Primary care prescribing for diabetes: latest figures show upward trend in volume and cost

The latest statistics from NHS Digital show that diabetes accounts for a large share of primary care prescribing in England. Volume growth is mainly due to increased prescribing of metformin and ‘other antidiabetic drugs’. Steve Chaplin here examines the findings of ‘Prescribing for Diabetes: England 2007/08 to 2017/18’.

There are now 3.2 million people in England registered with GPs as having diabetes, equivalent to one in every 15 people, or 6.8%. This number has increased by more than one-quarter in the decade to 2017/18, probably through a combination of a higher rate of diagnosis and an increase in the prevalence of risk factors such as overweight and obesity.

The latest report from NHS Digital quantifies the resulting impact on primary care prescribing: one in 20 items prescribed and one in every 11 pounds now spent on medicines is for the management or treatment of diabetes – more than 50 million items prescribed and over £1 billion spent in the latest financial year.

Ninety percent of registered people with diabetes have type 2 diabetes (T2DM), 7.8% have type 1 diabetes (T1DM) and 2.2% have other types. The report does not differentiate between indications for different drug categories so, while it is reasonable to assume that virtually all non-insulin glucose-lowering drugs are prescribed for T2DM, the same cannot be said for insulins themselves.

Data sources
The report collates information from the Quality and Outcomes Framework (QOF) diabetes register, representing 95% of GP practices in England, and from the electronic Prescribing Analysis and Cost tool (ePACT) system. ePACT includes prescriptions written by GPs, nurses, pharmacists and others in England and dispensed in the community in the UK, but not prescriptions written in hospitals or clinics that are dispensed in the community, prescriptions dispensed in hospitals, dental prescribing and private prescriptions. Given the extensive involvement of specialists in diabetes care, this probably represents a large proportion of prescribing.

Overview
Prescribing for diabetes has been the largest of the BNF categories for the past 10 years at least and has increased annually (Figure 1). In 2007/08, 30.8 million items were dispensed; in 2017/18, the figure was 53.4 million. Compared with all primary care prescribing in England, this has outstripped volume growth by a factor of two and exceeded cost growth 7-fold.

The rate of growth in items (as a proportion of the previous year’s prescribing) peaked at 7.8% between 2008 and 2011, then remained at approximately 5% until 2017/18, when it almost halved to 2.7%. Changes in net ingredient cost (NIC; the price listed in the Drug Tariff, though not necessarily the price paid by the NHS after discounting) have been variable, peaking at 11.7% in 2010/11 and 10.1% in 2015/16, and bottoming out in 2012/13 at 0.5%; in 2017/18, the increase was 2.9%. The mean cost per patient was £316 but the data reveal wide variation in prescribing costs between CCGs, ranging from £209 per patient in Northumberland to £394 in Surrey Heath; data are missing for five CCGs, including three from Manchester. Figure 2 shows the net ingredient cost per person on the QOF diabetes register, by CCG.

Drug categories
The report includes the products in the BNF category ‘Drugs used in diabetes’ (Category 6.1), which includes: monophasic and biphasic formulations of analogue insulins (aspart, glulisine, lispro, detemir, glargine, degludec); other insulins; biguanides (i.e. metformin but not its combinations); other antidiabetic drugs (sulphonylureas, metformin combinations, SGLT2 inhibitors, DPP-4 inhibitors, GLP-1 receptor agonists, pioglitazone, acarbose and the meglitinides); and diagnostic and monitoring devices (glucose blood testing reagents, ketone blood testing reagents and urine testing reagents).

Volume growth by drug category
The overall upward trend in prescribing volume is driven by increased prescribing of metformin and ‘other antidiabetic drugs’, with only sulphonylureas showing a (slight) decline (Figure 3). Metformin has long been...

Figure 1. Cumulative annual change in prescribing volume and net ingredient cost (NIC), 2007/08 to 2017/18 for all prescribing and prescribing for diabetes. (Copyright © 2018 NHS Digital)
Identified as the first-line treatment for T2DM in NICE guidance (except in patients with renal impairment) and, subject to tolerability, it should be continued as treatment is intensified. This means that the majority of people with T2DM will at least start metformin and many will continue to take it. The change in prescribing was most marked between 2007 and 2011, when year-on-year growth was 11–13%; it subsequently declined to 4–5% and in 2017/18 it increased by only 2% to 10.7 million items. There is still scope for further growth in metformin prescribing because the indications are expanding; current NICE guidance recommends adding metformin to insulin therapy if an overweight or obese adult with T1DM wants to improve glycaemic control while minimising their effective insulin dose.

The advent of new glucose-lowering agents has transformed the management of T2DM, with particularly rapid annual growth in 2009–2011 (16% to 20%) and 18% to 19% in 2015–2017. Prescription items have increased from 2.7 million in 2007/08 to 9.4 million in 2017/18 – or from 9% to 18% of all items for diabetes. This report does not provide a breakdown of this category by drug class but other data for 2017 show that the largest group by far is the DPP-4 inhibitors (5.4 million items, 57% of category) followed by the SGLT2 inhibitors (1.7 million items, 18%) and GLP-1 receptor agonists (0.94 million, 10%). This is consistent with NICE guidance: it recommends DPP-4 inhibitors and SGLT2 inhibitors as options for the first and second intensification of treatment, with GLP-1 receptor agonists as options if these steps are not successful.

Prescribing of sulphonylureas has been declining slowly for several years despite the fact they are recommended by NICE as options for every step of treatment intensification when metformin plus lifestyle change does not provide adequate glycaemic control. This is probably due to a preference for newer agents which have a lower risk of hypoglycaemia that outweighs the disadvantage of higher cost. Nevertheless, approximately 8 million items for sulphonylureas were prescribed in 2017/18, placing them a close third behind all the ‘other antidiabetic drugs’. They are also inexpensive.

Figure 2. Net ingredient cost (NIC) per person on the Quality and Outcomes Framework diabetes register by CCG (ascending). (Copyright © 2018 NHS Digital)

Figure 3. Number of prescription items by drug category, 2007/08 to 2017/18. (Copyright © 2018 NHS Digital)

Cost growth by drug category

Until 2011/12, prescribing of analogue insulins was growing modestly. In 2015, NICE recommended basal-bolus analogue regimens as first-choice for all adults with T1DM and advised against a twice-daily regimen for newly-diagnosed patients. In patients with T2DM, NICE recommended using a range of insulins but first suggests isophane insulin. Growth in prescribing of both analogue and other insulins has since remained steady but relatively slow. Perhaps this reflects a numerically greater increase in the number of people diagnosed with T2DM, for which insulin is a later treatment option after other glucose-lowering agents.

Cost growth in prescribing volume, total spending on these preparations has fallen since 2015/16. This is explained by its status as a Category M medicine, the price of which is influenced by funding of the Community Pharmacy Contractual Framework. This arrangement means that the cost of a drug may not reflect its market value and it has sometimes led to high prices of generic drugs. In 2013/14, the cost of metformin increased by 29% only to fall by 20% three years later.

Cost growth for analogue insulins appears to be reaching a plateau at around 50% greater than a decade...
ago, settling at a rate of growth that is similar to that of other insulins. Consistent with their declining use and low cost, spending on sulphonylureas has fallen slowly since 2014/15 and was approximately £25 million in 2017/18.

The class of drugs that has bucked these trends is ‘other antidiabetic drugs’. Until 2015/14, spending on these agents was increasing more or less in parallel with analogue insulins but the rate of growth then increased sharply. Even though the rate of increase now appears to be slowing, spending is set to double in the past four years. This change has been associated with expansion of the major drug classes with the introduction of empagliflozin among the SGLT2 inhibitors, alogliptin for the DPP-4 inhibitors and dulaglutide of the GLP-1 receptor agonists, and clarification by NICE of their position in management. These classes are each accounting for about £80 million in 2017/18.

Net ingredient cost per item
Figure 4 shows how net ingredient cost per item has varied little over the past 10 years. This is in marked contrast to the upward trends that distinguished some classes of drugs for both cost and volume: costs per item have remained relatively flat and all drug classes show a recent slight decline. The most uneven trajectory is that of ‘other antidiabetic drugs’ – this is probably due to the introduction and growth of prescribing of new agents such as the DPP-4 inhibitors at the end of the 2000s and the SGLT2 inhibitors from 2012 – but even this class appears to be becoming less expensive.

Insulins, especially analogue insulins, have always been among the more expensive treatment options per item. This class is dominated by monophasic analogue preparations, with insulin glargine and insulin aspart each accounting for about £80 million in spending and together for over two-thirds of costs. Combined spending on biphasic aspart and lispro was also substantial at £68 million.

Diagnostic and monitoring devices
This category includes testing reagents but not meters or sensors, which are not supplied on prescription. It receives less attention than is usually afforded to medicines but accounts for a high level of spending and has seen steady but consistent growth in volume and, until recently, in cost. Over 7 million items in this category were dispensed in 2017/18, an increase of 18% over the decade. This occurred even though annual growth never exceeded 4.4% and several years saw a fall in prescribing (including the last). Cost growth was more substantial, ending 34% higher than in 2007/08 at £46 million. Between 2008 and 2013, annual cost growth ranged from 3% to 6% but was only 0.2% in 2016/17 and fell by about 3% in 2017/18.

These products are far from inexpensive – something that occasionally causes friction with people with diabetes as GPs try to limit supplies. Reagents for testing blood glucose plus ketones cost £33.20 per item, reagents for blood glucose alone cost £25.50 per item, and those for blood ketones alone cost £39.95. These costs were rising steadily until 2012/13 but, following a three-year plateau, are now falling. This class is likely to see more rapid decline following the wider introduction of flash glucose monitoring from April 2019.

Summary
The latest NHS statistics show that diabetes accounts for a large share of primary care prescribing in England. Volume growth is largely due to increased prescribing of metformin and ‘other antidiabetic drugs’ – the class that has seen most innovation in recent years. It is therefore not surprising that cost growth is largely confined to these agents. Prescribing of other classes is more or less stable and there is a slight but definite trend for the rate of increase in volume and costs to slow or even fall. That’s not to say that these classes are inexpensive: insulins remain among the most expensive of drugs for diabetes and the often overlooked reagents still account for a large share of spending.

Steve Chaplin, BPharm, MSc, Medical Correspondent

References