

The cost of drug treatment for diabetes is spiralling

A number of new antidiabetic medications have been launched in recent years. However, these are more expensive than standard treatments until they come off patent. Doctors are under pressure to keep costs down and this is reflected in the current NICE guidelines. This article examines the issue of cost-effectiveness when treating the elderly patient with diabetes.

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A report published this July, *Prescribing for Diabetes in England: 2004/5 to 2009/10*, showed that in primary care the number of prescribed items for diabetes and the net ingredient cost has risen more than 40% over the last five years. The report, from the NHS Information Centre, shows that just over 35.5 million prescription items were dispensed to treat diabetes in 2009/10, compared with 24.8 million items in 2004/05—a rise of 43%. And there was a 42% increase in the net ingredient cost from £458 million to nearly £650 million.¹

There are a number of reasons for the rise. For one thing, the prevalence of diabetes in England increased from 3.3% in 2004/05 to 4.1% in 2008/09. This can partly be explained by the rise in obesity levels, which is linked to type-2 diabetes. But obviously a major factor is the increased use of some of the newer, more expensive treatments. Tim Straughan, Chief Executive of the NHS Information Centre, said: “The relatively high cost of some of the newer drugs used to treat diabetes is partly why the net ingredient cost bill has increased by 42% in five years while overall

prescribing costs have only risen by 6% during the same period.”

The cost of prescribing for diabetes is 7.7% of the total cost of prescribing in primary care, compared with 5.8% five years ago. Diabetes now accounts for almost one in 13 prescriptions written by GPs in England, compared with one in 20 five years ago. One of the major reasons for this change is that GPs have been given incentives, through the Quality Outcomes Framework (QOF) scheme, to identify people with diabetes and are rewarded for achieving tight glycaemic control.

Doctors now have a wide range of treatment options available for patients with type-2 diabetes. In addition to long established and generally cheap therapies, such as metformin and sulphonylureas, doctors can now choose from a wide range of other agents including glucagon-like peptide agonists, dipeptidyl peptidase-4 (DPP-4) inhibitors and thiazolidinediones.

The National Institute for Health and Clinical Excellence (NICE) guidelines already take the cost-effectiveness of a drug into account when making recommendations.²

The NHS Information Centre report showed that, over the five years, there was a 73% increase in prescriptions for metformin, coupled with a 161% jump in total net ingredient costs from £23.2 million to £60.5 million. This is in line with the current guidelines from NICE which state that this cheap generic drug should be the first choice for oral therapy. However, there have been fluctuations in the generic cost of metformin, which has had a significant impact on total prescribing costs.

The report also highlights a 90% increase in prescriptions of thiazolidinediones (pioglitazone and rosiglitazone, on their own or in combination with metformin) over the last five years. Some 2.1 million items were prescribed in 2004–2005, compared with 4.5 million in 2009–2010.

Dr Roger Gadsby, a GP with a special interest in diabetes and associate clinical professor at Warwick Medical School, commented: “The two glucose-lowering drugs that the NICE guidelines recommend for glucose lowering (metformin as initial

therapy then adding sulphonylurea) are generic and cheap at around £1–3 per month. It is the newer agents for glucose lowering that cost £30 plus per month that push the cost of therapy up.”

The data show that there has been an increase in the prescribing of pioglitazone with a decrease in rosiglitazone over the period from 2007–2008 to 2009–2010. This is probably due in part to safety warnings issued by the Medicines and Healthcare Products Regulatory Agency (MRHA) in December 2007 and February 2008 that rosiglitazone should not be used in patients with an acute coronary syndrome and in patients with ischaemic heart disease or peripheral arterial disease.³

In July 2010, following a review of cardiovascular safety, advisors to the US Food and Drug Administration said that additional warnings needed to be placed on the product information for rosiglitazone. The European Medicines Agency also launched a review of the cardiovascular safety of rosiglitazone in July 2010 and its scientific committee is due to give its opinion of the drug later this month. The UK’s Medicines and Healthcare Products Regulatory Agency (MHRA) issued new advice on the safety of rosiglitazone in August 2010. It stressed that clinicians should “closely observe the current contraindications, warnings and precautions and monitoring requirements, and consider alternative treatments where appropriate.”

Regarding cost-effectiveness, NICE guideline CG87 states: “The Guideline Development Group was persuaded that it was not possible to usefully distinguish between the glitazones and the DPP-4 inhibitors in terms of cost-effectiveness.”

However, this is based on the current similarity in price between DPP-4 inhibitors and glitazones. The price of pioglitazone will fall significantly in early 2011 when it comes off patent.

Dr Gadsby commented: “If Avandia (rosiglitazone) is taken off the market there is an alternative agent, pioglitazone, which is safe and effective. It is also due to come off patent in the next six months so its price may drop from the current cost of around £30 per month to the usual generic price of £2–3 per month within 12 months.”

Concern over rosiglitazone may also have contributed to the increases in prescribing of other antidiabetic drugs; in particular exenatide, which increased from £5.6 million in 2008–2009 to £13.5 million in 2009–2010 and sitagliptin (£5.1 million in 2008–2009 to £14.2 million in 2009–2010).

Exenatide, is often used in combination with insulin in obese patients. But this is a particularly costly combination as they are both expensive injectibles. The NICE guidelines have fairly strict criteria about the use of exenatide: it should be continued only if there is a weight loss of at least 3% and a reduction of at least 1% in HbA1c at six months.

The report shows that human analogue insulins were the most commonly prescribed form of insulin. There was a 116% increase in use of human analogue insulins during the five-year period studied. Over the same period, the total net ingredient cost rose from £109.8 million to £255.2 million. The proportion of human analogue insulin items, compared with all other insulin items prescribed, varied greatly between Primary Care Trusts, ranging from 35–94.8% in 2009–2010.

According to an editorial in the *Drug and Therapeutics Bulletin*, the NHS’ diabetes bill is likely to substantially increase in the future following Novo Nordisk’s decision to stop selling its Mixtard 30 insulin drug in the UK from January 2011. Currently, 90,000 patients use the drug and the bulletin says that, assuming these patients switch to Novo Nordisk’s analogue biphasic insulin NovoMix 30, this would cost the NHS an extra £9 million in England alone. The bulletin has launched a campaign to keep the drug on the market.⁴

Researchers from Cardiff University found that the costs of dispensing for diabetes increased markedly between 2000 and 2008 to represent an annual cost to the NHS of £708 million, or 7% of budget. Writing in the journal *Diabetic Medicine*, Dr Colin Currie and colleagues said: “The changes in prescribing appeared to reflect commercial factors more than clinical evidence. Diabetes dispensing patterns need to be better controlled and costs contained.”⁵

However, the charity Diabetes UK believes that it is important to consider more than just the direct drug costs. Simon O’Neill, Director of Care, Information and Advocacy said: “The long-term costs of poor diabetes management, for example caring for someone who’s had a heart attack or stroke, lost their sight or lower limb, far outweigh those of the drugs that help prevent such devastating complications.”

He added: “Diabetes UK believes that people with diabetes should have access to the most appropriate treatment to manage their condition. For those for whom older therapies are effective, they should be allowed continued access to those but where people with

diabetes are unable to manage their diabetes effectively, a wider range of treatment options are required.”

Even though the UK government has pledged that health funding will rise in real terms in each year of Parliament, efficiency improvements of around £15–20 billion will be required by 2013–2014. As a result, there is likely to be increased pressure on prescribers to make cost savings. Interim advice published by the National Prescribing Centre to PCTs, GPs and new GP commissioning consortia lists 15 common drugs with which savings can be made, including statins for cholesterol, obesity drugs and newer hypoglycaemics. They advise prescribing cheaper alternatives first and more expensive drugs only when others have been exhausted.

The centre published the advice as part of the Quality, Innovation, Productivity and Prevention (QIPP) strategy and is to issue a fuller report later in the year. It states that, although the QOF allocates points for achieving tight glycaemic control, control of blood pressure, smoking and cholesterol all confer much greater advantages in terms of reducing mortality and morbidity. It concludes that people with type-2 diabetes are a heterogeneous group and treatment must be tailored to each individual patient’s clinical needs with safety paramount.

Half of all people with diabetes in the UK are aged over 65 years and a quarter are over 75. One in ten people aged over 75 and 14% of those aged over 85 have diabetes.⁶ There are a number of challenges when caring for the older people with diabetes which often means that standard treatments are not appropriate. According to the British Geriatric Society’s Best Practice

Guide to Diabetes⁷: “Patient frailty, especially in the very old, influences their tolerance of standard therapies. Often they have impaired ability to self-care and self-medicate and the requirement of education and support for carers is often omitted from routine service provision.”

Older patients may have poor vision, cognitive impairment and arthritic complaints which can hamper their ability to monitor blood glucose or to inject insulin. They are also more likely to suffer from nutritional deficiencies and miss meals, making them at particular risk of hypoglycaemic attacks. In addition, recurrent infections are more common, which can lead to hyperglycaemic episodes. Often the elderly patient is taking multiple medicines, which together with higher rates of renal and hepatic impairment, put them at risk of adverse drug reactions.

Dr Gadsby adds: “All glucose-lowering agents lower HBA1c by a similar amount. The newer, more costly agents may add value by causing less weight gain, less hypos or by decreasing cardiac ischaemic events. For example, sulphonylureas can cause hypoglycaemia. Hypoglycaemia is a frequent cause of ambulance call outs and hospital admissions, which are very costly. A drug that costs £30 per month but doesn’t cause hypoglycaemia may be better value and reduce overall NHS costs, compared with a sulphonylurea that costs £2 per month. Hypoglycaemia in older people is a real risk. In NICE guideline CG87, there are circumstances in which they say do not use sulphonylureas because of the hypoglycaemia risk, but use one of the newer (more expensive) glucose-lowering therapies to stop

that risk.”

Dr Simon Croxson, a Bristol geriatrician and author of the BGS best practice guidelines on diabetes, said: “We are pressurised to use the cheapest drug, and at times our evidence-based correct drug prescription is altered to a non-evidence based treatment that has not been shown to be safe or effective.

“Cheapest may not be the most cost-effective in the short or long term.” He added: “In the older patient, safety is paramount. A more expensive drug that is safer may avoid the costs of a hospital admission, for example for a hypo.”

Dr Croxson said the factors that influence treatment choice for the elderly diabetic are in the following order: safety, efficacy, ability to administer easily and cost.

He concluded: “So cost is an important factor but only after safety and efficacy.”

References

1. Prescribing for Diabetes in England: 2004/5 to 2009/10. NHS The Information Centre. July 2010. www.ic.nhs.uk/pubs/prescribingdiabetes0410 (accessed 13 September 2010)
2. Type 2 diabetes. National Institute for Health and Clinical Excellence. Clinical guideline 87. May 2009. www.nice.org.uk/nicemedia/pdf/CG87NICEGuideline.pdf. (accessed 13 September 2010)
3. Reference available on request from author
4. Mixtard 30 – going, going, gone? *Drug and Therapeutics Bulletin*. 2010; **48**: 85 <http://tiny.cc/zbdom>
5. Currie CJ, Peters JR, Evans M. Dispensing patterns and financial costs of glucose-lowering therapies in the UK from 2000 to 2008. *Diabet Med* 2010; **27**: 744–52
6. Croxson SCM, Burden AC, Bodington M, Botha JL. *Diabet Med* 1991; **8**: 28–31
7. British Geriatrics Society Best Practice Guide. British Geriatrics Society. May 2009. <http://tiny.cc/rtw4g>