

Diabetes

When designing diabetes services, consider the following interventions as ways to achieve specific productivity improvements whilst maintaining the quality and safety of clinical care. This approach is being trialled as a beta product alongside the Map of Medicine Diabetes pathway, which covers all areas of a patient's care.

Prevention

Secondary prevention

Make the DAFNE structured patient education programme available to all people with type 1 diabetes at initial diagnosis.¹

Make the DESMOND structured patient education programme available to all people with type 2 diabetes at initial diagnosis.²

Educational programmes can be used to prevent or delay the development of diabetes or its associated complications.³ The relatively modest cost of such programmes means only small improvements in morbidity, mortality, or quality of life are needed to make them cost effective; furthermore, these programmes reduce the number of acute admissions for complications of diabetes. The DAFNE educational programme is associated with a net cost saving over 10 years of £2679 per patient and a higher number of quality-adjusted life years (QALYs).¹

Therapeutic interventions

Secondary prevention

Avoid advocating routine self-monitoring of blood glucose for non-insulin-treated people with type 2 diabetes.⁴

A National Institute for Health Research (NIHR) Health Technology Assessment (HTA) study published in 2009 concluded that there was no convincing evidence to support routine self-monitoring in people with type 2 diabetes, except in those people on maximal oral agents approaching insulin treatment, in lean people with abrupt onset type 2 disease, and in those on sulphonylureas with Class 2 driving licences.⁴ The prescribing of blood glucose testing strips has risen by 11% to 1.4 million items per quarter, and spending has risen 13% to £35.2 million over the last 5 years.⁵

Metformin

Use metformin as the first line therapy in all overweight people with type 2 diabetes because it has been shown to be both clinically- and cost-effective.⁶

Health economic modelling by the National Institute for Health and Clinical Excellence (NICE) has demonstrated that metformin is the most clinically- and cost-effective first line agent for overweight people with type 2 diabetes when compared with all other treatments.⁵

Sulphonylurea

Use a sulphonylurea as the first-choice, second line agent when considering combination therapy for people with type 2 diabetes who are already taking metformin.⁶

Health economic modelling by NICE has shown that the combination of metformin plus sulphonylurea is more effective and less expensive than the combination of metformin plus a glitazone.⁶

Insulin lispro vs soluble human insulin

Use insulin lispro instead of soluble human insulin as the first line agent in people with type 1 diabetes.⁷

An economic evaluation published in 2009 and quality assessed by the Centre for Reviews and Dissemination (CRD)⁸ concluded that mealtime insulin lispro improved clinical benefits and reduced costs compared with mealtime soluble human insulin, in people with type 1 diabetes. The lifetime QALYs were 7.601 with insulin lispro and 7.497 with soluble human insulin, while total lifetime costs were £70,576 with insulin lispro and £72,529 with soluble human insulin.⁷ NICE 2004 guidelines on type 1 diabetes in adults recommended soluble human insulin as optimum mealtime insulin therapy,⁹ but recent evidence from clinical trials has highlighted the superior clinical profile of rapid or short-acting insulin analogues, such as insulin lispro, in comparison with conventional soluble human insulin.⁷

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Continuous subcutaneous insulin infusion (CSII)

Consider using CSII therapy for adults and children with type 1 diabetes.¹⁰

An NIHR HTA study published in 2010 examining the clinical- and cost-effectiveness of CSII therapy for diabetes reported that it offers better blood glucose control, fewer hypoglycaemic episodes, a reduction in the number of insulin doses per day, and improved quality of life in people with type 1 diabetes compared with people on analogue-based multiple daily injection (MDI) therapy.¹⁰ A 2008 NICE technology appraisal on the use of CSII therapy recommended that it be used in adults and children age 12 years and older with type 1 diabetes who demonstrated disabling hypoglycaemia or high HbA_{1c} levels (8.5 or above) despite being on MDI therapy.¹¹ Even at an extra average cost of £1700 per patient per year compared with MDI regimes, the new technology was still deemed cost-effective.¹⁰

Lipid management

Initiate lipid management therapy with the lowest cost statin, usually simvastatin.^{6,12}

A 28-day course of a branded statin is on average about 6 times more costly than an appropriate generic statin, despite having similar clinical efficacy.¹² The number of prescriptions for statins continues to increase by around 20% per year.⁶ Current expenditure on statins is around £500 million per year. Initiating patients on simvastatin 40mg (or another statin of similar efficacy and cost)⁶ could result in considerable savings.¹²

Angiotensin-converting enzyme inhibitor (ACEI) therapy

Initiate ACEI therapy with the lowest-cost generic version.^{6,12}

There are generic versions available for some of the ACEIs that are less costly than branded ACEIs, but equally as effective. The volume of prescribing of ACEIs is increasing significantly. Expenditure in primary care in England on medications affecting the renin-angiotensin system currently stands at over £400 million per year. Prescribing generic rather than branded ACEIs can be more cost-effective.¹²

Dressing for foot ulcers

Use the least-costly dressing when treating foot ulceration in people with diabetes.¹³

An NIHR HTA study published in 2009 found no evidence of any difference in the effectiveness, safety, or quality of life measures among N-A, Inadine, and Aquacel dressings for the treatment of diabetic foot ulcers and concluded that clinicians should select the most cost-effective and convenient product.¹³

Reducing length of stay

In-patient specialist diabetes service

Provide access to appropriate specialist services to in-patients with diabetes for both emergency and planned care.¹⁴

Research suggests that 40% of in-patients with diabetes do not receive the interventions that specialist diabetes teams would consider necessary.¹⁵ Diabetic complications account for almost 20,000 emergency admissions per year at a cost in excess of £40 million.¹⁶ The number of bed days in England used for patients with secondary diagnosis of diabetes for 2006/07 represented 7.6% of admissions.¹⁷ The introduction of a specialist in-patient diabetes service can reduce excess bed days in people with diabetes by 30%.¹⁸

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Key dates

The Map of Medicine systematically monitors the medical literature for the latest productivity interventions and will update this document as new evidence emerges.

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Methodology

The productivity considerations presented in this document are relevant to the UK. They were identified by systematically searching for and appraising productivity evidence from multiple sources, including NICE guidance, health economic databases and Zynx Health (a sister company of Map of Medicine).

A productivity message explicitly states interventions that can reduce the cost of care, whilst maintaining or improving patient outcomes. Actions that are believed to lead to improved productivity, but lack unequivocal clinical or economic evidence, are not included.

Some productivity considerations are informed by more recent evidence than that included in relevant national guidelines.

The document has been peer reviewed by an independent group of experts.

Feedback

This approach to productivity guidance is being trialled as a beta alongside Map of Medicine Diabetes pathway. We welcome your feedback. If you know of additional resources that describe cost-effective interventions that maintain or improve patient outcomes, please forward the reference information to us at productivity@mapofmedicine.com.

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This document is not to be substituted for a healthcare professional's diagnosis or clinical decisions.