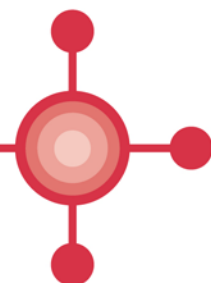


All Wales Medicines Strategy Group

Grŵp Strategaeth Meddyginiaethau Cymru Gyfan



Primary Care Prescribing Analysis – Medicines Used in Diabetes

September 2015

This report has been prepared by the Welsh Analytical Prescribing Support Unit (WAPSU) with the support of a multiprofessional collaborative group, which includes members of the All Wales Prescribing Advisory Group (AWPAG) and the All Wales Therapeutics and Toxicology Centre (AWTTC), and has subsequently been endorsed by the All Wales Medicines Strategy Group (AWMSG).

Please direct any queries to AWTTC:

All Wales Therapeutics and Toxicology Centre
University Hospital Llandough
Penlan Road
Llandough
Vale of Glamorgan
CF64 2XX

awttc@wales.nhs.uk

029 2071 6900

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EXECUTIVE SUMMARY

- Medicines used in diabetes account for approximately 10% of primary care prescribing.
- Services for diabetes account for 10% of all NHS expenditure in the UK, and the incidence of diabetes is increasing in Wales¹.
- Prescribing of medicines used in diabetes in 2014–2015 accounted for £57.2 million (9.8% of total medicines expenditure in NHS Wales) and 3,273,664 items (4.2%) in primary care, and £2.6 million (1.5%) in secondary care. Prescribing via the WP10HP route amounted to £78,668 (6,319 items).
- The prescribing of insulins accounted for £20.7 million and 442,107 items in 2014–2015, while antidiabetic drugs accounted for £25.2 million and 2.4 million items. Monitoring and screening agents accounted for £11 million and 452,565 items in the same period.
- Items of long-acting insulin analogues as a percentage of total long- and intermediate-acting insulin (excluding biphasics) are monitored as part of the Clinical Effectiveness Prescribing Programme (CEPP) Local Comparators for 2015–2016. Long-acting insulin analogues accounted for £8.5 million and 157,297 items in primary care in 2014.
- There is variation between the health boards in a number of areas including blood glucose monitoring agents, long-acting insulin analogues as a percentage of total long- and intermediate-acting insulin, and sulphonylureas and metformin items as a percentage of all diabetic treatment agents.
- There has been a 14% increase in the cost of prescribing of ‘other antidiabetic drugs’ such as GLP-1s, DPP-4 inhibitors and thiazolidinediones within NHS Wales in 2014–2015 compared to 2013–2014, with variation between health boards. There may be opportunities for cost savings to be made through prescribing in line with national guidance, such as the first- and second-line use of metformin and sulphonylureas.
- Outcome measures are explored in the document, and outcomes data are analysed alongside prescribing data for diabetes medicines. Diabetes-related admissions and prescribing vary across the health boards, but the relationship between the two is complex and more work is needed to understand how prescribing can influence measurable outcomes.
- GP cluster data are presented in this document, in which GP clusters are grouped together based on diabetes prevalence and deprivation scores to produce comparators for the purpose of benchmarking.

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1.0 INTRODUCTION

1.1 Diabetes overview

Diabetes has a significant impact on the population of Wales, affecting 5.6% of the adult population². This percentage increases with age, and in the older age group (over 65 years) a higher proportion of men than women are reported as being treated for diabetes. The prevalence of type 2 diabetes mellitus is increasing in the UK and worldwide³, and projections estimate that UK prevalence will increase by 50% over the next decade. Although diabetes can result in ill health, disability and even premature death, these can often be prevented by effective self-management, education and high-quality care.

The diabetic therapeutic area is complex and encompasses a wide range of specific indications and treatment areas. Prescribing data presented in this report relate to the use of medicines across the diabetic therapeutic area and the term 'diabetes medicines' refers to medicines that are listed in the British National Formulary (BNF) under Section 6.1 *Drugs used in diabetes*. However, we can assume that the main indications for treatment, representing the majority of prescribing, will be type 1 and type 2 diabetes mellitus. Therefore, although the treatment of diabetes may cover a wider range of medicines, e.g. medicines used in diabetic neuropathy, nephropathy and retinopathy, as well as medicines used for foot care, for the purposes of this report, diabetic medicines refers to medicines used directly in diabetes.

1.2 Diabetes complications

Diabetes is associated with raised blood pressure, a disturbance of blood lipid levels and a tendency to develop cardiovascular disease and stroke. The increased cardiovascular risks associated with type 2 diabetes include coronary artery disease, peripheral artery disease and carotid artery disease. Specific complications of diabetes include eye damage, kidney damage and nerve damage. The wide ranging complications of diabetes mean that the condition draws on many areas of healthcare management and that the pharmacological treatment is often complex. Management of type 2 diabetes often involves a large element of self-care and therefore treatment will be tailored for the individual⁴. While the prescribing for these complications is beyond the scope of this report, safe, effective and cost-effective prevention and treatment of diabetes will influence the impact of these complications.

2.0 BACKGROUND

The *Primary Care Prescribing Analysis – Medicines Used in Diabetes* is the latest in a series of prescribing analysis reports produced by WAPSU:

- [Respiratory Prescribing Analysis with Cluster Level Comparators](#) (Feb 2015)
- [GP Cluster Level Comparators](#) (October 2014)
- BNF Chapter Analysis of the Eye, Respiratory and Cardiovascular Therapeutic Areas (March 2014)
- BNF Chapter Analysis (September 2013)

Diabetes medicines have been chosen as the next area for analysis as they account for a large proportion, approximately 10%, of prescribing expenditure and services in the UK⁵, and diabetes incidence is increasing in Wales⁶. *The Diabetes Delivery Plan* describes the current rate of increase in spend on diabetes as unsustainable and recommends that action needs to be taken to address this⁶. This report aims to provide prescribing leads with analysis of the diabetes therapeutic area, and in particular focuses on:

- Primary care prescribing analysis of the BNF diabetes chapter;
- Prescribing trends, cost and items per patient;
- Wales, England and North East (NE) England comparative prescribing trends;
- Influence of measurable variables on prescribing e.g. demographics;
- Outcomes data;
- GP cluster level comparators.

Diabetes prescribing GP cluster data for Wales are presented in eight groups of the most similar GP clusters based on diabetes prevalence and deprivation. This method for presenting data should enable GP cluster groups and health boards to make meaningful comparisons of their prescribing rates with areas of a similar disease prevalence and deprivation profile.

3.0 CURRENT DIABETES GUIDANCE

3.1 Welsh Government Report – Together for Health – A Diabetes Delivery Plan

It is important that ongoing work in NHS Wales addresses the number of people affected by diabetes and the complications arising from the condition by promoting healthy lifestyles and ensuring that those affected by any kind of diabetes are well informed about their condition and have timely access to services¹.

The Welsh Government report, *Together for Health – A Diabetes Delivery Plan*, describes aims to have effective plans in place in Wales to prevent diabetes and reduce the risk of long-term diabetic complications⁶. The report sets out new Welsh Government commitments to the public and supports the continuing delivery of service standards established in the *Diabetes National Service Framework*, published in 2003⁷. The report describes the outcome indicators below to measure success:

- Incidence of type 2 diabetes mellitus per 100,000 population
- Circulatory disease mortality rate for < 75 year olds/100,000 population
- Age group specific diabetes mortality rate for < 75 year olds/100,000 population
- Variations in incidence of complications of diabetes by geography and deprivation⁶

3.2 National Institute of Health and Care Excellence (NICE) guidance

There are a number of specific NICE Clinical Guidelines (CGs) and NICE Technology Appraisals (TAs) relating to the use of diabetes medicines and patient treatment. See the [Diabetes topic page](#) on the NICE website for more information.

Current diabetes guidance recommends a patient-centred care approach and the management of diabetes typically involves a considerable element of self-care. The advice, therefore, should be aligned with the perceived needs and preferences of people with diabetes and their carers. People with diabetes should be able to make informed decisions about their care and treatment, in partnership with their healthcare professionals. Communication between healthcare professionals and patients is essential and should be supported by evidence-based written information tailored to the patient's needs. New NICE guidance on type 2 diabetes is due in October 2015.

3.3 Clinical Effectiveness Prescribing Programme (CEPP) Local Comparators

Diabetes treatment is included in the CEPP Local Comparators for Wales 2015–2016⁸ to promote the appropriate use of the newer diabetic treatment agents and long-acting insulin analogues in type 2 diabetes mellitus in line with NICE CG87, TA203 and TA248^{4,9,10}. The Local Comparators are measures produced to allow health boards to benchmark across a range of prescribing indicators. They are not reported nationally but are available for both local and national comparative measurement as necessary in accordance with local prioritisation. Caution should be exercised in the interpretation of Local Comparator data, as some comparators may be more relevant to benchmark for one health board than another. The list of comparators is circulated directly to Chief Pharmacists and Medicines and Therapeutics Committees.

The diabetes-related Local Comparators include:

- Sulphonylureas and metformin items as a percentage of all diabetic treatment agents (excluding insulin).
- Glucagon-like peptide-1 agonists – exenatide, liraglutide and lixisenatide – as a percentage of diabetic treatment agents (excluding insulin).
- Items of long-acting insulin analogues as a percentage of total long- and intermediate-acting insulin (excluding biphasics).
- Cost of diabetic self-monitoring agents per 1,000 PUs (weighted by diabetes prevalence).

3.4 Driver and Vehicle Licensing Agency (DVLA) guidance

The DVLA gives [advice](#) on driving requirements relating to blood glucose control.

4.0 DIABETES PREVALENCE

Table 1 shows diabetes percentage prevalence for Wales and the Welsh health boards from 2008–2009 to 2013–2014. Diabetes prevalence data are from the Quality and Outcomes Framework (QOF), Wales. The data are taken from the GP register and include patients aged 17 and over and does not distinguish between type 1 and type 2 diabetes².

Table 1. Diabetes prevalence

Year	QOF figures for diabetes prevalence (%)							
	ABMU	Aneurin Bevan	Betsi Cadwaladr	Cardiff and Vale	Cwm Taf	Hywel Dda	Powys	All Wales
2008/09	5.1	5.1	4.4	3.8	4.7	4.8	4.6	4.6
2009/10	5.3	5.4	4.6	4.0	4.9	5.1	4.8	4.9
2010/11	5.5	5.6	4.8	4.1	5.1	5.3	5.0	5.1
2011/12	5.6	5.9	5.0	4.3	5.3	5.4	5.3	5.3
2012/13	5.8	6.1	5.2	4.4	5.5	5.6	5.5	5.4
2013/14	6.0	6.2	5.4	4.5	5.7	5.8	5.7	5.6

Figure 1. Number of patients on QOF diabetes register in Wales 2008–2009 to 2013–2014

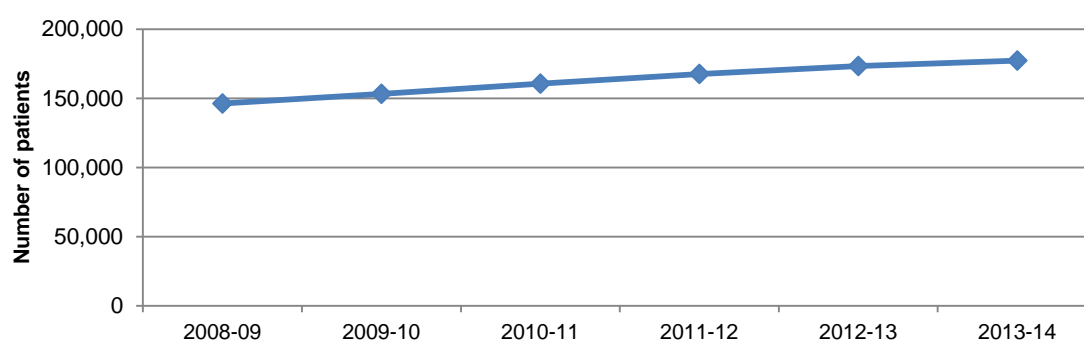


Table 2 shows a selection of health-related indicators relevant to the diabetes therapeutic area for Wales, England and NE England and for the Welsh health boards.

Table 2. Prevalence of health-related indicators (percentage of population)

	ABMU	Aneurin Bevan	BCU	Cardiff & Vale	Cwm Taf	Hywel Dda	Powys	Wales	England	NE England
Obesity ²	9.9	11.8	10.2	7.9	12.0	10.1	10.8	10.3	7.7	10.2
Hypertension ²	15.2	16.2	16.2	12.5	16.8	16.3	17.3	15.5	13.7	15.6
Heart failure ²	1.0	0.9	1.0	0.7	0.8	1.0	1.1	0.9	0.7	0.9
Coronary heart disease ²	4.0	3.9	4.1	2.9	4.0	4.2	4.1	3.9	3.3	4.5
Adults smoking daily or occasionally ^{11,12}	23	24	23	22	27	23	23	24	20	21
% in most deprived 5 th ¹³	26.7	24.1	12.7	23.5	35.5	8.1	1.7	20	20.3	32.4

It should be noted that the data in Table 2 are taken from a variety of sources and that data collection methods may vary between England and Wales. Smoking prevalence figures, for example, vary from source to source and year to year depending on how prevalence is measured e.g. Welsh smoking prevalence rates vary from 25% in the

2010 ONS general lifestyle survey to 20% in the Welsh Government Welsh health survey. Some of the data are taken from surveys, which rely on people being honest about their habits, while QOF data are recorded by the GP. Likewise, the Welsh and English Indices of Multiple Deprivation are calculated slightly differently and this should be taken into account when making comparisons.

4.1 Diabetes prescribing data

The data presented in this report include:

- Overall prescribing for Wales
- Prescribing trends for health boards, Wales, England and NE England
- Comparisons of health boards with CCGs

Most recent data represent the year or quarter to March 2015, and trend data date back to the quarter ending June 2009.

The figures were provided by NHS Wales Shared Services Partnership (NWSSP) and were accessed via the Comparative Analysis System for Prescribing Audit (CASPA) database.

The figures in the document represent items prescribed and cost, and relate to prescriptions that were dispensed and forwarded for reimbursement. Information on prescriptions that were not dispensed is not available, therefore the term “prescribed” is used here to represent items which were both prescribed and dispensed.

4.1.1 Total diabetes prescribing data

Table 3. Prescribing for all medicines included in *Drugs used in diabetes* (BNF 6.1) in Wales

	Items			Cost		
	Total items	Change on previous year	% change on previous year	Total cost (£)	Change on previous year	% change on previous year
2010/11	2,666,389.00	181,985	7.33	45,459,650.16	4,768,031	11.72
2011/12	2,826,009.00	159,620	5.99	48,763,885.73	3,304,236	7.27
2012/13	2,955,880.00	129,871	4.60	49,564,275.31	800,390	1.64
2013/14	3,119,112.00	163,232	5.52	52,666,259.72	3,101,984	6.26
2014/15	3,273,664.00	154,552	4.96	57,235,757.82	4,569,498	8.68

Figure 2. Prescribing for the three major sub-sections within *Drugs used in diabetes* (BNF 6.1) – Total items in Wales

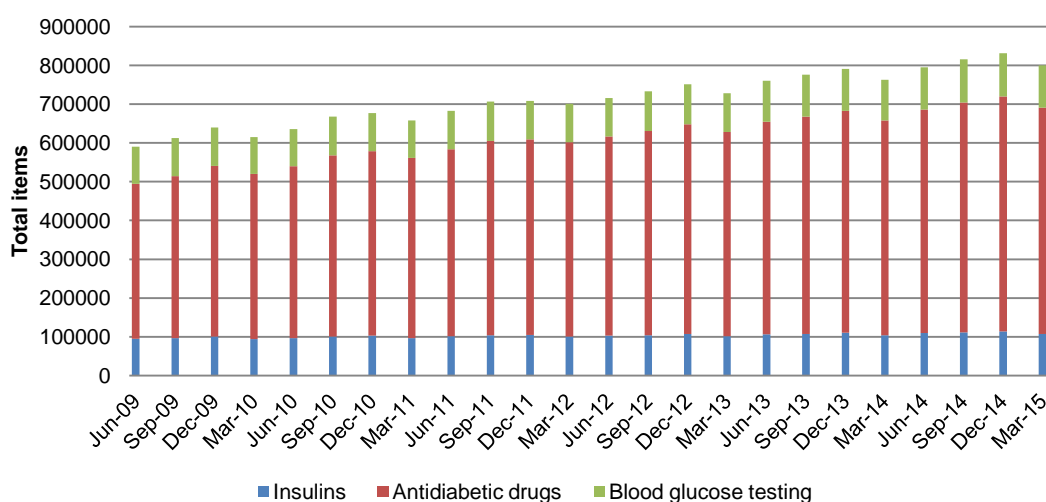


Figure 3. Prescribing for the three major sub-sections within *Drugs used in diabetes* (BNF 6.1) – Total cost in Wales

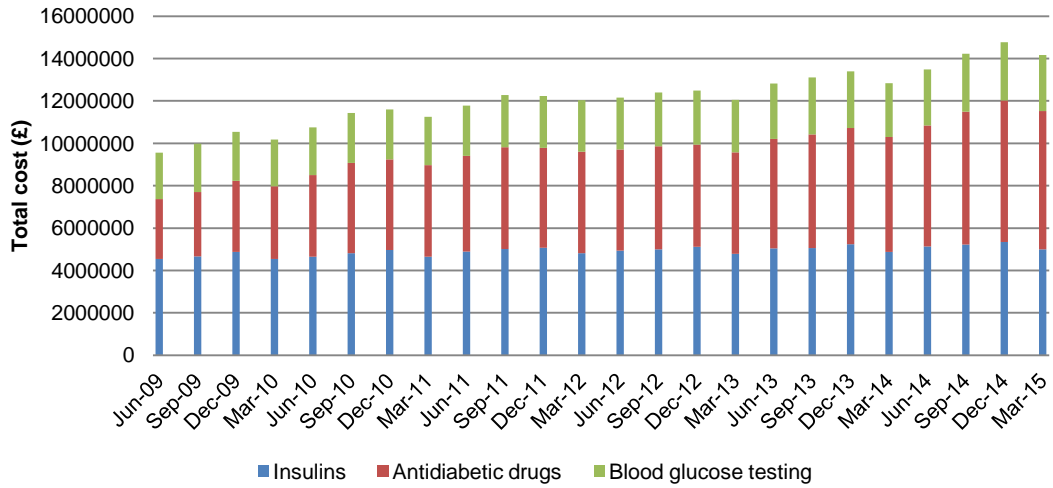


Figure 4. Prescribing for all diabetes medicines – Items per 1,000 PUs in Wales, England and NE England

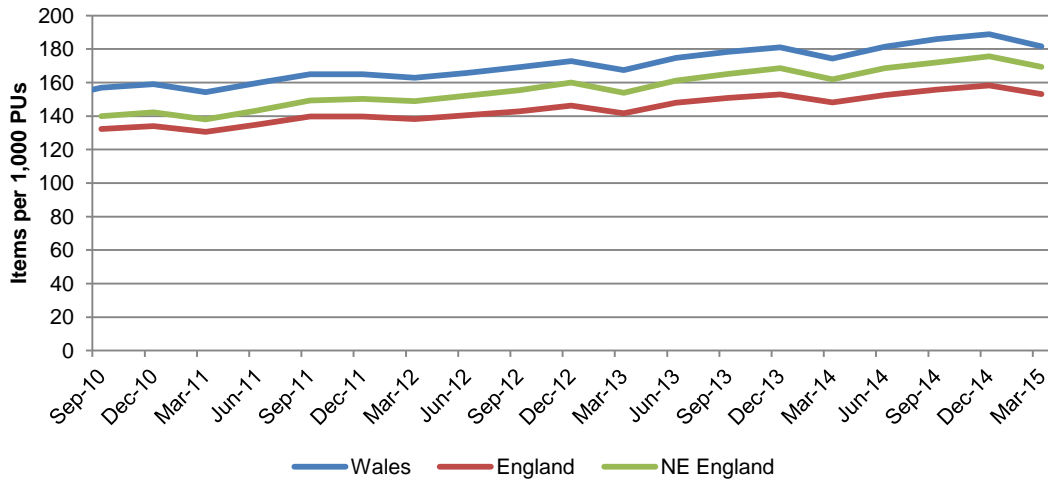


Figure 5. Prescribing for all diabetes medicines – Cost per 1,000 PUs in Wales, England and NE England

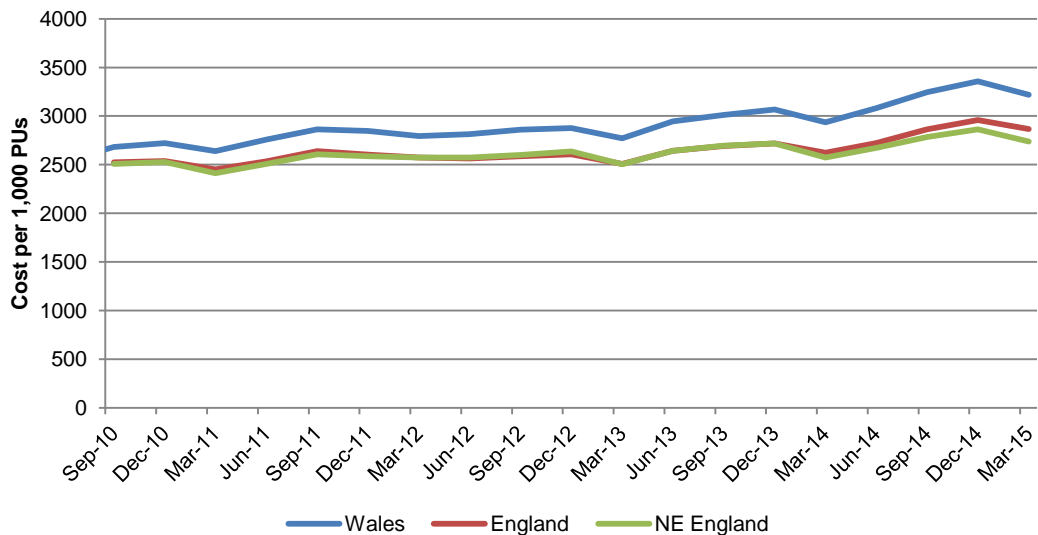


Figure 6. Prescribing for all diabetic medicines by category – Total items in Wales

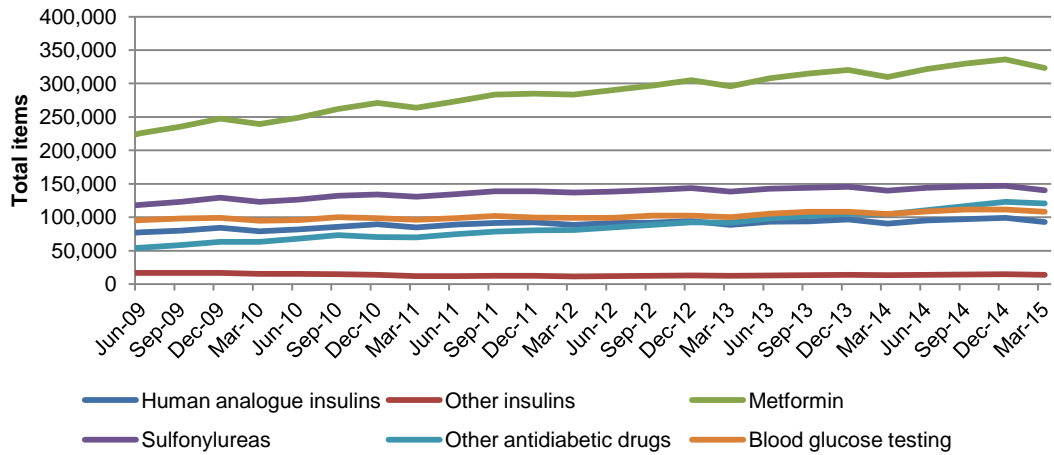


Figure 7. Prescribing for all diabetic medicines by category – Total cost in Wales

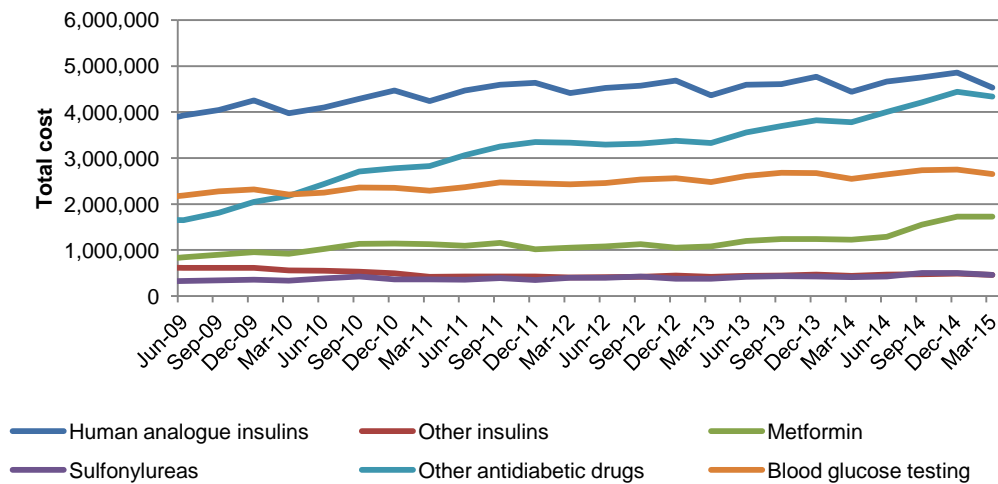


Figure 8. Average cost per item for different diabetic medicine categories in Wales

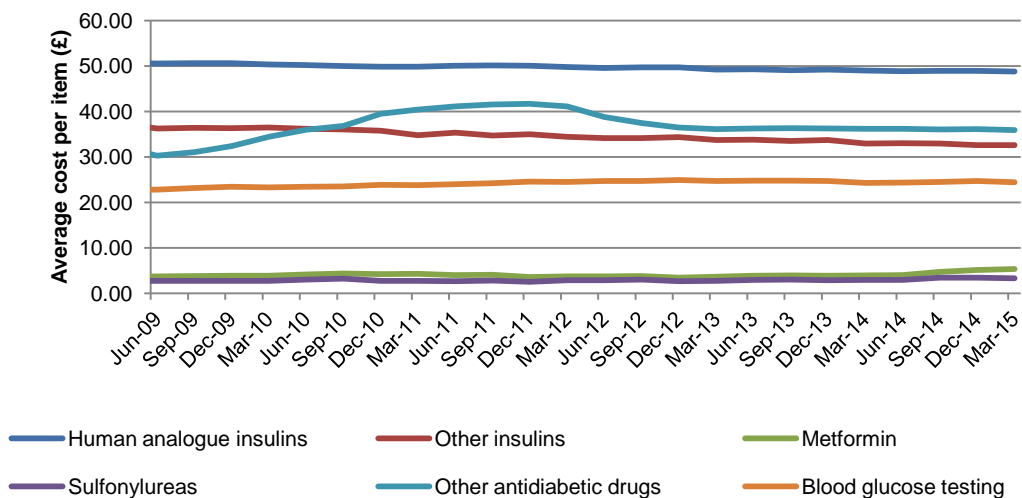


Figure 9. Diabetes prescribing cost breakdown April 2014–March 2015

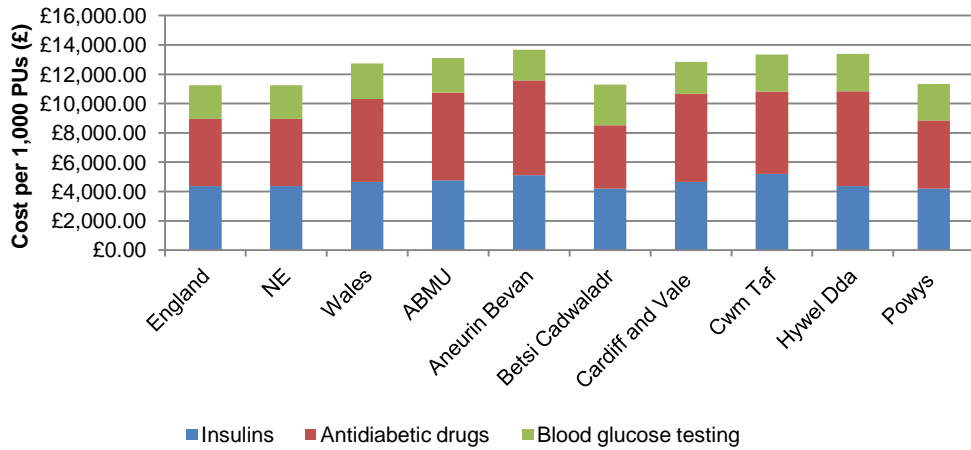


Figure 10. Diabetes prescribing items breakdown April 2014–March 2015

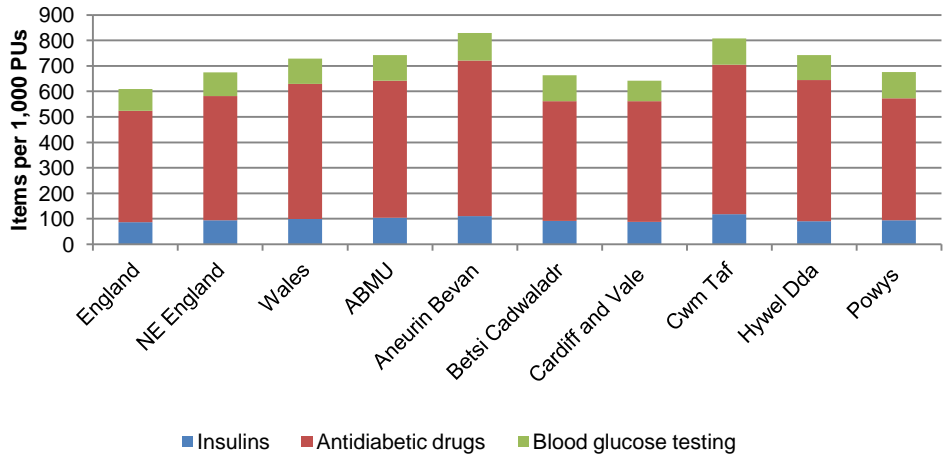


Figure 11. Prescribing for DPP-4 inhibitors – Total items in Wales

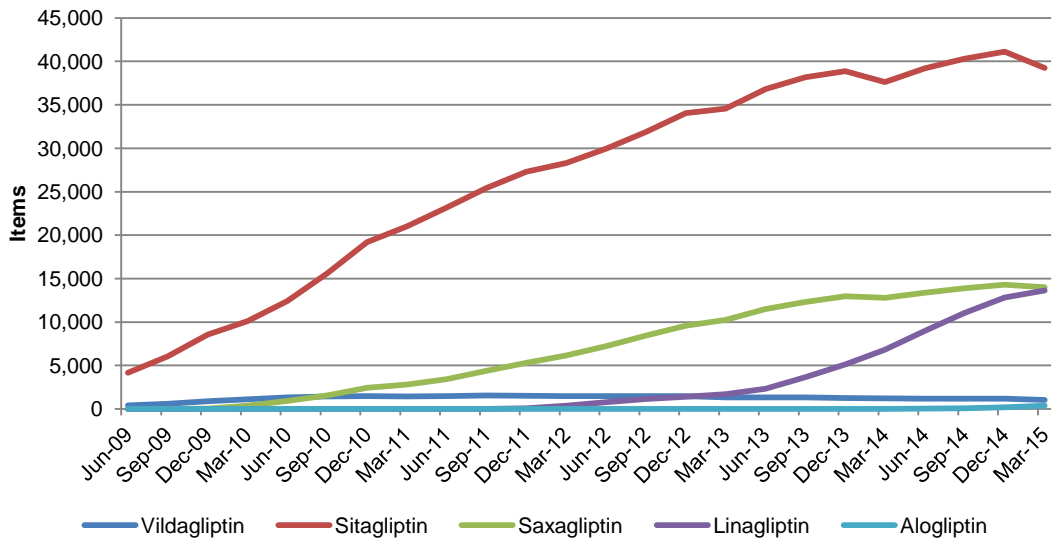
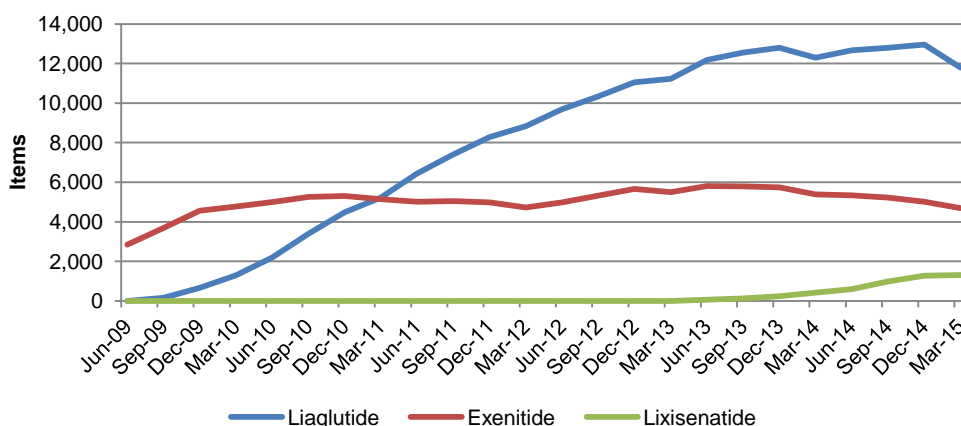


Figure 12. Prescribing for GLP-1s – Total items in Wales



4.2 Insulins

This section examines the prescribing of injectable insulin products. Insulin is inactivated by gastro-intestinal enzymes and therefore cannot be orally administered¹⁴.

The use of human sequence insulins, produced bio-synthetically by recombinant DNA technology and commonly known as human analogue insulins, has replaced some use of more established and less expensive insulins.

The BNF describes and categorises these human analogue insulins as:

- Short-acting insulin
 - Insulin aspart
 - Insulin glulisine
 - Insulin lispro
- Intermediate- and long-acting insulin
 - Insulin degludec
 - Insulin detemir
 - Insulin glargine
 - Biphasic insulin aspart
 - Biphasic insulin lispro

Figures 13 and 14 show the prescribing of selected non-biphasic intermediate and long acting insulins. AWMMSG advice states that insulin degludec is not recommended for use within NHS Wales for the treatment of diabetes mellitus in adults. This advice was ratified by the Minister for Health and Social Services in July 2014¹⁵.

Figure 13. Prescribing of selected non-biphasic intermediate- and long-acting insulins – Total items in Wales

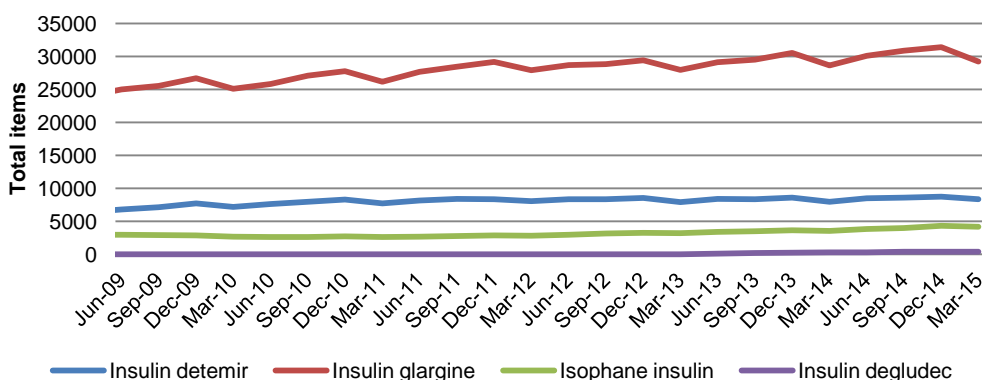


Figure 14. Prescribing of selected non-biphasic intermediate- and long-acting insulins – Total cost in Wales

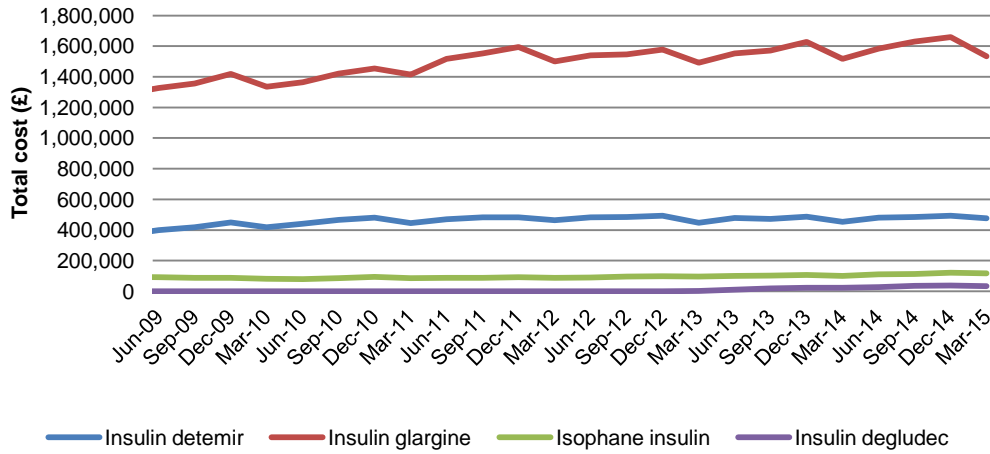


Figure 15. Local Comparator: Items of long-acting insulin analogues as a percentage of total long- and intermediate-acting insulin (excluding biphasics) in Wales

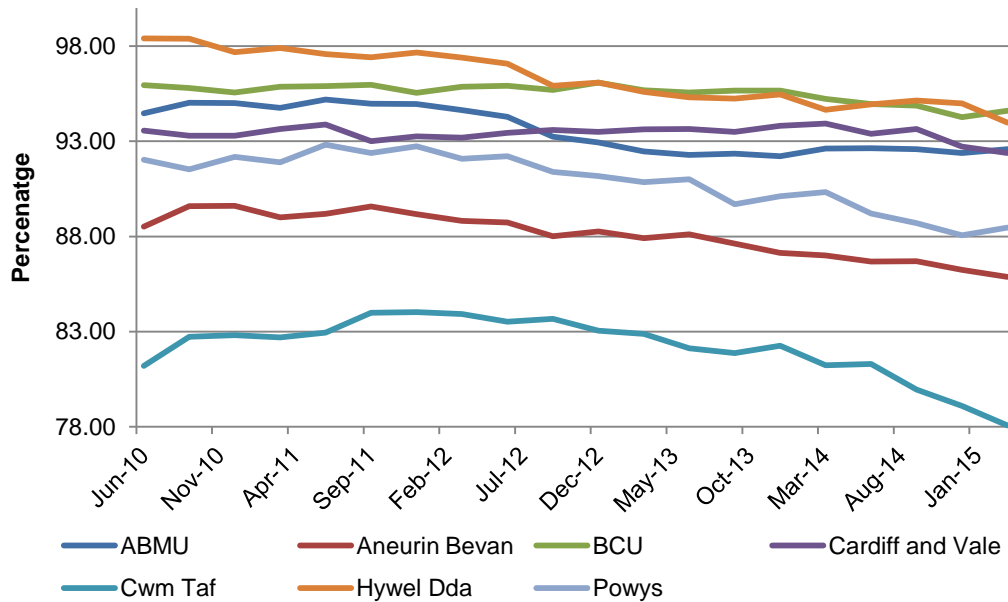
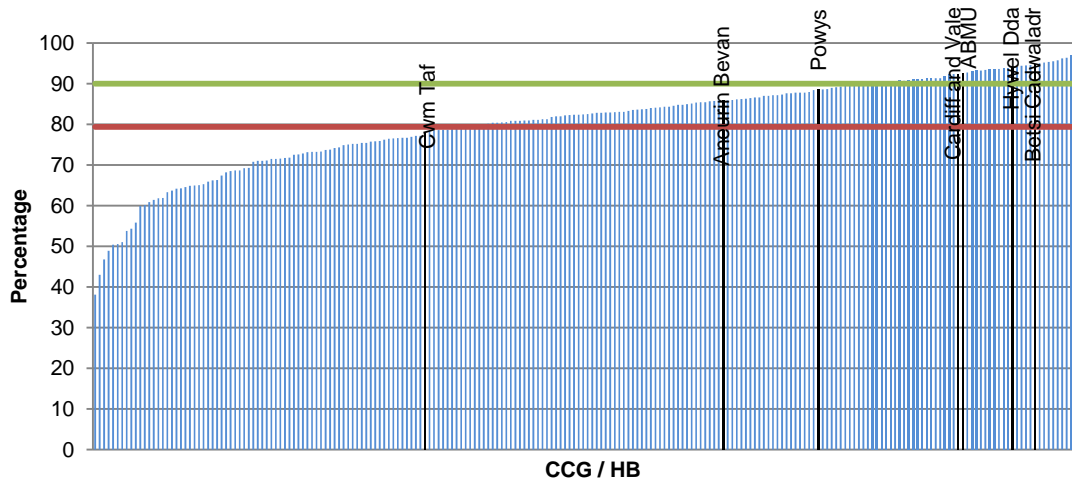


Figure 16. Prescribing of long-acting insulin analogues as a percentage of total long- and intermediate-acting insulin (excluding biphasics) – Welsh health boards compared to English CCGs – Quarter ending March 2015



4.3 Antidiabetic drugs

NICE CG87 on blood glucose lowering therapy for type 2 diabetes recommends that metformin should be used first-line and a sulphonylurea second-line unless contra-indicated¹⁶.

Figures 17 and 18 show prescribing of metformin and sulphonylureas alongside other anti-diabetic drugs, and Figure 19 shows the proportion of metformin and sulphonylurea prescribing that is in line with the CEPP Local Comparator 2015–2016.

Figure 17. Prescribing of antidiabetic medicines – Total items in Wales

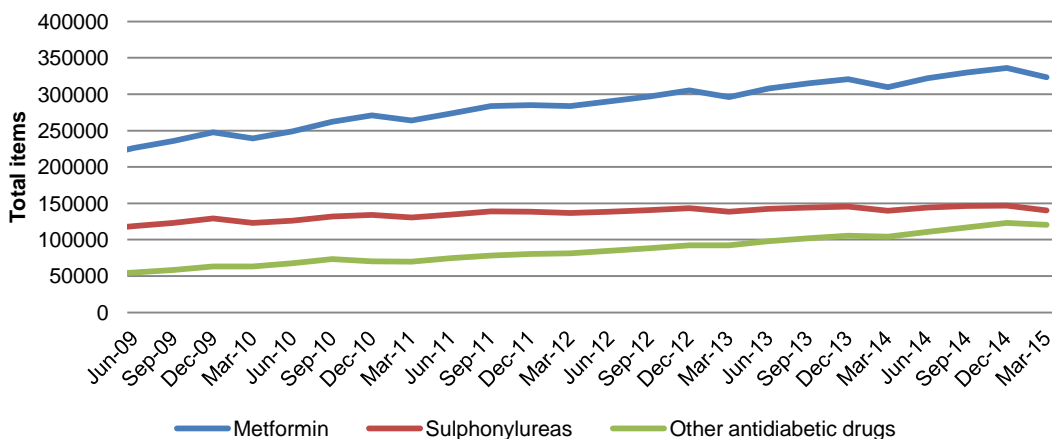


Figure 18. Prescribing of antidiabetic medicines – Total cost in Wales

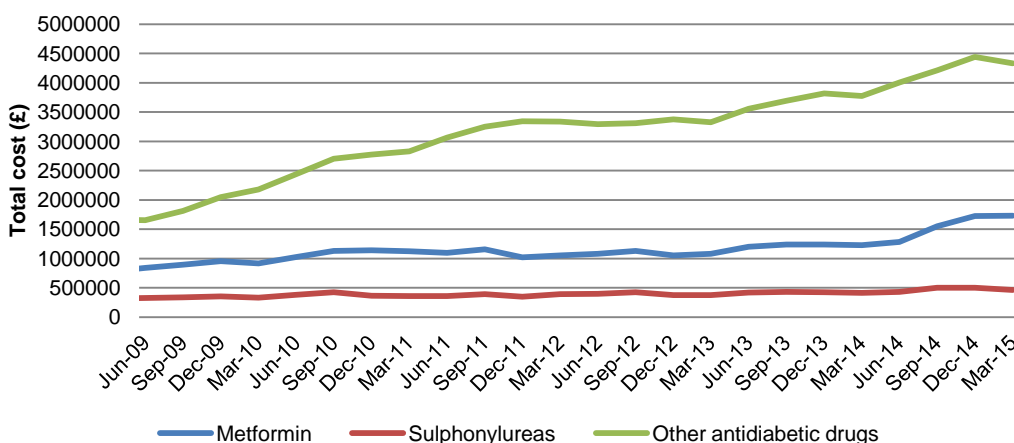
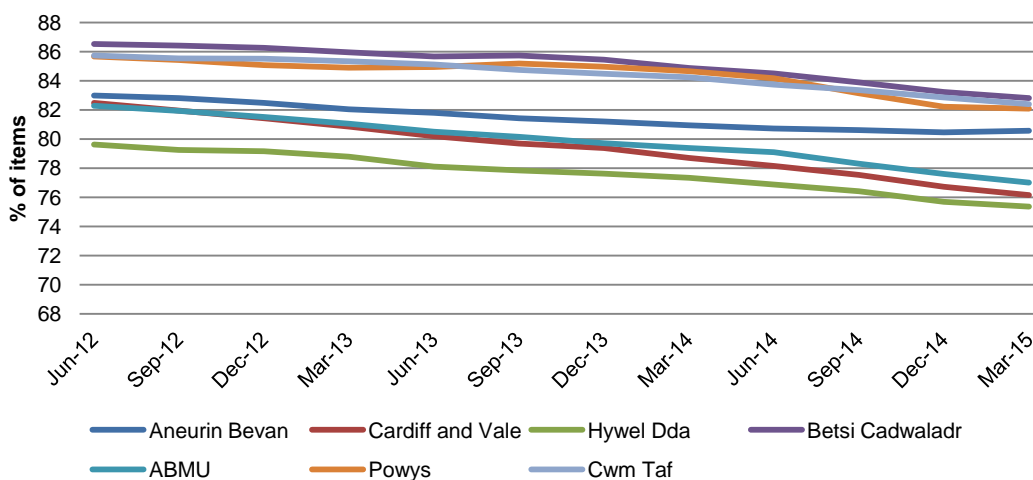


Figure 19. Local Comparator: Sulphonylureas and metformin items as a percentage of all diabetic treatment agents (excluding insulin) June 2012–March 2015



There has been a 14% increase in the cost of prescribing of ‘other antidiabetic drugs’ such as GLP-1s, DPP-4 inhibitors and thiazolidinediones within NHS Wales in 2014–2015 compared to 2013–2014, with variation between health boards. There may be opportunities for cost savings to be made through prescribing in line with national guidance, such as the first- and second-line use of metformin and sulphonylureas.

Figure 20. Breakdown of ‘Other antidiabetic drugs’* – Items per 1,000 PUs April 2014–March 2015

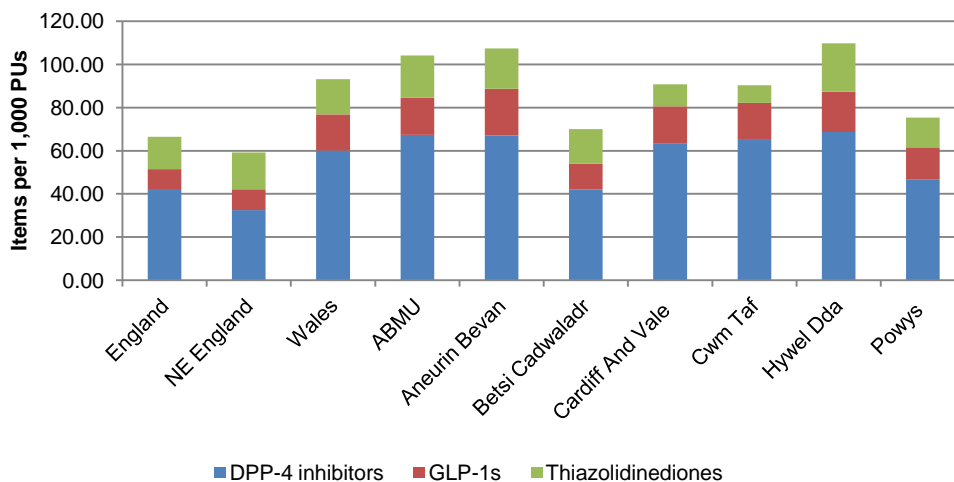
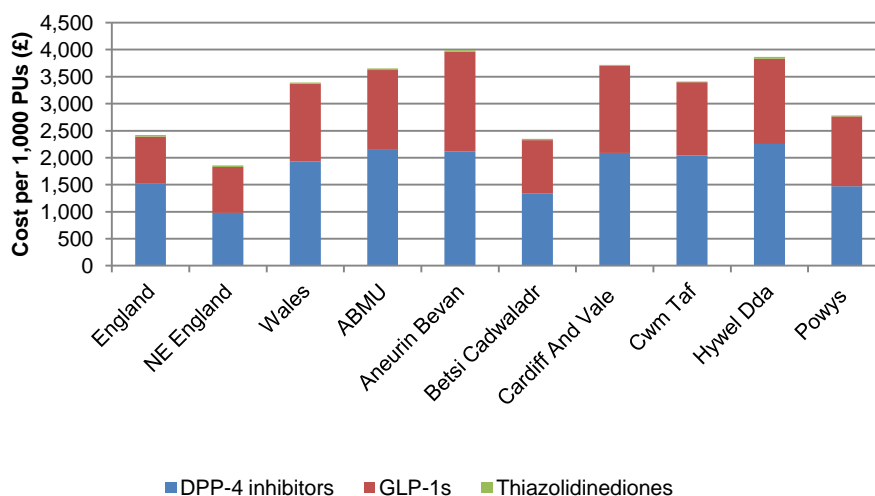


Figure 21. Breakdown of ‘Other antidiabetic drugs’* – Cost per 1,000 PUs April 2014–March 2015



* ‘Other antidiabetic drugs’ are grouped together as per the BNF and include thiazolidinediones, DPP-4 inhibitors and GLP-1s.

4.4 Diagnostic and monitoring devices for diabetes

Diagnostic monitoring for diabetes comprises a significant cost in NHS Wales primary care prescribing, accounting for almost £11 million and 452,565 items in 2014–2015. This included glucose blood testing reagents, ketone blood testing reagents and urine testing reagents. The majority of the cost was for glucose blood testing reagents accounting for £10.8 million and 440,118 items.

Figure 22. Prescribing of glucose blood testing reagents – Cost per 1,000 PUs weighted by diabetes prevalence April 2013–March 2015

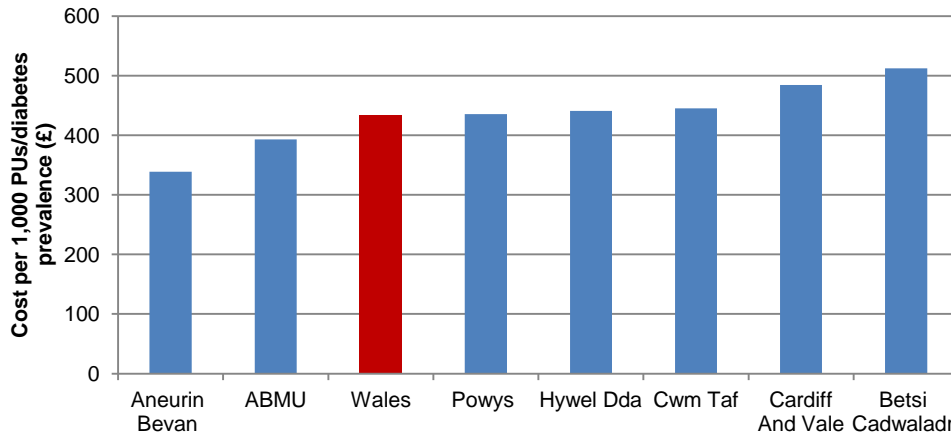
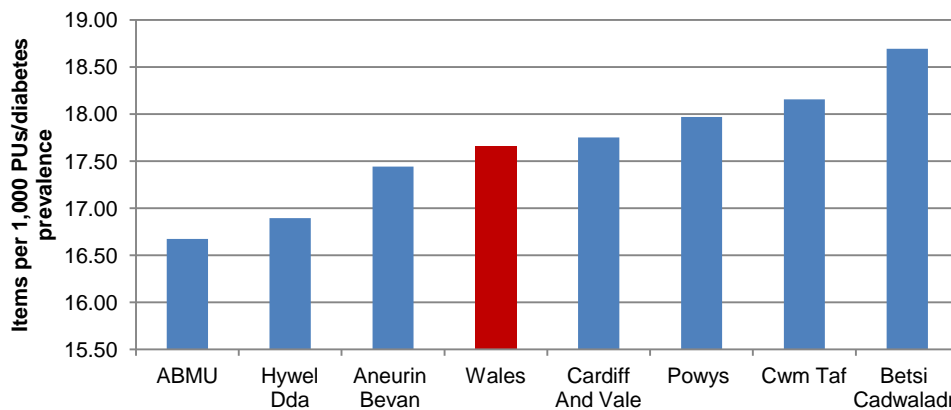


Figure 23. Prescribing of glucose blood testing reagents – Items per 1,000 PUs weighted by diabetes prevalence April 2013–March 2015



5.0 OUTCOMES DATA

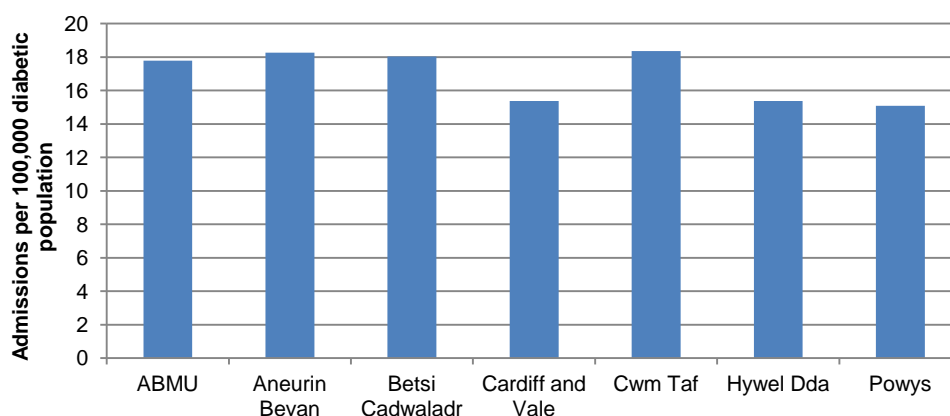
Outcomes data have been analysed here using healthcare resource groups (HRGs). These are groups of patient-anonymised data, which refer to secondary care procedures and admissions. They comprise standard groupings of clinically similar treatments, which use common levels of healthcare resource¹⁷. HRGs help organisations to understand their activity in terms of the types of patients they care for and the treatments they undertake. The data are also linked back to GP practices. They cover a wide range of diabetes outcomes from admissions with a primary diagnosis of diabetes mellitus to lower limb complication admissions and amputation procedures. They enable the comparison of activity within and between different organisations and provide an opportunity to benchmark treatments and services to support trend analysis over time.

Table 4. Selected diabetes-related HRG codes

HRG code	Description
KB01C	Diabetes with Hypoglycaemic Disorders, with CC Score 8+
KB01D	Diabetes with Hypoglycaemic Disorders, with CC Score 5-7
KB01E	Diabetes with Hypoglycaemic Disorders, with CC Score 3-4
KB01F	Diabetes with Hypoglycaemic Disorders, with CC Score 0-2
KB02G	Diabetes with Hyperglycaemic Disorders, with CC Score 8+
KB02H	Diabetes with Hyperglycaemic Disorders, with CC Score 5-7
KB02J	Diabetes with Hyperglycaemic Disorders, with CC Score 2-4
KB02K	Diabetes with Hyperglycaemic Disorders, with CC Score 0-1
KB03C	Diabetes with Lower Limb Complications, with CC Score 9+
KB03D	Diabetes with Lower Limb Complications, with CC Score 5-8
KB03E	Diabetes with Lower Limb Complications, with CC Score 0-4
YQ23A	Multiple Amputation Stump or Partial Foot Amputation Procedures, for Diabetes or Arterial Disease, with CC Score 8+
YQ23B	Multiple Amputation Stump or Partial Foot Amputation Procedures, for Diabetes or Arterial Disease, with CC Score 0-7
YQ24A	Single Amputation Stump or Partial Foot Amputation Procedure, for Diabetes or Arterial Disease, with Other Open Blood Vessel Procedure, with CC Score 8+
YQ24B	Single Amputation Stump or Partial Foot Amputation Procedure, for Diabetes or Arterial Disease, with Other Open Blood Vessel Procedure, with CC Score 0-7
YQ25A	Single Amputation Stump or Partial Foot Amputation Procedure, for Diabetes or Arterial Disease, with Imaging Intervention, with CC Score 8+
YQ25B	Single Amputation Stump or Partial Foot Amputation Procedure, for Diabetes or Arterial Disease, with Imaging Intervention, with CC Score 0-7
YQ26A	Single Amputation Stump or Partial Foot Amputation Procedure, for Diabetes or Arterial Disease, with CC Score 8+
YQ26B	Single Amputation Stump or Partial Foot Amputation Procedure, for Diabetes or Arterial Disease, with CC Score 5-7
YQ26C	Single Amputation Stump or Partial Foot Amputation Procedure, for Diabetes or Arterial Disease, with CC Score 0-4

Figure 24 shows admissions per 100,000 health board population for the diabetes-related HRGs detailed in Table 4 for April 2013–March 2014.

Figure 24. Admissions for diabetes-related HRGs per 100,000 diabetic population 2013–2014



There are limitations to the outcomes data available through the HRGs. For example, although diabetes may be the underlying reason for the admission to hospital, and the complexity of the condition may affect length of stay, the primary reason for admission may be coded as something different and unrelated. A National Diabetes Inpatient Audit in 2013¹⁸ reported the percentage of beds occupied by people with diabetes as 15.8%, although only 8.1% of these patients were recorded as having been admitted due to diabetes or a diabetes-related complication. This may indicate that the HRG admission figures which are directly related to diabetes would only cover a small proportion of admissions for which diabetes was a contributing factor. The correlation between admissions directly related to diabetes and prescribing of diabetes medicines, as represented in Figures 25 and 26, is not significant ($p > 0.05$). Further relationships between diabetes-related admissions and prescribing related to diabetes were examined, for example the relationship between admissions due to hypoglycaemic or hyperglycaemic disorders and various prescribing measures, but showed no significant correlations. This highlights that the link between prescribing and admissions may be complex.

Figures 25 and 26 show diabetes-related HRGs per 100,000 population against the cost of prescribing in diabetes per 1,000 PUs. The outcomes data and the prescribing data have been adjusted to account for variation in disease prevalence between the health boards.

There is variation between the health boards in the relationship between diabetes-related HRGs and the cost of medicines prescribed for diabetes, and this further highlights that the association between prescribing and outcomes is complex.

Figure 25. Diabetes-related HRG admissions per 100,000 population against the cost of prescribing in diabetes 2013–2014

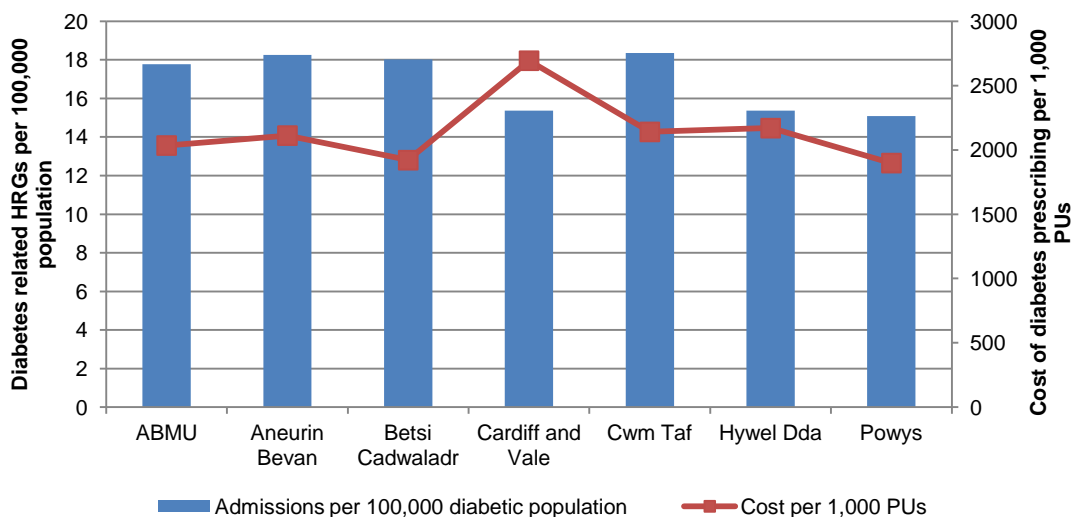


Figure 26. Diabetes-related HRG admissions per 100,000 population against the prescribing of long-acting insulin analogues as a percentage of total long- and intermediate-acting insulins (excluding biphasics) 2013–2014

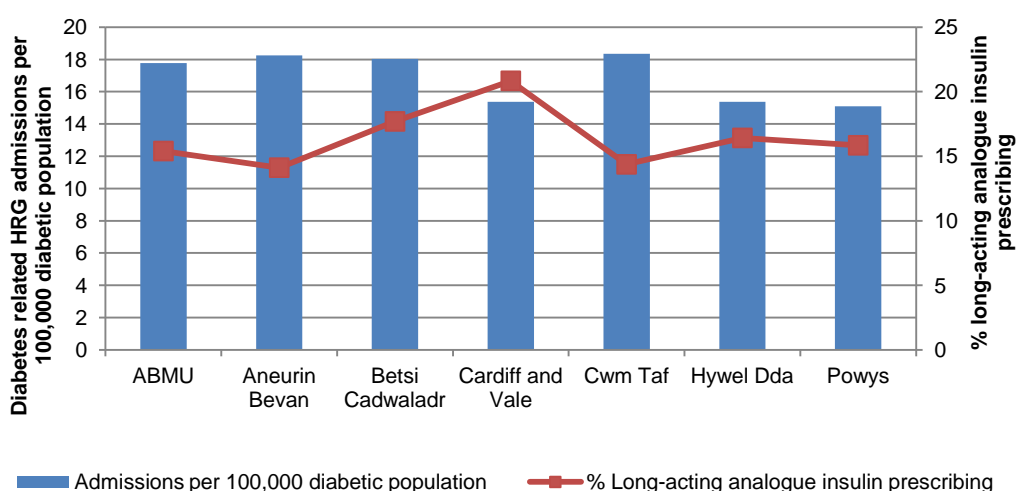
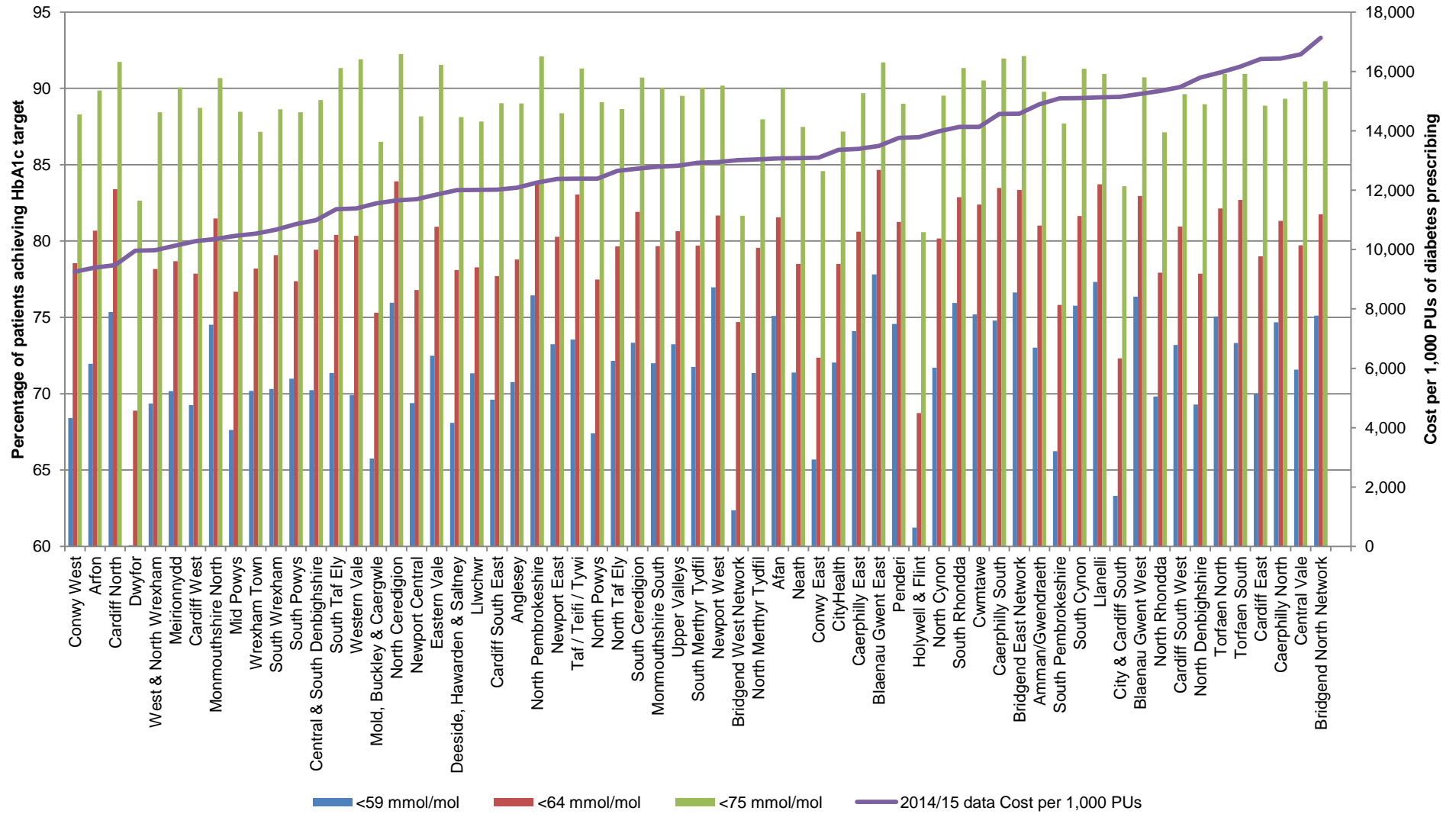


Figure 27. Percentage of patients achieving HbA1c target compared with the cost of diabetes prescribing per 1,000 PUs 2014–2015



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APPENDIX 1. GP CLUSTER COMPARATORS

To make realistic comparisons of prescribing between Wales and England, between the health boards and between the 64 established GP clusters in Wales, consideration of confounding factors is essential. WAPSU has developed cluster comparators based on disease prevalence and socio-economic variables, in order to appropriately benchmark prescribing data and influence prescribing behaviour accordingly.

The intention is to utilise this method of presenting prescribing data for a range of therapeutic areas, such as cardiovascular and mental health. The method could also potentially be applied to CCGs in England in order to make comparisons between Welsh health boards and English CCGs.

In this paper, diabetic product prescribing for GP clusters is analysed and therefore relevant variables for comparators are diabetes prevalence and deprivation. Other variables that could influence variation in diabetes therapeutic area prescribing were also considered, such as cardiovascular disease, obesity, smoking status and ethnicity. However, there could be an element of double counting as many of the variables also closely correlate with each other. Diabetes prevalence and deprivation were chosen to produce GP cluster comparators as this data is readily available at cluster level.

Other considerations – It may be appropriate to view comparators in the context of other differences in practice, especially when making comparisons with areas in England or other nations. These could include local initiatives, dispensing GP practices, procurement costs, prescription charge exemptions and differences between local guidelines and formularies.

1) Disease prevalence

Disease prevalence varies across the health boards in Wales and data on prevalence are available at GP cluster level from the GP Cluster Profiles 2013¹³. The source of the data is Audit+ – a non-mandatory analysis tool for GP practices used by more than 95% of GP practices in Wales to submit data weekly. Audit+ provides a count of patients with the identified chronic condition by 10-year age groups and sex. Another possible source of disease prevalence data is the QOF, as chronic conditions are defined in the same way in both. QOF data is used primarily to monitor GP practice performance against a contract; secondary use of QOF data must be interpreted with caution.

2) Deprivation

The link between poor health and deprivation is well recognised and people in the most deprived areas have higher levels of mental illness, hearing and sight problems, and in particular chronic conditions such as respiratory disease, cardiovascular disease and arthritis¹⁹. In Wales, the majority of deprived areas are found in areas of Cardiff, Swansea and Newport, the Welsh valleys and areas of the North Wales coast²⁰.

While disease prevalence gives a straightforward measure of the proportion of the population with a condition, deprivation can have a more complex effect on prescribing levels through factors such as behavioural determinants, access to services and education²¹.

2a) Index of Multiple Deprivation

Deprivation is multi-dimensional and takes into account many factors, which include income, housing, employment, general health, education, access to services, community safety and physical environment. The four countries of the UK each have their own index of multiple deprivation (IMD), each with slightly different ways of weighting certain factors. However, around half of the weight of each IMD comes from employment and income: factors which are common to all four countries and are major drivers of deprivation. Therefore, it may be appropriate to use the countries' IMDs for purposes of comparison if the differences in weightings are adjusted for²².

3) Analysis of diabetes therapeutic area by GP cluster comparators

Figures 1a to 3 show prescribing of antidiabetic products for each of the 64 GP clusters in Wales. The GP clusters are grouped by colour with their most similar GP clusters in terms of disease prevalence and deprivation. The data show cost and items per 1,000 PUs for the period of January 2013–December 2014.

Figure 1a. All medicines used in diabetes prescribing – Cost per 1,000 PUs April 2014–March 2015

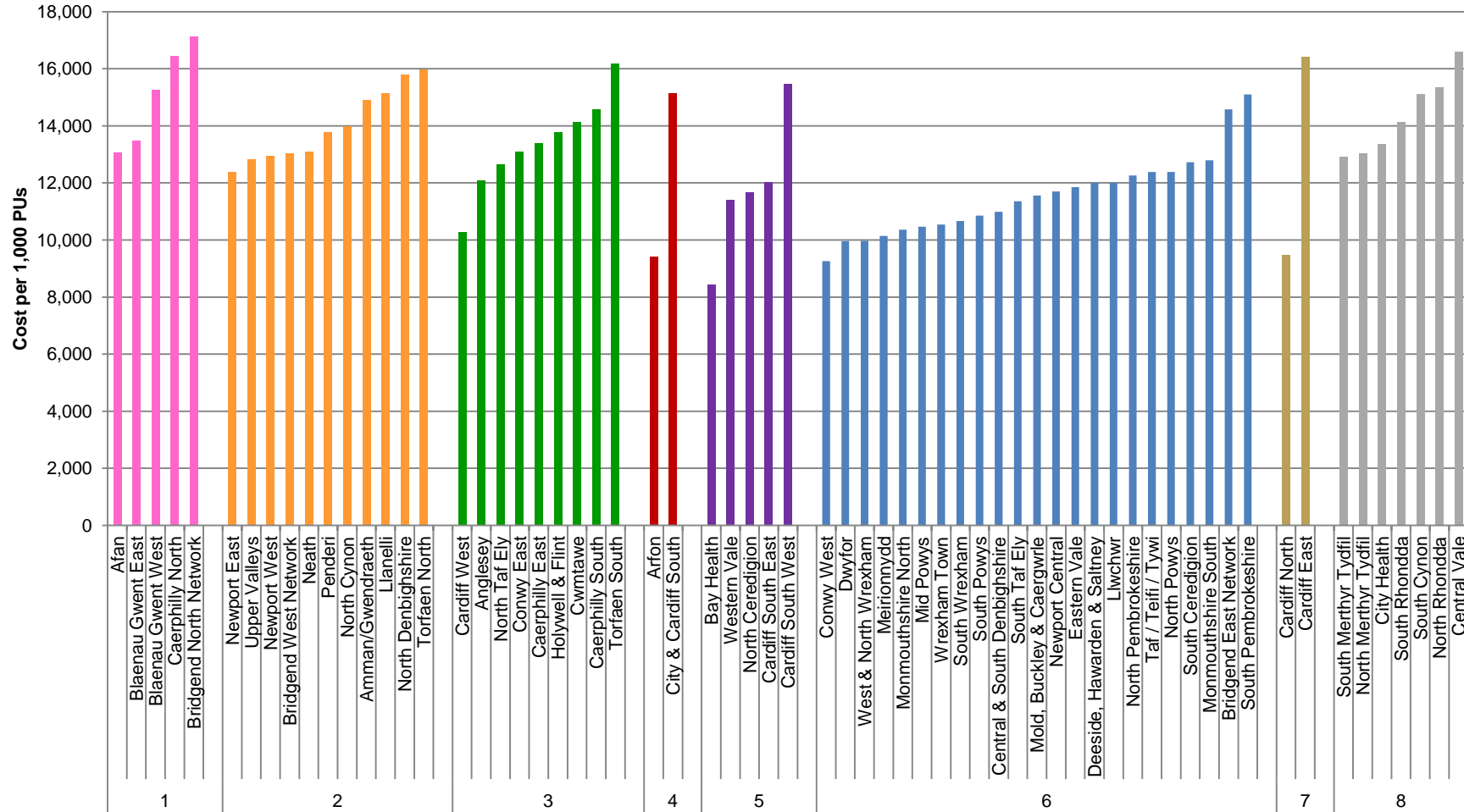


Figure 1b. All medicines used in diabetes prescribing. Items per 1,000 PUs. April 2014–March 2015

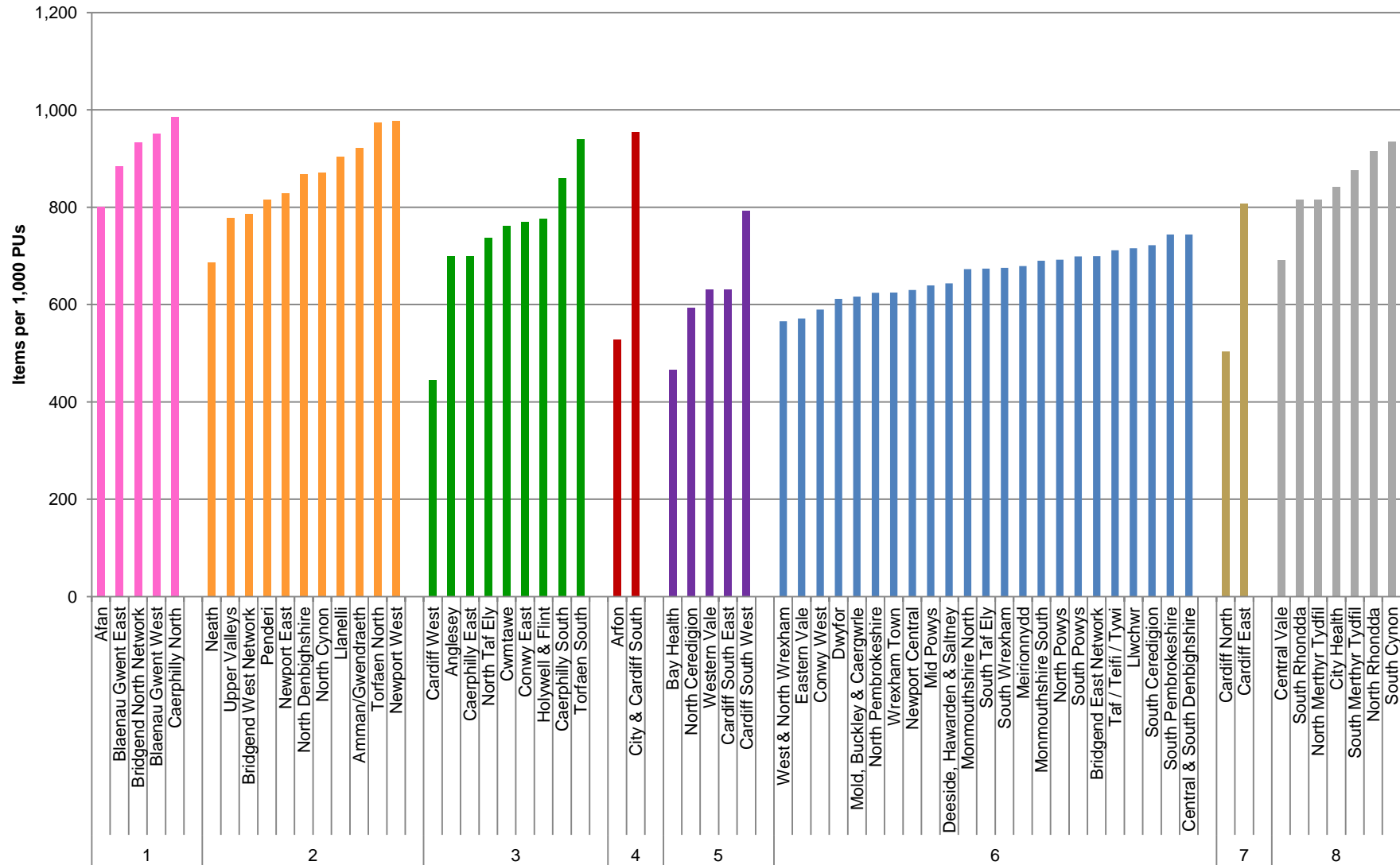


Figure 2a. Insulin prescribing. Cost per 1,000 PUs. April 2014–March 2015

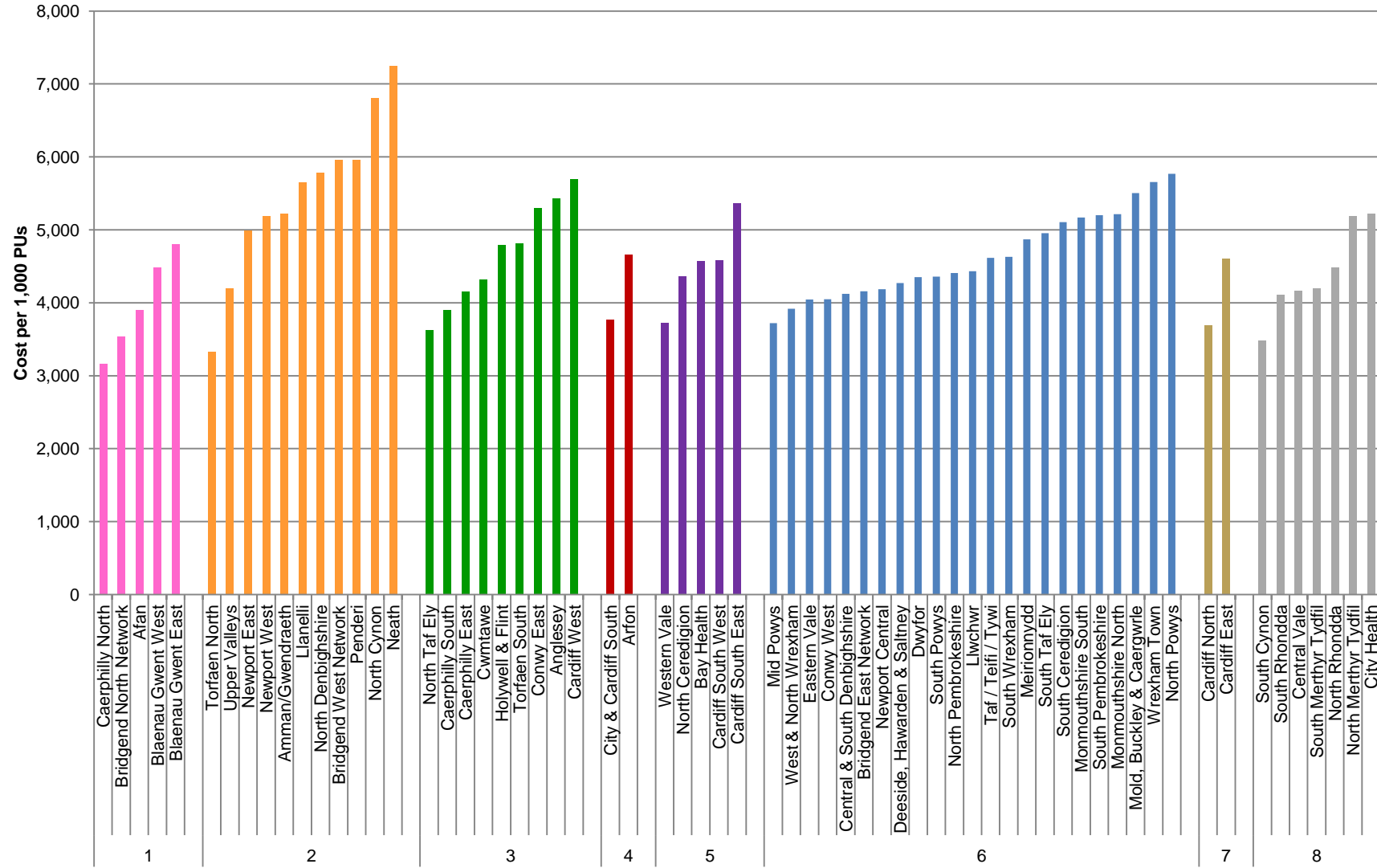


Figure 2b. Insulin prescribing. Items per 1,000 PUs. April 2014–March 2015

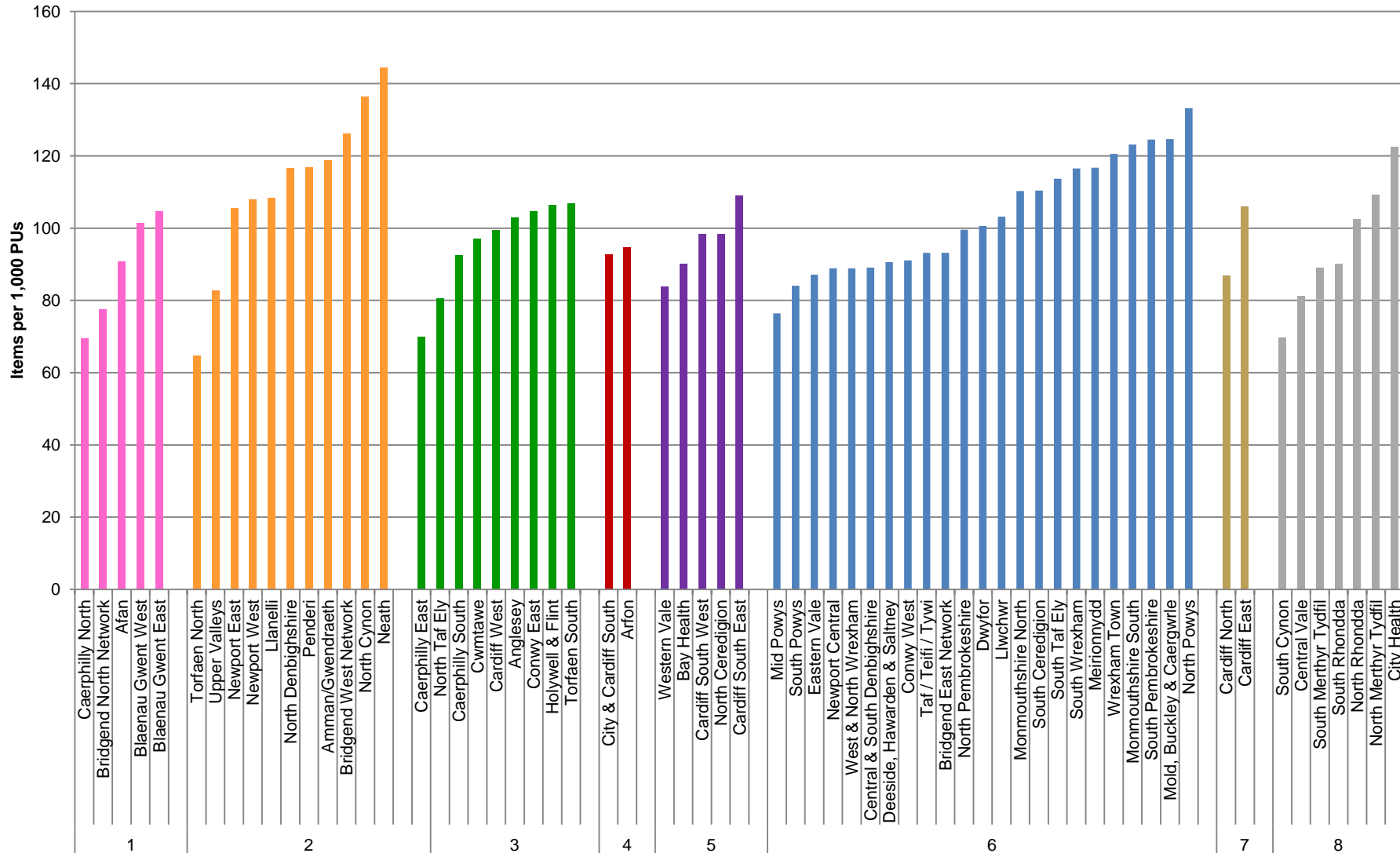


Figure 3. Items of long-acting insulin analogues as a percentage of total long- and intermediate-acting insulin (excluding biphasics) April 2014–March 2015

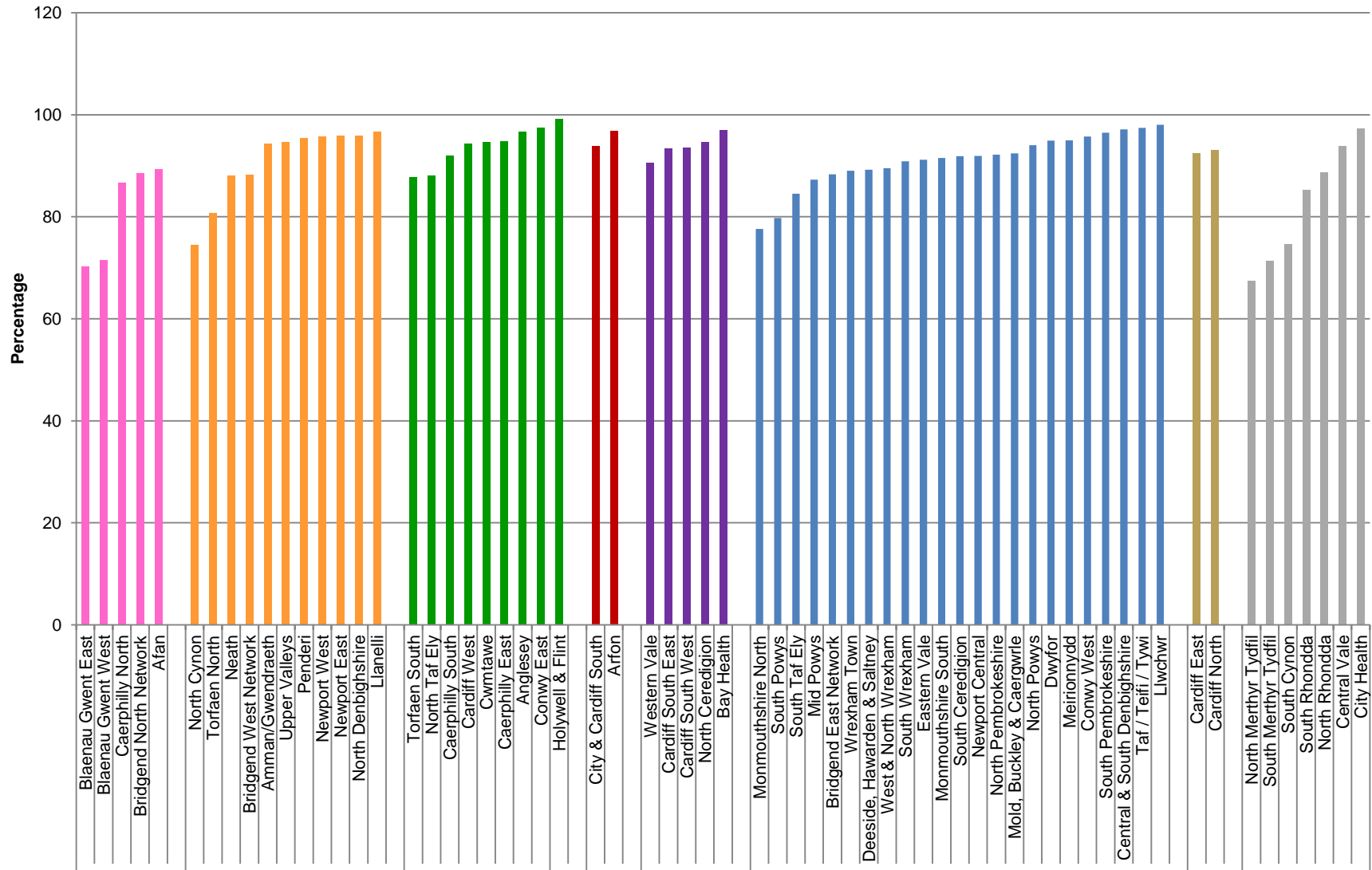


Figure 4. Items of biguanides and sulphonylureas as a percentage of all antidiabetic medicines as per Local Comparator April 2014–March 2015

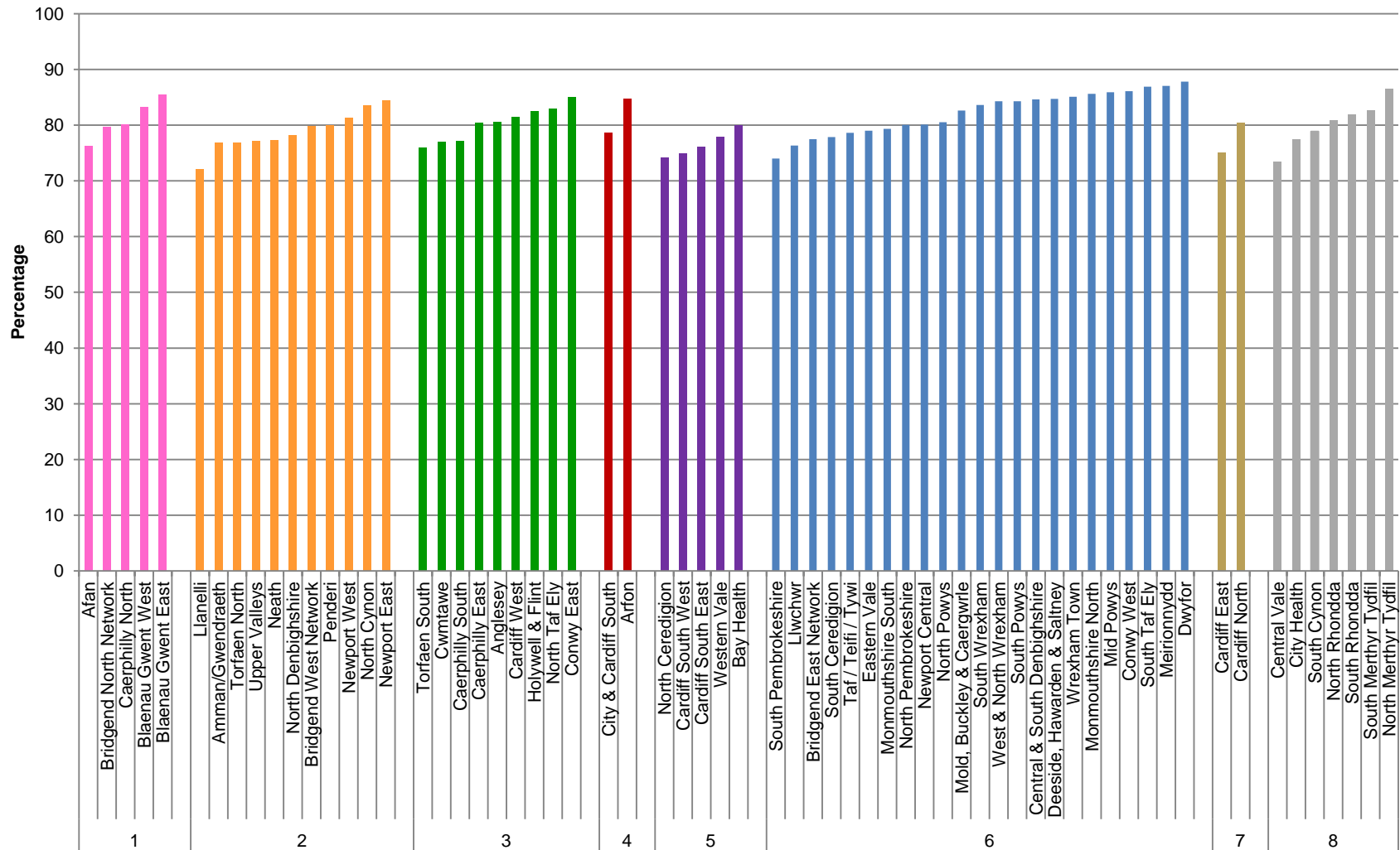


Figure 5. Screening and monitoring agents. Cost per 1,000 PUs. April 2014–March 2015

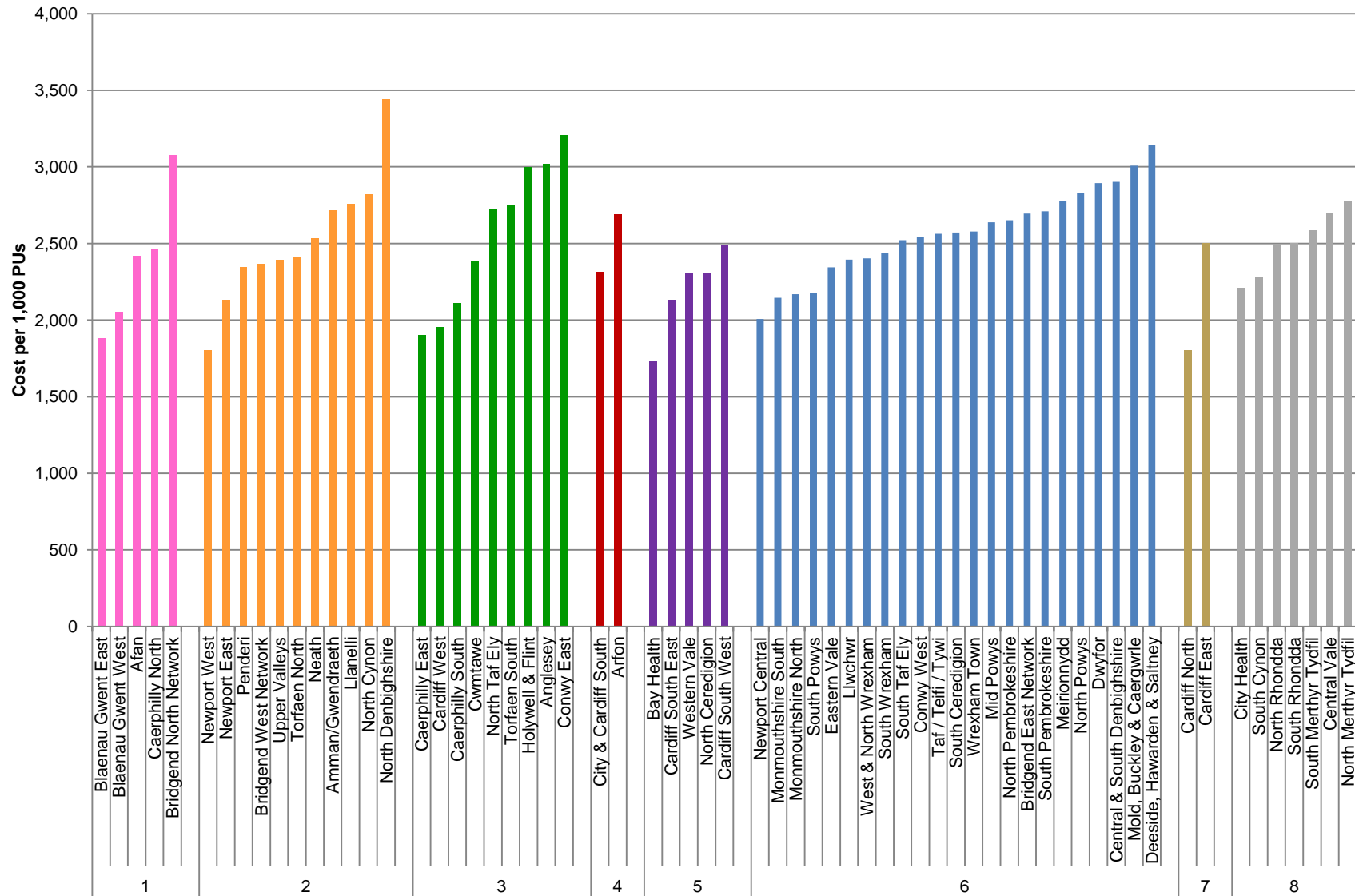


Figure 6. Screening and monitoring agents. Items per 1,000 PUs. April 2014–March 2015

