News and updates from the 78th ADA Scientific Sessions, 2018

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Here, Nicola Milne and Pam Brown report on the latest advances in diabetes medicine presented at this year's conference, keeping you abreast of the latest international news and research

In this issue, we provide highlights on the 78th ADA Scientific Sessions, which were held in Orlando, Florida, in June. The meeting drew together over 16 000 healthcare professionals with a special interest in diabetes and included 375 oral presentations, over 2100 posters and almost 300 published abstracts.

As ever, major trials and late-breaking research led the packed programme, including the 15-year update on the Veterans Affairs Diabetes Trial (VADT) and Restoring Insulin Secretion (RISE) Study. The draft ADA/European Association for the Study of Diabetes (EASD) consensus statement was also introduced. We share these highlights and more here, along with links to the online published papers.

No significant reduction in cardiovascular risk at 15 years: Veterans Affairs Diabetes Trial

Intensive HbA_{1c} management does not lead to a significant reduction in cardiovascular (CV) events after 15 years, the VADT has found. This result is disappointing, as the 10-year follow-up data demonstrated a significant reduction in CV events (myocardial infarction, stroke, death from CV causes, new or worsening congestive heart failure, surgical intervention for cardiac, cerebrovascular or peripheral vascular disease, inoperable coronary artery disease and amputation for ischaemic gangrene) in those receiving intensive versus standard treatment (Hayward et al, 2015). Intensive treatment did not lead to improvements in CV or all-cause mortality after 15 years.

The VADT examined the effects of intensive glucose control on CV events in patients with long-standing T2D. It randomly allocated 1791 military veterans (mean age, 60.4 years) with a suboptimal response to type 2 diabetes (T2D) therapy to intensive or standard glucose control. Other CV risk factors were treated uniformly. At recruitment, the mean number of years since T2D diagnosis was 11.5, and over 40% of participants had already had a CV event. The baseline characteristics of both cohorts were similar. The goal of intensive therapy was an absolute reduction in glycated haemoglobin level of 1.5 percentage points compared with standard therapy.

Intensive treatment in the VADT reduced the relative risk of the primary outcome – CV events – by 17% at 10 years of follow-up (hazard ratio [HR], 0.83 [95% confidence interval (CI), 0.70–0.99] (Hayward et al, 2015); however, the difference was no longer significant after 15 years (HR, 0.91 [95% CI, 0.78–1.06]). There were no significant differences in CV mortality (10-year HR, 0.88 [95% CI, 0.64–1.20] versus 15-year HR, 0.94 [95% CI, 0.73–1.20]) or overall mortality (10-year HR, 1.05 [95% CI, 0.64–1.20] versus 15-year HR, 0.94 [95% CI, 0.73–1.20]) at either point in time.

Hertzel Gerstien reminded delegates that, at least for about 6 years, HbA_{1c} <53 mmol/mol (<7.0%) is better for CV health than HbA_{1c} >64 mmol/mol (>8.0%), but noted that it takes around 10 years to get the benefit of a 17% reduction in risk of CV events – which has a very different meaning for a 70-year-old versus a 40-year-old who both have advanced T2D.

In the intensively-controlled group there was a two- to three-fold increased risk of severe hypoglycaemia and greater weight gain compared with the control group (Hayward et al, 2015). These effects were sustained over the 15 years. It is also of note that 97% of trial participants were men. It is unclear whether similar results would be found in a female population. SGLT2 inhibitors and GLP-1 receptor agonists were not used in this trial, and it would be interesting to ascertain the long-term legacy of the use of medications demonstrating CV benefit, such as empagliflozin, canagliflozin and liraglutide.

Clinical management considerations

- Individualised HbA_{1c} targets, taking into consideration factors such as duration of diabetes, comorbidities and frailty, remain

of paramount importance
- Avoid hypoglycaemia
- Remember to address other CVD risk factors, including hypertension, dyslipidaemia and smoking.

Restoring Insulin Secretion study: beta-cell function not preserved

New approaches are urgently needed to preserve beta-cell function in young people with impaired glucose tolerance or recent diagnosis of T2D as this is not being achieved with current treatment. In the RISE (Restoring Insulin Secretion) study, the progressive deterioration of beta-cell function in young people was not halted with 3 months of glargine followed by 9 months of metformin or with 12 months of metformin alone. The prevalence of paediatric T2D is increasing and beta-cell dysfunction is key in its pathogenesis, so concern is growing.

Ellen Leschek, a project scientist from the RISE Consortium, commented that: "T2D in youth has grown with the obesity epidemic and we need treatments that work for kids. It's clear from this study and others that T2D in youth is more aggressive than in adults."

Clinical management considerations

It is imperative to reduce childhood obesity, by promoting healthier diets, increased activity and improved sleep health, to reduce risk of impaired glucose tolerance and T2D developing.
Link to paper: **http://care.diabetesjournals.org/content/41/8/1717**

Benefits of fixed-rate combination injectable therapy

A call to change the licensing of fixed-rate combinations (FRCs) of basal insulin plus GLP-1 receptor agonists to allow their initiation as first-line injectables was made at this year's ADA meeting. Vivian Fonseca built a case for the use of FRC basal insulin and GLP-1 receptor agonists whenever an injectable therapy was considered, but pointed out that the implementation of this "would require licence change" as FRCs can only be used in those who have previously failed on either GLP-1 receptor agonists or basal insulin. He was not the only advocate for this change.

Dr Fonseca highlighted the "ominous octet" of abnormalities in T2D and outlined the significant benefits of FRCs over the use of monotherapy, including:
- More rapid achievement of glycaemic control
- Targeting both fasting and postprandial hyperglycaemia, with lower risk of hypoglycaemia
- Less gastrointestinal upset than with GLP-1 receptor agonists alone due to the slower dose titration
- Fewer injections, which may lead to better compliance than when the two drugs are used separately
- Less weight gain than with insulin alone
- A simpler regimen of one daily injection compared with basal plus/or basal bolus insulin.

He reminded delegates that the downside is that FRCs are still injectables with patient and clinician barriers to use, that nausea can still be a problem initially, and that careful counselling on up-titration is needed. He concluded by highlighting that both FRC products available in the US appear to achieve comparable glycaemic control and have similar side-effects, although data are from a network meta-analysis rather than a head-to-head study. In the UK, only one FRC, a combination of insulin degludec and liraglutide, is currently available.

Several other studies presented at the conference recommended FRC products for the management of very high HbA_{1c}, deeming them safer than insulins and more effective than GLP-1 receptor agonists alone.

Monogenic diabetes: integrating genetic testing in practice

Maturity onset diabetes of the young (MODY) is often undiagnosed and may make up as much as 5% of presumed type 1 diabetes (T1D) and T2D cases in a large clinical population (Tsakiris and Ioannou, 2004). In a very powerful "patient story", Susie Perkowitz spoke of the impact of being misdiagnosed with T2D. Susie was an endurance runner with a normal BMI who presented in her early 30s feeling generally unwell and with raised blood glucose. Screening for T1D was negative and she was diagnosed with T2D and treated with metformin but failed to respond.

Susie spoke very emotionally of her feelings of failure and guilt during this time of non-response to treatment. Despite being motivated and focused on the lifestyle advice she had been given, Susie was questioned more than once about her compliance with diet and metformin. She felt she was to blame for her deteriorating HbA_{1c} and retinopathy. A change in physician resulted in screening for MODY, which was positive, and her medication was changed to a sulfonylurea, with good effect. Her diagnosis led to increased confidence, stabilising retinopathy and – most importantly – hope that she can successfully manage her diabetes in future.

MODY encompasses several hereditary forms of diabetes caused by mutations in an autosomal-dominant gene disrupting insulin production. The audience was reminded that 50% of children who have a parent with MODY may inherit the gene and develop MODY themselves, so family screening is advantageous. The goals in managing this population are the same as for the general diabetes population, but

having an accurate diagnosis will ensure timely and optimal treatment.

Clinical management considerations

Consider using a MODY risk calculator (www.diabetesgenes.org/mody-probability-calculator/) when you have an atypical presentation of diabetes in practice, especially if the patient is <25 years and of normal weight and/or has a family member with MODY. MODY does not generally need to be treated with insulin; it can be treated by diet or tablets (Gardner and Tai, 2012).

Diabetes in pregnancy may increase autism risk

Data from a cohort study suggest children of mothers with T1D may have greater risk of developing autism compared with the offspring of mothers without diabetes, according to a new study presented by Dr Anny Xiang and colleagues. Compared to the offspring of mothers without diabetes, the relative risk of a child developing autism was 2.36 if their mother had T1D, 1.45 if their mother had T2D and 1.3 if their mother developed gestational diabetes (GD) before 26 weeks' gestation. The incidence of autism, when children were followed for 6.9 years, was 4.4/1000 in children of mothers with T1D compared to 1.75/1000 in mothers without diabetes.

The cohort included 0.15% with T1D. 88.91% of mothers had no diabetes and the remainder had T2D or GD. Correction for a variety of confounders, including smoking during pregnancy, lowered the association slightly but the increased risk and gradient of risk between mothers with T1D, T2D and GD (diagnosed before 26 weeks' gestation) persisted.

Two previously published registry studies of autoimmune disease demonstrated an increased risk of autism in the offspring of mothers and fathers with T1D (Danish and Swedish studies). Dr Xiang and colleagues had previously published a study demonstrating increased risk of autism in children of women with T2D or with GD diagnosed before 26 weeks compared to those where GD was diagnosed later in pregnancy. Link to paper: **https://jamanetwork.com/journals/jama/article-abstract/2685775**

HIV: a driver for diabetes and cardiovascular disease

Persistent inflammation in HIV infection, even when the virus is suppressed, appears to be a driver for diabetes and cardiovascular disease (CVD). Antiretroviral therapy, particularly older agents, can affect metabolism and increase CVD risk, while the redistribution of body fat associated with the condition can contribute to insulin resistance.

Over 50% of people living with HIV (PLWH) in the United States are over the age of 50 and HIV is now recognised as a chronic disease due to improved survival. Speakers emphasised that for these reasons CVD and diabetes are likely to have a profound impact on PLWH as they grow older. The importance of effective management of these comorbidities was highlighted.

Clinical management considerations

- Screen all PLWH for diabetes before starting antiretroviral treatment and annually thereafter.
- HbA_{1c} will often underestimate glycaemia (by 0.2–2.0%) in PLWH, especially in those whose CD4 count is <500 or mean corpuscular volume is >100 (Kim et al, 2009). Consideration should be given to diagnosis by use of an oral glucose tolerance test (OGTT) and the individualisation of, possibly lower, glycaemic targets.
- Lifestyle changes are particularly helpful in PLWH, with an emphasis on reducing diabetes and CVD risk. Advice on appropriate diet, activity and smoking cessation, where relevant, should underpin all management consultations.
- Blood pressure management is important in reducing cardiovascular risk.
- Cardiovascular risk calculators perform poorly in PLWH (Thompson-Paul et al, 2016), with guidelines often failing to recognise the significant risk conferred by HIV. QRISK®3 in the UK does not include HIV and speakers advised considering the risk to be equivalent to rheumatoid arthritis.
- Metformin is the first-line oral antidiabetes agent (Kalra et al, 2011), although it interacts with the antiretroviral agent dolutegravir.
- Simvastatin is contraindicated in HIV; therefore it was advised to use low doses of atorvastatin or rosuvastatin to minimise interactions, and only titrate these drugs under specialist supervision.
- Few data are available on other antidiabetes agents, although it was felt that thiazolidinediones were a poor choice in view of the increased risks of bone fractures (Betteridge, 2011) and heart failure (Chaggar et al, 2009). Speakers called for more research in this area.
- Proteinuria, nephropathy and neuropathy are more common in PLWH and need careful management.

The over-arching message is that PLWH have an increased risk of diabetes and there are unique management considerations that need to be addressed collaboratively by HIV and diabetes multidisciplinary teams.

Debate: should metformin remain first-line in type 2 diabetes?

Recent developments in treatments for T2D have led a number of practitioners

to question the role of metformin as the first drug of choice in these patients. The pros and cons of metformin as first-line therapy were debated by Vanita Aroda, from Brigham and Women's Hospital in Boston, and Alice Cheng, from the University of Toronto. Dr Aroda argued that "metformin has stayed tried and true in first-line therapy", and pointed to numerous diabetes, endocrinology and medical society guidelines from all over the world that state metformin should be first-line in treating T2D. Dr Cheng countered the motion on four points:

- Although metformin lowers HbA_{1c} it is fairly neutral in terms of its effect on lipids, blood pressure and weight
- It does not demonstrate the same renal benefits as some of the newer therapies
- It does not confer the same cardioprotective benefits as empagliflozin, canagliflozin and liraglutide in those with pre-existing CVD
- It does not show the same reduction in mortality as empagliflozin and liraglutide.

The debate ended on an amicable note, as both doctors agreed that it is more than likely that combination therapy will come to the fore very soon as more data emerge in support of this. Interestingly, the opinions of the audience remained evenly split at the start and end of this debate.

Artificially-sweetened drinks linked to overweight babies

Daily consumption of artificially-sweetened drinks while pregnant may double the chance that boys will be overweight by 12 months.

Studies demonstrate that up to 30% of women consume artificially-sweetened beverages (ASBs) during pregnancy, with around 5% consuming them daily. Daily versus rare ASB consumption was associated with double the risk that male but not female infants will be overweight at 1 year (Azad et al 2016). According to Dylan MacKay, Assistant Professor of Community Health Sciences, University of Manitoba, *in utero* exposure to artificial sweeteners may contribute to childhood obesity. The increased weight was not explained by maternal obesity. Breastfeeding for 6 months or more mitigated the increased risk associated with ASBs, despite aspartame appearing in breast milk.

A Danish cohort study of women with gestational diabetes demonstrated similar findings: women who consumed ASBs daily during pregnancy had an increased risk of large-for-gestational-age babies and there was almost double the chance children would be overweight/obese at age 7. No such association was found for women who consumed sugar-sweetened beverages (Zhu et al, 2017).

Dr MacKay outlined the potential impacts of childhood consumption of artificial sweeteners:

- Sweet taste receptors prepare the person to absorb glucose, and the response may include increased insulin secretion
- There is uncoupling of the association between sweet taste and calories
- The effects on the gut microbiome may change food harvesting/nutrient absorption, leading to obesity
- The establishment of sweet taste preference early in life may encourage the overconsumption of sweet foods and beverages
- People believe they can eat more food or drink as it has no sugar in it, whereas calories from other nutrients are still present.

During this heavily-attended session, there was wide-ranging discussion around the inconsistent impact of non-nutritive sweeteners (NNSs) in adults, with some studies showing weight loss and others demonstrating weight gain. This is reflected in the 2018 ADA's *Standards of Medical Care in Diabetes*, which state that NNSs "may have the potential to reduce overall calorie and carbohydrate intake if substituted for caloric (sugar) sweeteners and without compensation by intake of additional calories from other food sources".

Although the structures of some NNSs appear similar, they interact with the body in different ways, resulting in different biological effects. This means that trials should view each NNS (saccharin, aspartame, acesulfame-K, sucralose, neotame, stevia extracts, monkfruit extract and allulose) separately and not generalise results. Relative sweetness is also very different, so doses consumed vary.

Discussing childhood exposure to NNSs, Dr MacKay reminded the audience that because children are smaller but will usually consume a whole glass or can of NNS beverage, this results in higher NNS concentrations in the blood, which may cause different effects to those seen in adults. In addition to this, inadvertent consumption of such sweeteners concealed in food or personal care products, such as toothpaste, is thought to be increasing, with 65% of breast milk samples from mums who denied NNS consumption containing sweeteners.

OBSERVE-4D

The OBSERVE-4D real-world analysis of >700 000 US patients failed to identify a significantly higher risk of below knee amputations associated with canagliflozin use compared to treatment with other SGLT2 inhibitors or other glucose-lowering drugs.

Hazard ratios for amputation with canagliflozin were 0.75 (P=0.30) compared with non-SGLT2 inhibitor drugs and 1.14 (P=0.53) compared with other SGLT2 inhibitors (Ryan et al, 2018). Among patients with established CVD, these hazard ratios were 0.72

(P=0.29) and 1.08 (P=0.85), respectively.

This finding differs from the results of the recent CANVAS (CANagliflozin cardioVascular Assessment Study) programme, which reported a greater risk of amputation with canagliflozin versus placebo in people with T2D and an elevated risk of CVD (Neal et al, 2017).

OBSERVE-4D used patient-level data from four US administrative claims databases, including 142 000 new canagliflozin users, 110 000 users of other SLGT2 inhibitors, and 460 000 users of other glucose-lowering medications, with median treatment exposure of less than 6 months. The author noted that longer-term observational studies will be needed to inform clinicians further due to the short period of exposure to treatment.
Link to paper: **https://onlinelibrary.wiley.com/doi/abs/10.1111/dom.13424**

Contraceptive pill use may increase diabetes risk after menopause

Previous contraceptive pill use was associated with increased diabetes risk in postmenopausal Korean women. Data from a Korean population-based study of 6554 postmenopausal women in their mid-60s found the prevalence of diabetes to be around 35% higher in those who had taken the contraceptive pill for longer than 6 months than in those who had never taken oral contraceptives, even after adjusting for multiple confounding factors. In women without diabetes, taking the contraceptive pill for longer than 6 months also led to a significant increase in fasting insulin levels and insulin resistance compared with non-users.

Information on duration of oral contraceptive use, age at menopause and at diabetes diagnosis, use of hormone replacement therapy, hypertension, hyperlipidaemia, smoking status, alcohol use and physical activity were included in this study. Data were drawn from the nationwide Korea National Health and Nutrition Examination Survey (KHANES) from 2007 to 2012.
Link to poster: **http://diabetes.diabetesjournals.org/content/67/Supplement_1/177-OR**

Da Qing 30-year data

Lifestyle interventions in adults with impaired glucose tolerance led to a significant reduction in CVD events in the long term, finds the Da Qing Diabetes Prevention Study.

The 30-year follow-up data demonstrated Chinese adults with impaired glucose tolerance who received 6 years of group lifestyle intervention had a 26% lower incidence of CVD events (HR, 0.74 [95% CI, 0.55–0.92]) than the matched control group who did not. The first cardiovascular event occurred nearly 5 years later in the lifestyle intervention group than in the control group and the cardiovascular benefits were only seen many years after the end of the active intervention. The authors believe this is the first study to demonstrate that a lifestyle intervention programme in people with impaired glucose tolerance reduces the incidence of CVD, providing further justification to adopt lifestyle interventions as public health interventions to reduce T2D.
Link to abstract: **http://diabetes.diabetesjournals.org/content/67/Supplement_1/130-OR**

Insomnia: a risk factor for T2D?

Insomnia is associated with a significantly increased risk of T2D after 4 years, a large observational study has found.

Almost 30% of more than 79 000 people with prediabetes followed for an average of 4 years were classified as having insomnia (physician identified or insomnia medication dispensed) during the observation period. Those with insomnia were found to be 28% more likely to develop T2D during the observation period than those without insomnia, after adjusting for potential confounding factors. These findings are consistent with data from previous circadian studies.

The authors conclude that the association of insomnia with increased T2D risk is similar to that of traditional risk factors, such as being overweight and ethnicity, which reminds us of the importance of discussion around sleep when advising on diabetes prevention.
Link to poster: **http://diabetes.diabetesjournals.org/content/67/Supplement_1/66-LB**

PIONEER 1

Statistically significant dose-dependent reductions in both HbA_{1c} and weight are associated with oral semaglutide use, according to a phase 3a trial. HbA_{1c} reductions of 1.5% were observed in those taking the 14-mg dose, 1.3% with the 7-mg dose and 0.8% with the 3-mg dose compared to a 0.1% reduction in people receiving placebo in this study of the safety and efficacy of oral semaglutide.

As seen with injectable GLP-1 receptor agonists, there was a dose-dependent increase in nausea in the oral semaglutide groups, particularly in the highest-dose group (16%) compared to placebo (5.6%). This side-effect tended to dissipate over time.
Link to poster: **http://diabetes.diabetesjournals.org/content/67/Supplement_1/2-LB**

Older is better: age at T2D onset affects outcomes

T2D has no effect on the risk of developing CVD, stroke, cognitive impairment or disability in people who

do not develop the condition until they are over 70, according to the Health and Retirement Study. In contrast, diabetes in younger people was associated with an increased risk of adverse outcomes. The incidence of disability in people with versus those without diabetes became significantly higher from 10 years' diabetes duration among those aged 50–59 years and from 12 years' duration among those aged 60–69 years.

Waves 1993–2014 of the Health and Retirement Study, a nationally-representative US health survey of people before and for approximately 20 years after T2D diagnosis, were studied.

Older adults vary in age of onset and duration of diabetes but are treated similarly. The hypothesis was that age of T2D-onset would have a differential impact on outcome risk, which was confirmed.

The author reminded us that: "These findings reinforce clinical heterogeneity in diabetes and the need to focus on improving diabetes management in middle-aged adults".

Link to poster: **http://diabetes.diabetesjournals.org/content/67/Supplement_1/181-OR**

T2D remission due to changes in hepatic metabolism: DiRECT

Changes in hepatic metabolism may lead to T2D remission after dramatic weight loss through dietary restriction or bariatric surgery, finds a sub-analysis from DiRECT (Diabetes Remission Clinical Trial).

DiRECT compared the effects of an intensive weight loss programme with usual care. All antidiabetic medications were withdrawn from both groups on day 1. Those in the intervention group had their diet restricted to 800 kcal per day. A subgroup of patients also underwent magnetic resonance imaging to measure liver and pancreas fat, and assessment of very low-density lipoprotein triglyceride metabolism and first-phase insulin secretion.

"When people with T2D lose weight on the DiRECT program, liver fat goes from very high levels, around 16%, down to normal, 3%, immediately after the weight loss", reported Professor Taylor. "This change in hepatic fat content is associated with normalising the export of fat from the liver and normalising the fat content of the pancreas. We see beta cells wake up and begin producing normal levels of insulin again."

Link to poster: **http://diabetes.diabetesjournals.org/content/67/Supplement_1/42-OR**

Gluten impact on T1D risk: DAISY

In a cohort of infants at high risk of T1D, early introduction of gluten-containing foods is associated with an increased risk of progression from islet autoimmunity to T1D, according to new data from DAISY (Diabetes Autoimmunity Study in the Young). However, there was no association between gluten intake at 1–2 years or gluten intake over time and development of islet autoimmunity or T1D. ■

Azad MB, Sharma AK, de Souza RJ et al; Canadian Healthy Infant Longitudinal Development Study Investigators (2016) Association between artificially sweetened beverage consumption during pregnancy and infant body mass index. *JAMA Pediatr* **170**: 662–70

Betteridge JD (2011) Thiazolidinediones and fracture risk in patients with type 2 diabetes. *Diabet Med* **28**: 759–71

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Hayward RA, Reaven PD, Wiitala W et al (2015) Follow-up of glycemic control and cardiovascular outcomes in type 2 diabetes. *N Engl J Med* **372**: 2197–206

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Tsakiris D, Ioannou K (2004) An underdiagnosed type of diabetes: the MODY syndromes. Pathophysiology, clinical presentation and renal disease progression. *J Nephrol* **17**: 637–41

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Other news in brief

CREDENCE trial stopped early

The CREDENCE (Canagliflozin and Renal Events in Diabetes with Established Nephropathy Clinical Evaluation) trial has been stopped early on the recommendation of the Independent Data Monitoring Committee. The phase 3 trial was assessing the efficacy and safety of canagliflozin versus placebo, in addition to standard therapy, on the risk and time to dialysis or kidney transplantation, doubling of serum creatinine, and renal or cardiovascular death. Further details and full outcomes of the study are expected later in 2018.

ADA/EASD draft consensus guideline

Greater focus on lifestyle intervention along with improved self-management support is urged in the joint ADA and EASD draft consensus. Sharing the strategies for implementation, Chantal Mathieu from Leuven, Belgium, stressed the importance of keeping patients at the centre of care and involving them in all aspects of decision-making.

The report makes recommendations regarding the preferred choice of anti-hyperglycaemic therapy for people with specific comorbidities, particularly in relation to recent evidence from cardiovascular outcome trials, the need for weight loss and the need to self-fund therapy. Metformin is still recommended as first-line therapy, but injectable glucagon-like peptide-1 (GLP-1) receptor agonists or SGLT2 inhibitors are now favoured as second-line therapy, depending on underlying patient characteristics and other issues such as the affordability/accessibility of drugs. It is acknowledged that it may still be necessary to prescribe sulfonylureas, thiazolidinediones or older insulins in countries where people have to pay for their medication and may have limited finances.

The draft ADA/EASD document advises assessment of cardiovascular status as the first step in determining the approach to treatment. Within the approximately 20% of people with established cardiovascular disease (CVD), separate algorithms address patients with atherosclerotic CVD and those with heart failure. Individual patient needs and preferences for avoiding weight gain and hypoglycaemia should be the focus in those without atherosclerotic CVD or heart failure.

There is new information about chronic kidney disease, medical nutritional therapy, metabolic surgery, the initiation of injectables – with a new preference of GLP-1 agonists over insulin – and advice about down-titrating patients from oral medications once injectables are started.

This is the third joint consensus statement on the management of hyperglycaemia from the two groups. The initial statement was issued in 2012 and it was revised in 2015. A second round of revisions will be made this summer based on comments and feedback from diabetes care providers, clinical researchers, patient groups, payers, regulators and stakeholders. The final draft will be released in October at the EASD's annual meeting in Berlin, Germany. ■