

Welcome message from David Heaney, Project Director



In the last newsletter, I promised that ITTS would be moving up a gear, and that is what has happened – almost all planned activities are live. This is due to a lot of hard work from our team and our partners, clinicians and technicians.

Of course, in a project of this nature, some plans will fail to overcome barriers (there are quite a few, as our project development workers will tell you!). Implementation of telemedicine is complex and requires a combination of factors to make it work.

On the other hand, some ideas have taken off more than originally intended, and spread. An example of that has been Project 9: Remote exercise classes for rehabilitation, and our reward as a team was at our recent meeting in Finland, when we watched the service in action. We observed a class between a physiotherapist and elderly patients at home, in remote and rural areas. They all seemed to enjoy their class, and were keen to tell their 'virtual visitors' from Scotland, Ireland, Sweden and Norway about it, and how they saw this as a way of them receiving other services into their home. We learnt much from the patients themselves that day, and saw how they all had got to know each other over their video connection.

This issue features the use of smartphones in the delivery of health services, and we have three smartphone projects – on physical activity, diabetes, and inflammatory bowel disease (IBD). We found that there are numerous 'apps' out there, but many are not easy to use, and very few are coordinated into actual delivery of services. We are planning to hold a knowledge exchange event on the use of mobile and web-based applications in diabetes care, in Northern Ireland in the autumn. The IBD project is based in Scotland, where an app was designed with clinician input and data from the app is integrated into the patient health record. This is shortly to be "exported" to Ireland.

The smartphone project which has really taken off apace is concerned with encouraging physical activity. This idea is being exported from Ireland, where it has been tried and tested, across all other countries in the project. It has the whole team on the move! General practitioners are prescribing an application to patients to count the number of steps taken in a day. We have all been trying this out, and you quickly learn just how long and how far you have to walk to meet recommended daily targets.

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I'm off for a walk right now... get in touch if you would like to try out the app!

Our next newsletter will be in the autumn, when the services we have put in place will have matured, we hope, and we will be evaluating their impact. By that time, we will be approaching the final stages of the project.

We hope you have a good summer,

David Heaney

ITTS Project Director

Associate Director of the Centre for Rural Health, University of Aberdeen

News Highlights

4th Project Partner Meeting: Oulu, Finland



In March the ITTS project team travelled to Oulu in northern Finland to attend our 4th project partner meeting. The meeting was hosted by our Finnish partners [Oulunkaari](#) and the purpose was to assess the current status of our ten demonstrator projects and produce an action plan for the next six months. The project is entering an extremely active phase with some projects up and running but most due to be implemented in the coming months. In addition to our implementation planning, we discussed how the projects will be evaluated.

On Day 2 of the meeting we travelled to the Oulunkaari offices, approximately 30km from Oulu, where we were able to see how three of the ITTS demonstrator projects are running in Finland. We witnessed a mock consultation being conducted between a diabetes consultant, diabetes nurse and a patient. We also watched an exercise class being conducted from the Oulunkaari offices to four elderly patients in their homes, and were shown a web-based tool that allows patients to access test results and ask health professionals questions online.

A full meeting report can be found on the ITTS website.

[Read more >>](#)

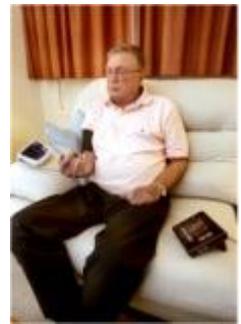
Knowledge Exchange

Knowledge exchange is an important component to the success of implementing our telemedicine service and, over the winter months, we saw considerable knowledge exchange across the ITTS partnership. Käte Alrutz (Project Manager, ITTS Sweden) visited Northern Ireland to impart her knowledge and experience of using videoconference technology to assist in the delivery of speech & language therapy (SLT) services in Sweden, but also to import valuable insight into the workings of other ITTS projects being developed in and around Belfast. Speech therapists from Northern Ireland also paid a visit to the Scottish Highlands to see first-hand how rural SLT services are making the most of telemedicine solutions.

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The Quantified Self

With technological improvements over the last decade, the price of personal computers, laptops and smartphones has reduced significantly with increasing availability allowing all levels of society access to and the benefit of these technologies. Hand held devices, in particular smartphones and tablets, have penetrated the market to such a level (51% of people in the UK have smartphones) they have become an integral part of people's lives, with more people in the world now having access to a mobile phone than a toothbrush.



With the rise of the smartphone, its potential as a tool for behavioural change is increasingly becoming scrutinized. This potential is established on the smartphone's capacity to store data, provide immediate feedback utilizing constant connection with online resources, and provide location information through GPS. These features can be employed and modified to suit user needs in many different forms through a variety of smartphone applications (apps).

To focus on the health-related app sector only, by the end of 2012 there were over 9,000 health-related apps, with an expected 13,000 health apps available in the Apple store by the summer of 2013. The majority of these apps are cardio-related programmes providing an easy to use step-by-step guide to exercise for active people or those new or returning to exercise. Other areas include diet monitoring, strength training, stress and wellbeing to name a few. As iPads and tablets are replacing school books there is potential scope for smartphones to become an essential tool used by exercise scientists, GPs, nutritionists, etc., to promote positive behavioural change in their patients.

As a hand held device constantly within arm's reach of its owner, a smartphone may become a valuable health monitoring tool for clinicians and patients alike. The smartphone's ability to store large quantities of data on a range of activities from exercise to medication adherence will provide valuable feedback for all parties involved. Ready access to monitoring devices has led to the growth of a new movement known as "[Quantified Self](#)". Created by a group of like-minded people, this incorporates new technologies to collect and collate data and self-track their activities, e.g., monitoring food

consumed, hours sleeping, step count per day, daily exercise/activity and mood using a variety of devices, including smartphones.

To conclude, smartphone penetration is continuing to rise within all levels of society. The addition of the 'Smartwatch' by Apple that will link to the smartphone and provide an additional display will add to the level of immediate feedback offered by these technologies. However, despite the rapid penetration of smartphones and their potential benefits to the healthcare and wellbeing sectors, such technologies have yet to be evaluated at scale to confirm their effectiveness with the telemedicine/healthcare sectors.

Focus on... Mobile self-management

Mobile phones provide a particularly promising platform for health management applications due to their central role in people's lives as well as their technical capabilities. There is real potential for patients to participate in their health care more proactively and, in turn, reduce the long-term burden on existing services.



These technologies can address wider health and wellbeing issues. Here are some of the benefits:

- Patient empowerment, taking greater responsibility for their health
- Convenience due to central role of mobile phones in people's lives
- Expand reach of specialists to remote and rural locations
- Reduction in travel, for both patient and health staff
- Faster diagnoses

ITTS aims to develop mobile self-management across a number of specialty areas, including:

- [Tracking Physical Activity](#)
- [Support for Remote Diabetes Services](#)
- [Inflammatory Bowel Disease](#)

[Read more >>](#)

Spotlight on...Tracking Physical Activity Project

An increase in obesity, chronic obstructive pulmonary disease (COPD) and diabetes, to name just a few health concerns, has prompted governments to promote regular physical activity as an essential tool in improving an individual's health. Although the minimum required time to be considered physically active varies from country to country, there is a commonality in the behavioural pattern where people struggle to fit daily physical activity into their busy lives.

Research has shown that walking can significantly improve health. It is also an activity that can be taken up by anybody, is free to do and can easily be incorporated into a daily routine. Pedometers are confirmed to be the most sensitive device to monitor walking behaviours and, with this technology now

widely available to download in the form of an app, smartphone users can now measure and monitor their daily activity levels without the need for any additional equipment.

ITTS aims to capitalise on the powerful on-board computing ability of the smartphone and promote participatory healthcare, recruiting participants in a study that tracks and promotes daily activity to improve their health.



Latest Project Activity:

Ireland

Using smartphones to monitor physical activity has been run as a pilot project in Ireland and has been demonstrated to have a positive effect on the number of steps patients take in a day compared to those in a control group. Ireland has been piloting a commercially available app: 'ACCUPEDO PRO'. The app monitors exercise by counting steps taken on a daily basis.

Following positive feedback from the pilot, the project team is now in the process of recruiting patients for the implementation phase of the ITTS demonstrator project in collaboration with general practices across the Western Research and Education Network ([WestREN](#)) of Ireland. WestREN is a partnership between more than 170 GPs and general practices and the Discipline of General Practice at [NUI Galway](#). The network covers a population of over 500,000 from an area extending geographically from counties Cork to Donegal. The potential of this physical activity project covers a broad health connected area – patients suffering from obesity, diabetes and COPD, to name a few, would all benefit from such an intervention. For the purpose of this project, however, recruitment will focus on patients with type 2 diabetes.

The project aims to go live this month with 400 patients!

Scotland

After months of preparation, this project is now LIVE in Scotland! At the start of May, staff at a Highland medical practice took innovative steps when they launched this new service aimed at increasing the physical activity levels of referred patients.

GPs at the Culloden Medical Practice will now identify patients who would benefit from using a smartphone to monitor their physical activity and recommend an 8-week walking programme, tailored to each individual's needs. Patients are asked to download the smartphone app which uses intelligent

3D motion recognition technology to track daily walking. Weekly step counts will be sent to the practice nurses who will monitor the data and set new targets, gradually increasing patients' activity levels.

Project Development Worker Gillian Galloway says: "The use of smartphones is a new but rapidly developing tool for use in health applications. ITTS is delighted to be working with Culloden Medical Practice in the implementation of this new service and to learn directly from patients and their practice nurses about their experiences of using this technology."

Patients and the practice nurses will be asked to participate in the evaluation of this new service. Their views can help inform our health providers about the future use of this sort of technology in monitoring physical activity; whether it is acceptable to patients and health professionals, delivers patient benefits and is cost effective.

ITTS hope to further the success of this project with Partners in Northern Ireland, Norway, Sweden and Finland all working towards implementation.

[Keep an eye on our progress here>>](#)

Partner Focus: Sweden

Västerbotten County Council

Västerbotten County Council is a regional authority with the  **COUNTY COUNCIL OF VÄSTERBOTTEN** responsibility for delivering primary health care to the 250,000 inhabitants of Västerbotten County, and specialised medical care to the almost 1 million citizens in Northern Sweden. Västerbotten County council owns and operates the University Hospital of Umeå. Research and development are carried out in collaboration in a broad spectrum of subjects and disciplines relating to human health. One important area for research and development is biomedical engineering, comprising technical areas such as applied electronics, signal processing, measuring techniques, biomechanics and fluid mechanics. Education in biomedical engineering for Master and PhD students is also carried out. eHealth services are well established in Västerbotten and most of the employees have a high degree of eHealth literacy. The relevant employees of the County Council are familiar with eHealth technology and have a positive attitude towards trying new eHealth services. Many of the ideas for new eHealth services come from practicing staff. Sweden, in general, has a very good infrastructure that can provide eHealth services even in the rural areas. The County of Västerbotten has a separate net (AC-net) that provides all the different institutions of the county with fast access and can transfer images and videos at high speed between different users.

We are fortunate to have Västerbotten County Council as a Partner in ITTS, and we are looking forward to our next Partner Meeting which they are hosting in September 2013.



*Back: (left to right) Johan Skönevik, Brith Gramström, Simon Lindgren, Heléne Westerlund, Helen Ödin
Front: (left to right) Anna Johansson, Lena Alenbro, Anders Asplund, Anita Hedlund, Anette Andersson, Anna Lindahl, Käte Alrutz*

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Recent & Upcoming Events

ITTS was/will be represented at the following events:

- [25-26 April 2013: Scottish School of Primary Care \(SSPAC\) Annual Conference](#)
- [9 May 2013: NPP Scottish Partner Meeting](#)
- [16 May 2013: Northern Ireland Connected Health Ecosystem \(NICH-ECO\) International Event](#)
- [29-31 May 2013: 22nd EBN Congress \(Digital Cultural & Social Innovation\)](#)
- [11-12 June 2013: NHSScotland Event 2013](#)
- [3-7 July 2013: 35th Annual Conference of the IEEE Engineering in Medicine and Biology Society, Japan](#)
- [4-6 September 2012: 5th ITTS Project Partner Meeting, Sweden](#)

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