Global telemedicine services – what can be learned from telemedicine in Norway?

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\textbf{Abstract.} The workshop gives an overview of telemedicine in Tromsø and North Norway since the first telemedicine projects were started in 1987-1988 and discusses how knowledge of and lessons learned from the pioneering telemedicine services established in Tromsø can be used worldwide. The first projects in Tromsø were initiated at Televerket’s research institute 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. In 2007, NST, together with 7 partners, established Tromsø Telemedicine Laboratory, a centre for research-based innovation, funded by the Research Council of Norway and the partners. Today, NST (from 2009: Norwegian Centre for Integrated Care and Telemedicine) is with its more than 120 employees a driving force in telemedicine research and development.

\textbf{Keywords.} Telemedicine, telehealth, e-health, remote consultation

\section{1. Background}

The workshop provides an overview for anyone who wants to better understand how telemedicine services can improve medical specialists’ and general practitioners’ health care, particularly in rural areas. The workshop offers insight into more than twenty years experience with telemedicine services in Norway and is based on the pioneering activity at the Norwegian Centre for Integrated Care and Telemedicine (NST) at the University Hospital of North Norway (UNN).

Northern Norway Health Care Region is geographically long and travelling can at times be very difficult [1]. Many telemedicine services help patients to avoid tiresome trips to hospitals and other healthcare institutions and offices. Some telemedical services have resulted in reduced waiting times. At a longer term, telemedicine could help to fulfill the national objective of providing equal access to health care irrespective of where the patient lives [1].
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 (within Telepathology) and Troms Military Hospital (within Teleradiology). Gradually telemedicine services were established in many areas, including [2]:

- Teleradiology
- Tele-otorhinolaryngology
- Telepathology
- Tele-ophthalmology
- Teledermatology
- Telecardiology
- Teledialysis
- Video conference (VC) for Prenatal telemedicine services
- Telecommunication-based Emergency service
- Teleoncology
- Telecare
- Teleodontology
- Teleendocrinology
- Telesurgery
- Telepsychiatry
- (Solutions for) Patient empowerment
- Maritime telemedicine
- Distant education
- Videoconference in telemedicine
- Messages and electronic communication

Several of the telemedicine services have been recommended for large-scale telemedicine services. Norum et al. [3] have grouped the service in three different groups according to priority. User support, training, research ability, financial incentives and interaction between clinicians and ICT-personnel were used to rank the different telemedicine services [3]. The first priority telemedicine services include teleradiology, digital communication/integration of patient records and education. The second priority services cover teledialysis, pre-hospital thrombolysis, telepsychiatry and teledermatology. The third priority services are paediatrics, district medical centres, tele-ophthalmology and tele-otorhinolaryngology.

2. Goal of the workshop, format and speakers

The expected achievements and outcomes of the workshop are knowledge of and lessons learned from the pioneering telemedicine service established in Tromsø and how this knowledge can be used worldwide. For the most relevant telemedicine services, we will briefly present problem, solution, lessons learned, and global perspectives.

In the workshop, we will try to combine the format of a traditional workshop with active participation from the audience with a tutorial, i.e., to give an overview of the lessons learned from telemedicine in North Norway.

Professor Gunnar Hartvigsen will act as moderator for the presentations and discussions. The workshop will be divided into 5 sections. Each section starts with a 10 minutes long presentation by one of the authors, followed by a 5 minutes discussion.
with the audience. The workshop is finalized by a 15 minutes open discussion with the audience.

3. Expected achievements and outcomes

Upon completion of the workshop, participants will be able to understand

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

The videos of the workshop presentations and the following discussions will be used as teaching materials in the master level courses in the telemedicine and eHealth international master program at the University of Tromsø.

Statement of participation: All speakers plan to attend the MIE2011 conference.

References

