIC HEALTH RECORD : SO MUCH TO BE DONE** Nusbaum, MH. M.H. Nusbaum & Associates Ltd., Victoria, B.C. Canada V8V 4K2.	
5.5	**POLICY AND PEER PERMISSION SYSTEM DEVELOPMENT PROJECT: DEVELOPMENT OF USER-FRIENDLY ACCESS CONTROL POLICY STATEMENTS FOR USE WITH ELECTRONIC HEALTH RECORDS** Yeo M[1], Jennett PA[1], Matson M[2], Cheung S-T[3]. [1]Health Telematics Unit, Faculty of Medicine, University of Calgary, Calgary, Alberta, Canada T2N 4N1; [2]RightsMarket Inc.; [3]University of Ottawa Heart Institute.	
5.6	**THE DEVELOPMENT OF A NATIONAL FRAMEWORK OF GUIDELINES FOR TELEHEALTH : ENVIRONMENTAL SCAN** Pong R[1], Jennett P[2], Brockway P[3], Finley J[4], Yeo M[2], Hogenbirk J[1], Bryne K[1], Szpilfogel C[4], Parker-Taillon D[5], Sherman R[5], Heath S[4]. [1]Centre for Rural and Northern Health Research, Laurentian University, Sudbury, Ontario Canada P3E 2C6; [2]Health Telematics Program, University of Calgary; [3]Alberta Research Council, Calgary; [4]Dalhousie University, Halifax; [5]National Initiative for Telehealth Guidelines, Ottawa.	

Session # 5 : Policy - I

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THE DEVELOPMENT OF A NATIONAL FRAMEWORK OF GUIDELINES FOR TELEHEALTH: PROJECT OVERVIEW

Parker-Taillon D[1], Cradduck T[2], MacDonald-Rencz S[3], Pong R[4], Jennett P[5], Brockway P[6], Finley J[7]. [1]National Initiative for Telehealth Guidelines, Ottawa, Ontario, Canada K1R 7S8 ; [2]The Keston Group; [3]Canadian College of Health Service Executives; [4]Centre for Rural and Northern Health Research; [5]Health Telematics Program, University of Calgary; [6]Alberta Research Council; [7]Dalhousie University

Purpose: The National Initiative for Telehealth (NIFTE) Guidelines is a multi-stakeholder interdisciplinary project funded by The Richard Ivey Foundation. The primary purpose is the development of a framework of national guidelines for telehealth for use in the development of standards by: regulated health professionals; telehealth provider organizations; and The Canadian Council on Health Services Accreditation (CCHSA). The project commenced in January 2002 and will take 20 months to complete. This paper provides an overview of the project organization, key activities and results to date.
Methods: In order to develop the framework of national guidelines the following key activities are in progress: development of a national interdisciplinary stakeholder network; development of a database of key telehealth stakeholders, programs, providers and technology developers; information dissemination and communication about the initiative and an environmental scan of the current status of telehealth in Canada. The environmental scan involves four research teams, assisted by the project secretariat, investigating four content areas: Organizational/ Leadership; Technology & Equipment; Clinical Standards & Outcomes; and Human Resources.
Results: The results to date include: establishment of Steering and Advisory Committees; development of a database with over 250 stakeholders; launch of a website; and completion of the environmental scan literature review. Preliminary data from the stakeholder survey will be presented in a separate paper.
Conclusions: The activities of this project will result in the development of a framework of national guidelines in telehealth.

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A DATA MINING MODEL FOR THE MINISTRY OF HEALTH SERVICES

Jennings PH. Information Management Group, Ministry of Health Services, 1515 Blanshard St., Victoria, BC, Canada V8W 3C8

Purpose: The aim of this model is to provide a starting point for the Ministry of Health Services to employ a standardised data mining approach using the newly developed HNData/BC data warehouse utility.
Methods: This model was developed as part of the Enterprise Design Phase of the HNData/BC Health Utility Project. It will be used as the approach applied during a pilot project to introduce a data mining tool and process to the Ministry of Health Services. The model was designed to identify the critical components and the supporting processes and structures that would lead to the development of operational policies and procedures to effectively employ the technique of discovery analysis within the ministry.

Results: The model includes special considerations affecting health data, draft data mining principles, recommended processes, structural components, organizational requirements, governance considerations, security approaches and roles and responsibilities of participants.
Conclusions: The author believes that the model developed is the basis of a sound and confidential approach to data mining that could become a ministry standard once validated and modified if required through the pilot project.

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THE ABC'S OF TELEHEALTH: THE NORTH NETWORK TRAINING PROGRAM FOR TELEHEALTH COORDINATORS AND MEDICAL DIRECTORS
Nickoloff A, Fenton C, Sherrington L. NORTH Network, Sunnybrook and Women's College Health Sciences Centre, Toronto, Ontario, Canada M4N 3M5

Purpose: The NORTH Network developed a training program to advise staff at each member site on the planning and implementation of their Telehealth programs and to provide both technical and professional support. A main objective of the training program was to foster the acceptance and utilization of Telehealth and associated technologies.
Description: Training included the functionality of Telehealth technologies, NORTH Network operational protocols, and clinical practice guidelines. Collaboration with the technology vendors enabled the development of a technical training program accompanied by user-friendly reference materials. The Regional Telehealth Coordinators delivered operational and clinical training at 16 sites in the network. This training consisted of 6 learning modules delivered by a variety of methods and tools including lecture, mock consultation, and the NORTH Network Telehealth Resource Manual. Regional Medical Directors educated physicians via audioconference and videoconference about medical professional issues and suggestions for integrating Telehealth into daily practice.
Results: A total of 90 Telehealth Coordinators, 32 Medical Directors, 3 Educators, 11 Administrative Assistants, 7 Information Technicians, 2 Radiology Technicians, 1 Physician, and 1 student participated in the training program. Feedback indicated the opportunity to practice with the technology during mock consultations was most helpful. A certificate of achievement was issued to each Telehealth Coordinator at the completion of the training.
Conclusion: The NORTH Network training program was well received however training needs to be ongoing. Special skill workshops and lectures are currently under development in addition to a self-directed learning package to better manage staff turnover and infrequent use of technologies.

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CONVERGENCE OF STANDARDS IN TELEHEALTH AND THE ELECTRONIC HEALTH RECORD : SO MUCH TO BE DONE
Nusbaum, MH. M.H. Nusbaum & Associates Ltd., Victoria, B.C. Canada V8V 4K2

Purpose: As "Health Infostructure" R&D funds become increasingly more available, health care leaders are growing concerned that the evolution of data, technology and policy standards are not keeping pace. This paper illustrates the need for renewed attention to the standards issues arising from the convergence of ICT's, specifically telehealth and EHR "modalities".
Methods: An expert discussion forum was convened at the CIHI Partnership conference held in June 2002, and it became apparent to the attendees that many standards issues arising from recent telehealth advances are not adequately reflected in evolving EHR standards. A synthesis of this discussion will be presented, together with recommendations for renewed efforts.
Results: This paper will outline current problems with definition overlaps, and examine a number of CHIPP projects that are currently evaluating the combined telehealth and EHR

modalities against improved care outcomes. Implications of both recording and retaining digital audio and video "data" within the EHR will also be addressed.

Conclusions: As standards bodies such as ISO, CSA, CIHI and CST examine issues pertaining to the electronic health record, it is imperative that the discussion be broadened to include new modalities introduced by telehealth applications.

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POLICY AND PEER PERMISSION SYSTEM DEVELOPMENT PROJECT: DEVELOPMENT OF USER-FRIENDLY ACCESS CONTROL POLICY STATEMENTS FOR USE WITH ELECTRONIC HEALTH RECORDS

Yeo M[1], Jennett PA[1], Matson M[2], Cheung S-T[3]. [1]Health Telematics Unit, Faculty of Medicine, University of Calgary, Calgary, Alberta, Canada T2N 4N1; [2]RightsMarket Inc.; [3]University of Ottawa Heart Institute.

Purpose: Permission granting for legitimate use is a huge usability issue and a major policy issue. The Policy and Peer Permission (PPP) system automates the authoring and interpretation of policy for granting access (permission) to Electronic Health Records (EHRs). The RightsMarket software product, RightsEnforcer, permits the protection of private files of information and control of access rights, but depends on some outside system or person to set access permission before a legitimate access is attempted. This presentation will describe the findings specific to research into automatically interpreted EHR access policy.

Methods: The methods used for the development of the user-friendly access control policies included a literature search, review of current legislation with respect to the protection of health information within Canada, review of protocols, policies, and operating procedures documents, and direct observation of the day-to-day work routines and information sharing practices at the clinical pilot site. Information from these multiple sources was synthesised.

Results: Project findings indicate that concrete principles, practicalities (i.e. how principles can be operationalised in the work place), and user-friendly policy statements are required when sharing EHRs. These elements are critical to the foundation of effective access control policy.

Conclusions: These access control policy statements will form the basis for the development of the PPP system policy database that will be utilised by the RightsMarket software product, RightsEnforcer for granting access to EHRs.

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THE DEVELOPMENT OF A NATIONAL FRAMEWORK OF GUIDELINES FOR TELEHEALTH : ENVIRONMENTAL SCAN

Pong R[1], Jennett P[2], Brockway P[3], Finley J[4], Yeo M[2], Hogenbirk J[1], Bryne K[1], Szpilfogel C[4], Parker-Taillon D[5], Sherman R[5], Heath S[4]. [1]Centre for Rural and Northern Health Research, Laurentian University, Sudbury, Ontario Canada P3E 2C6; [2]Health Telematics Program, University of Calgary; [3]Alberta Research Council, Calgary; [4]Dalhousie University, Halifax; [5]National Initiative for Telehealth Guidelines, Ottawa.

Purpose: The National Initiative for Telehealth (NIFTE) Guidelines is a multi-stakeholder interdisciplinary project funded by The Richard Ivey Foundation. The primary purpose is the development of a framework of national guidelines for telehealth for use in the development of standards by: regulated health professionals; telehealth provider organizations; and The Canadian Council on Health Services Accreditation. The project commenced in January 2002 and involves six key activities. This presentation focuses on one of the key activities, an environmental scan designed to examine the current status and potential future directions of policy and standards related to telehealth practice in Canada.

Methods: Four research teams, assisted by the project secretariat, investigated four content areas: Organizational/Leadership (organizational readiness, accountability, quality assurance, accessibility, continuity); Technology & Equipment (equipment procurement, technology security, image validity, reliability, acceptability, interoperability, scalability, safety and maintenance); Clinical Standards & Outcomes (communication, duty of care, quality of clinical care, clinical outcomes); and Human Resources (orientation, training, education, evaluation of personnel). The methods used for the environmental scan included a literature search and review and a stakeholder survey consisting of a mailed questionnaire and key informant interviews.

Results: The literature suggests a general lack of standards/ guidelines related to telehealth. Preliminary data dealing with the focal points of the four research content areas will be presented.

Conclusions: The results of this environmental scan will form the basis for the development of a framework of national guidelines in telehealth.

Canadian Society of Telehealth.. N O T E S

CONCURRENT PODIUM SESSION # 6:
RETURN ON INVESTMENT (ROI) - 1

Friday, October 4, 2002
1600-1730

Session #	Session Title	Location
6	**Return on Investment (ROI) – I**	**Pavilion Ballroom**
6.1	**TELECARE: ECONOMIC IMPACT RESULTS FROM OF A CONTROLLED CLINICAL TRIAL** Stroetmann KA[1], Stroetmann VN[1], Westerteicher CH[2]. [1]empirica Gesellschaft fue~~r~~ Kommunikations- und Technologieforschung mbH, Oxfordstr, 2. D-53111 Bonn, G~~e~~ Philips Medizinsysteme Boeblingen GmbH, Germany	
6.2	**MAKING THE TELEHEALTH BUSINESS CASE** Chisholm MR, Palmer K. Atlantic Health Sciences Corporation, PO Box 2100 / 400 University Avenue, Saint John, New Brunswick, Canada E2L 4L2,	
6.3	**A CASE FOR A TELEHEALTH BUSINESS CASE** Gebran J, Haney JR. Department of Telehealth and Simulation, Capital Health Authority, Edmonton, Alberta, Canada T5H 3V9.,	
6.4	**VALUE NETS: APPLICATIONS IN E-HEALTH** Igras E. IRIS Systems, Inc., 121 Sienna Park Bay SW, Calgary, Alberta, Canada T3H 4T1	
6.5	**MODELING e-RISK: FOR PERSISTENT SECURITY THE ROI IS TRUST** Matson M. RightsMarket Inc., 500, 700 – 4 Ave SW, Calgary, Alberta, Canada T2P 3J4	
6.6	**MANAGING A PROJECT WITH RETURN ON INVESTMENT (ROI) IN MIND: MISSION IMPOSSIBLE?** Robichaud S. Beauséjour Regional Health Authority, 330 University Avenue, Moncton, New Brunswick, Canada, E1C 2Z3	

Session # 6 : Return on Investment (ROI) - I

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TELECARE: ECONOMIC IMPACT RESULTS FROM OF A CONTROLLED CLINICAL TRIAL

Stroetmann KA[1], Stroetmann VN[1], Westerteicher CH[2]. [1]empirica Gesellschaft fuer Kommunikations- und Technologieforschung mbH, Oxfordstr, 2. D-53111 Bonn, Germany; [2] Philips Medizinsysteme Boeblingen GmbH, Germany

Purpose: Telecare is by now a technically and organisationally feasible health delivery service; the benefits for patients as well as the cost savings for the care system should be substantial. One of the aims of the TEN-HMS project is to prove that telehomemonitoring can improve the efficiency of healthcare processes.

Methods: For this prospective randomised clinical study, 428 congestive heart failure patients were selected. 19 hospitals in Germany, the Netherlands and the United Kingdom as well as local specialists are involved. One arm includes 86 patients, follow-up according to usual clinical practice; the second 173 patients supplemented by monitoring using conventional telephone contacts; and the third 169 patients supplemented, in addition, by twice daily telemonitoring of vital signs. Total duration of the study is 31 months; collection of patient data ends on July 31, 2002. For methodological reasons, only afterwards outcome data will become available (which are presently assembled by an outside specialised institute).

Results: Outcome data will be reported. Our contribution will focus on costs of care and return on investment in such a service. National cost models for treating CHF patients are applied to analyse the economic impact of telemonitoring.

Conclusions: Results are expected to have considerable implications both for future medical therapy and the economics of homecare. In October we will assess their implications for the future development of telemonitoring.

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MAKING THE TELEHEALTH BUSINESS CASE

Chisholm MR, Palmer K. Atlantic Health Sciences Corporation, PO Box 2100 / 400 University Avenue, Saint John, New Brunswick, Canada E2L 4L2

Purpose: To discuss the non traditional Return on Investment (ROI) factors that need to be considered by funding agencies in considering a business case for telehealth.

Description: Anyone with business acumen relies on an ROI calculation to support investment decisions between competing opportunities. Funding agencies in healthcare are no exception. Dollars invested in telehealth must be considered against priorities of other health services and or government departments.

Into the future, the stagnant tax base coupled with the increasing needs of the aging population will require healthcare administrators to leverage their resources to demonstrate improved return for scarce health care dollars. Telehealth provides this opportunity. For telehealth to attract investment, a funding agency must perceive a return equal to or greater than other choices.

Results: ROI calculations in healthcare may include measures beyond the traditional financial measures used in business. Healthcare often must rely partly on other measures in order to demonstrate a good return to the system. These other factors include improved quality of life, access, clinical outcomes, infrastructure and knowledge. Telehealth is an increasingly common access method. These benefits are especially evident in rural and remote settings where healthcare delivery remains a challenge.

Conclusion: Healthcare administrators must package their patient needs, clinical practice methods and telehealth infrastructure into business plans that can attract dollars. A tall challenge, but one that can be done with a look at the broader Return on Investment for stakeholders.

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A CASE FOR A TELEHEALTH BUSINESS CASE
Gebran J, Haney JR. Department of Telehealth and Simulation, Capital Health Authority, Edmonton, Alberta, Canada T5H 3V9.

Purpose: The Capital Health Telehealth Business Case Template (TBCT) was developed to provide a standardised framework for regional development of new telehealth applications. The TBCT provides healthcare leaders with a tool to measure the return on investment (ROI) of new telehealth initiatives.

Description: A Business Case Template for multi-department planning, goal setting, cost projecting, and ROI evaluation has been created by using and defining key performance indicators to facilitate telehealth applications in Capital Health.

Results: The TBCT allows departments to define how telehealth can be applied in their delivery strategy and helps set goals and objectives from which an analysis of the ROI can be completed. By matching both patient and organizational needs to program planning, critical success factors, or a minimum required ROI for the program, can be established. Additionally, the TBCT provides revenue and cost evaluation components that help policy makers prioritise and evaluate the potential ROI for a telehealth initiative. Based on the predefined outcomes and objectives, program leaders can determine how performance will be measured, and therefore monitor the projects progress and outcomes. The TBCT provides the framework for stakeholders to generate their own performance indicators that are then used to determine the value or ROI for the program itself and helps distinguish it from other alternative courses of action.

Conclusions: Developing general guidelines for an evaluation framework, will greatly enhance the quality of decision making by healthcare managers and policy makers and enable better assessment of ROI.

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VALUE NETS: APPLICATIONS IN E-HEALTH
Igras E. IRIS Systems, Inc., 121 Sienna Park Bay SW, Calgary, Alberta, Canada T3H 4T1

Purpose: Value nets have been successfully used in e-business to design business processes and create value for customers, companies, and their suppliers. The aim of this study is to examine the application of value nets in e-health and demonstrate how value nets can be used to create value for diverse stakeholder groups in the health sector.

Methods: Value nets introduce a new way of business design. This innovative framework has five elements: value proposition, scope, benefit capture, strategic control, and execution. Value nets take into account clients, organizations, and providers. They are client-aligned, collaborative and systemic, agile and scaleable, speed-focused, and digital. When applied to e-heath, specifically web-enabled information and communications technologies, they offer a new way of creating value for patients, health organizations, and health service providers.

Results: This presentation focuses on the application of value nets to web-enabled information systems / information management solutions used in the health sector. It presents value proposition of e-health applications, their scope, benefits, control elements that protect benefits over time, and execution activities aimed at linking all other elements of value nets. It also examines the level of applicability of value nets in e-health. The above are demonstrated using e-health-related use cases.

Conclusion: Value nets offer a new and pragmatic tool to design e-health services and create value for clients, health organizations, and health service providers.

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MODELING e-RISK: FOR PERSISTENT SECURITY THE ROI IS TRUST

Matson M. RightsMarket Inc., 500, 700 – 4 Ave SW, Calgary, Alberta, Canada T2P 3J4

Introduction: The new digital technologies have given information tremendous mobility. This capability promises to deliver on the promise of "the right information to the right person at the right time", but there's a stopper problem: its use greatly increases the risk of "private information to the wrong person too often". We need to understand threats and risks and how ICT technologies and architectures deal with them.

Methods: Build a model that exposes and systematises risks. Study the cost and return of counteracting technologies. In the sense of ROI, consider 'trust in the system' as a critical 'return' element.

Description: One new technology in particular, persistent security, changes the risk model significantly. Persistent security has developed in the eCommerce world of eBooks, where it protects digital books wherever they go, even under the publisher's assumption that a legitimate user wants to illegitimately copy and email it. This presentation will illustrate risk modeling in the context of the CANARIE-supported PPP (Policy and Peer Permission) project finishing 2002-12. Modeling is informed by an analysis of technical components and human actors and their interactions, undesirable harmful interventions, and observations such as: 70 to 80 percent of security breaches came from insiders; only 6% were deliberate (the Business Information Security Survey 1998, National Computing Centre, UK).

Conclusion: We do not offer a detailed risk model, but rather discuss risk modeling and how the PPP system and persistent information security address risks not commonly addressed by established technologies.

Canadian Society of Telehealth... N O T E S

CONCURRENT PODIUM SESSION # 7:
CLINICAL CARE AND DISEASE MANAGEMENT - II

Friday, October 4, 2002
1600-1730

Session #	Session Title	Location
7	**Clinical Care and Disease Management – II**	**Orca Room**
7.1	**COGNITIVE-BEHAVIORAL THERAPY EFFICACY VIA VIDEOCONFERENCING FOR SOCIAL (PUBLIC SPEAKING) ANXIETY DISORDER: SINGLE CASE DESIGN** Pelletier M-H[1], Long B[1], Stamm BH[2], Taylor S[1]. [1]University of British Columbia, Vancouver, British Columbia, Canada V6T 1Z4; [2]Idaho State University	
7.2	**TELENEONATOLOGY: TOWARDS A VIRTUAL NICU** Seshia M[1], Loewen L[2], Adair L[2]. [1]University of Manitoba, Department of Paediatrics, Health Sciences Centre, WS 012 Women's Hospital, 735 Notre Dame Ave., Winnipeg, Manitoba R3E 0L; [2]MBTelehealth, Manitoba	
7.3	**BENEFITS OF DELIVERING SPEECH THERAPY TO A POST-LARYNGECTOMY PATIENT IN A REMOTE NORTHERN COMMUNITY: CASE STUDY** Spencer T[1], Myers C[2], Loewen L[1]. [1]MBTelehealth, Rm 536 - Fifth Floor John Buhler Research Centre, 715 McDermot Ave., Winnipeg, MB, R3E 3P4; [2]St. Boniface General Hospital and Cancer Care Manitoba	
7.4	**TELE-STROKE – AN EMERGENCY TELE-HEALTH INITIATIVE** Jaigobin J[1], McLellan A[2], Waite[3]. [1]University Health Network; [2]North Bay General Hospital2; [3]NORTH Network, Sunnybrook and Women's College Health Sciences Centre, 2075 Bayview Avenue, Room E1 04, Toronto, Ontario, Canada M4N 3M5.	
7.5	**SCREENING FOR DIABETIC RETINOPATHY IN NORTHERN BRITISH COLUMBIA** Maberley DAL[1], Chang A, Jin A, Martin D[2], Pointe S[3], Steinwandt W[3]. [1]University of British Columbia, Department of Ophthalmology, UBC/VGH Eye Care Centre, Vancouver, BC, Canada V5Z 3N9; [2]Medical Services Branch, Ottawa; [3]British Columbia Chief's Health Committee	
7.6	**ISOLATION AND ACCESS: EVALUATING A FIRST NATIONS TELEPSYCHIATRY PILOT PROJECT IN REMOTE OJIBWAY AND OJI-CREE COMMUNITIES** Mckenzie O, Edye F, Keresztes C and Chase C. Keewaytinook Okimakanak Telehealth, Balmertown, Ontario, Canada P0V 1C0	

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MANAGING A PROJECT WITH RETURN ON INVESTMENT (ROI) IN MIND: MISSION IMPOSSIBLE?

Robichaud S. Beauséjour Regional Health Authority, 330 University Avenue, Moncton, New Brunswick, Canada, E1C 2Z3

Purpose: The aim of this CHIPP project is to develop an efficient, comprehensive system for screening of cervical cancer in NB to reduce the disease's incidence and mortality rates.
Methods: Although a few Canadian provinces have implemented a provincial screening program for cervical cancer, none seem to have integrated the technology infrastructure the way we did. Fifteen screening clinics were established in four participating regions and 20 nurses were trained to perform Pap tests. We created a central registry which can generate a data base allowing users to analyze useful and pertinent patient information. This registry will enable proper follow-ups for the women of NB through a recall system. We also focused on the development of an e-consultation software that packages and makes the information available to the caregivers in a telemedicine environment.
Results: A massive promotion campaign was launched to raise awareness on the importance of having a regular Pap test. As of June 28th 2002, approximately 650 Pap tests were performed in the clinics, most of which opened between January and May 2002. At this point, a comparison between the number of Pap tests done in one region this year with those of the previous year, shows a significant increase in the recruitment of women.
Conclusions: As a project manager, is it realistic to implement an infrastructure with ROI in mind? This presentation will focus on a team's experience.

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COGNITIVE-BEHAVIORAL THERAPY EFFICACY VIA VIDEOCONFERENCING FOR SOCIAL (PUBLIC SPEAKING) ANXIETY DISORDER: SINGLE CASE DESIGN

Pelletier M-H[1], Long B[1], Stamm BH[2], Taylor S[1]. [1]University of British Columbia, Vancouver, British Columbia, Canada V6T 1Z4; [2]Idaho State University

Purpose: The purpose of this study was to determine the efficacy of CBT for social anxiety when provided via videoconferencing.
Methods: A single-case replication design was employed that included a baseline period of 3 weeks, followed by 12 weeks of treatment, 1-week post-intervention period, and 3-month follow-up. Five participants completed treatment. It was hypothesised that participants would reduce their social anxiety symptoms (i.e., decrease in anxiety during speech task, increase in duration of speech task, and decrease in public speaking anxiety). Exploratory analyses of changes in self-monitored social anxiety, and negative cognitions, working alliance, client satisfaction with treatment, and client comfort with videoconferencing were also performed. Analyses included visual and statistical significance, as well as clinical significance.
Results: The results indicate that two of three hypotheses were supported (i.e., anxiety during speech task reduced and duration of speech task increased over time). At 3-month follow-up, treatment gains were maintained or improved further; 3 participants no longer met the DSM-IV-TR criteria for social anxiety disorder, and 4 participants met criteria for moderate or high level of endstate functioning. Exploratory analyses revealed that self-monitored social anxiety decreased for 3 of 5 participants, and that a decrease in negative cognitions was associated with a decrease in social anxiety. Working alliance ratings remained high throughout treatment. Satisfaction and comfort with videoconferencing decreased over treatment for the participant who did not improve.

Conclusions: The results offer preliminary support for further research about the efficacy of the intervention.

TELENEONATOLOGY: TOWARDS A VIRTUAL NICU

Seshia M[1], Loewen L[2], Adair L[2]. [1]University of Manitoba, Department of Paediatrics, Health Sciences Centre, WS 012 Women's Hospital, 735 Notre Dame Ave., Winnipeg, Manitoba R3E 0L; [2]MBTelehealth, Manitoba

Introduction: This presentation will provide a practice-based overview of the implementation of two teleneonatology links, between the Neonatal Intensive Care Nursery (NICU), Children's Hospital in Winnipeg and the newborn nursery in Thompson, Manitoba, 760 kilometres away and the NICU and the Resuscitation Room of the Women's Hospital located 400 meters away.
Description: Neonatology is a specialty in which observation plays a major contribution in the assessment. The neonatology team is a multidisciplinary group of specialised individuals including physicians, nurses and respiratory therapists. This subproject of the MBTelehealth Network provides a 24-hour a day, 7 day-a-week IP connection between these sites and these specialists. This presentation will discuss implementation issues including staff education, development of policies and protocols for each site and the triage of conflicting urgent calls. Preliminary information about utilization and lessons learned to date related to the integration of an IP based telehealth link into a direct clinical service area will be addressed.

BENEFITS OF DELIVERING SPEECH THERAPY TO A POST-LARYNGECTOMY PATIENT IN A REMOTE NORTHERN COMMUNITY: CASE STUDY

Spencer T[1], Myers C[2], Loewen L[1]. [1]MBTelehealth, Rm 536 - Fifth Floor
John Buhler Research Centre, 715 McDermot Ave., Winnipeg, MB, R3E 3P4; [2]St. Boniface General Hospital and Cancer Care Manitoba.

Introduction: Speech therapy for the post-laryngectomy patient involves repetitive coaching, practice, and positive reinforcement from a speech therapist and typically extends over several months. This presentation discusses issues related to one case where the therapy regimen was changed from monthly, in-person, appointments at a tertiary care hospital in Winnipeg, to weekly appointments over a telehealth link between Winnipeg and a community in Northern Manitoba.
Description: The presentation will identify the problems and costs, for both the patient and the local health authority, associated with traveling to Winnipeg for therapy and will outline the benefits derived from delivering the therapy to the patient in his home community via telehealth. It will also explore issues related to other speech and language services in Manitoba including licensure and optimizing the telehealth experience for these services.
Results: Delivery of speech therapy services over a telehealth network to rural communities offers benefits to providers, patients and regional health authorities.
Conclusion: While Manitoba is still in the early stages of implementing telehealth, experiences to date suggest that speech therapy services via a telehealth link have the potential to improve patient care and outcomes and to reduce costs, while maintaining the quality of the therapeutic interaction.

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TELE-STROKE – AN EMERGENCY TELE-HEALTH INITIATIVE

Jaigobin J[1], McLellan A[2], Waite [3]. [1]University Health Network; [2]North Bay General Hospital2; [3]NORTH Network, Sunnybrook and Women's College Health Sciences Centre, 2075 Bayview Avenue, Room E1 04, Toronto, Ontario, Canada M4N 3M5

Purpose: The Tele-stroke Project is an initiative of the NORTH Network and the Canadian Stroke Network with a goal to develop the clinical, telecommunications and information systems infrastructure to support the delivery of t-PA to patients presenting to the emergency department with acute ischemic stroke in three under serviced northern Ontario communities. The initiative, supported by neurologists at two Toronto Hospitals on four sites, involves an evaluative component including the implementation of the Registry of the Canadian Stroke Network as well as instruments designed to capture patient and provider satisfaction.

Methods: Tele-medicine workstations have been deployed in the Emergency Departments of three northern communities. PCs with ViaVideo cameras and software have been installed in the neurologists' homes to facilitate real time videoconferencing to assess patients. PC Workstations with DICOM compatible software have been deployed in the seven participating hospitals, as well as in neurologists' homes to facilitate CT image access remotely. Clinical protocols and training material have been developed to support the project. Laptops equipped with the Registry of the Canadian Stroke Network database have been distributed to the three northern sites for data capture and transfer to the Institute for Clinical Evaluative Sciences (ICES) in Toronto.

Results: Project launch for the first northern site is scheduled for mid-July. Remaining sites to follow in the fall.

Conclusion: Developing the appropriate infrastructure and ensuring local buy-in have been critical to the deployment of this project. If successful, this model for providing specialist care to under-serviced regions, may be expanded to other communities.

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Screening for Diabetic Retinopathy in Northern British Columbia

Authors: Maberley DAL[1], Chang A, Jin A, Martin D[2], Pointe S[3], Steinwandt W[3] [1]University of British Columbia, Department of Ophthalmology, [2]Vancouver, B.C., Medical Services Branch, Ottawa, [3]British Columbia Chief's Health Committee

Introduction: Canada's First Nation population has a higher prevalence of diabetes and is more geographically isolated than the broader Canadian population. Diabetic retinopathy is a common complication of diabetes that is screened for by eye-care specialists. Recently, retinal photography has emerged as a technology that may be able to replace ophthalmologist screening. A pilot project was undertaken to photographically evaluate the retinal status of First Nations individuals with diabetes on reserve in Northern British Columbia

Methods: Using a mobile non-mydriatic camera and basic eye examination techniques, 8 isolated communities were visited by trained technicians for the taking of retinal photographs. Images were subsequently transmitted to the University of British Columbia's Eye Care Centre where they were evaluated. Eye examination reports were returned to primary care and local eye care providers. Subjects also completed an extensive questionnaire that evaluated their visual function and experience during the evaluation process. Local primary care providers were asked to appraise the usefulness of the retinal reports.

Results: As of June 2002, over 200 individuals had been evaluated. Less that 5% of all subjects had retinal images that were of poor quality. No cases of untreated, advanced retinopathy were noted, but a 15% prevalence of moderate retinopathy was detected. In 5%, the retinal camera diagnosed other potentially blinding ocular conditions. A high degree of patient acceptance of this form of imaging was reported.

Interpretation: Retinal photography was determined to be an acceptable method (for physicians and patients) for providing screening for diabetic retinopathy in isolated settings.

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ISOLATION AND ACCESS: EVALUATING A FIRST NATIONS TELEPSYCHIATRY PILOT PROJECT IN REMOTE OJIBWAY AND OJI-CREE COMMUNITIES

Mckenzie O, Edye F, Keresztes C and Chase C. Keewaytinook Okimakanak Telehealth, Balmertown, Ontario, Canada P0V 1C0

Purpose: The purpose of the evaluation was to assess the clinical acceptance and cost effectiveness of telepsychiatric services in remote First Nations settings. It evaluates the implementation and the results of the pilot project in order to support the future planning, operation and development of telemental health services in similar settings.

Methods: Keewaytinook Okimakanak Health Services undertook a telepsychiatry pilot project from April 2002 through March, 2001. The evaluation used naturalistic and participatory approaches. Data was drawn from personal experiences and the research framework was developed collaboratively with Keewaytinook Okimakanak Health Services, project and community staff.

Results: The evaluation was formative in assessing the design and implementation of telemental health services to assist its future adjustment and refinement. The evaluation also provides summative measures in assessing cost effectiveness as well as short and intermediate effects of the telepsychiatry service on health outcomes and on the organization of mental health care service delivery. Both clients and health care providers liked the service and wanted more of it. Overall health care providers saw the pilot project as beneficial to clients, to the organization of health service delivery and to communities. In addition, the pilot project evaluation showed that an on-going telepsychiatry program could introduce significant economies and benefits.

Conclusions: The evaluation recommends the continuation of telemental health services to meet the high demand in remote First Nations communities. Similarly, the authors propose technical and clinical process refinements to guide a broader implementation of telepsychiatric services in remote First Nations.

CONCURRENT PODIUM SESSION # 8:
OUTCOMES AND EVALUATION - II

Friday, October 4, 2002
1600-1730

Session #	Session Title	Location
8	**Outcomes and Evaluation – II**	**Finback Room**
8.1	**PATIENT ATTITUDES TOWARD DIGITAL VIDEO RECORDS OF ENDOSCOPIC PROCEDURES** Rossos PG[1], Salenieks ME, Seto E[1], Cafazzo JA[1], Moser J[1], Neto C, King S. Centre for Global eHealth Innovation, 190 Elizabeth Street, RFE 4-408, Toronto, Ontario, Canada M5G 2C4; [1]Medical Device Inform	
8.2	**USING CASE STUDY METHODS TO EVALUATE E-HEALTH** Siedlecki B, Jennett P, Graham R[1]. Health Telematics Unit, University of Calgary, Department of Community Health Sciences, G204 Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta T2N 4N1; [1]Malloch Graham + Associates [Acknowledgements: Dr. Paula Pasquali, Joy Kajiwara],	
8.3	**HEALTH INFOSTRUCTURE ATLANTIC – LESSONS LEARNED FOR TELEHEALTH EVALUATION** Ryan B[1], Kerr D. Sierra Systems Consulting, CIBC Building, Suite 1004, 1809 Barrington St. Halifax, Nova Scotia, Canada B3J 3K8; [1]Health Infostructure Atlantic	
8.4	**HEALTH INFOSTRUCTURE ATLANTIC: CHALLENGES WITH INTEROPERABILITY** Ryan BR. Health Infostructure Atlantic, P.O. Box 488, Halifax, Nova Scotia, Canada B3J 2R8	
8.5	**IDENTIFYING TELEHEALTH/E-HEALTH SOCIO-ECONOMIC INDICATORS FOR PRIORITY HEALTH AREAS MEETING THE NEEDS OF SCIENCE AND POLICY** Jennett PA[1], Thomas R [2], Ohinmaa A [3], Anderson C [4], Hailey D [3], Scott R[1] [1]Health Telematics Unit, University of Calgary, 3330 Hospital; Drive NW, Calgary AB T2N 4N1, [2]University of Calgary, [3]University of Alberta, [4]Alberta Wellnet, Wetaskiwin	
8.6	**THE DEVELOPMENT, IMPLEMENTATION AND EVALUATION OF A COMPREHENSIVE POSTPARTUM TELEHOMECARE PROGRAM** Ray K[1,2], Young W[1,2,3], Earle J[1], Finkel A[1]. [1] Saint Elizabeth Health Care, 90 Allstate Parkway, Suite 300, Markham Ontario, Canada L3R 6H3; [2]University of Toronto; [3]Institute for Clinical Evaluative Sciences	

Session # 8 : Outcomes and Evaluation - II

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PATIENT ATTITUDES TOWARD DIGITAL VIDEO RECORDS OF ENDOSCOPIC PROCEDURES

Rossos PG[1], Salenieks ME, Seto E[1], Cafazzo JA[1], Moser J[1], Neto C, King S. Centre for Global eHealth Innovation, 190 Elizabeth Street, RFE 4-408, Toronto, Ontario, Canada M5G 2C4; [1]Medical Device Informatics

Introduction: Endoscopic and surgical procedures are recorded with increasing frequency. Declining costs of digital storage and retrieval, and improved data compression, permit integration into an electronic patient record. A survey was undertaken of patients having endoscopic procedures. The goal was to develop an understanding of the level of patient acceptance and comfort, among our culturally diverse population, with the video recording and storage of endoscopic procedures.

Methods: A convenience sample survey of 107 patients between two teaching hospital sites. The survey was designed using selected questions from the e1000 survey, Centre for Global eHealth Innovation.

Results:
- Acceptance of digital video records as a part of the patient chart was high (77 %), 15 % did not know if it should be part of the record and 8 % did not think it should be
- Acceptance of using video records for research and education was 56 % and 57 % respectively; a further 42 % and 40 % felt records should only be used with ethics or patient approval
- 72 % agreed that video recordings could improve care
- Acceptance did not differ significantly with degree of computer use, age, gender, income, education, country of birth or first language spoken

Conclusions: These findings have positive implications for efforts to be culturally sensitive and patient centred as technology advances medical care, education and research. Further research should explore systematically the importance of socio-economic variables, self- perception of morbidity and disease-coping behaviours in patients' high acceptance of electronic patient records.

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USING CASE STUDY METHODS TO EVALUATE E-HEALTH

Siedlecki B, Jennett P, Graham R[1]. Health Telematics Unit, University of Calgary, Department of Community Health Sciences, G204 Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta T2N 4N1; [1]Malloch Graham + Associates [Acknowledgements: Dr. Paula Pasquali, Joy Kajiwara]

Introduction: As applications of e-health become increasingly complex and integrated into health care delivery systems, it is necessary to explore new ways of evaluating this complexity. E-health applications are increasingly being offered not as pilot projects, but rather as systemic additions to health care systems. In Canada, a number of such efforts are being undertaken at regional and provincial levels. Such implementations are expected to be integrated into the existing health care systems and function as sustainable components of health care delivery. Qualitative methods can augment the quantitative examination of long term, policy, and unexpected outcomes of e-health implementations. Case studies provide a framework for the use of diverse methodologies in the context of a single study.

Description: This presentation will concisely outline the case study methodology and report on its utility as a research approach to examining the impact of using e-health. Units of analysis within such studies represent stakeholder groups within communities. Case studies can be used

to evaluate all aspects of such implementations and to inform the development of policy related to new applications or expansion of existing applications.

Results: The use of case studies in this context is novel. Case study methodology adds a valuable and flexible tool to the arsenal of evaluation tools available to e-health evaluators. Examples of its application in the context of an evaluation of the Yukon Telehealth Network will be provided.

Conclusion: Case study methodologies are powerful tools for evaluating complex and integrated e-health implementations.

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HEALTH INFOSTRUCTURE ATLANTIC – LESSONS LEARNED FOR TELEHEALTH EVALUATION

Ryan B[1], Kerr D. Sierra Systems Consulting, CIBC Building, Suite 1004, 1809 Barrington St. Halifax, Nova Scotia, Canada B3J 3K8; [1]Health Infostructure Atlantic

Health Infostructure Atlantic (HIA) received $12 million in funding from the Canada Health Infostructure Partnerships Program (CHIPP) to implement the HIA Project Portfolio. The HIA Project Portfolio consists of three initiatives: Common Client Registry, Case Management and Tele-i4 (inter-provincial integration of images and information).   The $12 million CHIPP award was matched with over $12 million of Atlantic Canada funding for a total budget in excess of $24 million. The Tele-i4 Initiative consists of deploying specialised Picture Archiving and Communication Systems (PACS) in selected locations across Atlantic Canada, linking regional networks to provincial networks and linking provincial networks across Atlantic Canada to support the normal patterns of referral and consultation across Atlantic Canada. The budget for Tele-i4 was approximately $13 million.

An extensive evaluation framework was created and implemented consisting of a combination of elements from the disciplines of project management and program evaluation. The evaluation framework was designed to address a number of key result areas including viability, improvements in health services, integration of health services, health and related impacts, cost-effectiveness, lessons learned, suitability for purpose, privacy impacts and risk management.

The speakers will present and discuss the telehealth evaluation literature; the approach to the evaluation; methods and measures used to address the key result areas; some of the challenges that had to be addressed given the constraints of time, scope, and budget, and the challenges posed by the large geographic area where the technology was deployed; findings to date and lessons learned for future evaluations of telehealth programs.

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HEALTH INFOSTRUCTURE ATLANTIC: CHALLENGES WITH INTEROPERABILITY

Ryan BR. Health Infostructure Atlantic, P.O. Box 488, Halifax, Nova Scotia, Canada B3J 2R8

Health Infostructure Atlantic (HIA) received $12 million in funding from the Canada Health Infostructure Partnerships Program (CHIPP) to implement the HIA Project Portfolio. The HIA Project Portfolio consists of three initiatives: Common Client Registry, Case Management and Tele-i4 (inter-provincial integration of images and information). The $12 million CHIPP award was matched with over $12 million of Atlantic Canada funding for a total budget in excess of $24 million. The Tele-i4 Initiative consists of deploying specialised Picture Archiving and Communication Systems (PACS) in selected locations across all four provinces in Atlantic Canada, linking regional networks to provincial networks and linking provincial networks across Atlantic Canada to support the usual patterns of referral and consultation across Atlantic Canada. The budget for Tele-i4 was approximately $13 million.

To ensure that patient information and their corresponding images could be transferred securely between facilities, regions and provinces, and be correctly and accurately assembled in the receiving facility, a team of experts from across Atlantic Canada was formed to address this issue. Experts from the vendor were also involved in this process.

Interoperability between multiple organizations and multiple vendors must be addressed if the vision of a pan-Canadian electronic health record is to be achieved. This is the first comprehensive example of successful interconnectivity between facilities, regions, and provinces in the country.

The participants and the process used to address this issue, some of the challenges that needed to be addressed, and HIA's success in addressing those challenges will be described.

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IDENTIFYING TELEHEALTH/E-HEALTH SOCIO-ECONOMIC INDICATORS FOR PRIORITY HEALTH AREAS MEETING THE NEEDS OF SCIENCE AND POLICY

Jennett PA[1], Thomas R[2], Ohinmaa A[3], Anderson C[4], Hailey D[3], Scott R[1]
[1]Health Telematics Unit, University of Calgary, 3330 Hospital; Drive NW, Calgary AB T2N 4N1, [2]University of Calgary, [3]University of Alberta, [4]Alberta Wellnet, Wetaskiwin

Introduction: When investigating the socio-economic (SE) impact of e-health, researchers have findings that can be examined from two perpectives: the quality of the evidence, (determined by the science), and the policy recommendations and implications

Purpose: This presentation details the protocols used to critique SE research in e-health for quality and evidence, and describes frameworks used to capture policy recommendations and implications. It compares findings from the science and policy perspectives. The process for identifying priority SE health areas is shared.

Method: To provide focus, investigators and policy makers selected priority health areas. The investigators examined over 4000 abstracts retrieved from recognized databases (e.g. Medline, Embase). Relevant articles were systematically critiqued using pre-set science and policy criteria/protocols (e.g. Cochrane, JNR, and qualitative/policy Rating Scales). Science and Policy Reports were compiled from study results.

Results: 1) Determining focus areas from the diverse priorities of regional, provincial and federal policy makers is difficult, but manageable. 2) Determining the rigour of the quantitative research was enabled with existing rating scales, while the grey literature was a challenge due to the lack of recognized standards and protocols. 3) There are few studies that provide evidence for informed policy recommendations based on study outcomes.

Conclusion: Challenges exist for an activity charged with attending to both research rigor (quantitative and qualitative) and associated policy recommendations and decisions. When both science and policy decision makers' needs are addressed, results from both perspectives must be shared. Findings related to each inform and advance the agendas of the other.

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THE DEVELOPMENT, IMPLEMENTATION AND EVALUATION OF A COMPREHENSIVE POSTPARTUM TELEHOMECARE PROGRAM

Ray K[1,2], Young W[1,2,3], Earle J[1], Finkel A[1]. [1] Saint Elizabeth Health Care, 90 Allstate Parkway, Suite 300, Markham Ontario, Canada L3R 6H3; [2]University of Toronto; [3]Institute for Clinical Evaluative Sciences

Introduction/Purpose: Investments in early childhood development and effective parenting are critical to our successful participation in the global economy. However, health care providers

and policy makers find it challenging to increase the accessibility and quality of care provided to these clients, while containing costs. Telehomecare may provide a cost effective solution to this challenge. We will describe the development, implementation and evaluation of an interactive postpartum telehomecare follow-up program. Indicators of quality of care, access, costs, and acceptability are used to examine our return on investment.

Description: The comprehensive postpartum telehomecare follow-up program has five components: (1) online personalised education; (2) online monitoring tools that allow clients to track their overall health and well being; (3) monitoring of clients' health status by a qualified health team; (4) online advice and counsel from care providers and other experts and (5) social support provided through email.

Methods:

Design: Randomised controlled trial

Setting: Large urban community

Participants: Women who have delivered a live infant discharged to home

Main outcome measures: Quality of care: postpartum breastfeeding rates assessed using the Mother's Questionnaire and the Mother's Interview Schedule, characteristics of women accessing the telehomecare program, costs assessed using the Health and Social Services Utilization Questionnaire and acceptability assessed using client and provider satisfaction.

Conclusion: The results of this study will yield important evidence for health managers, health providers and to policy makers involved in setting the global agenda for children.

PROGRAM DETAILS

SATURDAY, OCTOBER 5, 2002

07:00 – 08:15	Breakfast Roundtable Session # 1a: Global Policy Issues
	Breakfast Roundtable Session # 1b: Global Policy Issues
	Breakfast Roundtable Session # 2: Telehomecare
	Breakfast Roundtable Session # 3: Encouraging Educational and Clinical Use of Telehealth
	Breakfast Roundtable Session # 4: Communications: To IP or not to IP
	Breakfast Roundtable Session # 5: Discovery Analyses in Health Services – Data Mining in 2002
	Breakfast Roundtable Session # 6: Stress.. Burnout.. Survival Strategies for the Telehealth Professional
	Breakfast Roundtable Session # 7: Searching for the Answers! Financial Sustainability and Telehealth: A Telelearning Discussion
08:00 – 16:00	Exhibit Hall Open
08:45 – 09:15	Keynote Speaker: Bob Webster, Vice-President & General Manager, March Networks Healthcare Applications
09:15 – 10:45	Panel 3: ROI: Global e-Health-Telehealth 'in Action'
	Moderator: Dr. Kendall Ho, Associate Dean and Director, Division of Continuing Medical Education; Assistant Professor, Division of Emergency Medicine, University of British Columbia
	Panelists: Dr. Richard Scott, Fulbright New Century Scholar and Associate Professor, Health Telematics Unit, University of Calgary
	Christopher Armstrong, HIV/AIDS Policy Officer, Canadian International Development Agency
	Dr. Ronald K. Poropatich, Colonel, US Army President, American Telemedicine Association
	Chuck Burt, Director, New Business Development Ontario Enterprise Markets, Bell Canada
10:45 – 11:15	Nutrition Break
11:15 – 12:45	Concurrent Podium Session # 5: *Sustainability and Integration - II*
	Concurrent Podium Session # 6: *e-Learning*
	Concurrent Podium Session # 7: *Policy - II*
	Concurrent Podium Session # 8: *ROI – II & Technology Development*
12:45 – 14:00	Lunch – visit poster displays and exhibit hall
14:00 – 15:30	Panel 4: Proving Value: How Do You Demonstrate Return on Investment?
	Moderator: Dr. David Ostrow, Chief Information Office, Vancouver Coastal Health Authority; Professor, Department of Medicine, University of British Columbia
	Panelists: Dr. Paul Dick, Assistant Professor, Pediatrics, University of Toronto;
	Robert Hanson, Senior Policy Advisor, Innovation and Investment Division
	Dr. Russell D'Souza, Melbourne, Australia *(Via Video-conference)*
	Dr. Ronald K. Poropatich, Colonel, US Army President, American Telemedicine Association
	Dr. Penny Jennett, Professor, Faculty of Medicine; Head, Health Telematics Unit, University of Calgary
15:30 – 16:00	Closing Ceremonies

BREAKFAST ROUNDTABLE DISCUSSIONS

LOCATION: PORT McNEILL ROOM

1A: GLOBAL POLICY ISSUES
       Facilitator: Dr. Richard Scott, Fulbright New Century Scholar and Associate Professor, Health Telematics Unit, University of Calgary

1B: GLOBAL POLICY ISSUES
       Facilitator: Dr. Penny Jennett , Professor, Faculty of Medicine, Head, Health Telematics Unit, University of Calgary

2:    TELEHOMECARE
       Facilitator: Dr. Marilynne Hebert, Assistant Professor, Health Telematics Unit, Faculty of Medicine, University of Calgary; Program Director – Pan-Canadian PhD/Postdoc Training Program in Health Informatics (CIHR Training Grant)

3:    ENCOURAGING EDUCATIONAL AND CLINICAL USE OF TELEHEALTH
       Facilitator: Dr. Michael Allen, Director Special Projects, Dalhousie University CME

LOCATION: PORT ALBERNI ROOM

4:    COMMUNICATIONS: TO IP OR NOT TO IP
       Facilitators: Patricia Dwyer, Associate Director, TETRA Program, Faculty of Medicine, Memorial University of Newfoundland, *and* Keith Sheppard, President, Collaborative Network Tehnologies Inc.

5:    DISCOVERY ANALYSES IN HEALTH SERVICES–DATA MINING IN 2002
       Facilitator: Dr. Phil Jennings, HNData Project Director, Information Management Group, Ministry of Health Services & Ministry of Health Planning, Province of British Columbia

6:    STRESS.. BURNOUT.. SURVIVAL STRATEGIES FOR THE TELEHEALTH PROFESSIONAL
       Facilitator: Dr. Harry Karlinsky, Director, Continuing Medical Education and Professional Development, Department of Psychiatry; Faculty Associate, Office for Faculty Development & Educational Support, Faculty of Medicine, The University of British Columbia

7:    SEARCHING FOR THE ANSWERS! FINANCIAL SUSTAINABILITY AND TELEHEALTH: A TELELEARNING DISCUSSION
       Facilitators: Carol Anderson, Principal, CA Consulting and Telehealth Education Coordinator, Alberta Wellnet, *and* Robert Vigneault, National Infostructure Manager – FNIHIS, Health Canada

Saturday, October 5, 2002
07:30 – 08:30

Roundtable 1A:	**GLOBAL POLICY ISSUES**
Facilitators:	*Dr. Richard Scott* Fulbright New Century Scholar and Associate Professor, Health Telematics Unit University of Calgary, Calgary, AB
Description:	e-Health can cross all jurisdictional borders, but 'local' policy decisions may prevent this. Issues surrounding global e-health policy will be presented and debated with attendees.

Roundtable 1B:	**GLOBAL POLICY ISSUES**
Facilitators:	*Dr. Penny Jennett* Professor, Faculty of Medicine, Head, Health Telematics Unit University of Calgary, Calgary, AB
Description:	e-Health can cross all jurisdictional borders, but 'local' policy decisions may prevent this. Issues surrounding global e-health policy will be presented and debated with attendees.

Roundtable 2:	**TELEHOMECARE**
Facilitator:	*Marilynne Hebert, PhD.* Health Telematics Unit, University of Calgary, Calgary, AB
Description:	In spite of potential benefits, routine use of telehomecare has not matched expectations. The discussion will focus on progress in telehomecare initiatives, lessons learned and evidence required to move this service forward.

Roundtable 3:	**ENCOURAGING EDUCATIONAL AND CLINICAL USE OF TELEHEALTH**
Facilitator:	*Michael Allen, MD* Director Special Projects, Dalhousie University CME, Halifax, NS
Description:	How can we encourage use of Telehealth for educational and clinical purposes? Can promoting educational telehealth lead to increased use of clinical Telehealth?

Roundtable 4:	**COMMUNICATIONS: TO IP OR NOT TO IP**
Facilitators:	*Patricia Dwyer, RN, MSc (c)* Associate Director, TETRA Program, St. John's, NF *Keith Sheppard* President, Collaborative Network Technologies Inc., St. John's, NF

| Description: | During the 1990's the widespread use of the Internet changed the direction of telecommunications. The widespread use of Internet Protocol (IP) has encouraged implementation of data networks, converging data/voice and multimedia applications over an IP network, suggesting efficiency results from dedicating resources to a single communication network rather than independent voice and data networks. |

| Roundtable 5: | **DISCOVERY ANALYSES IN HEALTH SERVICES – DATA MINING IN 2002** |

| Facilitator: | *Phil Jennings,* HNData Project Director, Information Management Group, BC Ministry of Health Services, Victoria, BC |

| Description: | Historically discovery analyses was in the world of academics and statisticians but in 2002 there is great interest emerging in data mining as an operational and health planning approach. This session is relevant because of the collaborative nature of skills required, potential ethical paradigms created and potential to benefit health systems both financially and clinically. |

| Roundtable 6: | **STRESS.. BURNOUT.. SURVIVAL STRATEGIES FOR THE TELEHEALTH PROFESSIONAL** |

| Facilitator: | *Harry Karlinsky, MD, MSc, FRCPC* Director, Continuing Medical Education and Professional Development Department of Psychiatry, Faculty Associate, Office for Faculty Development and Educational Support, Faculty of Medicine, University of BC |

| Description: | Wearing 'multiple hats'? Pulled in several directions? Always learning? You must be in telehealth! Issues, Tips, and Survival Strategies for the Telehealth Professional - join us to emote and problem-solve. |

| Roundtable 7: | **SEARCHING FOR THE ANSWERS! FINANCIAL SUSTAINABILITY AND TELEHEALTH: A TELELEARNING DISCUSSION** |

| Facilitator: | *Carol Anderson* Principal, CA Consulting and Telehealth Education Coordinator, Alberta Wellnet, Edmonton, AB

Robert Vigneault National Infostructure Manager – FNIHIS, Health Canada, Ottawa, ON |

| Description: | Do Telelearning sessions need to be financially self-sufficient or should they be another part of the global education budgets? Join the debate between the facilitators on costing issues surrounding Telelearning. |

KEYNOTE SPEAKER # 2

ROBERT K. WEBSTER
VICE-PRESIDENT, SALES & MARKETING
MARCH NETWORKS HEALTHCARE APPLICATIONS

APPLICATIONS:
THE PLACE OF BROADBAND IN GLOBAL 'e-HEALTH'

Saturday, October 5, 2002

08:45 – 09:15

Robert K. Webster

BIOGRAPHY

As Vice President, Sales and Marketing and part of the senior management team for March Networks, Mr. Webster is responsible for the Company's world wide sales, marketing and professional services activities. Prior to this role, Mr. Webster led the healthcare solutions business unit of the Company, with a focus on product and business development activities associated with integrated multimedia healthcare communications networks, including facility and care management systems incorporating emergency response and home telehealth solutions. During this time, the Company serviced more than 100,000 emergency response customers and his personal commitment to applying technology to improve the delivery of healthcare was evidenced by the Company's leadership participation in Canada's largest home telehealth research pilot that concluded in Spring 2002.

Mr. Webster joined March Networks in November 2000 following the Company's acquisition of Elcombe Systems Limited. He had previously served as Elcombe's President and Chief Executive Officer and was also a member of its Board of Directors. Mr. Webster first joined Elcombe in June 1991 as the company's Chief Financial Officer. In December 1992 he was appointed Chief Operating Officer and assumed the President and CEO roles in 1996.

Prior to joining Elcombe Systems Limited, Mr. Webster was Vice President and Corporate Controller for Mitel Corporation, where his responsibilities included financial planning and control, management reporting, and business advisory services for the global marketing, sales, manufacturing, engineering, and product management groups. From September 1986 to August 1988 he was Vice President of Finance and Corporate Secretary of Trillium Telephone Systems Inc., a designer and manufacturer of small business telephone systems, and from June 1982 to August 1986 he served as Vice President of Finance with D. S. Fraser Equipment Inc., a distributor of climate control equipment in Eastern Canada. With both companies, Mr. Webster was heavily involved in operations and financial management.

Mr. Webster holds a Bachelor of Science degree in Mathematics and Physics and achieved his Chartered Accountant designation in 1977 while with Clarkson Gordon (now Ernst and Young), a national public accounting firm.

"THE PLACE OF BROADBAND IN GLOBAL E-HEALTH."

Increasingly, broadband applications are being viewed as value-added elements in addressing a host of business challenges. Some of the greatest promise for new tools that take advantage of the global broadband network is in the area of healthcare delivery enhancements.

Mr. Webster will share some of his thoughts on how the application of broadband technologies will support and foster the long term deployment of telehealth as an alternative and complementary health service delivery model. In particular, his presentation will review global trends and characteristics of the broadband environment. It will also hightlight the advantages of broadband in the delivery of telehealth services. Finally, his presentation will touch on how the evolution of broadband will support telehealth sustainability in the larger context of supporting high quality management and delivery of telehealth services.

PANEL DISCUSSION # 3:
RETURN ON INVESTMENT: GLOBAL e-HEALTH – TELEHEALTH 'IN ACTION'

Moderator:

Dr. Kendall Ho, Associate Dean and Director, Division of Continuing Medical Education; Assistant Professor, Division of Emergency Medicine, The University of British Columbia

Panelists:

Dr. Richard Scott, Fulbright New Century Scholar and Associate Professor, Health Telematics Unit, University of Calgary

Christopher Armstrong, HIV/AIDS Policy Officer, Canadian International Development Agency, Health Population, & Nutrition

Dr. Ronald K. Poropatich, Colonel, US Army;President, American Telemedicine Association; Senior Clinical Advisor, Clinical Applications Division, Telemedicine & Advanced Technology Research Center (USAMRMC)

Chuck Burt, Director, New Business Development, Ontario Enterprise Markets, Bell Canada

Saturday, October 5, 2002
09:15 – 10:45

Kendall Ho, MD, FRCPC

BIOGRAPHY
Dr. Kendall Ho is a practicing emergency doctor at the Vancouver General Hospital Department of Emergency Medicine. He is the associate dean and director of the Division of Continuing Medical Education, UBC Faculty of Medicine. He also serves on the BCNET Applications Advisory Committee. Dr. Ho's academic and research interest include the incorporation of adult learning principles into the development of effective and relevant medical education for health professionals, the integration of telecommunication and medical informatics technologies to assist rural and urban health professionals to obtain their continuing education on demand, and the construction of a telemedicine infrastructure to provide real time clinical support via technologies in order to partner with rural health professionals to augment and enhance the access and quality of care to rural and isolated communities. These areas of interest has led to the development of innovative hands-on workshops to teach physicians skills in using the Internet and Personal Digital Assistants (e.g. Palm Pilots) for professional use, CD-ROM, videoconferencing and Internet based continuing medical educational courses for distributive learning, telemedicine pilot and implementation projects between urban and rural and First Nations communities in B.C, and scientific abstracts, editorials, and journal articles on the subjects of medical education and telemedicine.

Richard Scott, MD

BIOGRAPHY
Dr. Richard Scott holds a Fulbright New Century Scholarship, investigating 'Challenges of Health in a Borderless World'. He promotes e-health as a tool to facilitate health, healthcare, health education, and health research. His primary research interests are in policy development and evaluation of e-health. Through the Fulbright program, Dr. Scott has examined the role of e-health in the globalisation of health care, and is investigating policy, technology, and evaluation aspects impacting the implementation of e-health in a borderless world. Additional interests focus on identifying and defining suitable outcome indicators for rigorous demonstration of the value of e-health initiatives in the delivery and facilitation of health care, and in evaluation of specific e-health applications. A toxicologist and clinical chemist by training, he maintains an active interest in clinical and forensic toxicology, and environmental health issues, and is now seeking opportunities to link these aspects with e-health capabilities. His past experience as a Director of Research Services, consultant, IRB member, and practising laboratorian provides over 17 years of combined health services and e-health related experience. Dr. Scott is a Founding and Board member of the Canadian Society of Telehealth (CST), and Chairperson for the CST Research Committee. He also remains active in other professional associations.

"e-Health in a Borderless World"

An oft-quoted benefit of e-health is its ability to cross borders. Yet despite this capability e-health struggles to gain widespread acceptance and integrated adoption at local, regional, and national levels. The convergence of globalisation, global health, and the network age has created the need to look at healthcare on a more global basis and to consider the possibility of a 'borderless world'. Perhaps unwittingly, conspired to breathe life into the entity of 'global e-health'. Once a neat phrase to bandy about, global e-health is a reality, and holds the potential to redress the inequity of healthcare around the world. This presentation develops the perspective of global e-health, provides a definition, describes global e-health activity, and focuses on the need to seek common principles and complementary policy now that will provide a 'global' solution in the future.

<u>**Christopher Armstrong**</u>

BIOGRAPHY
Christopher Armstrong is currently working as an HIV/AIDS Policy Officer within the Policy Branch of the Canadian International Development Agency. Additionally Christopher has been working in support of CIDA's chair of the International Working Group on ICT for Health which operates under the auspices of the United Nations Information and Communication Technologies Task Force and formerly the G8 Digital Opportunity Task Force. Christopher holds a Master's Degree in Public Health from Yale University and Bachelor of Science from McGill University. Christopher has also worked with Correctional Service Canada as a Health Policy Advisor and for a number of NGOs working in the area of health and development in Canada, Southeast Asia and India.

"The Role of CIDA in Global e-Health"

This presentation will give a brief overview of CIDA's involvement in fulfilling its mandate to support sustainable development in developing countries in order to reduce poverty, making the link between health and poverty reduction. The presentation will then explore areas in which CIDA has been involved in e-Health and opportunities for the future. This will include a discussion of CIDA's role as chair of the International Working Group on ICT for Health under the auspices of the G8 Digital Opportunity Task Force and the United Nations Information and Communications Technologies Task Force. Discussion will open the floor for suggestions of ways in which CIDA can support the use of e-Health and ICT to advance health objectives in developing regions recognising that health needs and not technology must be the driving force.

<u>**Ronald K. Poropatich, MD, FACP, FCCP - *Colonel US Army***</u>

BIOGRAPHY
Colonel Ronald K. Poropatich, MD is a Pulmonary and Critical Care Medicine physician at Walter Reed Army Medical Center, Washington, DC. He is currently Director of the Telemedicine Directorate for the Walter Reed Army Medical Center and the North Atlantic Regional Medical Command, which includes 21 states in the northeastern United States. The current focus of this Directorate is to establish a telemedicine network for clinical consultation and distance learning throughout the region and provide a central resource of medical information for patients and providers via the world wide web. Colonel Poropatich is also the Chief of the Clinical Applications Division (CAD) in the Telemedicine and Advanced Technology Research Center (TATRC), Fort Detrick, MD. The TATRC is the main research and development organization in the DoD for telemedicine. His position there affords him the unique opportunity to deploy cutting edge telemedicine technologies in clinical environments within the military health system. Colonel Poropatich serves as President-Elect of the Board of Directors for the American Telemedicine Association and serves as a Senior Editor for the *Telemedicine and e-Health Journal.*
Colonel Poropatich is acting in his private capacity and his officership does not imply endorsement of the organization by the US Army.

"Tele-Disaster Management"

Chuck Burt

BIOGRAPHY
Chuck Burt was born and raised in rural Northern Ontario. His post-secondary education was obtained in Toronto and covered Aerospace Engineering, Commercial Flight training and Civil Environmental Engineering. With 25 years experience within the telecommunications industry, all with Bell Canada, his experience ranges from Field Operations, Engineering and Design of Communications Infrastructure, Budget & Results and Corporate Sales. Now in the development of new business his primary sectors of focus are Call Centres, Education and Health Care. In 1998, he was one of the founding members of the Canadian Telehealth Society and have been involved in several telehealth initiatives throughout Ontario. Also, in 1989, he was a Founder, and remains President of a Not-for Profit organization that has assisted in community development and health care projects in South America, Haiti, Kenya and into the Pacific Rim.

"Evolving a Commercially Viable Surgical Grade Network"

Until recently, surgery has been based on close interactions among the surgeon, patient, and nurses. However, surgical robots now enable complex minimally invasive techniques, and have started a new era in surgery. Today a surgeon controls robotic arms and cameras from a console a few metres away from the operating table and patient. Given their basic mode of operating, these robots are also ideally suited for control from further distances through telecommunications. Information Technology has evolved to a level that allows surgery, mentoring and diagnostics to be performed from remote/distant locations. Surgical telehealth allows isolated surgeons or patients to be connected with experts. In remote regions of Canada and elsewhere, surgical telehealth is ideally suited to provide high quality, safe care to patients in the operating room. The three aspects of surgical telehealth that will be discussed are: 1) surgical telementoring – live connection between an operating and remote teaching expert surgeon using audio and video exchange, remote control of the field of view and telestration; 2) telesurgery – surgery performed by a surgeon remote from the patient in the operating room. Advanced communications technology allows the surgeon to manipulate endoscopic cameras and surgical robots to perform the surgery, while remote from the operating room. Both the remote surgeon and the surgical team with the patient have the exact same view of the surgical site; 3) tele-diagnostics – seeks to meet the needs surrounding an acute shortage of anatomical pathologists and specialized/interventional radiologists throughout Canada. The technologies used in the delivery of these services involve telerobotic endoscopy and the digitization of radiological images allowing the control of fluoroscopy and ultrasound equipment remotely. We have been working on feasibility, constraints and safety issues for these applications. To date, our tele-mentoring exercises have been quite successful, and we have expanded our lab testing to demonstrate telesurgery capabilities over Bell Canada's commercially available IP-VPNE network. Demonstrations of telesurgery have been trialed between two locations using prototype equipment. Telesurgery is especially time critical, and must be conducted with minimal latency and within a robust communication link. The communication requirements for telesurgery are in the finial staged of definition and surgery is planned before the end of 2002.

CONCURRENT PODIUM SESSION # 9:
SUSTAINABILITY AND INTEGRATION- II

Saturday, October 5, 2002
1115 – 1245

Session #	Session Title	Location
9	**Sustainability and Integration – II**	**Orca Room**
9.1	**BUILDING A SUSTAINABLE TELEHEALTH MODEL: MOVING INDUSTRY FORWARD THROUGH PARTNERSHIPS AND CREATIVE APPLICATION OF TECHNOLOGY.** Lowenstein S. March Networks, 555 Legget Drive - Tower B, Ottawa, Ontario, Canada K2K 2X3	
9.2	**CREATING A CULTURE OF USE: THE KEY TO SUSTAINABILITY AND INTEGRATION.** O'Neill SK, Reinbold DJ[1]. Westview Regional Health Authority. P.O. Box 310, Jasper, Alberta, Canada T0E 1E0; [1]Mistahia Health Region, Grande Prairie, AB	
9.3	**A COST-BENEFIT ANALYSIS OF IN-HOUSE MULTISITE TELEHEALTH BRIDGING** Reinbold DJ[1], Bexfield DL[2], O'Neill, SK[3]. [1]Mistahia Health Region, Queen Elizabeth II Hospital, 10409-98 St, Grande Prairie, Alberta, Canada T8V 2E8; [2]David Thompson Health Region; [3]Westview Regional Health Authority.	
9.4	**CONFRONTING ASSUMPTIONS: THE ALBERTA FIRST NATIONS TELEHEALTH PROJECT** Vigneault RD. Health Canada, Alberta First Nations TeleHealth Program FNIHB – Alberta Region, Suite 730 9700 Jasper Avenue, Edmonton, Alberta, Canada T5J 4C3.	
9.5	**WHAT HAPPENS WHEN THE GRANT MONEY IS GONE?** Sutherland I. Telehealth Saskatchewan, c/o Saskatchewan Health, 122 Third Avenue North, Saskatoon, Saskatchewan, Canada S7K 2H6	
9.6	**TELEHOMECARE USER REQUIREMENTS ELICITATION** Brockway P, Ulmer R, Sargious P. Alberta Research Council, 3608 33St NW, Calgary, Alberta, Canada T2L 2A6	

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BUILDING A SUSTAINABLE TELEHEALTH MODEL: MOVING INDUSTRY ⊦ THROUGH PARTNERSHIPS AND CREATIVE APPLICATION OF TECHNOLOGY.

Lowenstein S. March Networks, 555 Legget Drive - Tower B, Ottawa, Ontario, Canada K2K 2X3

Introduction: The telehealth industry is an emerging one, challenged by the complexities of health care financing and delivery as well as rapidly changing technology. Industry sustainability is in question despite popular and widespread acceptance of its benefits to a variety of stakeholders, including patients, healthcare providers and payers.

Purpose: The purpose of this presentation is to examine the barriers to sustainability from a healthcare system and implementation perspective using telehealth services in support of homecare as a case study. A unique deployment model will then be presented to address many of these barriers from both a technology and business perspective.

Description: This includes discussion of open architecture and standards that support a broad spectrum of interoperable telehealth applications and services in the context of a continuum of care healthcare model. It also examines the role of partnerships in designing and implementing world-class telehealth solutions to support wide scale adoption.

Results/Conclusion: Finally, next steps with respect to how each stakeholder can play a role in supporting telehealth sustainability will be addressed.

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CREATING A CULTURE OF USE: THE KEY TO SUSTAINABILITY AND INTEGRATION.

O'Neill SK, Reinbold DJ[1]. Westview Regional Health Authority. P.O. Box 310, Jasper, Alberta, Canada T0E 1E0; [1]Mistahia Health Region, Grande Prairie, AB.

Introduction: The goal of this presentation is to introduce the concept of "Creating a culture of use" as a key factor for the successful implementation of any telehealth project. Successful programs focus on ensuring that telehealth becomes an integrated methodology for delivering education and clinical services. We believe that telehealth project managers should focus early, and stay focused, on building a culture of use around their telehealth project.

Description: The authors reviewed their experience with four separate telehealth initiatives coupled with a review of the Telehealth literature and Identified three essential parameters common to most successful telehealth projects. The three parameters deal with Corporate / Financial issues, Technical issues and the Human Element of telehealth. The authors focus on the "Human Element" dimension and expand upon the steps that they took in order to foster a culture of use.

Results: The author's respective telehealth projects are averaging over 500 hours of telehealth usage per month. We project this figure will increase significantly in the next 12 months when a further five planned sites are installed and more clinical and educational services are implemented via telehealth.

Conclusion: A large proportion of our project's success can be directly attributed to the culture of use that we have fostered.

A COST-BENEFIT ANALYSIS OF IN-HOUSE MULTISITE TELEHEALTH BRIDGING

Reinbold DJ[1], Bexfield DL[2], O'Neill, SK[3]. [1]Mistahia Health Region, Queen Elizabeth II Hospital, 10409-98 St, Grande Prairie, Alberta, Canada T8V 2E8; [2]David Thompson Health Region; [3]Westview Regional Health Authority.

Purpose: The Mistahia Health Region, the David Thompson Health Region, and Westview Regional Health Authority conducted a study to examine the benefits of providing in-house multi-site telehealth bridging for education and administrative meetings as opposed to relying on an outside vendor. External telehealth bridging has been subsidised by Alberta Wellnet, however, long-term funding for this service is uncertain. In order to continue multiple site Telehealth sessions among rural health authorities in a cost effective manner, alternative videoconferencing bridging methodologies were explored.

Methods: Several sessions were conducted over the past year using both external and internal bridging sources. Expenses, including port charges and long distance tolls related to education and administrative meetings between the three regions, were evaluated and a cost comparison analysis completed. In addition, testing of several telehealth systems with multisite capability linked together to form a larger "Virtual Bridge" (cascading) was also conducted.

Results: Initial testing proved that individual telehealth programs can provide reliable, high quality, and cost effective bridging without accessing an outside provider. Furthermore, cost savings in terms of port charges and in some cases long-distance charges can be significant.

Conclusion: The authors conclude that in-house bridging is technically and financially sustainable with modern telehealth equipment and expert staff. This ensures that Regional Health Authorities can maintain multiple site connections for Tele-learning and Tele-administration purposes without relying on external vendor resources.

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CONFRONTING ASSUMPTIONS: THE ALBERTA FIRST NATIONS TELEHEALTH PROJECT

Vigneault RD. Health Canada, Alberta First Nations TeleHealth Program FNIHB – Alberta Region, Suite 730 9700 Jasper Avenue, Edmonton, Alberta, Canada T5J 4C3

Introduction: The Alberta First Nations TeleHealth Project (AFNTP) has implemented telehealth systems in 21 Alberta First Nations communities to support a number of telehealth programs created to support on-going First Nations and Inuit Health Branch (FNIHB) initiatives focusing on addictions, diabetes prevention, tuberculosis, foetal alcohol syndrome (FAS), and nursing education.

Description: Unlike other telehealth programs focused on the delivery of clinical programs, the AFNTP has chosen to develop a wellness network leveraging on established Health Canada programs in the hope that telehealth would readily gain acceptance that would lead to network stability and sustainability.

Results: The AFNTP has established a 'disposable' program with a clear mandate to facilitate the development of telehealth programs and to integrate these programs within mainstream telehealth delivery. The program office, intended to disband after a 4 year mandate, has also adopted a rigorous change management and training strategy aimed at educating all health centre workers in First Nations communities on the usage of equipment and to eliminate the dependency on regional or site telehealth coordinators.

Conclusion: The program is entering the second year of the mandate (first year of operations) and is in the process of evaluating utilization data in order to validate the appropriateness of the methodology in First Nations communities and may offer an alternative approach to the development of telehealth programs in underserved communities.

WHAT HAPPENS WHEN THE GRANT MONEY IS GONE?

Sutherland I. Telehealth Saskatchewan, c/o Saskatchewan Health, 122 Third Avenue North, Saskatoon, Saskatchewan, Canada S7K 2H6

Purpose: The presentation will describe the steps Saskatchewan has taken to ensure that telehealth remains a viable tool for delivering health care programs to rural and remote areas.
Description: In the fall of 1998 Saskatchewan Health and six health districts entered into an agreement to conduct a pilot project involving eight communities. This partnership is now known as Telehealth Saskatchewan. The external evaluation showed that the pilot had been successful in a number of program areas but other programs would require some changes. TS used these findings to prepare an application to CHIPP for funding to assist in addressing these issues. When the tasks that are part of the CHIPP work plan are completed, Saskatchewan has a plan in place for the ongoing operation of the network.
Results: In the fall of 2001, Saskatchewan Health released its Action Plan for Saskatchewan Health Care. The Action Plan describes telehealth as one of the tools that will be used to support a network of twenty-four provincial, regional, district and northern hospitals. The partnership now has 12 sites in ten communities and plans to add up to six more sites by March 2003.
Conclusion: Proper planning, careful consideration of future costs and benefits, and the use of evidence based decision making can result in a sustainable telehealth network.

TELEHOMECARE USER REQUIREMENTS ELICITATION

Brockway P, Ulmer R, Sargious P. Alberta Research Council, 3608 33St NW, Calgary, Alberta, Canada T2L 2A6

Introduction: To ensure new technology usage and sustainability, user needs must be addressed when determining technical requirements. Eliciting telehomecare user requirements is the first step in a multi-step process in determining telehomecare technical interoperability standards.
Purpose: To describe the results of telehomecare user requirements elicitation used by the Alberta Research Council.
Method: Stakeholders (nurses, administrators, researchers and technicians) participated in an all-day focus group based on Institute of Cultural Affairs ToP® Group Facilitation methods. It consisted of two main activities: workflow and user requirements determination. The first used a Focused Conversation to develop a base and telehealth workflow. The second activity utilised the Workshop Method to determine and rate user requirements. User requirements were rated as mandatory, recommended or optional. From these activities, a draft user requirements document was produced and reviewed by the focus group participants, external stakeholders and system engineering for content and clarity. Reviewer's comments were incorporated and system engineers used the final document to produce functional specifications for a telehomecare system.
Results: The workflow produced for both the base case and telehomecare will be presented. Of note is the necessity for a base homecare visit before a telehomecare visit. The focus group participants determined over 90 user requirements, categorised into eight groups: user friendly technology, user acceptability, education, data management, privacy and confidentiality, system integrity, infrastructure and visual/audio requirements. A selection of requirements from each group will be presented.
Conclusion: The user requirements elicitation process provides the basis for developing technical interoperability requirements.

CONCURRENT PODIUM SESSION # 10:
e-LEARNING

Saturday, October 5, 2002
1115 – 1245

Session #	Session Title	Location
10	**e-Learning**	**Port McNeill Room**
10.1	**CONSTRUCT .NET MY HEALTH SERVICES FOR HEALTH INFORMATION AWARENESS --- A CASE SOLUTION BASED ON REPETITIVE STRAIN INJURY PREVENTION** Chiu L[1], Lee JF[2]. [1]University of British Columbia, Vancouver, British Columbia, Canada V6T 2B5; [2]Nimble Microsystems, Inc., Cambridge, USA.,	
10.2	**THE ARC LEARNING NETWORK: A CASE STUDY OF LEARNER-DERIVED PROFESSIONAL DEVELOPMENT USING DISTANCE LEARNING** Aucoin R, Vamhagen S, Cook A, Liu L. Faculty of Rehabilitation, University of Alberta, Edmonton, Alberta, Canada T6G 2G4	
10.3	**UTLIZING THE CORPORATE INTRANET TO ENABLE E-LEARNING AT AHSC** Kilfoil A, Palmer K. Atlantic Health Sciences Corporation, Saint John, New Brunswick, Canada E2L 4L2	
10.4	**FRAMEWORK FOR CONTINUING PROFESSIONAL DEVELOPMENT FOR PHYSICIANS AND OTHER HEALTH CARE PROFESSIONALS: LESSONS LEARNED** Lester R[1], Roston B[1], Williams R[2]. [1]NORTH Network, Sunnybrook & Women's College Health Sciences Centre, Toronto, Ontario, Canada M4N 3M5; [2]Timmins and District Hospital	
10.5	**"CROSS- CANADA" PAEDIATRIC SUB-SPECIALTY ROUNDS-IMPLEMENTATION AND EVALUATION** Flewelling C, The Hospital for Sick Children, 555 University Avenue, Toronto, Ontario M5G 1X8, Sadovy B, University Health Network, 200 Elizabeth Street- ES 1 565, Toronto, Ontario, M5G 2C4	
10.6	**PHYSICIANS' ATTITUDES TOWARD PARTICIPATING IN ACCREDITED CME PROGRAMS ON THE INTERNET (A WORK-IN-PROGRESS)** Sargeant J[1], Allen M[1], Ferrier S[1], [1]Dalhousie University; Curran V[2], Kirby F[2], [2]Memorial University; Ho K[3], Selinger S[3], [3]University of British Columbia.	

Session # 10 : e-Learning

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**CONSTRUCT .NET MY HEALTH SERVICES FOR HEALTH INFORMATION AWARENESS --
- A CASE SOLUTION BASED ON REPETITIVE STRAIN INJURY PREVENTION**

Chiu L[1], Lee JF[2]. [1]University of British Columbia, Vancouver, British Columbia, Canada V6T 2B5; [2]Nimble Microsystems, Inc., Cambridge, USA.

Purpose: Computers have become essential in our modern life. Although they bring convenience, they also introduce new problems for our daily living and threaten our health. Recent research suggests that 20% to 25% of computer users develop symptoms that are ascribed to using a mouse/keyboard, not taking breaks, inappropriate posture, and unhealthy work habits. Computer users are at risk for repetitive strain injury (RSI) with continual exposure to above risk factors. RSI affects the entire upper extremity and causes medical expense, lost productivity, etc. Current software products aimed at RSI prevention have many limits:

-Collected data are isolated in distributed systems, not in an integral server for further systematic analysis and health advice
-Data acquisition to users and employers only
-Content does not cover every aspect of RSI prevention
-Content not in rich, multimedia format

Solution: Our solution is as follows:

- Framework: Build .NET My Health Services based on Microsoft .NET My Services infrastructure. This framework is a user-centric architecture and is oriented around people, instead of around a specific device or network. It can also be adapted to many similar health service programs later. It includes the following salient features: Cost savings; Comprehensive building blocks; Target group existing and ready; Global reach and scalability
- This approach includes the following characteristics:
  Awareness reminding for users' self-care; Multimedia content for guidance and feedback; RSI preventive exercises; Chronological user data acquisition and self accessing; User privacy, account integrity protection, and other features will be inherited from .NET My Health Services

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THE ARC LEARNING NETWORK: A CASE STUDY OF LEARNER-DERIVED PROFESSIONAL DEVELOPMENT USING DISTANCE LEARNING

Aucoin R, Varnhagen S, Cook A, Liu L. Faculty of Rehabilitation, University of Alberta, Edmonton, Alberta, Canada T6G 2G4

Purpose: The ARC Learning Network (ARCLN) was established to coordinate continuing professional development (CPD) delivered to rehabilitation professionals throughout Alberta and the Canadian North. The purpose of the study was to evaluate the sustainability and benefits of ARCLN for implementing continuous education for rehabilitation service providers in Alberta via telehealth. The study also aimed to evaluate the use of technologies to make various types of professional development content accessible to learners in Alberta, and possibly beyond.

Methods: Evaluation scales, mailed surveys, interviews and focus groups were conducted over a two year period from 2000-2002. The evaluation scales were used to examine the effectiveness of the use of satellite, videotape and videoconferencing technologies. The web-based technologies were evaluated using mailed surveys and all methods were evaluated using focus groups and interviews.

Results: 902 unique individuals were surveyed. The findings of the survey are consistent with the literature which shows that CPD is important for maintaining clinical competency, and for recruitment and retention. The emergence of technology-enhanced distance learning offers an important solution to timely and cost-effective CPD. Yet, these options must be introduced carefully. Many health practitioners are sceptical of telehealth. These professionals are oriented to personal contact with patients and their professional interventions often require physical contact with their patients. To be accepted among health practitioners, learning systems must be developed that are multi-faceted, focused on specific learning needs, appropriate in content and delivered using the most appropriate technology.

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UTLIZING THE CORPORATE INTRANET TO ENABLE E-LEARNING AT AHSC

Kilfoil A, Palmer K. Atlantic Health Sciences Corporation, Saint John, New Brunswick, Canada E2L 4L2

Purpose: To demonstrate how the launch of Atlantic Health Sciences Corporation (AHSC) corporate intranet meets the challenge of providing effective and efficient learning opportunities for its staff.
Description: The AHSC Intranet provides the infrastructure to effect internal business advantages, acting as a single entry point for access to existing legacy databases and systems and enabling business processes, knowledge sharing and access to just-in-time information. The e-learning strategy is an integral component of the AHSC's overall goals and directions.
Results: The AHSC e-learning strategy defined the following benefits: 24/7 access, equal access across AHSC's multi-site, geographically widespread region; just-in-time, on-demand learning for busy staff unable to attend scheduled classroom training; a cultural shift in empowerment of users (i.e. 'pull versus push'); and the ability to illustrate systems relationships by hyper linking related resources such as corporate policies and other business applications. Also included is a registration process efficiency built into each learning program. Participants are prompted for online registration only after successful completion of the learning quizzes. This registration data is automatically submitted to a training database. Periodic reports are compiled and sent back to managers to facilitate monitoring of compliance with required learning programs.
Conclusion: E-learning proves to be an efficient and effective method of learning when economies of scale are realised.

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FRAMEWORK FOR CONTINUING PROFESSIONAL DEVELOPMENT FOR PHYSICIANS AND OTHER HEALTH CARE PROFESSIONALS: LESSONS LEARNED

Lester R[1], Roston B[1], Williams R[2]. [1]NORTH Network, Sunnybrook & Women's College Health Sciences Centre, Toronto, Ontario, Canada M4N 3M5; [2]Timmins and District Hospital

Purpose: To bring together multiple stakeholders in Continuing Health Professional Development (CHPD) to deliver co-ordinated, pan-provincial programming by videoconferencing that meets the needs of providers and other target audiences.
Introduction: In April 2001, the NORTH Network received funding through the Canadian Health Infostructure Partnership Program, as well as hospitals, patient care and research programs, educational organizations, provincial governments and industry to expand to over 60 sites throughout Ontario. Each organization has varying educational mandates, affiliations and requirements, some as providers and others as recipients. Through its network infrastructure, the NORTH Network will enable participating organizations to coordinate the delivery of educational programming throughout Ontario.

Methods: Regional requirements were assessed through informal needs assessments. Preferred frequency and format of presentations were assessed through surveys. Participating educational organizations and regional representatives met repeatedly to define issues and develop short and long-term plans.

Results: Considerable duplication of efforts and gaps in programming were revealed. Further, multiple needs assessments from various educational providers were being conducted within each region.

Conclusions: Ongoing communication and planning is required to address the many challenges of implementing a co-ordinated strategy. These include building trust between urban and rural centres. To this end it is important to engage other organizations mandated to provide continuous professional education in the province. The need for common needs assessment and evaluation tools is recognised. Engagement of government at both the provincial and federal level along with the private sector will be critical to the success of this endeavour.

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"CROSS- CANADA" PAEDIATRIC SUB-SPECIALTY ROUNDS-IMPLEMENTATION AND EVALUATION

Flewelling C, The Hospital for Sick Children, 555 University Avenue, Toronto, Ontario M5G 1X8, Sadovy B, University Health Network, 200 Elizabeth Street- ES 1 565, Toronto, Ontario, M5G 2C4

Introduction: In Canada, there are a limited number of paediatric sub-specialists practicing in each province. Due to financial and logistic factors, it is not feasible for these specialists to meet more than once per year to share important information, network and engage in continuing education. Videoconferencing facilities, which exist in most academic health centres, were seen as an opportunity to address this issue. To this end, several paediatric sub-specialists at the Hospital for Sick Children in Toronto conducted a series of cross-Canada videoconference rounds.

Description: To evaluate the educational value of videoconferencing, a Tele-Education Evaluation Survey was developed in collaboration with the University of Toronto Faculty of Medicine Centre for Research in Education. Key areas that were considered were conference format, use of technology, presentation quality, and conference moderation. Survey results from 4 regularly occurring cross-Canada multi-point sub-specialty educational rounds held between September 2001 and May 2002 were compiled and reviewed.

Results: Of the 305 respondents, most rated the rounds quite positively. For technical aspects of the videoconferencing, 63% indicated the were able to see and understand the visual presentation, 87% indicated improvement was not required in camera zooming and 76% indicated that image flipping was adequate. Similarly positive patterns of responding were seen for the quality of the format, presentations and conference moderation.

PHYSICIANS' ATTITUDES TOWARD PARTICIPATING IN ACCREDITED CME PROGRAMS ON THE INTERNET (A WORK-IN-PROGRESS)

Sargeant J[1], Allen M[1], Ferrier S[1], [1]Dalhousie University; Curran V[2], Kirby F[2], [2]Memorial University; Ho K[3], Selinger S[3], [3]University of British Columbia.

Purpose: The purpose of this study is to increase our understanding of physician attitudes toward participating in accredited group CME programs on the Internet. In Canada accredited CME via the Internet requires that physicians be able to interact with each other electronically. Research questions include:

1. What attracts physicians to participating in accredited online CME programs?
2. What is the value of participating in electronic discussions?
3. How can barriers be overcome?
4. What role do physicians believe the Internet will play in formal CME in the future?

Methods: This is a qualitative study using focus groups and interviews. We will use 6 focus groups of 1.5 hours in length, and 15 thirty-minute interviews, conducted in Newfoundland, Nova Scotia and British Columbia.

Results: By June 2002, we have conducted 6 focus groups and 7 interviews, and are beginning analysis. We will present preliminary results at the October CST meeting.

Conclusion: It is believed that the results of his study will be important in facilitating physician use of the Internet for continuing professional development.

CONCURRENT PODIUM SESSION # 11:
POLICY - II

Saturday, October 5, 2002
1115-1245

Session #	Session Title	Location
11	**Policy-II**	**Finback Room**
11.1	**INTERNATIONAL PARTNERSHIP TO ADVANCE TELEHEALTH STANDARDS AND GUIDELINES** Ulmer R[1], Corley J[2], Cradduck T[3], Brockway P[1], Sargious P[1]; Alberta Research Council, 3608 33St NW, Calgary, Alberta, Canada T2L 2A6; [2]Advanced Technology Group; [3]Keston Group	
11.2	**TELEHEALTH POLICY IN SELECT EAST ASIAN COUNTRIES: IMPLICATIONS FOR POLICY COMPLEMENTARITY** Varghese SA, Scott RE. Telehealth and e-Health Research and Training Program, Health Telematics Unit, Department of Community Health Sciences, Faculty of Medicine, University of Calgary, G204 Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 4N1	
11.3	**THE CERTIFICATION PROCESS FOR COMMUNITY TELEHEALTH COORDINATORS IN FIRST NATIONS COMMUNITIES** Williams D. Keewaytinook Okimakanak Telehealth, 127 Mine Road, P.O. Box 340, Balmertown, Ontario, Canada P0V 1C0	
11.4	**UNDERAPPRECIATED BARRIERS TO IMPLEMENTATION OF TELEHEALTH INITIATIVES** Ho K[1], Karlinsky H[1], Bates J[1], Dunn G[2]. [1]Faculty of Medicine, University of British Columbia; [2]Gary Dunn & Associates, Computer and Technology Law.	
11.5	**POLICY – FRIEND OR FOE TO 'E-HEALTH FOR ALL' ?** Scott RE, Jennett PA. Telehealth and e-Health Research and Training Program, Health Telematics Unit, Department of Community Health Sciences, Faculty of Medicine, University of Calgary, G204 Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 4N1	
11.6	**ACHIEVING INTEROPERABLE E-HEALTH USING A COMMON CONCEPTUAL MODEL** Paterson G[1], Parker R[2]. [1]Saskatoon District Health, 701 Queen Street, Saskatoon, Saskatchewan, Canada S7K 0M7; [2]AdActus Care Technologies.	

Session # 11 : Policy - II

INTERNATIONAL PARTNERSHIP TO ADVANCE TELEHEALTH STANDARDS AND GUIDELINES

Ulmer R[1], Corley J[2], Cradduck T[3], Brockway P[1], Sargious P[1]; Alberta Research Council, 3608 33St NW, Calgary, Alberta, Canada T2L 2A6; [2]Advanced Technology Group; [3]Keston Group

Purpose: To present the partnership of Alberta Research Council Telehealth Interoperability Laboratory (ARC) and the Advanced Technology Institute's (ATI) Telehealth Deployment Research Testbed (TDRT) designed to advance the international telehealth industry and services through interoperability.

Introduction: Sustainability of the telehealth industry depends on system interoperability to increase marketability for manufacturers and versatility for consumers. To address this requirement ARC and ATI have formalised a partnership to collaborate on telehealth interoperability issues. ARC develops technical specifications for telehealth interoperability and validates vendor equipment for compliance. TDRT is a United States-based test bed established to identify and communicate methods to simplify telehealth technology deployment and use.

Results: ARC is leading the development of telehealth interoperability standards on behalf of Canada for the International Organization for Standardization (ISO). Two documents have been put forth for international balloting; a technical report defining telehealth and a technical specification for telelearning. The Telelearning Technical Specification was developed based on the needs of healthcare instructors and learners, through user requirements elicitation. It proposes the technologies necessary for telelearning to support and deliver distance learning. A significant component of the TDRT effort is a "consumer report" on telehealth technology, aimed at providing information needed to select the appropriate technology for a healthcare application. TDRT evaluations are conducted both in the laboratory and real-world situations, focusing on individual technologies and interoperability between them. The first TDRT guidelines are for telehomecare.

Conclusions: The partnership will contribute to telehealth sustainability through telehealth standards at ARC and "consumer reports" at ATI.

TELEHEALTH POLICY IN SELECT EAST ASIAN COUNTRIES: IMPLICATIONS FOR POLICY COMPLEMENTARITY

Varghese SA, Scott RE. Telehealth and e-Health Research and Training Program, Health Telematics Unit, Department of Community Health Sciences, Faculty of Medicine, University of Calgary, G204 Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 4N1

Introduction: There is a significant disparity in telehealth policy among developing countries. Some have designed policies aimed at incorporating telehealth into the general pattern of healthcare delivery, whilst others have seemingly neglected the issue. This disparity may have significant impact globally, by impeding the ability of telehealth to function across borders. Understanding policy development is therefore crucial because it better enables the realisation of telehealth's full potential.

Description: Telehealth policy was analysed in Cambodia, China, Japan, Hong Kong, Indonesia, Malaysia, Myanmar, Singapore, South Korea, Taiwan, Thailand, and Vietnam. These countries are considered a microcosm of the world, and also demonstrate strong linkages in other sectors. Using these select East Asian countries, this study categorises telehealth policy and explores the implications for complementarity of policy development globally.

Results: The study identified three categories of country in regard to policy development. The first category is "No National Policy/Support" (Cambodia, Myanmar, and Vietnam). International partners who are driven by humanitarian concerns lead telehealth activity. The second category is "Proactive National Policy/Support" (China, Indonesia, Malaysia, Singapore, South Korea, Taiwan, and Thailand). National policies were designed with the view that telehealth initiatives are a subset of larger development objectives. The third category is "Reactive National Policy/Support" (Hong Kong and Japan). Policies were only proffered after telehealth activities were sustainable. Furthermore, cross border telehealth activity stems from the countries in category three.

Conclusions: Complementarity of telehealth policy development is not occurring, nor is it likely to occur.

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THE CERTIFICATION PROCESS FOR COMMUNITY TELEHEALTH COORDINATORS IN FIRST NATIONS COMMUNITIES

Williams D. Keewaytinook Okimakanak Telehealth, 127 Mine Road, P.O. Box 340, Balmertown, Ontario, Canada P0V 1C0

Background: This pilot project involved the setting up of telehealth services in 5 remote First Nations communities in Northwestern Ontario. The First Nations communities are comprised of the Keewaytinook Okimakanak/Northern Chiefs Council. Due to the lack of health professionals in the north, it was necessary to train community members as telehealth coordinators.

Goals: Upon completion of training, the Community Telehealth Coordinators will link with North Network, an existing network of telehealth services in Ontario, staffed by Health Professionals. Our goal is to train the Community Telehealth Coordinators to work with Health Professionals and deliver telehealth services within their communities.

Process: The certification process involved training the CTCs in both the technological skills and health promotion skills. It was necessary to provide education regarding anatomy & physiology, body systems and basic physical assessment. Explanations of the non-Aboriginal culture and suggestions for presenting telehealth in a way that could be accepted by community members were also developed.

Results: The 5 CTCs completed certification. Telehealth sessions are presently being evaluated by both the health professionals and the clients.

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UNDERAPPRECIATED BARRIERS TO IMPLEMENTATION OF TELEHEALTH INITIATIVES

Ho K[1], Karlinsky H[1], Bates J[1], Dunn G[2]. [1]Faculty of Medicine, University of British Columbia; [2]Gary Dunn & Associates, Computer and Technology Law.

Purpose: Successful telehealth program implementation depends upon much more than the technical considerations such as the selection of videoconferencing equipment and a telecommunications service provider. Operationalising a sustainable telehealth program requires multidimensional considerations including needs assessment, an analysis of existing clinical processes and technical infrastructure, the establishment of effective local site implementation committees, the identification of clear program goals and subsequent construction of the relevant clinical and distance educational protocols, sustainability of funding, establishing a program management model, and the implementation of an ongoing evaluation mechanism.

Methods: This presentation explores three vital yet under-appreciated barriers to telehealth implementation, including:

- Building cohesion in the interdisciplinary team. Telehealth implementation crosses many disciplinary boundaries of health care professions, technology professionals, hospital or health care system managers, regions of care, and patients. What are the barriers to this community of practice, and what are the best approaches to team building?
- Overcoming the legal barriers. Three categories of legal challenges to implementing telemedicine include the impact of government initiatives to protect the privacy of medical information, the regulation of telehealth (including legal liability, insurance and risk management), and the evolution of healthcare e-commerce. What are effective strategies to address these issues?
- Choosing the ideal type of consultation model: scheduled consultations or just-in-time consultations on demand? Telepsychiatry (scheduled model) and emergency medicine (just-in-time model) will be presented as examples.

Conclusion: Building a successful and sustainable telehealth program requires attention to subtle yet powerful barriers. Addressing these issues proactively will contribute to a successful outcome.

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POLICY – FRIEND OR FOE TO 'E-HEALTH FOR ALL' ?

Scott RE, Jennett PA. Telehealth and e-Health Research and Training Program, Health Telematics Unit, Department of Community Health Sciences, Faculty of Medicine, University of Calgary, G204 Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 4N1

Introduction: e-Health is gaining global acceptance as a key enabling tool. The WHO has accepted 'telemedicine' as an important element of their 'health for all' strategy. Because of the unique ability of e-health to transcend all geo-political boundaries, 'e-health for all' is conceivable. But policy decisions impacting e-health are being made at many levels, including professional organisations, institutions, regions, provinces / states, and countries. An uninformed, restrictive policy decision in any single jurisdiction may impede or even cripple the ability of telehealth to fulfill its potential to effectively contribute to the goal of e-health for all.
Methods: Policy was defined, and the policy setting in Canada and Malaysia was compared and contrasted.
Results: In Canada, a strong policy environment exists, but policy direction was found to be disjointed; e-health direction and priorities amongst recognised organizations, and between provincial, territorial, and federal levels differs significantly. Also, few guidelines and little regulation or law exist. In stark contrast, Malaysia has a clear and determined 20-year plan for a Multi-Media Corridor, of which e-health is a distinct component. It also has a promulgated Telemedicine Act and clear Telemedicine Guidelines. Although more advanced, examples of Malaysia's policy show that limitations may be placed on inter-jurisdictional e-health.
Conclusion: The poor integration and examples of potentially restrictive policy raises concern about the lack of inter-jurisdictional freedom that is the life-blood of e-health for all. This goal will only be achieved if there is a concerted, global strategy for integrating e-health solutions and developing complementary policy.

ACHIEVING INTEROPERABLE E-HEALTH USING A COMMON CONCEPTUAL MODEL

Paterson G[1], Parker R[2]. [1]Saskatoon District Health, 701 Queen Street, Saskatoon, Saskatchewan, Canada S7K 0M7; [2]AdActus Care Technologies.

Introduction: The Conceptual Health Data Model (CHDM) is a product of the Canadian Institute for Health Information - Partnership for Health Information Standards. It was developed as part of the strategy intended to create non-redundant, non-conflicting health information standards for Canada

Description: The CHDM represents a framework for consistent, flexible and comprehensive capture of data about the health of people and the provision of health services across the continuum. It focuses on the importance of knowing and documenting not only why data is collected relevant to health events, but clearly understand why it is captured, how it is captured and the context in which it was captured. The use of the CHDM as a "think tool" to assist in the alignment of health processes to assist in the development of "interoperable organizations" is addressed

Results: The utilization of the CHDM as a tool to align e-Health systems with validated processes has been shown and will be addressed. This presentation will highlight the use of the Model to align the governance and the accountability of health events and functions of the health system as a whole. We will also focus on it as a strategic alignment tools and "problem solver".

Conclusions: The CHDM has much broader potential within the health system. The term "interoperable organizations" highlights the fact that this model is extremely valuable to health organizations undergoing change. It allows a clear and unambiguous method to define process, semantics, governance authority and accountability on any health process or event.

CONCURRENT PODIUM SESSION # 12:
RETURN ON INVESTMENT – II, &
TECHNOLOGY DEVELOPMENT

Saturday, October 5, 2002
1115-1245

Session #	Session Title	Location
12	**Return on Investment – II, and Technology Development**	**Pavilion Ballroom**
12.1	**TELECARE AND E-LEARNING: COMPARATIVE RETURN ON INVESTMENT IN MENTAL HEALTH** Somers JM, Queree, ML, Coyle, JW. Centre for Telehealth @ Mheccu, UBC, Vancouver, British Columbia, Canada V6T 1W6	
12.2	**ROI FOR TELEHEALTH APPLICATIONS: WHY DO THE "FACTS" NOT CONVINCE HEALTH SYSTEM PLAYERS?** Stroetmann KA, Stroetmann VN. empirica Gesellschaft fuer Kommunikations- und Technologieforschung mbH, Oxfordstr. 2. D-53111 Bonn, Germany	
12.3	**IP TECHNOLOGY – IS IT WORTH THE COST?** Sutherland I. Telehealth Saskatchewan, c/o Saskatchewan Health, 122 Third Avenue North, Saskatoon, Saskatchewan, Canada S7K 2H6	
12.4	**E-TECHNOLOGY UTILIZATION AS VALUE CREATION IN INTEGRATED SYSTEMS: A MULTI-LEVEL ANALYSIS USING ROLE THEORY** Taylor LK[1], Dubé L[1], Pinsonneault A[1], Tamblyn R[2]. [1]Faculty of Management, 1001 Sherbrooke Street West, Montreal, Quebec, Canada H3A 1G5; [2]Faculty of Medicine, McGill University	
12.5	**THE WEB INTEGRATION OF A DECISION SUPPORT SYSTEM TOOLS FOR CLINICAL APPLICATIONS** Belacel N[1], Matthews B[2]. [1]National Research Council (NRC), Institute for Information and Technology-e-business, e-health group, Saint John, New Brunswick, Canada E2L 5B2; [2]NRC Fredericton.	
12.6	**TELE-HEATH AND WIRELESS TECHNOLOGY – BRIDGING THE DEMAND OF EXCELLENT CARE AND LOWER OPERATING COSTS** Posehn, W. Wi-LAN Inc., 2891 Sunridge Way NE, Calgary, Alberta, Canada T1Y 7K7	

Session # 12 : Return on Investment – II and Technology Development

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TELECARE AND E-LEARNING: COMPARATIVE RETURN ON INVESTMENT IN MENTAL HEALTH

Somers JM, Queree, ML, Coyle, JW. Centre for Telehealth @ Mheccu, UBC, Vancouver, British Columbia, Canada V6T 1W6

Purpose: The field of mental health has been an early and frequent adopter of distance technologies. Both e-learning and tele-care (e.g., distance consultations) have been implemented in various jurisdictions, and both have received support for their utility and effectiveness among mental health practitioners. Concurrently, both have experienced growth in their deployment. The present talk will examine the relative return on investment (ROI) through these alternative applications of e-health in the domain of mental health.

Description: Potential units of measurement will be introduced from the field of health economics as background to this talk. ROI will be presented based on results of a systematic review of mental health reports, indicating the magnitude and type of return evidenced by the available literature. Current research on tele-care and e-learning in British Columbia will be presented in relation to ROI, adding additional quantitative and qualitative information to the foregoing analyses. An objective of this presentation is to illustrate ways in which tele-care and e-learning can be compared through ROI (e.g., reduced burden of illness), and ways in which they are not comparable (e.g., community capacity building). A further objective is to frame the issue of ROI in a way that assists policy and decision-makers as they appraise different potential applications of e-health in mental health.

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ROI FOR TELEHEALTH APPLICATIONS: WHY DO THE "FACTS" NOT CONVINCE HEALTH SYSTEM PLAYERS?

Stroetmann KA, Stroetmann VN. empirica Gesellschaft fue[...] und Technologieforschung mbH, Oxfordstr. 2. D-53111 Bonn, Germany

Purpose: In spite of all the benefits claimed for telehealth services, the[...] of application in routine delivery of health services is low to negligible. What are the reasons?

Methods: The process of creation and diffusion of telehealth innovations is analysed by applying a structured view of this process (interpretation of the innovation, legitimisation of validity claims, mobilisation for the material realisation). Illustrations from pilot projects and concrete implementation of services (including a randomised controlled trial, and a cash flow analysis) are used for illustrating key issues.

Results: Successful implementation requires more than (usually inadequate) validation/cost-benefit studies. Even proof of a positive ROI will not convince all relevant players. Unless the interests of the various players in the health care arena are fully taken into account and balanced, and a long-term Business Case can be proven, it will be very difficult to integrate such services into routine health care delivery processes.

Conclusions: Proving a positive ROI is a critical, but not a sufficient success factor for telehealth diffusion. Insufficient validation and poor implementation, particularly the ignoring of organisational and institutional barriers, partly account for the slow growth of telehealth applications. Only if health care delivery models are developed which assure a Win-Win situation for all key players can we expect long-term success.

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IP TECHNOLOGY – IS IT WORTH THE COST?

Sutherland I. Telehealth Saskatchewan, c/o Saskatchewan Health, 122 Third Avenue North, Saskatoon, Saskatchewan, Canada S7K 2H6

Purpose: There has been considerable discussion regarding the merits of using IP technology to support telehealth applications and Telehealth Saskatchewan (TS) has been investigating the technical and financial implications of moving the network from ISDN/SW56 to IP.
Description: TS is currently using ISDN and SW56 technology to connect the ten participating communities. Multipoint connections are completed using Alberta's Telus bridge. We have a two-year history of line rental, toll and bridge charges and are exploring the cost benefits and technical issues associated with using the Saskatchewan's new IP based CommunityNet. Saskatchewan Health Information Network (SHIN) was engaged to identify the requirements and conduct proof of concept testing for telehealth video conferencing over CommunityNet
Results: SHIN has identified the technical requirements and most of the costing associated with using CommunityNet as the communications carrier. Some additional testing and costing will be completed over the summer. TS has four options; 1) maintain the existing communications carrier, 2) move to CommunityNet and acquire our own gateway/bridge, move to CommunityNet and use either 3) a new SaskTel bridge or 4) the existing Telus bridge. The choice of these options will be made in September.
Conclusion: While the studies to date have identified some unanticipated costs, the preliminary indication is that the move to CommunityNet will be cost effective for TS. Additional analysis will be required over the summer to reach a final answer. The conclusion will be presented at the conference.

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E-TECHNOLOGY UTILIZATION AS VALUE CREATION IN INTEGRATED SYSTEMS: A MULTI-LEVEL ANALYSIS USING ROLE THEORY

Taylor LK[1], Dubé L[1], Pinsonneault A[1], Tamblyn R[2]. [1]Faculty of Management, 1001 Sherbrooke Street West, Montreal, Quebec, Canada H3A 1G5; [2]Faculty of Medicine, McGill University

Purpose: Web-based e-technology support systems have enormous potential for value creation. This paper provides a conceptual framework to assess the return on investment for e-technology introduction into integrated health care delivery systems.
Methods: Using a common integrated delivery template (MOXXI: Medical Office of the 21st Century), three specific health care delivery systems for asthma management, and the impact of reconfigured member roles in each, will be evaluated. System A provides e-technology for professionals via personal digital assistant devices to be used for e-prescription and advanced decision support in diagnosis and management of chronic disease. System B adds a web-based patient self-management component. System C introduces an alternative pharmacist-supported patient compliance element. In each system a series of well-defined, required activities creates measurable outcomes, mediated by role members in the system determining how, and at which level, each of these activities is accomplished. The two main questions explored are: 1) How does access to, and extent of utilization of, e-technology redefine role expectations and role behaviours within an integrated system?, and, 2) What is the impact of role redefinition on value creation as defined by improved system outcomes?
Results/Conclusions: It is anticipated the impact of e-technology as value creation for an integrated health system will depend on the type, extent and placement of technology within the system as role members renegotiate role expectations and behaviours. The findings, through a priori propositions, will also allow determination of which specific configuration of technology and players' role can increase return on investment most appropriately.

THE WEB INTEGRATION OF A DECISION SUPPORT SYSTEM TOOLS FOR CLINICAL APPLICATIONS

Belacel N[1], Matthews B[2]. [1]National Research Council (NRC), Institute for Information and Technology-e-business, e-health group, Saint John, New Brunswick, Canada E2L 5B2; [2]NRC Fredericton.

Introduction: The need for effective and efficient exchange of clinical knowledge is increasing. In this context, we will focus on the web-clinical activity and on ways to improve the quality of the exchanging the health information.

Methods: The challenge is to provide secure, remote access to decision support tools and a standard framework for the exchange of health information over inexpensive Internet communication pathways using web-based technologies. At beginning of our development we have used the acute leukemia disease as illustration. For this purpose, we recently developed a new fuzzy classification method called PROAFTN to help medical diagnosis.

Results: The results obtained by the PROAFTN method on acute leukemia show a good efficacy of this procedure. In this context, we will integrate the PROAFTN method and develop a web-based clinical database system using standard JSP, JavaBean, servlet, and XML technologies. The developed system will help to: (a) make online diagnosis and compare its performances with human practitioners of medicine; (b) implement a platform neutral XML framework for the electronic exchange of haematological data between physicians, haematologists, and Biologists-haematologists (c) assist online learning and simulation for training practitioners (d) provide a secure environment to ensure that health data transactions can occur with trust, confidentiality and integrity.

Conclusion: Using the proposed system, physicians will be able to exchange information with the biologist-haematologists. This will aid in making more informed and objective life decisions in real time. In the next step, we will extend this system to other types of pathologies.

TELE-HEATH AND WIRELESS TECHNOLOGY – BRIDGING THE DEMAND OF EXCELLENT CARE AND LOWER OPERATING COSTS

Posehn, W. Wi-LAN Inc., 2891 Sunridge Way NE, Calgary, Alberta, Canada T1Y 7K7

Introduction/Purpose: Innovative healthcare enterprises are embracing the Internet and other technologies to reach new markets, provide excellent healthcare and lower operating costs.

Description: A high-speed network that gives patients, medical professionals and support staff connectivity and the ability to share critical information, across multiple locations is essential. Putting such a network in place, however, can be extremely costly. Wireless links can also be used to connect remote clinics to larger clinics or hospitals, giving medical professionals and patients in outlying areas access to expertise and resources that may not be available locally, indeed doing more with less. Broadband wireless networks support bandwidth-intensive applications, such as streaming video and the sharing of x-ray and other large imaging files.

Results: With broadband wireless connectivity, networks can be quickly, easily and inexpensively modified to meet changing requirements. Broadband wireless networks offer the flexibility to painlessly add or eliminate sites, or secure additional bandwidth.

Conclusion: Examples: At the international Wireless Vision Congress, an event showcasing the impact of wireless technology on health care, education and the economy in both urban and rural environments, an e-health demonstration, performed for a number of government and telecommunications officials, had a doctor in Newfoundland remotely diagnose a patient in Labrador, showing how wireless technology can be instrumental in connecting communities and reaching remote rural environments.

[This wireless connection was designed by Wayne Squires of Electronic Centre Ltd., in conjunction with Industry Canada and Memorial University's Tetra (Telehealth and Educational Technology Resources Agency)].

PANEL DISCUSSION # 4:
PROVING VALUE: HOW DO YOU DEMONSTRATE RETURN ON INVESTMENT?

Moderator:

Dr. David Ostrow, Chief Coastal Health Authority; Professor, Department of Medicine, The University of British Columbia

Panelists:

Dr. Paul Dick, Assistant Professor, Pediatrics University of Toronto; Staff, Pediatrics, The Hospital for Sick Children

Robert Hanson, Senior Policy Advisor, Innovation and Investment Division, Office of Health and the Information Highway Health Canada

Dr. Russell D'Souza, Director & Consultant Psychiatrist, Continuing Care Psychiatry Program, Central East Area Mental Health; Senior Research Fellow, mental health Research Institute; honorary Senior Lecturer, Department of Psychological Medicine, Monash University, Melbourne, Australia

Dr. Penny Jennett, Chair, Canadian Society of Telehealth International Committee; Professor, Faculty of Medicine; Head, Health Telematics Unit, University of Calgary

Saturday, October 5, 2002
14:00 – 15:30

David Ostrow, MD, BSc (Med), MA, FRCPC, FCCP, FACP

BIOGRAPHY
Dr. David Ostrow graduated from the University of Manitoba in 1968. He received post-graduate education in Montreal, Winnipeg and East Lansing, Mi. He became a Fellow of the Royal College of Physicians of Canada in 1973, of the American College of Chest Physicians in 1976 and of the American College of Physicians in 1986. Dr. Ostrow is a Professor of Medicine at the University of British Columbia. He was the founding Medical Director of the BC Transplant Society/Vancouver General Hospital's Lung Transplant Program. Dr. Ostrow is active in Medical Education. He is currently Chief Information Officer of the Vancouver Coastal Health Authority and continues to conduct an outpatient practice in Pulmonary Diseases at the Vancouver General Hospital Respiratory Clinic.

Paul Dick, MD, FRCSC

BIOGRAPHY
Paul Dick is a paediatrician and health care researcher with an interest in developing and evaluating health services. He is a general paediatrician at The Hospital for Sick Children in Toronto and a scientist in Population Health Sciences of the Research Institute. He is an assistant professor in the Department of Paediatrics and Department of Health Policy Management and Evaluation at the University of Toronto. He is also an adjunct scientist with the Institute for Clinical Evaluative Sciences of Ontario. Paul has held competitive peer review grants from Health Canada and Physician Services Incorporated Foundation. He holds an Ontario Ministry of Health Career Scientist Award. He combines clinical and health services research on common childhood problems with an interest in health service innovation using information and telecommunications technology. He has recently been involved in the development and evaluation of a paediatric tele-homecare service.

"Evaluation Framework – National Perspective (Clinical/Academic)"
Evaluation frameworks have been put forward as important tools for organizing the evaluation of telehealth and e-health care initiatives. They originate in a scholarly tradition based on measurement concepts, but are intended to facilitate pragmatic decision-making in clinical, management and policy arenas. Typically, there is no single measure of effect that can adequately summarize the impact of a telehealth initiative, and there not just one group of individuals with an important stake in the initiative results. Frameworks provide an approach to managing complexity in evaluating new telehealth and e-health related applications. However, just like individual measures and perspectives, frameworks contain assumptions and values which need to be appropriate to the context for which they will be used. Is a Canadian evaluation framework emerging for telehealth?

Robert Hanson

BIOGRAPHY
Robert Hanson is a Senior Program Consultant in the Office of Health and the Information Highway at Health Canada in Ottawa. As such, he is a liaison for a number of telehealth projects in Northern and Western Canada which are being funded by the Canada Health Infostructure Partnerships Program. Formally trained as an economist in public finance and quantitative methods, Mr. Hanson has worked most of his career in program evaluation – including 10 years as the head of evaluation for the Social Sciences and Humanities Research Council of Canada before joining Health Canada in 1998

(Comments made will be based on a study completed by a number of collaborating e-health investigators in October, 2002, funded by the Alberta Heritage Foundation for Medical Research. Details of the study will be presented earlier in the conference.)

Polling questions for the audience:
1. Who is currently assessing the value-add and return on investment of e-health as this relates to socio-economic measures?
2. Given the observations I have just posed, do you agree, disagree, have other views that you wish to share- based on your telehealth role(s)/experiences?
3. What do you think are next steps for major players within the various telehealth sectors (public, private, professional, and academic) given the importance of this area, along with the need for reasonable expectations and the challenges being faced?

Telehealth 2002
Canadian Society of Telehealth Conference
Oct. 3-5, 2002

Poster Session

**Posters will be available for viewing in the Junior Ballroom and Foyer
From 0800 Friday, October 4 to 1600 Saturday, October 5**

Authors will be present during two one-hour periods :

Friday, October 4, 2002

1300 - 1400

and

Saturday, October 5, 2002

1245 – 1345

Poster Abstracts

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ON-LINE COMMUNITY OF PRACTICE MODEL: FACILITATING KNOWLEDGE GENERATION AND SHARING AMONG MEDICAL AND SURGICAL SPECIALISTS

Gondocz ST, Campbell CM, Nifco N. The Royal College of Physicians and Surgeons of Canada

Purpose: Our model proposes that a shared community space harnesses the power of the Internet. The model takes advantage of the simplicity of the desktop to facilitate collaboration, provides on-line mentoring opportunities, teaches personal development skills that enhances the learner's ability to learn, provides a safe and trusted environment for finding journals / courses, and offers web tools (and PDA integrating tools) that act as active learning partners. The on-line community is at its early stages but already has significant elements to facilitate knowledge generation and sharing through the integration of two tools (WebDiary and the Question Library) developed for the Maintenance of Certification Program (in Canada) geared at physicians practicing in various areas of specialty medicine.

Method: The presentation will describe the on-line learning portal supporting the Maintenance of Certification Program – namely MAINPORT.org. The session will outline the scope of the next phase of development and the implications to the learner, to specialty medicine, and to health care.

Results: The merits of portal technology include the ability to facilitate access to a variety of tools in an integrated way so that the learning environment is personal, comprehensive, and accessible. Key is the understanding that the culture of learning in professional development rather than the technology.

Conclusions: Through collaborative sharing participants will gain insight into the use and / or value of community space via portal technology in their own settings. The feedback from the session will be instrumental to the presenters in the continual development of MAINPORT.org.

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INFORMATION TECHNOLOGY IN CARDIOVASCULAR DISEASE PREVENTION

Jabbour S[1], Nishtar S[2], Pabhakaran D[3], Chockalingam A[4], Achutti A[5], Agrawal A[6], Luna M[7], Garofalo F[8], Wielgosz A[9] . [1]American University of Beirut, Lebanon; [2]National Heart Foundation of Pakistan; [3]All India Institute for Medical Sciences; [4]Institute of Circulatory and Respiratory Health, Canadian Institutes of Health Research, Vancouver, BC, Canada V6Z 1Y6; [5]Academy of Medicine of the State of Rio Grande do Sul, Porto Alegre, Brazil; [6]Lown Cardiovascular Center, Harvard Medical School, USA; [7]Unidad de Cirugia Cardiovascular de Guatemala; [8]National University of Rosario, Argentina; [9]Ottawa General Hospital, University of Ottawa.

Purpose: The aim of this study is to explore the use of information technology in promoting heart health globally and in developing countries specifically.

Background: Information can be an important tool in promoting a prevention strategy to address the emerging epidemic of cardiovascular disease in developing countries. Advances in information and communication technology offer new promises for global access to information and for global mobilization to prevent and control cardiovascular disease. This is especially true for health professionals whose needs in areas such as networking, exchange of expertise and access to relevant advances, remain unfulfilled. Information technology can also sensitise the lay public to the magnitude of cardiovascular diseases, creating awareness about risk states,

and highlighting preventive strategies. Effective application mandates that the technology be relevant to local needs. Feasibility, cost effectiveness and relevance of information need to be considered before wide adoption is advocated.

Existing Global Collaborations: Several initiatives, such as *ProCOR, Global Cardiovascular Infobase, Heartfile,* and the *Virtual Congress of Cardiology,* have successfully utilised information technology to promote cardiovascular prevention. While the experience of these initiatives is inspiring, there are potential perils, including the widening global information gap, inequitable access, and irrelevant information. Presently, information technology must be viewed as part of a broader strategy, which includes conventional communication media to address the unmet information needs for cardiovascular prevention globally.

Conclusions: Enlightened policies, which take into account the limitations discussed here, could exploit the energies of the ongoing information boom to promote cardiovascular disease prevention.

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PHYSICIANS IMPROVE PATIENT CARE WITH ASP SOLUTION

Alexander B, Microsoft Canada Co., Vancouver, British Columbia, Canada V6C 3K4

alberta wellnet is the umbrella for a series of province-wide and regional initiatives to build an integrated health information network in Alberta to improve the delivery of health services by improving access to health information. Its vision is to provide "better information for better health."

In collaboration with Microsoft Canada, alberta wellnet has adopted an application service provider-based model for the delivery of clinical applications including electronic charting, billing and scheduling software and training. By removing technological barriers in healthcare, the solution enables physicians to do what they do best – provide patient care. Office automation and support services including professional resource applications are delivered across the province over a high-speed Internet connection from a central location in Calgary.

Physicians report that the speed with which the software executes is outstanding. This is key for point-of-care solutions like clinical charting, ensuring efficient and better-informed care provision in the exam room. Data can be searched quickly and easily, allowing physicians to review clinical histories and billing without sifting through reams of paper or searching outdated databases. Physicians also plan to use instant messaging to share relevant patient information while in the exam room. The privacy of personal health information is fully protected.

The solution includes functionality such as e-mail, electronic lab results and home access. alberta wellnet has developed a complete and solid knowledge management platform for an all-encompassing range of services and activities that will further improve health care delivery in the future while curbing rising costs of healthcare delivery.

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MULTIAGENT-BASED e-HOSPITAL

Belacel N[1], Ghorbani A[2]. [1] e-Health Group, National Research Council, Incutech, 2 Garland Court, P.O. 69000, Fredericton, New Brunswick, Canada E3B 6C2. [2] Faculty of Computer Science, University of New Brunswick

Introduction: Current Internet infrastructure and 'intelligent agents technology' allow for intricate and complex systems to be modeled in a highly organised manner. A hospital is an ideal example of a system in which many distinct agents are employed

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to maintain the functionality of the entire system. This research aims to build an agent-based e-Hospital. The proposed e-Hospital is a complex multi-agent system that regulates and controls the flow of patients' information among units within a hospital and between different hospitals.

Description: The system's components process, summarise, and extract key phrases from different types of patient data (text, image and voice). Many unique agents are designed specifically to manage and provide the necessary computational capabilities for their respective units within a hospital. The patient treatment-planning agent uses the key phrases to plan and schedule the patient's treatments. This is mainly done through -collaborations with unit agents and the hospital information agent. The hospital information agent acts as the main controller. It also collects statistics for different stakeholders (government, research centers, pharmacies, and drug companies). In this system agents work together for the benefit of the entire system, however, they must not act in a detrimental fashion to their own locally assigned goals.

Conclusion: The agents' collaborative efforts speed up the clinical decision making process and reduce the delay in obtaining patient data from different units and hospitals. This is a work in progress, and the detailed design of the proposed system will be completed by the end of September 2002.

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AN INTERACTIVE REAL-TIME IMAGING AND DATA SOLUTION (*IRIS*)

Palmer K[1], Kaufman T[2], [1] Atlantic Health Sciences Corporation, Saint John, New Brunswick, Canada E2L 4L2. [2] Second Opinion Software

Purpose: To demonstrate an innovative and cost effective Telehealth Solution.
Description: Literally millions of dollars later, Atlantic Health Sciences Corporation (AHSC) has a successful intra-provincial tertiary cardiac Telehealth initiative. With this, the only patients traveling back to the New Brunswick Heart Centre (NBHC) to see their surgeon post-op were those within the NBHC's own Regional Health Authority. It became evident that it was time to look after those patients close to home. With that in mind and no external funding, AHSC went shopping.
Results: Working in conjunction with our telehealth software vendor, an IP/ISDN Telehealth modality was developed. Named *IRIS* for the Interactive Real-time Imaging and data Solution it provides, this versatile and extremely mobile equipment supports an IP electronic stethoscope and software that allows for real time and/or capture for store and forward follow-up purposes. Traditional secondary cameras and scopes are also utilised depending upon the clinical specialty or CME delivery.
Conclusions: *IRIS* has proven to be a scaleable, cost effective, robust and intra-operable telehealth solution. It is currently used via wireless IP (768 kps bi-directional) to remote island sites on and off our LAN for Mental Health, Emergency Mental Health, Collaborative Primary Care, Nutrition Education / Counselling for Diabetes and Hypertensive consultations, Rehabilitation, Organizational Learning and Administrative meetings. The traditional ISDN (512) capacity, where required, serves us well outside our region. To date there are seven *IRIS'* deployed within AHSC.

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EVALUATION OF MENTAL HEALTH OUTCOMES IN A TELEHEALTH SETTING

Coyle J, Orrell C, Urness D, Bulger T. Telemental Health Service, Alberta Mental Health Board Box 1000, Ponoka, Alberta, Canada T4J 1R8

Purpose: The objective of this study was to determine if there was a significant change in the self-perceived mental and physical health of community based telepsychiatry clients over time.

Method: The sample was composed of participants who had received services through the Alberta Mental Health Board's (AMHB) telepsychiatry service, which is based at Alberta Hospital Ponoka. Participants completed both the SF-12 and EuroQol 5D Visual Analog Scale (EQ VAS) prior to the initial psychiatric consult and consented to be contacted for a follow-up telephone interview. The follow-up telephone interview was designed to last 10 minutes and consisted of a satisfaction survey, the EQ VAS, and the SF-12 Health Survey (Sf-12 Standard US Version 1.0 Personal Administration Script). Participants were also given time to give comments about their experience with the telepsychiatry system.

Results: Comparing pre and post consult SF-12 scores found a significantly higher Mental Component Score (0.026P) and a small but not significant rise in the Physical Component Score ($p = 0.052$). The EQ VAS also found a significant improvement in health state ($p = 0.001$). There was an average time span of 9 wks and 5 days between the telepsychiatry session and follow up telephone interview. The shortest time between the consult and telephone interview was 43 days, the longest was 102 days and the mean was 68.0 days (Standard deviation 16.3 days).

Conclusion: In conclusion, this study found that telepsychiatry clients experienced significant mental benefits from this method of delivery of psychiatric services.

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THE BEST PRACTICE IN TELEDERMATOLOGY: LESSONS LEARNED IN A COMMUNITY-BASED SCHEDULED VIDEOCONFERENCED CONSULTATION

Ho K, May J, Johnston S, Ho V, Lui H. Division of Continuing Medical Education, Faculty of Medicine, University of British Columbia, 105-2194 Health Sciences Mall, Vancouver, B.C., Canada V6T 1Z3.

Purpose: The British Columbia Rural Health Video Network Link (RHVNL) pilot project introduced an Internet Protocol linkage between Vancouver and Vanderhoof to determine whether this connection could be effectively used for teledermatology consultations.

Methods: At the teledermatology sessions, the family physician was in the Vanderhoof videoconferencing room with the patient and the urban dermatologist was in the videoconferencing room in Vancouver. With consent from patients, the urban dermatologist interviewed and examined the patients' dermatological lesions via the videoconference medium.

Results: Highlights of key lessons learned were:
- The dramatic reduction of waiting time of rural patients to obtain specialty consultation
- The cost effectiveness and safety for the patients by eliminating the need for travel
- Validation of the rural physician's current management, just-in-time learning from the urban specialist on alternative treatment approaches
- Perception of the urban dermatologist that the presence of the rural physician led to a highly efficient and succinct consultation, as the reasons for referral were unambiguous.

- The cost-effective utility of the videoconferencing system as a screening tool to determine the need for live consultations
- The complimentary roles of digital images and the live videoconference images in adding to the diagnostic certainty

This presentation will elaborate on the highlights and the insights gained from the teledermatology experience, and implications for telemedicine in rural communities.
Conclusions: Teledermatology consultations are cost effective for patients and the health care system, present innovative continuing professional development opportunities for rural physicians, and leads to effective utilization of consultants.

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FACE TO VIDEO FACE ONCOLOGY CONSULTATIONS

Weinerman B, Den Duyf J. British Columbia Cancer Agency Vancouver Island (BCCAVI), 2410 Lee Avenue, Victoria, BC, Canada V8R 6V5

Purpose: The aim of this study will be to examine the feasibility of direct face to face subspecialty oncology consultations directly with patients directly over a video link and compare this to oncology consultations done at the Cancer Centre on similar patients.
Background: Vancouver Island has a population of approximately 750,000, of which 325,000 are located in the capital region of Victoria where the BCCAVI is situated. Many patients have to travel hours for consultation. An oncologist was hired for the Nanaimo Regional Hospital by the BCCA, however this one individual could not service all the referrals from the north island and many patients and surgeons wished their patients to see sub specialty oncologists. Traveling subspecialty clinics are a possibility they are in efficient from the physician and clinics point of view. A method to satisfy both situations would be the development of video subspecialty oncology consultation.
Methods: From September 1, 2002 one oncologist will see 30 new patients with selected gastrointestinal cancers via video consultation and matched with 30 seen by the same oncologist in the clinic. Patients will be phoned to discuss the acceptability video consultation. Satisfaction questionnaire will be filled out by patients and physicians.
Results: Preliminary results will be available.
Conclusions: If the process proves feasible and acceptable video consultations could be used to provide subspecialty advice to patients in remote communities.

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COMPUTER-BASED DELIVERY OF HEALTH EVIDENCE: SYSTEMATIC REVIEW OF IMPACT ON CLINICAL PRACTICE AND PATIENT OUTCOMES

Cramer K, Russell K, Hartling L, Wiebe N, Crumley E, Pusic M[1], Klassen TP. Alberta Research Center for Child Health Evidence, University of Alberta, Aberhart One, 11402 University Ave, Edmonton, AB, Canada T6J 2J3; [1]Centre for Community Child Health Research, Children's & Women's Health Centre of British Columbia

Purpose: To systematically identify and synthesise randomised controlled trials (RCT) and systematic reviews that evaluate the impact of computer-based delivery of health evidence on clinical decision-making and/or health outcomes.
Methods: Five electronic resources (MEDLINE, EMBASE, CINAHL, Web of Science, Cochrane Library) have been searched for relevant literature. The Health Information and Libraries Journal, the Journal of the Medical Library Association, and conference proceedings from the Annual Symposium of the American Medical Informatics Association have been hand searched. In addition, reference lists from relevant

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articles will be screened for more studies. Finally, the authors of relevant studies and experts in the field will be contacted for information on relevant studies. Two people will independently review all of the articles and apply standard inclusion/exclusion criteria. RCT's will be included if: they compare the use of computer-based health evidence to no use; the population consists of health care providers/clients; and, objective measures of the process and/or outcome of care are reported. Systematic reviews will be included if they review computer-based delivery of health evidence. Two reviewers will independently assess the methodological quality of relevant studies. The study objectives, intervention type, results, and conclusions will be extracted from each study. Data from RCT's will be pooled where appropriate; data from systematic reviews will be presented qualitatively.

Results: This project is in progress; results will be available October 2002.

Conclusions: The findings of this project will benefit policy-makers by providing information regarding the effectiveness of computer access to health evidence by health providers and clients.

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DOES A TELEPHONE TRIAGE SERVICE AFFECT INFORMAL CARE BEHAVIOUR?

Hogenbirk JC, Pong RW, McFarland V, Lemieux S. Centre for Rural and Northern Health Research, Laurentian University, Ramsey Lake Road, Sudbury, Ontario, Canada P3E 2C6

Purpose: To determine if self-reported informal care behaviours were affected after calls to Direct Health / TéléSanté. The teletriage pilot project (July 1999 to March 2001) was staffed by registered nurses and was available to Northern Ontario residents, 24 hours/day, 7 days/week. Callers described their symptoms to a teletriage nurse who used clinical guidelines and nursing experience to arrive at a recommendation.

Methods: The Centre for Rural and Northern Health Research mailed questionnaires to ~6000 callers and received 44% in reply.

Results: The majority of respondents reported that their call(s) to the teletriage service had not changed the kind of informal care (71%) or the amount of informal care (77%) that they gave to themselves or to others (e.g., family). Approximately 23-28% of respondents indicated that the kind or amount of informal care had increased after their call(s). About 50% of the respondents indicated that their confidence in providing care had increased, while another 50% reported that their level of confidence was unaffected. Patient's health status was reported to be excellent (38%) or very good (32%).

Conclusions: About one-quarter of survey respondents indicated that kind and amount of informal care had increased after their call(s) to the teletriage service, while about three-quarters reported no change. About half of the respondents reported that their confidence in their ability to provide informal care to themselves or to other people had increased. Less than 1% of respondents indicated that the kind, amount or confidence in providing informal care had decreased.

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USING THE BALANCED SCORECARD FRAMEWORK FOR THE EVALUATION OF TELEMEDICINE

Isaacksz S[1,2], Goel V[1], Roston B[2], NORTH Network[2], Program in Global eHealth Innovation[1], University of Toronto, Toronto, Ontario, Canada M5G 2C4

Purpose: To examine the limitations of existing telemedicine evaluation models and to propose a holistic approach to telemedicine evaluation.

Description: A literature review was undertaken to gain an understanding of the existing evaluation frameworks for telemedicine. The literature review was based on the evaluation recommendations set forth by the Canadian Health Infostructure Partnerships Program. A search through Medline, PubMed, and the Telemedicine Information Exchange website provided a comprehensive list of existing studies in the field of telemedicine. Several proposed and implemented evaluation frameworks for telemedicine emerged.

Results: Issues of sustainability, health outcomes, and comprehensive financial analyses were lacking in the existing evaluation models. In order to address these limitations, we propose the use of the balanced scorecard framework (BSC), in evaluating telemedicine. This approach has been used successfully in industry and in health care. The BSC uses four quadrants for evaluation, usually involving outcome, financial, satisfaction and organizational measures. The four proposed quadrants for telemedicine are: financial, patient/provider satisfaction, clinical utilization and outcomes, and system integration and change. The application of the BSC in telemedicine was described for each of the four proposed quadrants of this framework. A draft list of potential measures has been developed.

Conclusion: The BSC could be an effective model for the comprehensive evaluation of telemedicine initiatives.

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PRELIMINARY EVALUATION OF SATISFACTION AND PATIENT RECALL IN TELEDERMATOLOGY VERSUS IN-PERSON DERMATOLOGY

Zimbalatti C[1], Lester R[1], Roston B[1], Weiler A[2], Denis C[3], Fenton C[3], Wilson N[4], Armstrong P[2], Wilner S[3]. [1]Sunnybrook & Women's College Health Sciences Centre, Toronto, ON M4N 3M5; Kirkland and District Hospital[2]; Timmins and District Hospital[3]; Sudbury Regional Hospital[4]

Purpose: To determine whether patients receiving teledermatology care were satisfied with their consultation and had good recall of the dermatologist's instructions as compared to the control group receiving face-to-face dermatology consultations. The study also compared physician satisfaction between the two modalities.

Methodology: Patient and physician questionnaires were developed. One consultant dermatologist and fifty-three patient participants were recruited (35 telemedicine, 18 in-person) over a one-month period. Analysis assessed the reliability of the patient questionnaire and compared mean responses between the two groups. The physician and patient questionnaires were compared to score recall of new prescription or lifestyle recommendations.

Results: Few significant differences in patient satisfaction between the two groups were detected. Analysis of recall data did not produce a significant result (p=0.098), although the percent recall by teledermatology patients (67%) was almost double that of face-to-face dermatology patients (35%). Telemedicine patients reported increased satisfaction with the reduced waiting room time they experienced compared to in-person patients (p=0.43). The dermatologist showed a preference for

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in-person consultation with 2 statements, and preference for telemedicine with 1 statement.

Conclusions: It is encouraging that regardless of the preference shown by the dermatologist for one medium or the other in each Likert statement, all of the ratings were favourable. When taken with the preliminary results from the patient questionnaires, there seems to be a comparable satisfaction level with teledermatology. Studies with greater power to identify differences between groups and with a larger number of patient and physician participants are needed.

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TOWARD DEVELOPING A PROVINCIAL COSTING MODEL FOR TELELEARNING: A WORK IN PROGRESS

Anderson CJ. Alberta Wellnet, #2810 Canadian Western Bank Building, 10303 Jasper Ave., Edmonton, Alberta, Canada T5J 5C3

Purpose: The Alberta Wellnet Provincial Telehealth Committee (PTC) Workplace Learning Subcommittee requested a report on similar Telehealth networks in other provinces to gain a better understanding of their Telelearning activities, funding and costing mechanisms. This information would then assist the PTC to develop a provincial approach to resolving operational and sustainability issues regarding cost recovery of sponsoring agencies in Alberta.

Methods: A survey of a purposeful sampling of Telehealth networks was conducted between December 2001 and January 2002. Seventeen responses were received from a cross-section of Telehealth representatives in eight provinces. The information reported was subsequently returned to respondents for verification in preparation of the final report.

Results: Most responders expressed significant interest in the information as several were asking the same questions at the same time. A suggestion was made to use this information as the basis of moving forward toward a national type framework/guidelines as well as a provincial one to assist each province deal with the operational costs of Telehealth.

Conclusion: All responders indicated Telelearning is being provided as part of their Telehealth services. Each network indicated cost recovery of varying components of Telelearning sessions. No program indicated they were in direct support of content development but varying degrees of coordination by Telehealth coordinating staff was reported. No consistent costing/revenue generation model was identified.

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ASSESSING e-HEALTH READINESS OF A COUNTRY

Chowdhury MFU, Scott RE. Telehealth and e-Health Research and Training Program, Health Telematics Unit, Department of Community Health Sciences, Faculty of Medicine, University of Calgary, G204 Health Sciences Centre, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 1N4

Introduction: Identification of countries who could most benefit from e-health applications is desirable. Available literature identifies three primary characteristics as indicating a country's readiness to adopt and maximise e-health strategies: ICT infrastructure; healthcare infrastructure; and e-health commitment. This premise was examined by studying 22 Eastern Mediterranean countries.

Methods: Measures of ICT infrastructure (% population using telephones, % population with Internet access, and % population with personal computers), healthcare infrastructure (Healthy Life Expectancy – a) years, b) WHO ranking, and

per capita GDP), and e-health commitment (4 levels of e-health activity) were identified, and data collected for each.

Results: Five countries were excluded due to the inability to access current reports on e-health activity. Five countries were identified with published evidence of e-health activity, 10 countries 'self-reported' either established e-health programs or experimental pilot projects, 3 countries showed interest, and 2 countries reported no activity. Comparison of data for these groups of countries showed significant overlap and no clear trend for the data elements identified. For example countries with evidence of good ICT infrastructure (high telephone, Internet, PC use) or good health (high GDP / life expectancy) were distributed amongst the first two categories of e-health commitment. This suggests other factors exist that must also be considered (e.g. relationship with western countries, political stability).

Conclusion: The three criteria noted in the literature as indicative of a country's readiness for e-health do not show consistent patterns when applied to a set of countries. This suggests additional influential factors must be identified and considered.

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EOTN - EVOLUTION FROM ORGANIZATIONAL CENTRIC HEALTHCARE TO A PATIENT CENTERED REGIONAL HEALTH CARE SYSTEM
Crone K. Eastern Ontario Telehealth Network, Ottawa, Ontario, Canada K1N 5C8

Purpose: The purpose of this presentation is to demonstrate how the Eastern Ontario Telehealth Network, which is a CHIPP funded project, has been able to grow from an 18 month implementation project to a viable, patient-focused, telehealth network.

Description: The Eastern Ontario Telehealth Network is a $3 million, shared cost incentive program. Our goal is to provide consultative services and educational sessions, to patients and health care professionals, along the continuum of care. Including, paediatric, cardiac, long term and palliative care services from three consultative sites to 16 referring sites in our region. We will share our experiences as we evolved from an Organizational Centric Health Care system to a Patient Centered Health Care system.

Results: A summary of the results of our needs assessment will be used to demonstrate improved access to health care specialists. Number of clinical consults, educational sessions, hours of telehealth activity, and costs associated with providing clinical consults via telehealth will be provided along with qualitative information from our evaluative data.

Conclusion: Providing 19 hospitals with the necessary telehealth equipment and facilitating the development of a regional telehealth program has improved access to health care for patients and health care professionals within and external to our catchment area.

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STARTING A TELEHEALTH PROGRAM WITHOUT A FORMAL NEEDS ASSESSMENT AND WITHOUT GRANT FUNDING

Dunphy C. NORTH Network, Royal Victoria Hospital, Barrie, Ontario, Canada L4M 6M2

Introduction: This outline summarises the Central Ontario hospital experience in reaching their goal to introduce telehealth systems to support consultative, educational and administrative dialogue within the region.

Description: Following a series of informal discussions within the region, a proposal from NORTH Network outlining the infrastructure support they could provide was reviewed and in March 2000, consensus was reached among five hospitals to proceed.   Each site established a budget to support the project and equipment was secured. A co-ordinator and medical director were chosen at each site and operational issues were managed via regular meetings of the co-ordinator group. Administrative applications were encouraged to introduce the technology to physicians and staff. Opportunities for pilot consultative projects and specialty CME were determined through discussion between the medical directors and various specialty services. Initiatives are managed through regular meetings of the site staff and often include NORTH Network central and senior administrative hospital personnel.

Results: System use has grown to approximately 65 hours a month, with more than 200 staff and physicians participating in educational sessions monthly. Patient consultations have tripled since January 2002 to 20+ per month. Pilot clinics in Urology and Orthopaedics are also expected to grow. Consultations within the region and with best-practice partners occur regularly. Systems also support the ongoing operation of administrative and clinical groups.

Conclusion: The NORTH Network has offered a valuable and viable platform for non grant-funded hospitals to engage in telehealth activity, supporting their goals and the provision of service to their communities.

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SATISFACTION EVALUATION OF USERS OF A WWW-BASED PROVINCIAL TELEHEALTH SCHEDULING SYSTEM

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Purpose: The objective of this evaluation is to document the satisfaction level of users of the Alberta Wellnet Provincial Telehealth Scheduling System and to identify areas of improvement for the system.

Methods: A group of system users including Regional Health Authority telehealth coordinators and site coordinators have been asked to complete an online survey. This survey has been designed to measure user satisfaction and to capture user comments and suggestions. Comparison data will be collected from those users who have previous experience with other means of scheduling.

Results: This evaluation project is in its early stage and will be completed by September 2002.

Summary: The Alberta Wellnet Provincial Telehealth Scheduling System is a World Wide Web-based electronic scheduling system designed to support Telehealth Programs located throughout Alberta. The scheduling system is intended to improve the functionality of telehealth operations by providing an effective and efficient system for scheduling telehealth sessions and accessing information related to these sessions. It became operational in September 2001 and since then more than 5,000 telehealth sessions have been booked. As the first step of a comprehensive

evaluation of the system, this evaluation will measure user satisfaction and identify areas of improvement to guide further development of the system. Future evaluation activities will build on this work and include quantifying the impact the scheduling system has had on the workflow of users, quantifying cost savings associated with videoconference booking and determining whether the system has improved the ability for regional telehealth programs to work collaboratively.

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PHARMACIST COMPUTER SKILLS AND NEEDS ASSESSMENT SURVEY

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Introduction: Healthcare professionals must be able to effectively use information technology in order to optimise patient care, research and education.

Purpose: To gain a better understanding of the computer skills and needs of our pharmacists.

Methods: In May 2002, an 84-question written survey was distributed by mail to 90 practicing pharmacists in our multi-site 1500-bed acute adult tertiary care teaching hospital.

Results: Fifty-eight surveys (55% of total) were returned within the two-week study period. Survey responses reflect the opinions of hospital pharmacists with a broad range of education and practice experience. Most respondents regularly used computers in the work environment for drug distribution, information management and communication purposes. Few reported experience with handheld computers. Software experience varied according to application. While patient care information software and email was commonly used, experience with spreadsheet, statistical, and presentation software was negligible. Internet search engine use was reported to be the most common method of seeking clinical information online. Lack of familiarity with computer related terms was prevalent. Self-reported basic computer skill was typically of moderate level and varied between certain computing tasks. File management was commonly described as a difficulty, while Internet access and navigation skills were rated highly. Most pharmacists believed they needed to upgrade their computer skills, particularly medical database and Internet searching, in order to improve their practice effectiveness.

Conclusion: Most pharmacists believed they needed to improve their computer skills. Medical database and Internet searching skills were identified as being in greatest need of improvement.

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CONTEXTUAL LEARNING OPPORTUNITIES: USING TELEHEALTH TO SUPPORT CONTINUING PROFESSIONAL DEVELOPMENT FOR RURAL PHYSICIANS AND NURSES

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Purpose: The Trauma/Emergency/CME Telemedicine project provides professional development opportunities via videoconferencing to rural physicians and nurses as well as on demand clinical teleconsultations. The proposed presentation integrates

an assessment of the continuing education needs of rural physicians and nurses with an analysis of their evaluations of the educational services received.

Methods: Based on site needs, weekly educational rounds (one hour medical, one hour nursing) are delivered via videoconference. In addition to clinical curriculum, rural physicians periodically present morbidity and mortality rounds to discuss their cases. Medical rounds started in January 2002; rounds began on February 27, 2002. Data collection includes attendees' demographic and educational profiles and their feedback on each session, including Likert-type ratings and opportunities for qualitative, open-ended responses.

Results: The majority of attendees have been physicians and nurses with other allied health professionals (e.g., paramedics, firefighters, homecare workers) attending occasionally. To date, 188 feedback forms have been collected. Preliminary results show a strong connection between the material presented and its applicability to rural practice. For example, in presentations where clinical skills were discussed, 44% of respondents felt confident they would be able to perform the presented skills when needed; 91% felt presentations related directly to clinical problems they encountered.

Conclusions: Videoconferencing provides a means for rural professionals to engage in quality continuing professional education in a way that overcomes barriers of distance, time and geography. This pilot project will provide insight into best practices of telehealth education and integration of educational and clinical telehealth service delivery.

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THE S.T.A.B.L.E. ® PROGRAM: COMPARING IN-PERSON TO VIDEOCONFERENCED DELIVERY

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Introduction: We compared in-person to videoconferenced delivery of the S.T.A.B.L.E.® Program to determine the feasibility of using the MBTelehealth Network to deliver this program to remote and rural communities.

Description: The S.T.A.B.L.E ® Program provides concise guidelines for pre-transport stabilization of sick neonates, important skills for staff working in remote communities without immediate access to tertiary services. A pre-test/post-test control group design was used to compare knowledge acquisition and satisfaction between in-person and videoconferenced delivery. Participating communities were randomised to the in-person or control groups.

Results: Fifty-six providers participated in four groups. Two groups received the program in-person and two received the program via the MBTelehealth Network. Individual participants were found not to differ significantly on pre-test knowledge and provider type. Using repeated measures ANOVA analysis, we found no statistically significant differences between modalities for knowledge acquisition. Both groups showed statistically significant gains in knowledge when pre and post-test scores were compared. Using Mann-Whitney Test to compare user self-reported comfort and satisfaction with the course, most items were found to be not significantly different between the two groups. However, in-person participants expressed higher levels of comfort in interacting with the presenter, and those in the videoconferenced group were more willing to receive the course via videoconference in the future.

Conclusions: The S.T.A.B.L.E.® Program can be delivered effectively using interactive videoconferencing making this program more accessible for health care providers working in northern and rural communities.

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IMPLEMENTING A TRI-HOSPITAL TELE-TEACHING NETWORK: FROM CONCEPT TO REALITY

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Introduction/Purpose: The presentation will describe the design, concept and implementation of a tele-teaching network which now links three large teaching hospitals in downtown Montreal.

Description: A needs analysis was conducted at the Centre Hospitalier de l'université de Montréal (CHUM) to determine the needs of potential clinical and administrative users for telehealth applications. The response from those who participated was overwhelmingly in favour of establishing a tele-teaching network to link the three hospitals of the CHUM.

Results: A fully operational high speed IP network which is linked to a province wide ATM network – the RTSS network – has now been implemented to link nine sites in three large teaching hospitals in downtown Montreal. The result is one of the most modern medical and health care tele-teaching networks in place in Canada which will serve all clinicians, teaching health care personnel and administrators on all three campuses of the CHUM. Though it is too early to tell what the return on investment will be amongst the medical faculty and health professionals, enthusiasm amongst potential users is high for this most modern, multi-site, multi media medical teaching networks system.

Conclusion: The presentation will highlight the design and installation of this network as well as some of the challenges involved.

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MEDICAL STUDENT AND TEACHER RESPONSE TO VIDEOCONFERENCED SEMINARS

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Introduction: To examine to the role of videoconference (VC) for the delivery of senior medical students' surgery seminars between two teaching hospital sites. Many North American health care institutions involve more than one geographic site. In our centre, either one physician and students travel by shuttle bus to the site where there is the greatest number of students, or two seminars are given simultaneously.

Methods: Seven seminars were conducted through VC. Evaluation was performed as follows:

1) A questionnaire after each session.
2) 2 student focus groups after the series were completed.

Results: Only one session was completed without technical problems; frequently the teaching material was not appropriate for VC. 69/74 student and all 7 teacher questionnaires were collected. At the distant site all 30 student questionnaires were completed :

- 16/30 indicated that the convenience of not travelling did not outweigh the loss of a face-to-face seminar.
- 20/30 indicated the VC would impact medical education.
- 15/20 indicated the impact would be positive, 4 negative and 1 undecided.
- The focus group questioned the value of VC for small distances between sites. 6 / 7 teachers felt the convenience of not travelling outweighed the loss; those 6 also felt it would have a positive impact on medical education.

Conclusions: Teachers and students have different perspectives. Despite technical difficulty, seminar leaders value the benefit of not travelling. Students value face-to-face instruction over limited travel. A full year study would identify the impact on student learning.

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TELEHEALTH AS AN EFFECTIVE MEDIUM FOR CONTINUING NURSING EDUCATION: PERCEPTIONS OF E-TEACHERS AND E-LEARNERS

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Purpose: The Trauma/Emergency/CME Telemedicine project presents an innovative opportunity for ongoing professional development of rural health care providers. Rural nurses face challenges in accessing educational resources to facilitate professional excellence in nursing practice. However, through the use of videoconferencing, planned continuing nursing education sessions are offered to offset this challenge. This poster presentation demonstrates the perceptions and reactions of "e-teachers" and "e-learners" who have embraced Telehealth.

Methods: Employing a qualitative approach, case study interviews were done with the key players to explore their perceptions of utilizing the telehealth as a medium for education.

Results: The preliminary results of the ongoing study revealed both successes and challenges. For example, a success revealed by e-teachers is the ability to share knowledge of current evidence-based practice with nurses who face geographical barriers in accessing education. Alternatively, a criticism raised by some e-teachers was connected to the lack of immediate feedback from remote audiences. Uncovering successes and challenges experienced by participants contributes to a complex understanding of innovative telehealth initiatives.

Conclusions: The data will confirm the utility of the Telehealth medium to enhance rural nursing practice in an era of rapid change within the health care system.

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TELEHEALTH DEVELOPMENT AT CANUCK PLACE CHILDREN'S HOSPICE

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Introduction: Canuck Place Children's Hospice is the only free-standing hospice for children and families in North America. This poster outlines the steps taken in program development to implement telehealth for paediatric palliative care.

Methods: The first step began with a Needs Assessment. Five communities involving teams of up to 10 people were involved in a series of design meetings in which palliative care needs were identified. Participants included parents of paediatric patients, physicians, nurses, administrators and allied health professionals. Group consensus was developed around Goals and Objectives. This step identified goals of increasing community contact, raising awareness and knowledge, improving continuity of care and client outcomes. Specific objectives were then identified around these goals with specific timeframes for delivery; e.g. offer one education session on a clinical topic every month.

Discussion: Implementation of our goals and objectives was designed to occur within a 3 month time frame. This also provided a dedicated focus on identifying and developing consistent, reproducible steps in delivery offerings. Program Evaluation, identified by experts as a crucial element of successful telemedicine programs, was provided by an independent, recognised expert body. This enabled us to identify areas of our successes as well as areas requiring improvement to ensure delivery of an effective paediatric telehealth program.

Results: Specific applications were implemented successfully, for clinical consultation, family visits, education, and administrative planning.

Conclusions: The focus in telehealth implementations needs to be in process and community development.

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RETURN ON INVESTMENT FOR ACADEMIC CENTRES PRESENTING DISTANCE EDUCATION PROGRAMS

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Purpose: To discuss return on investment (ROI) for academic centres presenting videoconferenced distance education programs.

Introduction: It is difficult to calculate ROI for academic institutions because it is difficult to define both investment and return. Academic offices invest time and expertise but funding (and therefore financial investment) comes from other sources such as professional associations and granting agencies. Returns to the academic office presenting the educational programs include publications, awards, presentations, and research projects. Returns for the funders include programs produced, the education and appreciation of the participant-learners, and the opportunity to participate in academic endeavours.

Methods: For the period 1996-2002, we calculated the dollars invested in our videoconferenced CME program and the educational and academic returns received.

Results: From 1996-2002 approximately $420,000 has been invested in our videoconferenced program by the Nova Scotia Department of Health, the Medical Society of Nova Scotia, and pharmaceutical companies. This has produced 282 program/hours of CME attended by 4470 health care professionals for a cost of $94/person/hour. Conventional face-to-face conferences cost about $45/person/hour to produce but are more expensive for participant-learners to attend. Besides better serving our target audience, academic returns include 5 research projects, 3 awards, 6 peer-reviewed publications, and approximately 52 presentations (7 local, 21 national, 24 international). We have no other projects of similar scale with which to compare academic returns.

Conclusions: Educational telehealth can produce substantial educational and academic returns but comparison with other educational activities is difficult.

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ALIGNING E-HEALTH WITH STRATEGIC OBJECTIVES - FINANCIAL AND NON-FINANCIAL "ROI"

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Introduction: Health care facilities face financial and workload constraints that can challenge organizational commitment to sustainable e-health. The business case must support the organization's strategic directions as financial ROIs can be challenging to establish at the facility level. This presentation describes how SCO

Health Service aligned its business case with strategic directions to yield examples of financial and non-financial "ROI".

Description. SCO Health Service is a consulting site in the Eastern Ontario Telehealth Network (EOTN), a $3 million CHIPP funded program. The objective of EOTN is to establish sustainable telehealth to enhance rural access to specialised clinical consultations and education. To meet its commitment to sustainability the SCO Health Service required a business case and plan.

Results: An e-health perspective was adopted to support the organization's new strategic direction as a knowledge-based and learning organization. E-health contributed to five of six SCO Health Service overall strategic directions. Financial benefits of telehealth videoconferencing were considered in three domains: potential savings from reduction of patient transfers to acute care facilities, decreased travel expenses for education, and travel and time cost savings for cross-site meetings. In addition, the case was supported by a demonstrated increase of 122% in the number of participants attending e-health supported education within the first four months of EOTN operation.

Conclusion: ROI must be considered within the context of an organization's overall strategic directions with value-added provided for clinical, educational and administrative activities.

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MARINE INTERACTIVE SATELLITE TECHNOLOGIES

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Through projects such as the Remote Community Services Telecentre (RCST) and the Integrated Emergency Medicine Network (IEMN), TETRA and its partners have proven the viability and reliability of satellite and wireless technologies to deliver a variety of multimedia applications, including telemedicine, information services, and Internet access. The Marine Interactive Satellite Technologies (MIST) project seeks to expand the range of mobile applications that can be developed and supported, with a focus on the provision of telemedicine services, information services, and Internet access in a marine environment. The focus on the marine environment is particularly appropriate given the location of the project (Eastern Canada) and the wide range of commercial opportunities that could arise in the region for the deployment of the validated technologies and services.

The MIST project has three specific elements that are being implemented:
- Wireless Sickbay
- Wireless Kiosk (with a focus on tourism)
- Business Applications (Internet access)

The Wireless Sickbay element of the project has been developed, with implementation to a vessel currently ongoing. This will see the creation and validation of a technology, application, and human systems model that can be custom fitted to a vessel to meet its specific requirements. Port aux Basques serves as the primary coordination point for the telemedicine and tourism applications, with linkages to facilities in North Sydney and St. John's to facilitate patient transfer and support The Wireless Sick Bay scenarios, development of protocols and guidelines, evaluation framework, and proposed model for sustainability will be presented.

TELERHEUMATOLOGY: THE PIONEERING OF TELEHEALTH TO NORTHWESTERN ONTARIO REMOTE LOCATIONS

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Purpose: The Northwestern Ontario Arthritis Care Network tested a client-centred model of arthritis care for the Ministry of Health and Long Term Care to address identified arthritis service gaps in rural and remote communities, including unawareness of available services and geographic barriers to accessing care.
Methods: In May 2002 the regional rheumatologist initiated follow-up tele-rheumatology consultations to clients in remote communities via the NORTH Network. A health care professional trained in arthritis assessment attended with the client. Telephone interviews with clients were conducted following the consultations to determine satisfaction. Multisite educational workshops were also offered to physicians, allied health professionals and clients. Participants were asked to complete questionnaires.
Results: Telephone interviews with clients following telerheumatology consultation revealed consistently positive feedback. To date, multi-site educational workshops have provided information to 21 physicians and 19 allied health professionals in 9 communities, as well as arthritis self management information to 20 clients in 10 communities. Participant feedback reflects a high degree of satisfaction.
Conclusions: Based on the clients' and rheumatologist's satisfaction, tele-consultations will be extended to initial assessments as well as follow-ups, thus, enhancing client access to arthritis management. Workshops with clients and health care professionals in remote communities provided peer support and a better understanding of arthritis-related issues. Telerheumatology is an effective and acceptable modality to all participants in this pilot and it is anticipated that this model will be applied to other disciplines in the future.

A TELEHEALTH ENHANCED PARTNERSHIP FOR COMMUNITY DEVELOPMENT IN AGING AND HEALTH

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Introduction: As urban centers prepare for the aging boom in 2020, the future is 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. This telehealth enhanced partnership project provides a case study of developing community capacity in aging and health in rural and remote regions.
Description: First an assessment of the learning needs of health professionals, service groups and lay people were determined. A series of consultation team visits were undertaken combining clinical consultation and community wide educational events. Teams from the community made educational visits to our urban setting. Telehealth mediated interactions were introduced into the process and became the primary means for sustaining development.

Results: During the intervention knowledge of aging increased across the community, mentoring relationships developed, a trans-disciplinary assessment protocol was constructed, dementia service planning was enhanced, a caregiver support group started up and raised funds, a distant wound consultation process was initiated, digital assistant information resources were adopted by physicians, and a monthly videoconferenced consultation round was initiated.
Conclusion: Gradually "wrapping" information and e-health resources around entire communities increases skills and knowledge and may provide a model for enhancing health care for seniors in rural and remote Canada.

CST Special Posters - Abstracts

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THE CANADIAN SOCIETY OF TELEHEALTH EDUCATION COMMITTEE "EDUCATES THE MEMBERS": PROFILE, PROCESS AND EVALUATION

The CST Education Workshop Subcommittee Members: Flewelling C[1], Ingram CA[2], Anderson CJ[3]. [1]The Hospital for Sick Children, 555 University Avenue, Toronto M5G 1X8, [2]Isaac Walton Killam Health Centre, [3] CA Consulting, and Alberta Wellnet

Introduction: The mission of the Canadian Society of Telehealth (CST) Education Committee is to actively seek and provide opportunities for CST members to participate in educational activities that will broaden their knowledge of information and telecommunications technology and foster growth and development of Telehealth. The committee is chaired by a member of the CST Board and is comprised of four subcommittees: Technology, Communications, Funding and Workshop. Each subcommittee is responsible to investigate new ways for the Education Committee to meet its mandate to "Educate the Members".

Description: In February 2001, the Workshop Subcommittee launched a monthly series of educational sessions via multi-point videoconferencing - "CST Educates the Members". These educational sessions targeted Education Committee members and their local audiences across Canada. The topics for these sessions are obtained through informal and formal requests and focus on various aspects of operational Telehealth. To make this information available to a broader audience, the lecture portion of the presentation is videotaped.

Results: An overview of the successes and challenges of this program will be reported; including the evaluation summary results of Satisfaction Surveys conducted at each session.

An outline of the future plans for disseminating information to a broader CST audience, drawn from this data, will be provided.

Conclusion: Using videoconferencing to disseminate Telehealth education to Committee members across Canada is an effective means of enabling learning which also facilitates networking opportunities and fosters relationship building.

Canadian Society of Telehealth... N O T E S