Latest news: Su steps down, continuous ketone monitoring, and why type 1 diabetes is aggressive in young children

Stay abreast of the latest news that could impact diabetes nursing.

Su Down honoured with Lifetime Achievement Award

At its recent national conference, the Primary Care Diabetes and Obesity Society celebrated the career of Su Down by presenting her with its Lifetime Achievement Award. The annual award honours an individual who has made an outstanding, long-term contribution to diabetes care.

Jane Diggle and Nicola Milne, both colleagues and friends of Su, presented the award during an emotional session at the Birmingham conference. They outlined a varied career in diabetes care that began in 1989 in South Somerset where she set about the formidable task of establishing a diabetes specialist nursing service. By 2005 she had become one of the country's first nurse consultants. Her leadership was instrumental in redesigning diabetes services across Somerset, including the development of a pregnancy service within an acute hospital trust and innovative virtual clinics in general practice and district nursing settings.

Jane paid tribute to Su's breadth of knowledge across the spectrum of diabetes care, noting that as well as being passionate about pregnancy care, she is also an expert on diabetes and frailty. Beyond clinical practice, Su has served as Editor-in-Chief of the *Journal of Diabetes Nursing* since 2018. She has authored many articles, including on managing diabetes during intercurrent illness and on strategies for simplifying insulin regimens, both of which influenced practice nationally during the COVID-19 pandemic.

Nicki praised Su's achievements as an educator and role model, highlighting her skill as a communicator: "She has taught us not only how to care for the person behind the numbers but has also inspired us to make changes in our clinical practice. Her ripple effect on diabetes care cannot be underestimated." She also paid her the ultimate compliment, noting that when things get difficult, she often ponders: "What would Su do in this situation?"

In accepting the award, a clearly moved Su expressed her gratitude: "It's been such an honour to impart knowledge so that people feel that they can carry on."

You can watch highlights of the presentation here.

Continuous ketone monitoring guidelines released

A panel of international experts in the management of diabetic ketoacidosis (DKA) has developed a set of practical recommendations on how a novel diabetes technology could improve outcomes for at-risk individuals. Published in *The Lancet Diabetes & Endocrinology*, the guidelines on continuous ketone monitoring (CKM) aim to maximise the benefits of this emerging technology for people with diabetes.

DKA is a serious, potentially life-threatening complication associated mainly with type 1 diabetes, but it can also occur in and other forms of diabetes. Episodes are characterised by hyperglycaemia, hyperketonaemia and metabolic acidosis. In children and adults with type 1 diabetes, hospital admissions for DKA are more common than for severe hypoglycaemia. It remains one of the most preventable causes of morbidity and mortality for people with diabetes.

While capillary blood ketone monitors and urine ketone strips are available for people at risk of DKA, evidence indicates that few people use them regularly or know how to respond to elevated levels. Awareness among healthcare professionals is also sub-optimal.

Given this background, the anticipated availability of CKM has the potential to transform diabetes management for many at risk of developing DKA. CKM technology will provide users with real-time information on their ketone levels and alert them when action is needed. Subgroups of people with diabetes at heightened risk of DKA, and who may benefit from CKM, include insulin pump users, people with complications (such as chronic kidney disease or cardiovascular disease) and women with pregestational or gestational diabetes.

In the absence of randomised controlled trials, the expert consensus group met to establish how CKM technology can be used effectively. Its recommendations included the following:

- Monitors should include trend arrows, similar to those used in continuous glucose monitoring.
- Ketone level terminology should be: normal, elevated, high and urgent high.

- To reduce alarm fatigue, an alarm should sound if ketone concentrations rise above the "urgent high" threshold of 3.0 mmol/L.
- Users should have a blood ketone meter to use if they experience symptoms of elevated ketones that do not match their CKM readings.
- CKM users should receive education on what elevated ketones mean and what actions to take.

By establishing a set of guidelines, the panel hope to help standardise the integration of CKM into practice once it becomes available. Healthcare professionals and the type 1 diabetes community will be able to refer to the recommendations as the technology is rolled out, so that its benefits can be realised as quickly as possible.

The draft guideline can be read here.

Why is type 1 diabetes more aggressive in young children?

By adopting new histological approaches to examine sections of pancreas tissue, investigators led by Professor Sarah Richardson have gained new insights into how type 1 diabetes develops in individuals of different ages. Their findings have important implications for future screening and treatment strategies.

Type 1 diabetes is an autoimmune disease in which immune cells selectively target pancreatic beta-cells, which produce insulin. In young children, typically under 7 years, the destruction of beta-cells progresses rapidly, increasing the likelihood of DKA at diagnosis and making the condition more difficult to manage.

In a healthy pancreas, beta-cells are classically recognised as being situated within islet structures. However, recent advances in imaging have captured an abundance of small clusters of endocrine cells outside of these islets. These "endocrine objects" (EOs) have not been widely studied.

In its study, Professor Richardson's team used innovative techniques to analyse sections of pancreas from donors of varying age and diabetes duration, both with and without type 1 diabetes. They confirmed the presence of small, insulin-positive EOs in tissue from donors without diabetes, and that they comprise most of the pancreatic endocrine area in early life. A pronounced shift towards larger EOs was observed with increasing age.

By contrast, in samples from donors with type 1 diabetes, the small EOs were virtually absent. While some retained a few large clusters that could produce small amounts of insulin, this was not the case for those diagnosed at a very young age.

By establishing that insulin-producing clusters play a critical role in healthy pancreas development and explaining why type 1 diabetes in the very young is so aggressive, the potential for new treatment strategies is opened. Protecting these small clusters would provide the opportunity for them to mature into large clusters that are less vulnerable to immune attack, potentially delaying the need for insulin therapy. The findings also strengthen the case for screening individuals at risk of type 1 diabetes.

The full study can be read here.

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