Aims
Last year it cost NHS Highland £1m to fund 5000 hours of consultant travel time alone. Supporting timely access to specialist care, across vast areas, is a challenge in Scotland that is also shared by many countries. The aim of the Implementing Transnational Telemedicine Solutions (ITTS) project is to use existing knowledge and experience to establish 10 sustainable transnational telemedicine demonstrator projects at scale across six northern European countries. ITTS in Scotland is being led by the University of Aberdeen’s Centre for Rural Health (CRH) in collaboration with NHS Highland and NHS Orkney.

Methodology
In ITTS, successful telemedicine projects within the six partner countries are exported for implementation elsewhere. This is a collaborative process with five stages:
1. International knowledge exchange: learning best practice from other countries
2. Formation of local multi-disciplinary teams
3. Development of a business case that identifies clinical need and potential barriers to implementation
4. Approval by an international panel of experts brought together by ITTS: the International Telemedicine Advisory Service
5. Confirmation of readiness using the eHealth implementation tool-kit

Projects are then implemented and evaluated to assess economic impact, patient and staff views, environmental impact and sustainability.

Results
NHS Highland, NHS Orkney and CRH have initiated several implementations using video-conferencing (VC) and mobile technologies:

- VC links for diabetes services are in place in three sites in Highland and Orkney, minimising clinician travel and increasing the number of appointments for patients in remote locations.
- VC links for renal services are being extended across Highland, linking dialysis units and out-patient clinics, increasing the number of patient reviews and clinic appointments.
- VC links for emergency psychiatry in Argyll and Bute are enabling psychiatrists to support out of hours assessments and reduce hospital admissions.
- VC links for remote diabetes services are in place in three sites in Highland and Orkney, minimising clinician travel and increasing the number of appointments for patients in remote locations.
- VC links for speech and language therapies are being extended across the North Highland region, widening access to different patient groups and specialist services.
- VC in local physiotherapy gyms across Highland is enabling the delivery of remote exercise classes for the rehabilitation of patients with COPD who cannot travel far.

Conclusions
- Collaboration provides a mechanism for advancing telemedicine into everyday practice and creating professional networks.
- International knowledge exchange is key to optimising the implementation and sustainability of these new services.
- Benefits of the ITTS implementations include:
  - reducing clinician travel time, which can lead to cost reductions and an increase in available appointments
  - providing access to specialist services both within the region and at large national centres
  - improvements in the equality of care delivery, where rurality is a barrier to access
  - reduction in emergency transport and hospital admission through the provision of remotely delivered specialist assessments
  - supporting patient self-care and health management at home.

Scottish projects being exported
- VC links for speech and language therapy services
- VC links for renal services
- VC links for remote diabetes services
- Smartphones to support patients with inflammatory bowel disease
- Remote support in medical and social care emergencies
- Remote exercise classes for rehabilitation
- Home based service delivery for patients with multi-morbidity

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