

Urine testing: the importance of patient perceptions



Roger Gadsby, GP and Senior Lecturer, Centre for Primary Healthcare Studies, Warwick University

Many healthcare professionals think that they know what patients with diabetes really feel about aspects of their care. Take monitoring as an example. I guess many think that people with diabetes hate having to prick their finger to do blood glucose testing, and would

much prefer to do simple painless urine testing. Well the best way to test the theory that we know what patients want is to ask them. That's what the authors did in this qualitative study.

Lawton, Peel and Parry interviewed 40 people newly diagnosed with diabetes, recruited from general practice and hospital clinics in Scotland, three times over a one-year period. They found that patients reported strongly negative views of urine testing, particularly when compared with self-blood glucose monitoring (SBGM). They

perceived urine testing to be less hygienic, less convenient and less accurate than SBGM.

Most assumed that blood glucose monitors were given to those with a more severe or advanced form of diabetes. This could lead to a potential erroneous perception that those urine testing cannot have a serious form of diabetes – a perception that may undermine commitment to adhere to diabetes treatment.

Patients found it difficult to interpret negative urine tests results and some thought that they indicated that they did not have diabetes anymore. None of those doing SBGM reported low readings in this way. To them, low readings indicated successful disease management and compliance with diabetes treatment.

Asking people what they actually think sometimes gives a completely different answer to the one that was expected. If patients have such a low opinion of urine testing should we now stop teaching people to do it?

DIABETIC MEDICINE



Urine testing receives negative feedback

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓✓

1 The current lack of evidence that people with type 2 diabetes who undertake self-blood glucose monitoring (SBGM) have better glycaemic control than people who test their urine, has led to a recommendation that people with type 2 diabetes should undertake urine testing, as it is the cheaper option.

2 This qualitative study investigated the merits of SBGM and urine testing from the perspectives of people newly diagnosed with type 2 diabetes.

3 The researchers conducted repeat in-depth interviews with 40 newly diagnosed people at six-monthly intervals over one year.

4 Participants were recruited from hospital clinics and general practices in Lothian, Scotland.

5 Strongly negative views of urine testing emerged from participants, especially when it was compared with SBGM – they perceived it as less accurate, less convenient and less hygienic than SBGM.

6 The majority of participants assumed that blood glucose meters were given to people with a more serious or advanced form of diabetes, which could have implications for how they thought about their own disease.

7 Guidelines promoting the use of consistent criteria for equipment allocation are required.

Lawton J, Peel E, Douglas M, Parry O (2004) 'Urine testing is a waste of time': newly diagnosed type 2 diabetes patients' perceptions of self-monitoring. *Diabetic Medicine* **21**: 1045–48

DIABETES CARE



Fasting presents a challenge to physicians

Readability	✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓

1 This study assessed the care and characteristics of people with diabetes from countries with a sizable Muslim population, and studied the features of diabetes during Ramadan and the effect of fasting.

2 A total of 12 243 people from 13 countries were analysed in a population-based retrospective transversal survey; 1070 had type 1 diabetes and 11 173 had type 2 diabetes.

3 During Ramadan, 42.8 % of people with type 1 diabetes and 78.7 % of people with type

2 diabetes fasted for at least 15 days, but less than 50 % of the whole study group changed their treatment dose.

4 Severe hypoglycaemic episodes were significantly more frequent during Ramadan compared with other months, and were more frequent in participants who changed their dose of oral antidiabetic drugs or insulin or modified their level of physical activity.

5 Healthcare professionals are challenged by the large numbers of people with type 1 and type 2 diabetes who fast during Ramadan.

6 Before people with diabetes fast, there is a need to provide more intensive education, disseminate guidelines and conduct more studies to assess the impact of fasting on morbidity and mortality.

Salti I, Bénard E, Detournay B et al (2004) A population-based study of diabetes and its characteristics during the fasting month of Ramadan in 13 countries. *Diabetes Care* **27**: 2306–11

Type 2 diabetes

DIABETIC MEDICINE

Primary care sustained and effective

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

- 1 Data from patients with diabetes were collected by cross-sectional survey (n=2284 in 1991 and n=5809 in 2001) to assess process and outcome measures achieved by a comprehensive diabetes service.
- 2 Body mass index (BMI) and HbA_{1c} decreased, and smoking status, cholesterol level and eye screening results improved between 1991 and 2001.
- 3 Significant blood pressure and cholesterol level improvements were seen in surviving patients with type 2 diabetes. HbA_{1c} and creatinine deteriorated significantly in this group. BMI was unchanged. HbA_{1c} and blood pressure changes were similar to UKPDS findings.
- 4 Delivery of processes and outcomes of care to a district population within a comprehensive diabetes service can be sustained at high level over a decade using a multifaceted complex intervention.

Whitford DL, Roberts SH, Griffin S (2004) Sustainability and effectiveness of comprehensive diabetes care to a district population. *Diabetic Medicine* **21**: 1221–28

AMERICAN JOURNAL OF PSYCHIATRY

Risk of diabetes with atypical antipsychotics small

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

- 1 Patients with schizophrenia who were on a stable regimen of antipsychotic monotherapy between June 1999 and September 2000 and did not have diabetes were monitored using administrative data from the Department of Veterans Affairs.
- 2 Of the patients identified (n=56 849), 7.3% developed diabetes and 0.2% were hospitalised for ketoacidosis.
- 3 Clozapine and olanzapine had the highest risk for developing diabetes. Compared to conventional antipsychotics the risk was significantly higher. The risk of developing diabetes with quetiapine or risperidone was not significantly different from conventional drugs. Risk ranges from 0.05% (risperidone) to 2.03% (clozapine).
- 4 Risk of diabetes attributable to atypical antipsychotics is small.

Leslie DL, Rosenheck RA (2004) Incidence of newly diagnosed diabetes attributable to atypical antipsychotic medications. *American Journal of Psychiatry* **161**: 1709–11

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Importance of patient literacy highlighted

Readability	✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓

- 1 Data on glycaemic control and systolic blood pressure were taken from a trial of a comprehensive diabetes management programme with 217 patients with type 2 diabetes and poor glycaemic control (HbA_{1c} ≥8.0%).
- 2 Communication was individualised and delivered to enhance patient understanding

in those with low literacy. A multidisciplinary team delivered intensive disease management to intervention patients. An initial management session only was given to control patients.

- 3 After 12 months, intervention patients with low literacy were more likely to achieve HbA_{1c} ≤7.0% than controls (p=0.2). Higher literacy led to similar odds of achieving HbA_{1c} goals regardless of intervention (p=0.98). Improvements in blood pressure followed this trend.
- 4 A disease management programme addressing literacy may be beneficial for those with low literacy.

Rothman RL, DeWalt DA, Malone R et al (2004) Influence of patient literacy on the effectiveness of a primary care-based diabetes disease management program. *Journal of the American Medical Association* **292**: 1711–16

‘*Glulisine provides small and statistically significant improvements in glycaemic control... compared with RHI.*’

DIABETES CARE

Improved glycaemic control with insulin glulisine

Readability	✓✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

- The safety and efficacy of glulisine (a novel analogue of human insulin) was compared with regular human insulin (RHI) when combined with NPH insulin in this randomised, multicentre, open-label study.
- Participating patients had relatively well controlled type 2 diabetes (mean HbA_{1c} 7.55 %).
- Four-hundred-and-thirty-five patients were randomised to treatment with glulisine/NPH and 441 to RHI/NPH for up to 26 weeks. Unless hypoglycaemia necessitated a dose change, patients were allowed

to continue their pre-study oral antidiabetic regimens.

- At the end point, compared to the RHI group, patients in the glulisine group had a slightly greater HbA_{1c} reduction from baseline ($p=0.0029$).
- Lower post-breakfast and post-dinner blood glucose levels were also noted in those on glulisine at the end point ($p<0.05$).
- There was comparable weight gain and symptomatic hypoglycaemia (overall, severe and nocturnal) between both groups.
- Insulin dose changes did not differ between the groups.
- In patients with type 2 diabetes who are relatively well controlled on insulin alone or insulin plus oral antidiabetic agents, twice-daily glulisine in association with NPH can provide small improvements in glycaemic control compared to RHI.

Dailey G, Moses RG, Rosenstock J, Ways K (2004) Insulin glulisine provides improved glycaemic control in patients with type 2 diabetes. *Diabetes Care* **27**: 2363–68

DIABETES CARE

Depression related to suboptimal diabetes self-care

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

- Little is known about how depression influences diabetes management. This population-based study assessed whether diabetes self-care, medication adherence and the use of preventative services were associated with depression.
- Self-care (diet, exercise and medication adherence), diabetes monitoring (preventative care such as home-glucose tests, foot checks, screening for microalbuminuria and retinopathy) and depression were assessed in 4463 patients with diabetes using a questionnaire. Medication adherence, glycaemic control and preventative services were

assessed from automated diagnostic, laboratory and pharmacy data.

- The patients had a mean HbA_{1c} of 7.8 %. Mean number of yearly HbA_{1c} tests was 2.2, and only slightly higher among poorly controlled patients.
- Depression was associated with unhealthy diet, less physical activity and lower adherence to oral hypoglycaemic agents, lipid-lowering and antihypertensive agents.
- Preventative care of diabetes was similar between those patients with and without depression.
- In the primary care population self-care through to preventative care use was suboptimal. Depression was mostly associated with patient-initiated behaviours (e.g. diet, medication adherence and exercise) that are difficult to maintain. Depression did not affect use of preventative services for diabetes.

Lin EHB, Oliver M, Katon W et al (2004) Relationship of depression and diabetes self-care, medication adherence, and preventative care. *Diabetes Care* **27**: 2154–60

DIABETES CARE

Cost-effectiveness of screening procedures for T2D

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

- Population-based data from a survey of patients aged 55–74 years were used to compare the cost-effectiveness of different type 2 diabetes screening strategies.
- Over a year, four strategies were compared in the cost-effectiveness model for screening. These included: fasting glucose testing; fasting glucose test plus oral glucose tolerance test (OGTT); OGTT only; and HbA_{1c} plus OGTT if HbA_{1c} was >5.6 %.
- Screening costs in Euros, true-positive cases of type 2 diabetes, and incremental cost-effectiveness ratios (ICERs) were the main outcome measures.
- Fasting glucose testing after preselection yielded the lowest percentage of type 2 diabetes cases detected; whereas HbA_{1c} plus OGTT without preselection was the most effective at detecting undiagnosed diabetes.
- While it was the most effective method, screening costs per patient were highest with HbA_{1c} plus OGTT. From the statutory health insurance perspective, OGTTs yielded the lowest costs. From the societal perspective, fasting glucose plus OGTT in cases of IFG was most cost effective.
- Because of high participation, HbA_{1c} plus OGTT was the most effective screening strategy. Costs were lower, however, when screening with OGTT alone or fasting glucose plus OGTT.
- The most favourable strategy depends on whether the goal is to identify the most cases or incur lower costs at reasonable effectiveness.

Icks A, Holle R, Haastert B et al (2004) Cost-effectiveness analysis of different screening procedures for type 2 diabetes. *Diabetes Care* **27**: 2120–28

‘*Coexisting depression was associated with smoking, lack of exercise and unhealthy eating.*’