Researchers
Professor Sandra Macrury, Dr Jenny Hall, Dr Marie Van Drimmelen

Aim
HbA1c is a measure of blood glucose control in diabetes. In Highland, people with diabetes are expected to visit their GP every six months to have a venous blood sample taken and sent to a central laboratory in Inverness for HbA1c analysis. Results are used to assess blood glucose control and to support decision making with their clinician on any lifestyle or medication changes. Recent HbA1c results are often not available when people attend diabetes appointments. This work aimed to: (1) understand the views of people with diabetes on how this issue could be addressed by providing an alternative method of blood sample collection: dried blood spots (DBS) prepared by the patient at home using capillary blood, and (2) assess the performance of DBS in the hands of users, and gather thoughts from users on their experiences and thoughts on using the DBS system.

Project Outline/Methodology
Semi-structured interviews were carried out with participants attending diabetes clinics at Raigmore Hospital, Inverness and Portree Hospital, Skye. Findings were incorporated into the protocol for DBS assessment where participants provided a venous blood sample, and prepared two DBS - one under guidance at clinics and one at home. Home prepared DBS were posted to Raigmore Hospital in Inverness for laboratory analysis. Information about HbA1c was also provided. Participants were asked to complete a questionnaire to gather thoughts on their experience of using the DBS system, thoughts on using a remote HbA1c monitoring service and views on information about the HbA1c that was provided in their home study packs. Blood results were analysed to compare HbA1c measured from venous samples, clinic DBS and home prepared DBS.

Key Results
A strong linear relationship was observed between venous and DBS HbA1c results enabling a linear model to be fitted to the data for prediction of venous HbA1c from home prepared DBS results with clinically acceptable prediction intervals.

Participants indicated that the use of DBS would be an acceptable alternative and that they would be more likely to have their HbA1c test done this way. HbA1c information provided was thought to be interesting and useful.

Conclusions
Use of DBS results for routine monitoring of HbA1c is clinically acceptable. A DBS approach for routine HbA1c monitoring is acceptable to patients. The approach presents a learning opportunity for patients on the importance of HbA1c monitoring in diabetes management.

What does this study add to the field?
The study has tested a new method of blood sample collection for HbA1c analysis and captured the views of service users on the approach.

Implications for Practice or Policy
A DBS approach will increase service user participation in routine HbA1c monitoring helping to minimise the longterm complications of diabetes through improvements in diabetes management.

Where to next?
We aim to carry out a consultation across primary and secondary care with the aim of identifying the most effective way of integrating a DBS approach into routine practice. We also plan to carry out a health economics assessment.

Further details from:
Professor Sandra MacRury, Department of Diabetes and Cardiovascular Science, University of the Highlands and Islands, Centre for Health Science, Old Perth Road Inverness IV2 3JH sandra.macrury@uhi.ac.uk