

Lecture title:

20 years of Telemedicine in Tromsø, Norway

Abstract:

The lecture gives an overview of telemedicine in Tromsø and North Norway since the first telemedicine projects were started in 1987-1988. The first projects were initiated at Televerket's research institute (later Telenor Research) together with Norut IT (research centre at University of Tromsø), Tromsø Regional Hospital (later University Hospital of North Norway - UNN), Kirkenes Hospital and Troms Military Hospital.

In 1993, Department of Telemedicine at UNN was established. In 1999, it became the Norwegian Centre for Telemedicine (NST), and was labelled as a Centre of expertise in telemedicine. In 2002, NST was appointed as the first World Health Organization Collaborating Centre for Telemedicine. Today, NST is with its 130 employees a driving force in telemedicine research and development.

The tutorial offers a historical review of the pioneering activity in telemedicine and includes a presentation of the following telemedicine services: Teleradiology, Teleotorhinolaryngology, Telepathology, Teleophthalmology, Teledermatology, Telecardiology, Telenephrology/Teledialysis, Teleobstetrics/Prenatal, Teleemergency service, Teleoncology, Telecare, Teleodontology, Teleendocrinology/Telediabetes, Telesurgery, Telepsychiatry, (Solutions for) Patient empowerment, Maritime telemedicine, Distant education, Videoconference in telemedicine, Messages and electronic communication, Electronic Health Records, and Intelligent tools. For each service, problem, solution, and lessons learned will be presented.

The focus will be on the potential for large-scale telemedicine services.

Keywords:

Telemedicine, Remote consultation, Teleradiology, Teleotorhinolaryngology, Telepathology, Teleophthalmology, Teledermatology, Telecardiology, Telenephrology/Teledialysis, Teleobstetrics/Prenatal, Teleemergency service, Teleoncology, Telecare, Teleodontology, Teleendocrinology/Telediabetes, Telesurgery, telepsychiatry, (Solutions for) Patient empowerment, Maritime telemedicine, Distant education and telemedicine, Videoconference in telemedicine, Messages and electronic communication, Electronic Health Records, Intelligent tools.



Duration: 2 hours + questions and discussion

Level: Introductory

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Extended Abstract

1. Description or topical outline of tutorial:

The lecture will provide an overview for anyone who wants to better understand how telemedicine services can improve specialist health care, particularly in rural areas. The lecture is based on more than twenty years of experience with telemedicine services in Norway.

The first telemedicine projects were initiated in 1987-1988 at Televerket's research institute (Norwegian telephone company) together with Norut IT (research centre at University of Tromsø), Tromsø Regional Hospital (later University Hospital of North Norway - UNN), Kirkenes Hospital (Telepathology) and Troms Military Hospital (Teleradiology).

In 1993, Department of Telemedicine at UNN was established. In 1999, it became the Norwegian Centre for Telemedicine (NST), and was labelled as a Centre of expertise in telemedicine. In 2002, NST was appointed as the first World Health Organization Collaborating Centre for Telemedicine. Today, NST is with its more than 100 employees a driving force in telemedicine research and development, both nationally and internationally.

The lecture includes a brief presentation of the following telemedicine services:

- Teleradiology
- Teleotorhinolaryngology
- Telepathology
- Teleophthalmology
- Teledermatology
- Telecardiology
- Teledialysis
- Teleobstetrics/Prenatal
- Teleemergency service
- Teleoncology
- Telecare
- Teleodontology
- Telegeriatric
- Teledentistry
- Teleendocrinology/-Telediabetes
- Telepsychiatry
- Telemedicine solutions for patient empowerment
- Maritime telemedicine
- Videoconference in telemedicine
- Messages and electronic communication



In addition, the lecture briefly addresses:

- Distant education
- Reimbursement
- International projects

For the main services, I will present problem, solution, and lessons learned.

2. Attendee background:

Clinicians and other healthcare workers; informatics researchers; government healthcare representatives and policy makers; master students in medical informatics and others who want to learn more about telemedicine in practice.

3. Presentation format:

Slide-based lecture.

4. Learning Objectives:

Upon completion of the lecture, participants will be able to better understand:

- the role of telemedicine in health care service in general, and in specialist health care (in rural areas) in particular
- the role and impact of information technology in telemedicine,
- the impact of the technology on patient empowerment, clinical outcomes, safety and quality of life in rural areas with basic health services only
- the design and implementation challenges associated with telemedicine systems

5. Required Equipment:

No equipment is needed for the participants

6. Classification:

Telemedicine research, development of telemedicine systems (practice-oriented approach (pragmatic) to implementation of telemedicine services)



7. Brief Biography of the presenter:

Professor Gunnar Hartvigsen, born 1961, is since 1994 Professor at the University of Tromsø, Department of Computer Science, and head of the Medical Informatics and Telemedicine group.

Dr. Hartvigsen is since 2000 Adjunct Professor at the Norwegian Centre of Integrated Care and Telemedicine, University Hospital of North Norway. In 2007, he became research manager and director of Tromsø Telemedicine Laboratory, one of Norway's centres for research-based innovation.

Hartvigsen has a MSc and a PhD in Computer Science (Artificial Intelligence) from the University of Tromsø. Prior to joining the department at the University of Tromsø, he was a Research Fellow at the Bodø Graduate School of Business, Norway (1987-89). He was Assistant Professor (1989-1991) and Associate Professor (1991-1994) at University of Tromsø.

In 2005-2009 he was Vice Dean (prodekan) at the Faculty of Science, University of Tromsø. He has held several honorary posts at the Department of Computer Science, including Head of department, Vice Head of department, and Head of education. He has been member of several boards and committees at the university, including deputy member of the board at the University of Tromsø. In 2004-2006, he was Chairman of the Norwegian Council for Computer Science. In 2010 he became member of The National Committee for Research Ethics in Science and Technology (NENT). He is currently member of the board of directors of the Norwegian Society for Medical Informatics and on the board of directors at Simula Research Laboratory (Oslo, Norway).

He has supervised 60 master students and 3 PhD students. Dr. Hartvigsen is currently supervising 7 PhD students and several master students. Since 1992, he has been a member of more than 60 Adjudication Committees for Faculty Positions (Norway, Sweden, Denmark, the Netherlands, and Germany). He has acted as referee for several conferences, journals and research councils. He has been a member of several Doctoral Adjudication Committees in Norway, Denmark and the Netherlands.

In recent years, Dr. Hartvigsen has been teaching courses on Telemedicine Systems (MSc), Medical Informatics I and II (MSc), Electronic Health Records (MSc), Advanced topics in Medical Informatics (PhD), Software engineering (BSc), and How to do research / communicating research (PhD).

Dr. Hartvigsen has received several grants from the Research Council of Norway (Tromsø Telemedicine Laboratory NOK 180 Mill./€ 23 Mill. 2007-2014 (80 Mill. from RCN); Context-sensitive systems for mobile communication in hospitals NOK 4,4 Mill./€ 0,56 Mill. 2007-2010; Global Distributed Diary NOK 3,3 Mill./€ 0,42 Mill. 1996-2001, DiPato - Distributed Electronic Patient Record NOK 1,5 Mill./€ 0,2 Mill. 2000-2004), Helse Nord (Impact of Experience Sharing on Type 2 Diabetes Self-Management, NOK 2,5 mill./€ 0,32 Mill. 2011-2013; Self-help through a mobile ICT tool, NOK 2 Mill./€ 0,26 Mill. 2005-2008), Tromsø forskningsstiftelse (Mobile phone-based health information for people with diabetes, NOK 1,2 mill./€ 0,15 Mill., 2011-2014).

His research interests include various aspects of telemedicine and medical informatics, including electronic disease surveillance, self-help systems for people with chronic diseases, medical sensor systems, CHI for mobile systems, electronic health records (EHRs) and telemedicine systems in private homes.

In 1994-95 he was on sabbatical leave at the University of Twente, Faculty of Computer Science, the Netherlands. In Fall 2006 he was on sabbatical leave at the Faculty of Medicine, Munich University of Technology and Department of Health Science and Technology, Aalborg University.

Dr. Hartvigsen has written two books ("The Researcher's Handbook" and "Computer Ethics") and more than 200 papers and reports on telemedicine, electronic disease surveillance, EHRs, self-help systems for people with chronic diseases, intelligent homes, distributed applications, software agents, adaptive user interfaces, file systems, educational software, knowledge-based systems and ethics.

