

# Improving the medical management of patients with sight-threatening diabetic retinopathy

**Sunil Mamtoro,<sup>1</sup> Hani Hasan,<sup>1</sup> Grant Guthrie,<sup>1</sup> Nimish Shah,<sup>1</sup> Mohamed El-Ashry<sup>1</sup>**  
<sup>1</sup>Great Western Hospital, Swindon

## BACKGROUND AND AIMS

Diabetic eye disease is a leading cause of sight impairment registration in adults of working age. Patients with diabetic retinopathy have been shown to have poor knowledge and insight into their diabetic control.

Point of care testing provides rapid diagnostic information using finger prick blood. We performed a prospective study to evaluate the clinical impact of measuring HbA1c in patients with sight-threatening diabetic retinopathy (STDR), defined as R2, R3 or M1.

## METHODS

Fourty-nine consecutive patients with STDR were prospectively enrolled into our study for which ethical approval was granted. Point of care HbA1c was measured in all patients using the Quo-Test A1c system, EKF Diagnostics. All patients had their blood pressure measured using a Dinamap V100 blood pressure monitor. Two measurements were made 5 minutes apart and the second reading was recorded and used in the analysis.

Patients were asked to complete an internally validated questionnaire which asked how they felt their glycaemic control and blood pressure control was, type of diabetes, duration of diabetes, how useful they thought performing finger prick HbA1c was, who was responsible for managing their diabetes and their current medication.

The medical notes and ICE results system were then reviewed and for each patient. Previous treatments that the patient had received for retinopathy/maculopathy, grade of retinopathy/maculopathy in the worst eye and the date and value of the last HbA1c measurement were recorded for each patient. All data was then subsequently entered into an Excel spreadsheet for analysis.

Diabetes Questionnaire				
How do you feel your sugar control is?				
Good	Average	Poor		
How do you feel your blood pressure control is?				
Good	Average	Poor		
What type of diabetes do you have?				
How many years have you had diabetes for?				
Who looks after your diabetes?				
What medication do you take for your diabetes and blood pressure?				
How useful do you feel that performing the finger prick HbA1c test is? (with 1 being least useful and 5 being most useful)				
1	2	3	4	5
How likely do you think having knowledge of your HbA1c and measuring HbA1c using finger prick HbA1c for you today is likely to improve your diabetic control? (with 1 being least useful and 5 being most useful)				
1	2	3	4	5

FIGURE 1 – Left – survey used in study, Right – Point of care HbA1c system in use with consumables shown below

## RESULTS

Average HbA1c in our study group was 64.1mmol/mol. Eighty-two percent of patients had a HbA1c below their target (48mmol/mol).

Twelve patients had severely poor glycaemic control which was defined as a HbA1c greater than 75mmol/mol. Only 1 of these patients self reported as having poor glycaemic control.

Average time since last HbA1c measurement was 9 months despite NICE recommending that patients with diabetes and secondary end-organ damage should have their HbA1c measured on a 3-6 monthly interval.

Eighty-eight percent of patients felt that the point of care measurement was likely to help them improve their diabetic control.

## SUSTAINABILITY



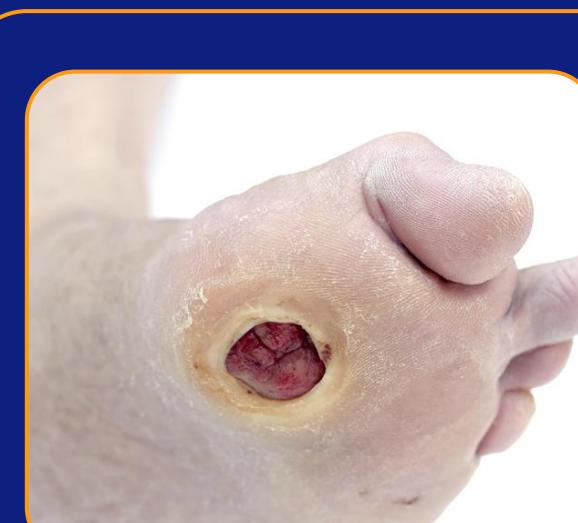
### Financial

- Intravitreal injection treatment for diabetic macular oedema is a huge financial burden. Even a small percentage reduction in number of injections required would generate massive cost savings.
- Point of care HbA1c is a cost effective method of measurement



### Social

- Taking a holistic approach and treating patients as a whole rather than just looking at the eyes.
- Empowering patients to be more involved in the management of their diabetes.



### Environmental

- Preventing secondary complications from diabetes such as stroke, nephropathy and peripheral neuropathy which could minimise the need for intervention from other healthcare professionals. This can ultimately lead to patients being able to provide increased contributions to society and have a better quality of life.

## ACTIONS, DISCUSSION AND CONCLUSIONS

Following our study, we were able to work closely with our specialist diabetes colleagues to agree a direct referral protocol for patients with poor diabetic control (defined as a HbA1c worse than 64mmol/mol) and STDR. Subsequently, 14 of the patients in our study were referred for specialist diabetes input.

In our study, patients with STDR were found to have poor control of their modifiable risk factor and minimal insight into this.

When performed in the Ophthalmology outpatient setting, point of care HbA1c is a useful tool to improve patient education, reduce the interval between HbA1c measurements and act as a screening tool to aid in the identification of patients who may benefit from an intensification of the medical management of their diabetes from a diabetes specialist.

## Acknowledgements

Mr. David Steel, Sunderland Eye Infirmary

Miss. Teresa Sandinha, St. Paul's Eye Unit, Liverpool

Mr. Sudheer Dhanireddy, Cheltenham General Hospital