

## **Lay Summary**

### **Professor Angus Watson**

#### **Personalised care with 'Smart Phones' for patients with inflammatory bowel disease in the Highlands and Islands of Scotland**

The Highlands and Islands of Scotland is a large geographical area. We have over 600 patients with IBD living within the boundaries of NHS Highland, some of whom are a 4 hour car journey away from appropriate secondary care. In addition to the geographic challenge of delivering high quality health, there is a professional challenge to general practitioners who may only have one patient with Crohn's or colitis in his/her practice.

There is a wide spectrum of disease amongst patients with Crohn's and ulcerative colitis, including patients whose disease is well controlled, and those who need more intensive management. Previous studies have demonstrated that using static telephones to follow up IBD patients improves patient satisfaction with their care. The use of 'smart phones' to help deliver more personalised health care has not been tested in a scientific setting. This study will examine if we can build a software application for 'smart phones' that can be used by patients to record their symptoms. The symptoms have been carefully chosen so that we can use them to score how severe the disease is. This data is then transferred using the mobile phone network to an NHS computer. The data is transferred securely and will comply with all existing NHS standards. NHS Highland has considerable expertise in delivering telehealth projects.

We will design and build software that will display the transferred data so that it can be interpreted by the research team at Raigmore Hospital. Each patient will have a range of symptoms that can be displayed graphically, and if any of the symptoms deviate from a normal level, this will alert both the patient (by the 'smart phone') and the IBD nurse. Once alerted, the IBD nurse will use either the 'smart phone' or a designated landline to hold a consultation. The IBD nurse will use a clinical management template and his/her judgement to help direct the patient's care appropriately.

We aim to recruit 40 patients with IBD from across the Highlands and Islands. Ethical committee approval is being sought for the study and each patient will need to give their consent, before taking part. Some will live in urban areas; others will live in remote locations. As well as testing the technology, we are also going to measure if the use of the 'smart phone' improves IBD patients' health and wellbeing. We will use a variety of measures to record what impact the technology has on their disease, quality of life and the number of contacts with their GP and hospital doctor. We will also measure how many times they use the application.

Many patients with Crohn's and colitis struggle to take the medication that has been prescribed for their disease management. There are a number of reasons for this. The phone 'app' can be used to record, which medications have been prescribed and how often they are taken by the patient. This 'compliance' rate is very valuable in helping us direct patient care.

This study concerns the design, build and testing of the technology. If this pilot is successful, we will test the 'smart phone' application further by comparing two groups of IBD patients; only one group will have use of the smart phone. If successful, we hope that the introduction of this system of disease management will help personalise the care that can be delivered to each patient. Patients may not have to visit their GPs or hospital doctors so often and this may be a more economical way of delivering high quality care to patients with inflammatory bowel disease.

We believe that the use of smart phone technology may help improve the care of other groups of patients with chronic medical conditions. Patient with asthma, diabetes, chronic pulmonary disease and depression may benefit from the use of mobile phone technology.