# Innovations in diabetes care:

## Changes that matter to our patients

## *Ensuring clinical standards in an evolving NHS*

**This is a report from the 7th National Conference of the Primary Care Diabetes Society, which took place on 18–19 November 2011 at the Hilton Birmingham Metropole, Birmingham. This report was generated by the journal's editorial team and the conference speakers.**

This conference, organised by the Primary Care Diabetes Society in association with *Diabetes & Primary Care*, aimed to improve the care of people with diabetes by promoting learning and interaction between healthcare professionals from across the primary care team. Talks covered topics such as diagnosis and classification of diabetes, diabetes emergencies, GP commissioning, lipid management and obesity. Masterclasses provided a forum for sharing experiences and best-practice advice. This document presents a summary of the conference.

Martin Hadley-Brown (GP, Thetford, Norfolk, and Chair of the Primary Care Diabetes Society) welcomed delegates to the 7th National Conference of the PCDS.

### Getting it right: The diagnosis and classification of diabetes

*Kamlesh Khunti (Professor of Primary Care Diabetes and Vascular Medicine, Leicester)*

Professor Khunti opened the conference with an engaging talk about the importance of correct diagnosis and classification of diabetes. "Classification is important because, although most people will have either type 1 or type 2 diabetes, lots of other types and subtypes of diabetes are now recognised," said Professor Khunti, "such as maturity onset diabetes of the young (MODY)." He commented that this presents new challenges to clinicians in primary care, where most people with diabetes are managed.

Problems with the classification of diabetes and various subtypes stem from the lack of their recognition in various national guidance, such as NICE (2009), which does not mention other diabetes subtypes and does not provide guidance on diagnosis.

In primary care, QOF currently demands that people are coded as "type 1" or "type 2" with no other options. "This has caused some confusion among healthcare professionals, and resulted in some people with type 2 diabetes being coded as having type 1 because they are treated with insulin" explained Professor Khunti.

A systematic review, carried out by the Classification for Diabetes Working Group, identified difficulties with the distinction between type 1 and type 2 diabetes, the classification of MODY, and distinguishing diabetes by type (Stone et al, 2010). "The implications of incorrect or incomplete coding or classification for the person with diabetes can be huge," said Professor Khunti, "and may be financial or psychological or lead to inappropriate management of their condition." He emphasised the importance of carrying out research in each delegate's own practice and provided the details of an audit tool that the Working Group have developed (http://www.clininf.eu/cod/).

Professor Khunti then moved on to discuss diagnosis and highlighted the recent recommendation to use $HbA_{1c}$ for diagnosis of type 2 diabetes (John et al, 2011). He compared the pros and cons of the oral glucose tolerance test (OGTT) and using $HbA_{1c}$, commenting that "OGTT is horrible for the patient and has a low reproducibility. It is expensive for staff and patients because of the time involved". He pointed out that using an $HbA_{1c}$ level is more reproducible, is a non-fasting test so it can be done at any time of day, and is quicker to perform. However, it was stressed that it is inappropriate for certain patient groups, such as in children and young people, people with

a short duration of symptoms and those with abnormal haemoglobin.

Professor Khunti looked at the screening tools available and a study of self-assessment of waist circumference. The study demonstrated that people systematically underestimated their waist circumference, but that this can be corrected with clear instructions (Khunti et al, 2011).

Professor Khunti also presented the Leicester self-assessment tool where individuals can fill in a few details about their health to obtain a risk score, which is then graphically represented as a traffic light (with green as low risk and red as high risk). Professor Khunti's team are testing this tool in 1000 people in Leicester.

## When it goes wrong: Diabetes emergencies

*Neil Munro, GP, Claygate, and Associate Specialist in Diabetes, London*

Dr Munro also spoke about the difficulties of diagnosing diabetes, but in a more acute sense. "Be careful of the early stages of type 1 diabetes," he warned, "the oldest diagnosis of type 1 diabetes I have come across was in a 94-year-old!" He advised testing for ketones a day after a diagnosis of type 2 diabetes to rule out type 1 diabetes.

Diabetic ketoacidosis (DKA) is the largest cause of death among people with type 1 diabetes aged >30 years (Umpierrez et al, 2002). Dr Munro reminded delegates that DKA can and should be avoided and pointed them towards the Joint British Diabetes Societies Inpatient Care Group (2010) pathway poster for reference.

"The hyperosmolar hyperglycaemic state (HHS), previously known as HONK (hyperglycaemic hyperosmolar non-ketotic coma), usually affects middle-aged or older people and carries a mortality of 15% (Umpierrez et al, 2002)" said Dr Munro. It is precipitated by infection, diuretic treatment and consuming glucose-rich drinks. To ensure early diagnosis of both DKA and HHS, Dr Munro said "Always, always test for ketones (blood or urine), take a complete history (osmotic symptoms, weight loss, malaise, recent infections) and family history and discuss the case with colleagues (including specialist registrars) if you're not sure".

Dr Munro then moved on to discuss hypoglycaemia and its link with sudden death. "Hypoglycaemia may be responsible for 'dead in bed' syndrome in some people with type 1 diabetes", he said. Hypoglycaemia may directly affect the ventricular myocardium, and other long-term diabetes-related conditions such as neuropathy and cardiovascular disease may combine to result in a fatal hypoglycaemic episode at night (Heller, 2008). "Nocturnal hypoglycaemia should be avoided as a priority – irrespective of what it does to $HbA_{1c}$ levels", said Dr Munro and he recommended reducing the evening dose of insulin as a first step towards reducing overnight hypoglycaemia.

Other diabetes emergencies include cardiovascular events. Dr Munro warned delegates to be suspicious if a person is experiencing shortness of breath, peripheral vascular disease or neuropathy because it could indicate a silent cardiovascular event. "Maintain good control of blood pressure, lipids and glucose levels, in that order", he said.

Dr Munro also commented on the complexity of treating someone with a painful hot foot and recommended referral for most cases and looked at a variety of acute problems in the eyes and kidneys.

## GP commissioning: The biggest gamble in history?

*Johnny Marshall, Chair of the National Association of Primary Care, Buckinghamshire*

Using events around the world, such as the Arab uprising, as examples, Dr Marshall began by pointing out that individuals are seeking more power; patients are becoming more knowledgeable and expect much more from their healthcare services. "With such changes going on in the real world, it would be silly not to change anything." He referred to a quote from Einstein: "insanity is continuing to do the same things and expecting different results."

Dr Marshall then looked at the challenges facing healthcare providers, such as increasing need, rising expectations and financial constraints. He emphasised the importance of good relationships between patient and healthcare professional and the need for everyone to take responsibility for providing good care.

"Long-term conditions are a key part of building a stronger NHS," said Dr Marshall, "and we all need to work hard at preventing diabetes." He referred to increased involvement in local community initiatives that are aimed at improving health as one way of preventing type 2 diabetes.

He moved on to look at the role of commissioning and said that it needs to be done in partnership. "A key role is between commissioners and providers", he said, and emphasised that joint working will produce good results.

Dr Marshall also commented on the importance of producing efficient care pathways that suit all the different needs of an individual and the importance of supporting them to self-manage their condition. "People with long-term conditions don't follow a nice pathway – they need packages of care", he said. If commissioning is part of a move towards integrating care and joint working, a greater emphasis is on the provider to take responsibility for the service they have worked hard to achieve. Dr Marshall finished by saying: "commissioning does nothing on it's own – it needs to be a collective responsibility".

## Interactive masterclasses

**On the first day of the conference, a series of eight interactive masterclasses were available. Delegates chose to attend the two sessions that were of most interest to them.**

### Practical approaches to diabetic peripheral neuropathy

*Uazman Alam, Specialist Registrar, Manchester*

Dr Alam looked at the current methods of screening for and diagnosing diabetic peripheral neuropathy, and concluded that they either target the wrong fibre types or detect nerve damage far too late. He is currently investigating the use of the non-invasive technique of corneal confocal microscopy to diagnose and assess progression for neuropathy. He also looked at the recent NICE (2009) guidance, which provides a cost-effective rationale for the management of the condition in primary care.

### Sleep apnoea

*Shahrad Taheri, Consultant Physician and Senior Lecturer in Medicine, Birmingham*

Dr Taheri spoke about the risk factors for obstructive sleep apnoea (OSA), including obesity and airway anatomy. He emphasised the importance of diagnosing and treating OSA in people with diabetes because there is evidence for an association with blood glucose levels.

He also presented evidence for an association of OSA with increased cardiovascular risk. Dr Taheri recommended lifestyle intervention at an early stage to reduce the burden of OSA on an individual.

### Running a diabetes clinic

*Claire Holt, Practice Nurse, Coventry; Julie Widdowson, Diabetes Educator/ Practitioner and Service Lead, Norfolk*

Claire and Julie led a practical session on how to run a diabetes clinic. They looked at how a clinic should be structured, how long each consultation should be and who should be present. They recommended using newer, more collaborative clinic consultation methods that engage the individual with diabetes in decision-making. Claire and Julie also looked at foot examination, managing blood pressure, screening for depression and albumin:creatinine testing.

### Ethnicity and inequalities

*Alia Gilani, Health Inequalities Pharmacist, Glasgow*

Alia pointed out that as the population ages and diversity is increasing with more people migrating to the UK, the inequalities gap will widen in future if health inequalities are not addressed now.

Cultural barriers have a role in an individual's understanding of disease, adherence with medication, access to services and influence on lifestyle factors. She emphasised the importance of healthcare professionals providing a culturally sensitive service to improve health and allow a more productive consultation.

### Effective blood glucose monitoring

*Jill Hill, Consultant Nurse Diabetes, Birmingham*

The cost-effectiveness of self-monitoring of blood glucose (SMBG) is a contentious issue in today's NHS. Jill made the point that SMBG can be cost-effective, but only if the individual with diabetes adjusts their medication in response to the reading. She emphasised the importance of the healthcare professional looking at SMBG results and helping the individual to analyse and adjust their own diabetes therapy.

She also showed delegates a few case-studies illustrating common problems that SMBG can help with, such as erratic blood glucose levels.

### When insulin doesn't work

*Fiona Kirkland, Consultant Nurse Diabetes, Staffordshire*

Fiona investigated the reasons behind people not achieving good blood glucose control using insulin. She explored the personalisation of insulin regimens and how to address fears related to insulin therapy, such as needle phobia and fear of hypoglycaemia. She also looked at balancing the risks of hypoglycaemia and weight gain against the risk of long-term complications if insulin therapy is not initiated.

Fiona reviewed the basics of insulin management and the impact of prescribing pressures on the choice of insulins.

### What do we need to know about diabetes and the eye?

*Martin Hadley-Brown, Chair of the PCDS and GP, Thetford*

Dr Hadley Brown provided a clear summary of different aspects of diabetic retinopathy, leading the delegates through from elements of initial retinopathy, such as microaneurysms, to severe retinopathy when the blood vessels have become so damaged that they bleed into the vitreous gel, called "vitreous haemorrhage".

He emphasised the importance of looking out for proteinuria, as kidney damage usually occurs alongside retinopathy in people with diabetes.

### Shouting doesn't work – a masterclass on achieving big changes in clinical practice

*Jim Kennedy, GP and Joint National Lead for ThinkGlucose at the NHS Institute for Innovation and Improvement*

Dr Kennedy explored a range of practical tools that primary care practitioners can use to effect change and improve the care of people with diabetes.

He discussed with the delegates the lessons that can be learnt from secondary care, how to improve care pathways, how to ensure optimal communication between care providers and where education is required.

### Who cares? The vulnerable adult

*Alan Sinclair, Professor of Medicine and Consultant Diabetologist, Luton and Dunstable; Fiona Kirkland, Consultant Nurse Diabetes, Staffordshire*

Fiona opened the joint Keynote Lecture by looking at what it is that makes a person vulnerable. "Vulnerability is defined by the Law Commission as '… a person aged 18 years or over who is or may be in need of community care services by reason of mental or other disability, age or illness … who is unable to take care of him/herself to protect self against significant harm or exploitation…'" said Fiona. Examples of vulnerable adults are travellers, care-home residents and frail older people living at home alone. Fiona explained the barriers to a vulnerable person receiving care, such as not having transport to and from clinic appointments, inconvenient timing of clinics and a lack of trust in healthcare professionals possibly due to being previously let down by support mechanisms.

"It is important to identify any vulnerable adults in your locality," said Fiona, "look out for signs like non-attendance at clinic appointments and unplanned hospital admissions." She also pointed out that some people may agree to a new management plan without fully understanding or adhering to it, so their outcomes do not improve and they may not want to attend a clinic in future. She recommended conducting an audit to determine the size of the problem and identify any gaps in the service. Fiona presented a case study that highlighted the challenges of meeting the care needs of each individual.

Professor Sinclair then explored the inequalities of care for older people with diabetes. The National Diabetes Audit (NHS Information Centre, 2010) showed that the median age of people with diabetes admitted to hospital was 75 years, and 70% of inpatients with diabetes were not seen by a member of the specialist diabetes team. "It is clear that more work is needed to make sure that older people with diabetes receive good quality care", said Professor Sinclair. He looked at national guidelines for diabetes and said "guidance, such as NICE (2009), avoids vulnerability issues. There is no special discussion of frail older people and little practical advice on how to minimise hypoglycaemia with current diabetes therapies".

Professor Sinclair then spoke briefly about physiological, social and psychological factors that contribute to vulnerabilities. "Hypoglycaemia is a major concern in older people with diabetes and awareness of hypoglycaemia can be significantly impaired", he said (Bremer et al, 2009). People with type 2 diabetes are at a higher risk of developing dementia (Peila et al, 2002). "Early identification of dementia is beneficial to the patient and their family but also provides an opportunity to review their cardiovascular risk factors", said Professor Sinclair.

He summarised the lecture with a slide that looked at the care of older people with diabetes as a balancing act between social and family dynamics and clinical care pressures.

### What the papers don't say: Lipid management – exploring the myths

*Paul Downie, GP, Herefordshire*

"There is a disproportionate amount of misinformation in the press regarding lipid management", said Dr Downie, as he began to dispel the myths printed in newspapers with evidence from clinical trials. He began by looking at the clinical manifestations of insulin resistance. "Insulin resistance is associated with visceral adiposity, all components of the metabolic syndrome, endothelial dysfunction, and a prothrombotic tendency." He then talked the delegates through the physiological reasons for the association between insulin resistance and dyslipidaemia.

A study by Haffner et al (1998) showed that people with diabetes had the same risk of myocardial infarction (MI) as someone without diabetes who had already had an MI. "The highest risk of MI was in someone who had diabetes and had already had an MI", said Dr Downie. He discussed whether having diabetes and other risk factors increases cardiovascular (CV) risk further, and referenced the INTERHEART study (Yusef et al, 2004), which analysed the relationship between the CV risk factors smoking, diabetes, hypertension and obesity and concluded that multiple CV risk factors have synergistic effects that increase the risk of MI.

Regarding statin therapy, Dr Downie said: "there is no evidence to suggest that statins increase CV risk". He looked at data from Crouse et al (1997), Pedersen et al (1998) and La Rosa et al (1999) which show that statin therapy reduces most clinical manifestations of atherosclerosis, such as stroke and coronary events. "These data demonstrate that statins improve the quality of life, by reducing non-fatal events, and also lengthen life, by reducing total mortality", he said.

In response to news stories saying that the side-effects of statins outweigh their benefit, Dr Downie looked at a study that evaluated muscle pain and weakness in participants taking simvastatin compared with placebo (Collins et al, 2003). "The difference between the groups was not significant," he said, "in fact, a slightly higher number of those taking the placebo reported side-effects and stopped taking the medication."

Dr Downie also discussed other lipid-lowering therapies, such as ezetimibe. He recommended it as a useful add-on to statin therapy but warned that there is not enough long-term data to support its use in people with diabetes. He also recommended that nicotinic acid is initiated in secondary care as the dosing and side-effects are complex.

Dr Downie hoped that his talk will help primary care clinicians to persuade their patients to take statins.

## Obesity: A weighty issue

*David Millar-Jones, GP, Gwent*

Dr Millar-Jones began his talk by looking at how obesity and type 2 diabetes are closely related. "Type 2 diabetes is the result of underlying insulin resistance, which is associated with weight gain and subsequent beta-cell dysfunction". He looked at a study by Jung et al (1997), which showed that a 10 kg reduction in weight has many benefits, such as reducing the risk of developing diabetes by 50% and reducing overall mortality by 20–25%.

He then explored the causes of weight gain, and whether it is inherited or the impact of surrounding environment. One potential cause of weight gain that is currently being researched is gut bacteria. "Gut bacteria are involved in energy homeostasis and insulin sensitivity," said Dr Millar-Jones, "and they are determined by the host's genetics as well as their diet." He explained that use of antibiotics and a high-fat diet may lead to the body responding to gut bacteria as an infection and decreasing the diversity of gut bacteria. "An increased inflammatory response in the gut may lead to angiogenesis and adipocyte recruitment – thereby increasing fat storage", he said.

Weight loss is a complex process with many different factors affecting it. Dr Millar-Jones looked at the different tools available for helping people to lose weight. "Food is addictive, and most diets concentrate on deprivation!" he said, emphasising that diets are difficult to stick to. He advised maintaining a healthy balanced diet (containing recommended proportions of carbohydrate, fat and protein), but reducing portion size. He listed the various available diets but warned against very low calorie diets as, in his experience, people tend to regain more weight later. "Exercise is key to maintaining weight loss", he said, and discussed the results of a study by Hunter et al (2010) which showed that those who exercised regained less weight than those who did not. "What was most striking, was that the proportion of visceral fat was much lower in the exercise group compared with the non-exercise group", he said.

Dr Millar-Jones also discussed the impact of obesity on mental health. Black et al (1992) found that 19–60% of bariatric surgery candidates had mood disorders, 50% had anxiety and 8% had a record of substance abuse. He looked at behavioural therapies, such as neurolinguistic programming, as part of holistic treatment for obesity.

Other tools for weight loss include bariatric surgery, of which Dr Millar-Jones looked at the pros and cons, and pharmacotherapy, where there are lots of drugs in development but only one (orlistat) on the market.

Dr Millar-Jones finished by looking at the risks of rapid weight loss. "People may encounter other problems as they lose weight, such as malnutrition, gall stones, osteoporosis, and depression", he said, and reminded delegates to look out for these problems.

## Diabetes: Question Time

*Chair: Eugene Hughes, GP, Isle of Wight*

Dr Eugene Hughes chaired a lighthearted session of questions from the audience assisted by a panel of experts (Neil Munro, Gwen Hall, Stephen Lawrence and Martin Hadley-Brown).

The first question, "is pioglitazone dead and buried?" was expertly answered by Dr Hadley-Brown, who didn't think so. "We need to get used to side-effects with almost all diabetes drugs", he said and explained that for certain groups, such as south Asian people, it still has an important role, although he cautioned that further clarification on this is still required.

The next question, "we are being asked to use NPH insulin in preference to analogue insulins to save money – what should we do?", was answered by Gwen Hall, who said that it is recommended by NICE (2009), and local protocol in her area advises the use of NPH in type 2 diabetes. "However," she said, "out of the past six people I initiated on NPH insulin, three have already switched over to analogue insulin." She emphasised the importance of individualisation, saying "choose the insulin to match the individual, rather than asking them to change to match the insulin".

Other questions were asked regarding the current role of pharmacists in diabetes management and how the new driving regulations impact people with diabetes.

Overall, the conference provided an overview of the most current topics in diabetes care and delegates left armed with key information to inform their practice. ■


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