The 4S Pathway – realigning management for older people with diabetes

The International Geriatric Diabetes Society's 4S Pathway, published in the *Lancet Diabetes & Endocrinology*, aims to help clinicians realign diabetes regimens in older adults and guide simplification and deprescribing strategies. The pathway encourages clinicians to Seek triggers which should prompt re-evaluation of treatment goals and strategies; ensure Shared decision-making; Set or reset goals which are individualised and take into account a holistic overview of the older person's life situation; and aim to recommend Simpler and safer treatment. The 4S Pathway is designed to sit alongside existing guidelines and assist clinicians with practical implementation. The term "realignment" is recommended in preference to "deprescribing" as it can be broader – encompassing lessening treatment burden, reducing hypoglycaemia risk and improving quality of life for people with diabetes – and is not restricted to just withdrawal or dose reduction of medications. Increased use of short-term continuous glucose monitoring or structured fingerprick glucose monitoring, in order to understand glycaemic variability and hypoglycaemia and to aid treatment decisions, is recommended.

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Diabetes in older people can be challenging to manage, due to the presence of multiple long-term medical conditions, polypharmacy and safety concerns with some treatments. Benefits of intensive glycaemic management must be balanced against increased risks of hypoglycaemia. Care is further complicated by heterogeneity in older adults, who vary between those who are fit and healthy and can be managed in the same way as younger adults, to those who have severe physical frailty or cognitive impairment and are at high risk from adverse events associated with medications.

The International Geriatric Diabetes Society's Deprescribing Consensus Initiative was convened to explore "Optimization of diabetes treatment regimens in older adults: the role of de-prescribing, de-intensification and simplification of regimens". The initiative has produced recommendations for type 1 and type 2 diabetes, which are summarised in this new 4S Pathway, published in a review in the *Lancet Diabetes & Endocrinology*.

The 4S Pathway and recommendations

The 4S Pathway is designed to sit alongside existing guidelines for managing diabetes in older people and to assist clinicians with practical implementation to improve safety, lessen treatment burden and improve quality of life where possible. The four steps of the pathway are shown below and are explored in detail in the review:

- Step 1: **Seek triggers** (signs, symptoms or factors that should act as triggers to re-evaluate treatment goals and strategies).
- Step 2: ensure **Shared decision-making** with the older person and their care partner(s).
- Step 3: **Set or reset goals** which are individualised and take into account preferences and values.
- Step 4: ensure **Simpler and safer treatment**.

Resources for Step 1 include a list of signs, symptoms and other factors which may act as triggers to identify older people who would benefit from re-evaluation of their management, and a summary of specific red flags (e.g. missed or extra medication doses and new or worsening urinary incontinence linked to possible diabetes-related factors), along with recommended realignments to consider. Step 4 includes algorithms summarising simpler and safer treatment recommendations for glycaemia in older people with type 1 and type 2 diabetes.

Detailed guidance on how to manage and realign insulin therapy in older people with

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Diabetes & Primary Care **24**: 69–70

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type 1 diabetes is needed because of our success in preventing and managing cardiovascular diseases, and the resulting increases in lifespan. Pragmatic guidance on when and how to achieve simpler and safer insulin regimens is provided for those living in the community and those living in nursing homes and care homes.

The experts warn that HbA_{1c} levels of <53 mmol/mol (<7.0%) are likely to correlate with overtreatment in older people, citing several studies to demonstrate that such levels are common in older people on sulfonylureas and insulin. They remind us that the first priority in older adults is to reduce the risk of hypoglycaemia, while the prime concern in people with diabetes who are monitoring is often hyperglycaemia levels. Often hypoglycaemia unawareness is masking symptoms and older people just feel vaguely unwell or present with neurological symptoms. Hypoglycaemia in older people increases the risk of cardiovascular events and sudden death, falls, fractures and admissions and, if recurrent, may contribute to cognitive decline and dementia.

HbA_{1c} does not provide details of glycaemic variability, hypoglycaemia and hyperglycaemia occurring throughout the day, or any indication of day-to-day variations. This information is invaluable, and some would argue absolutely necessary, when setting goals and agreeing management options with people with diabetes. The 4S Pathway and the International Geriatric Diabetes Society recommend using short-term continuous glucose monitoring (CGM) to aid decision-making in those with type 2 diabetes who do not qualify for longer-term use, and on encouraging CGM use in those with type 1 diabetes. The review provides an example of a CGM ambulatory glucose profile demonstrating hypoglycaemia in a person with type 1 diabetes, and gives advice on interpreting it and making changes to reduce hypoglycaemia and improve safety.

Short-term CGM use is just as useful in older people with type 2 diabetes who are taking insulin or sulfonylureas, which put them at risk due to hypoglycaemia, and for exploring timings of hyperglycaemia and how to choose treatments to reduce this. Guidance on such treatment choices for people with type 2 diabetes is included in the review. For example, DPP-4 inhibitors and prandial insulins decrease postprandial glucose levels, while long-acting GLP-1 receptor agonists, tirzepatide and SGLT2 inhibitors reduce both fasting and postprandial glucose. Often the choice of medication will be based on trying to avoid hypoglycaemia, hence avoiding sulfonylureas and insulin where possible, or on the additional benefits of glucose-lowering drugs (SGLT2 inhibitors and GLP-1 RAs) on comorbidities.

Interested clinicians may also want to read the recently published insights from the HYPOAGE cohort study (Christiaens et al, 2025), in which CGM was used to compare measured hypoglycaemia versus the proxy markers of overtreatment (HbA_{1c} <53 mmol/mol [<7.0%] or values appropriate to the person's state of health) in people 75 years or over with type 2 diabetes, and its accompanying editorial in *Diabetes Care* (Bilal, 2025). The authors of HYPOAGE concluded that just using a threshold value for HbA_{1c} as a proxy marker for overtreatment poorly predicts hypoglycaemia in older insulin-treated people (as discussed above), and they call for a revised definition of overtreatment.

Implications for practice

Reading this paper is a wonderful reminder of things we already know but which can get lost in the busyness of daily diabetes practice. None of the triggers which might prompt re-evaluation of treatment goals and choices are unknown to us, and all are incorporated in our practice. The importance of shared decision-making and really listening to people's ideas and concerns about their diabetes, revisiting glycaemic targets to ensure they are individualised and always considering how we can help simplify complex treatment regimens are things we aim to do every day but, perhaps, cannot always achieve.

Despite our best actions and intentions, I am sure overtreatment of frail older people occurs in all practices, and often contrasts sharply with undertreatment and therapeutic inertia in younger people with diabetes. This paper can act as a call to action for us to realign the care we deliver to the older people with diabetes we support.

Very short-term monitoring using CGM or structured fingerprick glucose testing can help us gain valuable information about previously undetected hypoglycaemia, glucose variability and hyperglycaemia, helping us see beyond crude HbA_{1c} measurements. Coding people found to be at risk of hypoglycaemia and harm from their diabetes medication will allow us to carry out proactive searches on this high-risk group. The code used, such as the SNOMED code "At increased risk of medication side effect", will vary between practices but can facilitate periodical searches for those who may be unable to attract our attention or who may default from our diabetes reviews. Finally, "realignment" is so much better and more holistic a term than simply "deprescribing", and I am sure its use will be rapidly adopted.

As Ralph Waldo Emerson is quoted as saying, *"The mind, once stretched by a new idea, never returns to its original dimensions."* I believe it would be a challenge to read this paper and *not* think of ways to make beneficial changes to our practice at an individual, practice or systems level. ■

Bilal A (2025) Understanding diabetes overtreatment in older adults: Are we at an intersection? *Diabetes Care* **48**: 47–9

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Munshi M, Kahkoska AR, Neumiller JJ et al (2025). Realigning diabetes regimens in older adults: A 4S Pathway to guide simplification and deprescribing strategies. *Lancet Diabetes Endocrinol* 17 Feb [Epub ahead of print]. https://doi.org/10.1016/S2213-8587(24)00372-3

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