

Empowering Remote Healthcare and Clinical Knowledge Sharing: The Vital Role of Research and Education Networks

Rajan Parajuli, PhD

Executive Director, Nepal Research and Education Network

Research & Education Network (REN)

REN, NREN & Operation Modalities

REN is a High-Performance Computer Network operated by the Research and Education communities for the sake of sharing knowledge, information and the resources among the communities. Also, called "Academic Internet"

NREN is an organization that operates REN, constituted as a consortium of members, a dedicated agency, a company, NGO, or other type of body.

Provides service to Universities, Colleges, Research Institutions and Labs, Government and other Non-profit research organizations

REN is a network while NREN is an institution

NRENs in the Globe

138 out of 193 UN
Member countries have
their own NREN

SOUTH ASIAN NRENs



Michael Foley, 2019



How RENs support remote healthcare and clinical knowledge sharing?

- RENs offer fast and reliable network connectivity, thus bandwidth-intensive services can be easily implemented, such as DVTS (digital video Transport System) which sends uncompressed video to remote sites using a standard PC.
 - Asia Pacific Advanced Network (APAN), a Partnership of NRENs in Asia, has a Medical Working Group that biannually connects medical professionals around the world and discusses various clinical cases for the sake of knowledge sharing global research and education network.
-

Some Use Cases of REN in the Health Sector

- Clinical Knowledge Sharing (Endoscopy Teleconference), TEMDEC



Remote Surgical Training

GÉANT and TEMDEC – using advanced telemedicine systems to enable surgical training across multiple countries

Surgical training has traditionally been based on observing operations but with the expansion of high-speed research and education networks, remote observation is feasible.

GÉANT and TEMDEC – using advanced telemedicine systems to enable surgical training across multiple countries

The Challenge

Surgical training has always relied heavily on observing operations to ensure surgeons are up to date on latest techniques and procedures. But with the growth in specialist surgical skills, with experts located in specific hospitals across Europe, physically attending training can be difficult or impossible. This reduces the ability to share and spread best practice, meaning that patients miss out on potentially life-saving new procedures.

The Solution

The TEMDEC telemedicine project is enabling remote training of surgeons by linking hospitals and surgeons together, through research networks such as GÉANT, allowing for greater collaboration and the sharing of high quality specialist video training across Europe.

Key Benefits

Previously telemedicine has been held back by poor image quality and a need for expensive equipment. The TEMDEC project, part of the Medical School of Kyushu University in Japan, successfully overcomes these issues by using research and education networks to transmit high quality images at speeds of 30 Mbps using Digital Video Transport System (DVTS) equipment that can be run from a standard PC. This quickly spreads best practice across the entire surgical community, helping surgeons learn new skills and ultimately benefiting patients.



Partners in the project:

TEMDEC <http://www.aqua.med.kyushu-u.ac.jp>

GÉANT www.geant.net



- Medical Working Group, Asia Pacific Advanced Network (APAN)

Kathmandu Model Hospital

