



Public Health
England

Protecting and improving the nation's health

Briefing for the Diabetes Outcomes Versus Expenditure (DOVE) tool

Overview to 2018

Summary of results 2013 to 2018

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

Public Health England
Wellington House
133-155 Waterloo Road
London SE1 8UG
Tel: 020 7654 8000
www.gov.uk/phe
Twitter: [@PHE_uk](https://twitter.com/PHE_uk)
Facebook: www.facebook.com/PublicHealthEngland

Prepared by: Emma Barron
For queries relating to this document, please contact: ncvin@phe.gov.uk



© Crown copyright 2019

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit [OGL](https://www.ogil.io). Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Published February 2019
PHE publications
gateway number: GW-234

PHE supports the UN
Sustainable Development Goals



Contents

Executive summary	4
Background	5
Results	7
Conclusion	12

Executive summary

The Diabetes Outcomes Versus Expenditure (DOVE) tool has been produced since 2013.

This report gives an overview of the tool and presents data from 2013/14 to 2017/18, showing how spend on diabetes medications and the proportion of patients achieving recommended blood glucose levels varies between general practices (GPs) and clinical commissioning groups (CCGs), and how it has changed over time.

The DOVE tool enables GPs and CCGs to benchmark themselves against comparators, instigating further investigation and discussions to occur so resources can be utilised efficiently.

The updated DOVE tool has highlighted a number of relationships between glucose treatment target achievement rates and expenditure on diabetes prescribing. There has been an increase in the total spend in diabetes prescribing per person with diabetes from 2013/14 to 2017/18, particularly among non-insulin glucose lowering drugs, but no corresponding increase in the percentage of patients with type 1 or type 2 diabetes achieving an HbA1c <58mmol/mol. Some CCGs spend significantly more on diabetes medications compared to the rest of England, but still achieve the same percentage of people with diabetes treated to target with an HbA1c <58 mmol/mol, highlighting the potential to use resources more effectively after more detailed local analysis has occurred.

Background

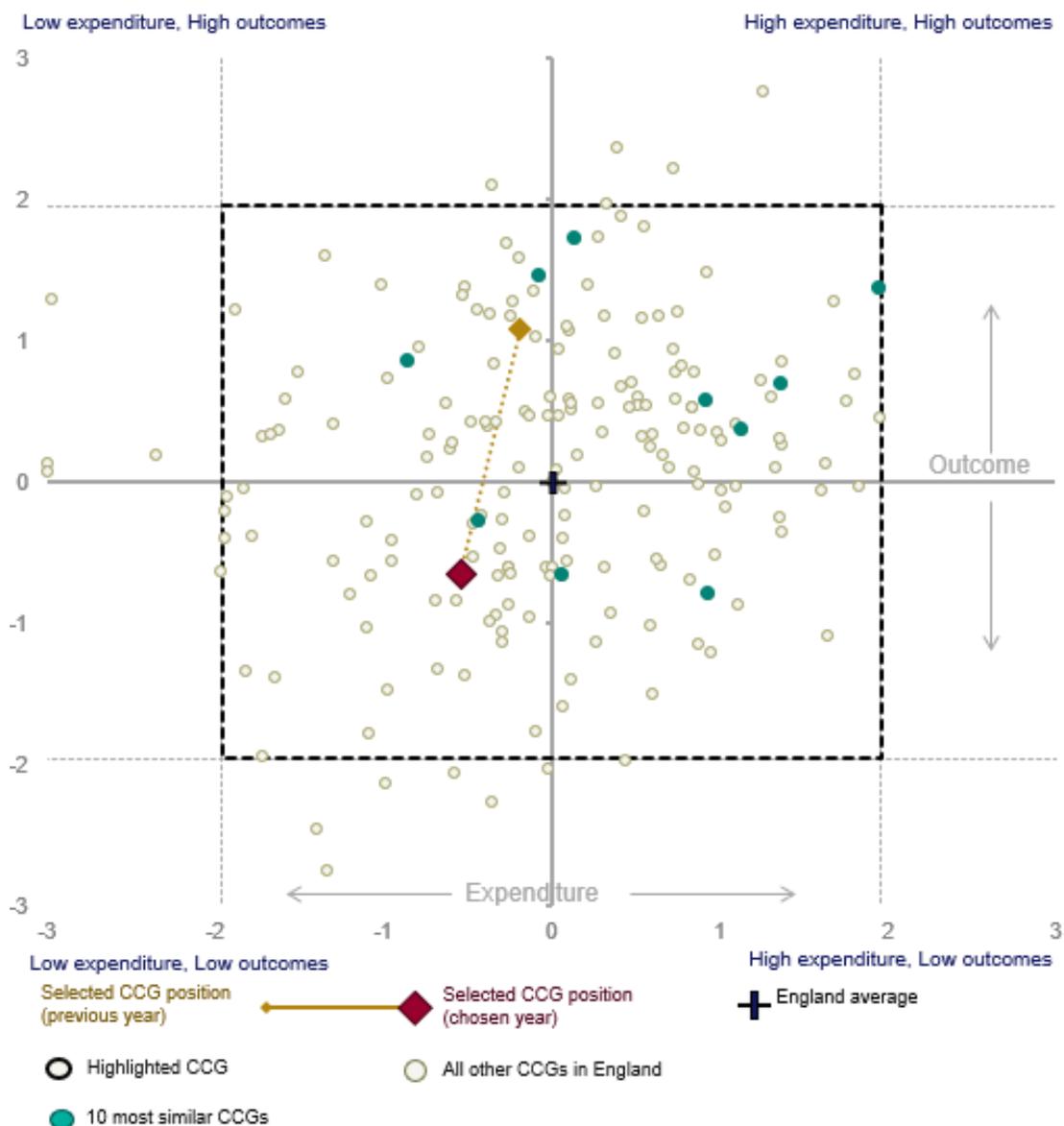
The Diabetes Outcomes Versus Expenditure (DOVE) tool allows users to explore the relationship between glucose treatment target achievement rates and expenditure on diabetes prescribing at a clinical commissioning group (CCG) and general practice (GP) level between 2013/14 and 2017/18. The tool uses glucose target achievement rates from the National Diabetes Audit (NDA) and the Quality and Outcomes Framework (QOF) and prescribing expenditure from NHS Digital.

There are, of course, many factors other than medication prescribing that influence achievement of glucose treatment targets such as lifestyle, medication adherence, patient education and support. More detailed local analysis of the data might help to explain the relative position of the CCG/GP. However, CCGs/GPs should aim to achieve target levels (HbA1c 58mmol/mol or less) as cost effectively and safely (e.g. minimising side effects such as hypoglycaemia, exacerbation of eye disease and heart failure or risk of lactic acidosis) as possible.

Data are displayed in the DOVE tool using quadrant charts (Figure 1) showing the relative position of a selected CCG/GP in comparison to other CCGs/GPs with similar risk factors or within the same CCG. The data are standardised using z-scores, which measure the distance from the mean (average) in units of standard deviations (stdev). Any markers within the dotted line of the quadrant chart are within 2 stdev from the England mean and so are deemed to be similar to the population average. Markers outside the dotted line are more than 2 stdev away from the England average and are considered outliers which may warrant further investigation. The quadrant charts enable CCGs/GPs to benchmark their diabetes drug expenditure cost-effectiveness against relevant comparators that have similar population demographics and against the rest of England. An example of its use is provided in Box 1.

Trends in diabetes prescribing and glucose treatment targets over time are also included in the tool.

Figure 1: An example of the DOVE tool quadrant chart, plotting total spend on diabetes prescribing per person with diabetes compared to people with diabetes (type 1 and type 2) from the NDA with a HbA1c < 58 mmol/mol (7.5%) at a CCG level for 2017/18



Box 1

Berkshire West GP, Richard Croft described how the “penny dropped” when they began to look at the diabetes outcomes versus expenditure (DOVE) tool locally. They saw that Berkshire West was an outlier in the quadrant for high costs and poor outcomes for attainment of HbA1c below 59mmol/mol. In other words, expensive and poor care with people with diabetes managing their blood sugar poorly. The DOVE tools graphic caught the attention of its leadership and meant that diabetes become the top priority for improvement. The data has directly led to the commissioning and rollout of three initiatives across the local area in a short space of time: care planning, structured patient education and health care professional education.

Results

Costs and achievement of glucose control targets in 2017/18

The total spend on diabetes prescribing in 2017/18 in England was £316 per person with diabetes, and the percentage of people with diabetes (type 1 and 2) achieving an HbA1c <58 mmol/mol (7.5%) was 63.3%. The percentage of patients with type 2 diabetes achieving this treatment target (65.8%) was over double the percentage of patients with type 1 diabetes achieving this target (29.9%).

There were four CCGs considered outliers with respect to total spend per person with diabetes; all had a lower spend than England. These CCGs were not considered outliers compared to England for the percentage of people with either type 1 or type 2 diabetes achieving an HbA1c <58 mmol/mol.

There were nine CCGs considered outliers with respect to type 2 diabetes patients achieving an HbA1c <58 mmol/mol; four with lower achievement than England, and five with higher achievement. Two of these CCGs were also outliers for achievement of this treatment target among patients with type 1 diabetes. None of the nine CCGs were considered outliers compared to England for total spend per person with diabetes, but three were outliers for one or more other expenditure indicator. These three CCGs tended to have lower outcomes and lower expenditure in all instances.

There were seven CCGs considered outliers with respect to type 1 diabetes patients achieving an HbA1c <58 mmol/mol; three with lower achievement than England, and four with higher achievement. These CCGs were not considered outliers compared to England for total spend per person with diabetes, but five were outliers for one or more other expenditure indicator. Those with lower achievement tended to spend less than the England average, and those with higher achievement tended to spend more.

At GP level there were 236 practices considered outliers with respect to total spend per person with diabetes; 177 lower than England and 59 higher. 143 practices were considered outliers with respect to achievement of HbA1c <58 mmol/mol (type 1 and type 2 combined); 50 lower than England and 93 higher. 80 of these practices were also outliers for one or more expenditure indicator. Note, some of these practices will have a small population with diabetes so results should be interpreted with caution.

115 practices were considered outliers with respect to achievement of HbA1c <58 mmol/mol among patients with type 2 diabetes; 37 lower than England and 78 higher.

Nine of these practices were also considered outliers compared to England for total spend on diabetes prescribing per person with diabetes; over half of these outliers spent less than the England average but had a higher achievement of HbA1c <58 mmol/mol.

Results should also be interpreted with caution due to potentially small populations with diabetes.

The number of outliers for each outcome and spend indicator in the DOVE tool was similar across all indicators for all years presented in the tool, and around 95% of the CCGs/GPs fell within 2 stdevs of the England population value for the majority of indicators, suggesting the data is normally distributed.

Box 2

Information on the distribution and determinants of diabetes, patient treatment and care, and diabetes-related complications are available on PHE Fingertips (<https://fingertips.phe.org.uk/profile/diabetes-ft>).

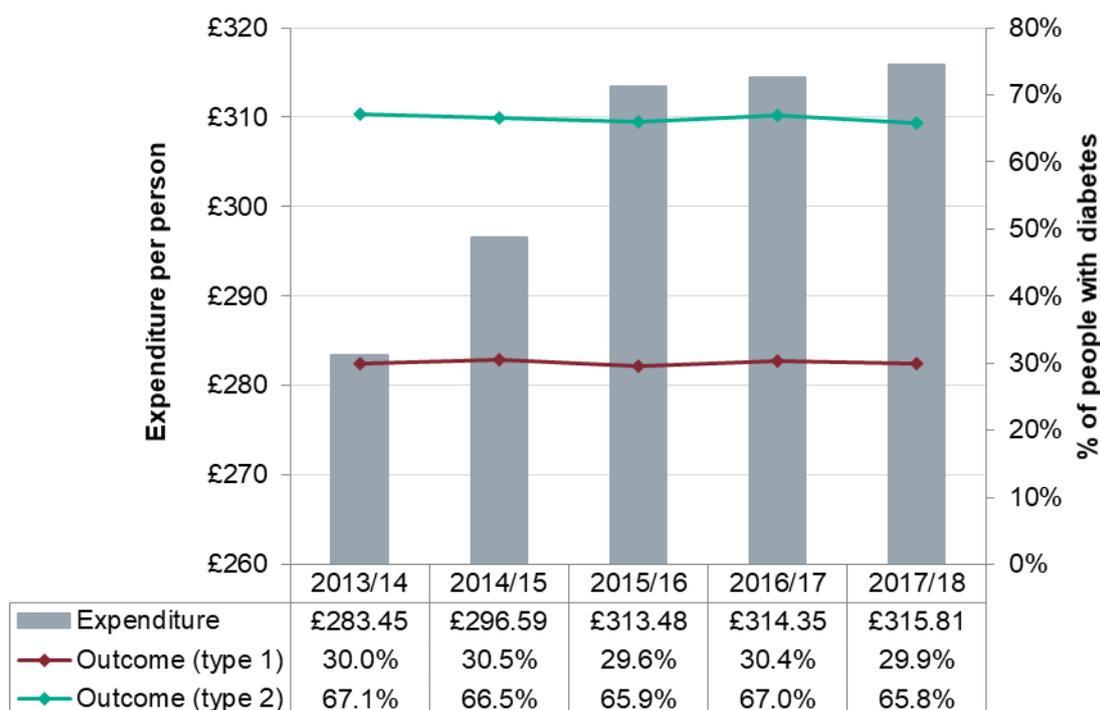
The data in the DOVE tool should not be compared to data presented on PHE Fingertips as they are outlining different information. The data in PHE Fingertips are derived from 95% confidence intervals that are benchmarked against the England average value. Areas are highlighted as being 'statistically different' from the England value if their confidence intervals do not overlap. The DOVE tool by contrast identifies values that are +/-2 z-scores away from England's average value i.e. much larger or smaller than the population average and, although 95% of the data will fall within 2 standard deviations of the England population value, the DOVE tool does not assess statistically significant differences, but highlights values that may warrant further investigation.

Trends in outcomes and expenditure

Spend per person

Figure 2 shows there has been an increase in the total spend on diabetes prescribing per person with diabetes in England; from £283 per person with diabetes in 2013/14 to £316 in 2017/18, an increase of £32.36 per person or 11.4%. There has however been no corresponding increase over the same time period in the percentage of patients achieving a HbA1c <58 mmol/mol (the NDA shows that achievement of this treatment target decreased in type 2 patients from 67.1% in 2013/14 to 65.8% in 2017/18 and there was minimal change among type 1 patients from 30.0% in 2013/14 to 29.9% in 2017/18).

Figure 2: Total spend on diabetes prescribing per person with diabetes in England compared to the percentage of patients from achieving HbA1c <58 mmol/mol (split by Type 1 and Type 2 diabetes) in England, from 2013/14 to 2017/18



The largest increase in diabetes drug expenditure per person with diabetes from 2013/14 to 2017/18 was observed in non-insulin glucose lowering drugs (42.7% increase), particularly SGLT2 inhibitors and Gliptins which have increased by 3997.8% and 59.5% respectively from 2013/14 to 2017/18. Prescribing of all insulin items per person with diabetes in England from 2013/14 to 2017/18 has shown a slight decrease, decreasing by 5.7%.

Cost per item

Figure 3 shows there has been an overall increase in the average cost per item on all diabetes prescribing, increasing from £17.78 in 2013/14 to £18.94 in 2017/18, a 6.5% increase.

Figure 3: Average spend per item on all diabetes prescribing in England, from 2013/14 to 2017/18

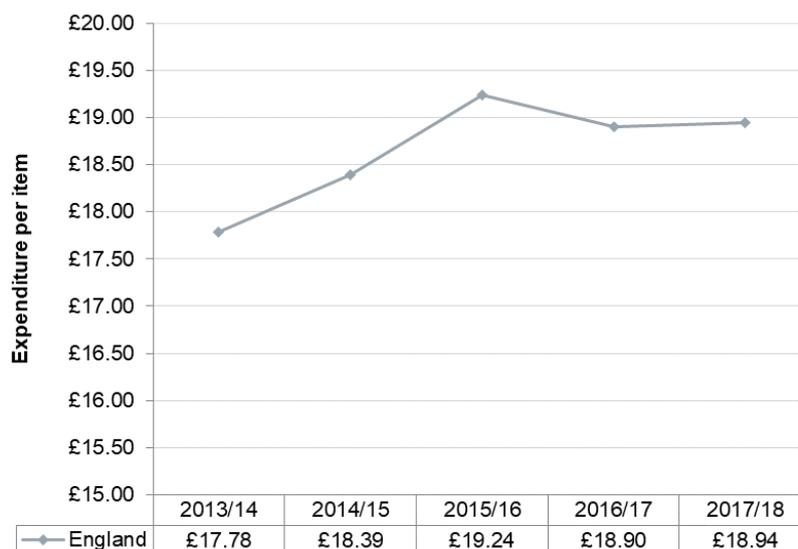


Table 1 highlights that this overall increase is mainly due to increases in average cost per item for some non-insulin glucose lowering drugs, including injectable GLP1 agonists and other drugs not presented in the DOVE tool, but not Gliptins and SGLT2 inhibitors which have decreased in cost per item by £3.06 and £0.26 respectively. The average cost per item of all insulin and testing items has decreased from 2013/14 to 2017/18, and these categories have shown the smallest percentage increases in total spend and number of items prescribed during this period (in addition to all intermediate and long acting insulins). Total spend on all non-insulin glucose lowering drugs has increased by 62.0% and there has been an 22.6% increase in the number of these drugs prescribed from 2013/14 to 2017/18, with SGLT2 inhibitors having the largest percentage increase in spend and items prescribed.

Table 1: Change in average cost, spend and items prescribed in England, 2013/14 to 2017/18

2013/14 vs 2017/18	Change in average cost per item	% Change in total spend	% Change in number of items prescribed
Total diabetes prescribing	+ £1.16	+ 26.5%	+ 18.8%
All non-insulin glucose lowering drugs	+ £2.99	+ 62.0%	+ 22.6%
All insulin items	- £2.03	+ 7.1%	+ 11.5%
All testing items	- £1.05	+ 3.6%	+ 7.8%
All short acting insulins	- £0.61	+ 13.6%	+ 15.1%
All intermediate and long acting insulins	- £2.62	+ 4.4%	+ 9.9%
All Gliptins	- £3.06	+ 81.1%	+ 97.5%
All injectable GLP1 agonists	+ £3.07	+ 21.6%	+ 17.6%
All SGLT2 inhibitors	- £0.26	+ 4554.2%	+ 4583.0%

Conclusion

The DOVE tool shows that some CCGs spend significantly more on diabetes medications compared to the rest of England but still achieve the same percentage of people with diabetes treated to target with an HbA1c <58 mmol/mol. There has been an increase in the total spend in diabetes prescribing, but no corresponding increase in the percentage of patients with type 2 diabetes achieving a HbA1c <58mmol/mol. Spending per person with diabetes has particularly increased among non-insulin glucose lowering drugs, such as SGLT2 inhibitors and Gliptins.

CCGs classed as outliers for both achievement of HbA1c <58 mmol/mol among patients with type 2 diabetes and at least one spend indicator in 2017/18 tended to have lower outcomes and lower expenditure in all instances. Among CCGs classed as outliers for patients with type 1 diabetes achieving an HbA1c <58 mmol/mol and at least one spend indicator, those with lower achievement tended to spend less than the England average, and those with higher achievement tended to spend more. GPs classed as outliers for patients with type 1 and type 2 diabetes achieving an HbA1c <58 mmol/mol and at least one spend indicator often had small diabetic patient list sizes.

The DOVE tool has been of beneficial use to GPs and CCGs to benchmark themselves against the rest of England or other comparators, instigating further investigation and discussions to occur so resources can be utilised efficiently. The updated tool will continue to enable this and provides up-to-date data in a user-friendly format.