All Wales Medicines Strategy Group

Grŵp Strategaeth Meddyginiaethau Cymru Gyfan

National Prescribing Indicators 2015–2016

February 2015

This report has been prepared by a multiprofessional collaborative group, with support from 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).

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NHS WALES GIG CYMRU

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INTRODUCTION

Prescribing indicators are used to compare the way in which different prescribers and organisations use a particular medicine or group of medicines. Prescribing indicators should be evidence-based, clear, easily understood and allow health boards, practices and prescribers to compare current practice against an agreed standard of quality. Ideally they should be validated by a group of experts, and should recommend the direction that prescribing should move, even if it is not possible to specify an exact value that represents 'good practice'. They should usually be standardised to allow comparison between health boards or practices serving different size populations. Weighting can also consider the age and demographics of the population.

In October 2003, the All Wales Medicines Strategy Group (AWMSG) agreed that National Prescribing Indicators (NPIs) were useful tools to promote rational prescribing across NHS Wales. It was agreed that NPIs should address efficiency as well as quality and that targets should be challenging, but achievable, and applicable at practice level.

Traditionally, NPIs have been set to compare prescribing in primary care, as accurate prescribing data are available, and standardised targets can be set. However, the principles and evidence base supporting the NPIs are applicable to both primary and secondary care. Although it is not currently possible to set targets for NPIs in secondary care, ongoing comparative monitoring is undertaken and reported to identify differences in prescribing practice.

Method used to review and update NPIs
An NPI Task and Finish Group of the All Wales Prescribing Advisory Group (AWPAG) was established to review the 2014–2015 NPIs, to ensure they were still valid and reflected best practice.

Prior to the NPI Task and Finish Group meeting, Health Board Chief Pharmacists, their medicines management teams, Medicines and Therapeutics Committees and Assistant Medical Directors were asked to complete a short feedback form to review the continued relevance of the 2014–2015 NPIs, whether any of the Local Comparators should be considered as new NPIs and other priority areas that may be appropriate to monitor as an NPI. This information then fed into the discussions of the NPI Task and Finish Group.

The proposed NPIs for 2015–2016, accompanied by the supporting evidence, were presented to AWPAG for their comment. The NPIs for 2015–2016 were also distributed for wider consultation prior to their endorsement by AWMSG.

Key changes:

- Two new NPIs: Proton pump inhibitors (PPIs) and inhaled corticosteroids (ICS).
- Three NPIs to be removed: Antidepressants, insulin and total opioid analgesics, of which antidepressants and insulin will continue to be monitored as Local Comparators.
- Three NPIs to have new measures: co-amoxiclav, cephalosporins, and fluoroquinolones.

Measures

- Where possible, measures used should be accessible to all medicines management teams through CASPA.net.
- The average daily quantity (ADQ) and specific therapeutic group age–sex related prescribing unit (STAR-PU) measurements are used for certain indicators instead of the defined daily dose (DDD) measurement and prescribing unit (PU) weighting, despite not being available on CASPA.net, in

order to benchmark with the 'Quality, innovation, productivity and prevention' (QIPP) comparators in England. These data are available on a quarterly basis through the NHS Wales Shared Services Partnership: Primary Care Services.
- Yellow Card Centre (YCC) Wales will monitor yellow card reporting by general practitioners, providing feedback at health board and practice level.

Targets

Targets should be challenging but achievable, and based on the principle of encouraging all health boards, local cluster groups and practices to achieve prescribing rates in the best quartile. The target is therefore not an absolute value and can be achieved if there is movement towards the threshold set.

- The threshold is based on prescribing data for all general practices in Wales.
- For each NPI, the threshold will normally be set at the 75th percentile, (i.e. the prescribing rate of the best performing 25% of practices) for the quarter ending 31 December 2014. However, a threshold may be retained from a previous year if considered appropriate by the NPI Task and Finish Group.
- The target may be to achieve movement to the highest prescribing quartile or the lowest prescribing quartile depending on the aim of the NPI.
- One NPI has been included without a target – total antibiotic prescribing. Seasonal variation prevents a target being set based on prescribing in any one particular quarter; however, year on year prescribing will be monitored, aiming for a reduction in prescribing.
- One NPI has been included using alternative monitoring methods – yellow card reporting. This will be monitored by YCC Wales, who will provide data to the Welsh Analytical Prescribing Support Unit (WAPSU) and individual health board Chief Pharmacists on a quarterly basis.
- Targets are not currently set for the NPIs in secondary care, as it is not possible to weight the prescribing data. However, where appropriate and relevant, monitoring of prescribing will be undertaken to ensure the principle and evidence base supporting the NPI is considered and implemented in all settings.

Table 1 details the NPIs for 2015–2016, with the evidence and supporting prescribing messages within the text that follows. Data to support the proposed NPIs for 2015–2016 are contained within Appendix 1.

Please note:
The NPIs constitute guidance only, and this document, either in isolation or as part of wider policy, is not associated with any financial incentive scheme, and does not offer any medical practice and/or practitioner any financial incentive to prescribe a specific named medicine.

Implementation of the recommended NPIs does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer. This is supported by the prudent healthcare agenda which encourages the creation of a prescribing partnership where the process of prescribing, dispensing and administering medicines puts the patient at its centre and encourages shared decision making[1].

Table 1. Proposed AWMSG NPIs 2015–2016

Indicator	BNF chapter	Unit of measure	Target for 2015–2016
Proton pump inhibitors (PPIs)	1.3.5	PPI DDDs per 1,000 PUs	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below
Lipid-modifying drugs	2.12	LAC statin items as a percentage of all statin, ezetimibe and simvastatin/ezetimibe combination prescribing	Maintain performance levels within the upper quartile, or show an increase towards the quartile above (threshold to remain as for 2013–2014 NPI)
Inhaled corticosteroids (ICS)	3.2	Low strength ICS items as a percentage of all ICS prescribing	Maintain performance levels within the upper quartile, or show an increase towards the quartile above
Hypnotics and anxiolytics	4.1	Hypnotic and anxiolytic ADQs per 1,000 STAR-PUs	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below
Opioid analgesics	4.7.2	Morphine items as a percentage of strong opioid prescribing	Maintain performance levels within the upper quartile, or show an increase towards the quartile above
	4.7.2	Tramadol DDDs per 1,000 patients	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below
Antibiotics	5.1	Total antibacterial items per 1,000 STAR-PUs	No performance target set; aim for reduction in prescribing year on year, measuring quarter to December only
	5.1.1	Co-amoxiclav items per 1,000 patients Co-amoxiclav items as a percentage of total antibacterial items	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below
	5.1.2	Cephalosporin items per 1,000 patients Cephalosporin items as a percentage of total antibacterial items	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below
	5.1.12	Fluoroquinolone items per 1,000 patients Fluoroquinolone items as a percentage of total antibacterial items	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below
Non-steroidal anti-inflammatory drugs (NSAIDs)	10.1.1	NSAID ADQs per 1,000 STAR-PUs	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below
	10.1.1	Ibuprofen and naproxen items as a percentage of NSAID prescribing	Maintain performance levels within the upper quartile, or show an increase towards the quartile above
Yellow cards		Number of yellow cards submitted per practice and per health board	Target for GP practice – GPs to submit one yellow card per 2,000 practice population. Target for each health board – submit yellow cards in excess of one per 2,000 health board population.

ADQ = average daily quantity; DDD = defined daily dose; LAC = low acquisition cost; PU = prescribing unit; STAR-PU = specific therapeutic group age–sex related prescribing unit

1.0 PROTON PUMP INHIBITORS

***Purpose*:** To ensure appropriate use of PPIs.

Unit of measure: PPI DDDs per 1,000 PUs.

Target for 2015–2016: Maintain performance levels within the lower quartile, or show a reduction towards the quartile below.

Background and evidence

PPIs are licensed and prescribed for a range of indications including uninvestigated dyspepsia, gastro-oesophageal reflux disease, peptic ulcer and non-ulcer (or functional) dyspepsia, eradication of *Helicobacter pylori* (in combination with antibiotics), controlling excessive acid secretion in Zollinger–Ellison syndrome, and the prevention and treatment of non-steroidal anti-inflammatory drug (NSAID)-associated ulcers[2,3]. In addition, they are used for a number of unlicensed indications (more common in hospital settings), including the reduction of re-bleeding episodes after treatment of severe peptic ulcer bleeding, prophylaxis of acid aspiration during general anaesthesia and stress ulcer prophylaxis[3].

PPI use (measured in DDDs) is continuing to increase across Wales at a rate of 6% per year[4]. In the financial year 2013–2014, over 4 million prescriptions for PPIs were dispensed in Wales[4]. Assuming each patient received 13 (28-day) prescriptions during the year, 311,000 patients (9.8% of the population) received PPIs[4]. This is probably an underestimate of the number receiving PPIs, as many patients will take these medicines as required and would therefore not receive 13 prescriptions in the course of a year[4]. It has been suggested that the reduction in cost, with patent expiry, has led to more liberal usage of PPIs for a wide variety of upper gastrointestinal (GI) symptoms[5]. Additionally, recommendations on the importance of gastroprotection, particularly for patients on combinations of high-risk medicines, e.g. NSAIDs for the treatment of osteoarthritis[6] and rheumatoid arthritis (RA)[7], have contributed to increased PPI use. It is recommended that all patients are reviewed and stepped down from treatment doses where appropriate[8,9].

Although PPIs are generally well tolerated, there is emerging evidence that some serious adverse effects may be linked with long-term PPI use. These include fractures of the hip, wrist and spine (frequency ≥ 1/1,000 to < 1/100)[10], *Clostridium difficile* infection and hospital- or community-acquired pneumonia[11]. Medicines and Healthcare Products Regulatory Agency (MHRA) advice issued in April 2012 stated that "There is recent epidemiological evidence of an increased risk of fracture with long-term use of PPIs. Patients at risk of osteoporosis should be treated according to current clinical guidelines to ensure they have an adequate intake of vitamin D and calcium"[12]. Further advice in the same issue of Drug Safety Update warned of the risk of hypomagnesaemia following long-term use of PPIs[13]. A review of case reports found that hypomagnesaemia occurred most commonly after one year of PPI treatment, and presented with fatigue, tetany, delirium, convulsions, dizziness, and ventricular arrhythmia[13].

Long-term PPI use has also been linked to rebound hypersecretion[11]. NICE confirms this, and states that "This may exacerbate symptoms once PPI therapy is discontinued although this is a theoretical concern as there are no data that support acid rebound as a clinical problem in patients"[2].

Useful resources

- AWMSG (2013) All Wales PPI and Dyspepsia Resource Pack.
- AWMSG (2014) Polypharmacy: Guidance for Prescribing in Frail Adults.

2.0 LIPID-MODIFYING DRUGS

***Purpose*:** Ensure appropriate prescribing of lipid-modifying drugs with the lowest acquisition cost (LAC) in line with NICE guidance.

Unit of measure: LAC statin items (simvastatin, pravastatin and atorvastatin) as a percentage of all statin, ezetimibe and simvastatin/ezetimibe combination prescribing.

Target for 2015–2016: Maintain performance levels within the upper quartile, or show an increase towards the quartile above (threshold to remain as for 2013–2014 NPI).

Background and evidence

The use of LAC statins is promoted through the Department of Health 'Better Care, Better Value' (BCBV) indicators[14]. The BCBV indicators are not targets, but are intended to provide useful comparative information to help NHS organisations to decide where and how to improve performance. There are still savings to be made by some NHS organisations through the use of LAC statins.

NICE issued Clinical Guideline (CG) 181 in July 2014, which updates the guidance relating to lipid modification in adults both with and without diabetes. The guidance recommends the use of atorvastatin 20 mg for the primary prevention of cardiovascular disease to people, with or without type 2 diabetes, who have a 10% or greater 10-year risk of developing cardiovascular disease[15]. Atorvastatin 20 mg is also recommended for primary prevention in patients with type 1 diabetes in specific circumstances[15]. Atorvastatin 80 mg is recommended for patients with established cardiovascular disease*. Lower doses should be used if there are potential drug interactions, if the patient is at high risk of adverse effects, or if patient preference is for a lower dose[15].

NICE CG181 reviewed the evidence around rosuvastatin and, whilst meta-analysis indicates that the effectiveness of atorvastatin 80 mg and rosuvastatin 40 mg in reducing low density lipoprotein (LDL) cholesterol are similar[16], there was no evidence to suggest rosuvastatin 10 mg, 20 mg or 40 mg would be more effective than atorvastatin 80 mg in reducing cardiovascular events[15]. Therefore, in the absence of trial evidence of greater effectiveness, the guideline development group were unable to recommend the use of rosuvastatin[15].

NICE guidance recommends that if patients are unable to tolerate a high-intensity statin (atorvastatin 20 mg or higher), a reduction in dose, or switching to a lower intensity statin may be appropriate[15].

Muscle-related problems are the most frequently reported side effects of statins. The following statin side effect incidences have been estimated based on randomised trial data, cohort studies, published case reports and spontaneous reports:

- Mild muscle pain: 190 cases per 100,000 patient years
- Myopathy: 5 cases per 100,000 patient years
- Rhabdomyolysis: 1.6 cases per 100,000 patient years[17]

The risk of myopathy is increased with all statins and is known to be dose dependent. Myopathy risk also increases when certain medicines are used together with statins,

*NICE CG181: At the time of publication (July 2014), atorvastatin did not have a UK marketing authorisation for this indication. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented[15].

30 Committee on Safety of Medicines. Current Problems in Pharmacovigilance: Inhaled corticosteroids and adrenal suppression in children. 2002. Available at: http://webarchive.nationalarchives.gov.uk/20090724113803/http://mhra.gov.uk/Publications/Safetyguidance/CurrentProblemsinPharmacovigilance/CON007451. Accessed Oct 2014.
31 National Institute for Health and Care Excellence. Clinical Guideline 101. Chronic obstructive pulmonary disease: Management of chronic obstructive pulmonary disease in adults in primary and secondary care (partial update). 2010. Available at: https://www.nice.org.uk/guidance/cg101. Accessed Oct 2014.
32 Kew KM, Seniukovich A. Inhaled steroids and risk of pneumonia for chronic obstructive pulmonary disease. 2014. Available at: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010115.pub2/abstract. Accessed Oct 2014.
33 Committee on Safety of Medicines. Current Problems in Pharmacovigilance: Benzodiazapines, dependence and withdrawal symptoms. Jan 1988. 21:1-2. Available at: http://www.mhra.gov.uk/home/groups/pl-p/documents/websiteresources/con2024428.pdf. Accessed Oct 2014.
34 Department of Health. National Service Framework for Mental Health. Sep 1999. Available at: https://www.gov.uk/government/publications/quality-standards-for-mental-health-services. Accessed Oct 2014.
35 Adult Mental Health Services. Raising the Standard: The Revised Adult Mental Health National Service Framework and an Action Plan for Wales. Oct 2005. Available at: http://www.wales.nhs.uk/documents/WebsiteEnglishNSFandActionPlan.pdf. Accessed Oct 2014.
36 Welsh Government. Working together to reduce harm: The substance misuse strategy for Wales 2008-2018. 2008. Available at: http://wales.gov.uk/dsjlg/publications/commmunitysafety/strategy/strategye.pdf?lang=en. Accessed Oct 2014.
37 Billioti de Gage S, Moride Y, Ducruet T et al. Benzodiazepine use and risk of Alzheimer's disease: case-control study. 2014. Available at: http://www.bmj.com/content/349/bmj.g5205. Accessed Oct 2014.
38 Woolcott JC, Richardson KJ, Wiens MO et al. Meta-analysis of the Impact of 9 Medication Classes on Falls in Elderly Persons. 2009. Available at: http://archinte.jamanetwork.com/article.aspx?articleid=485251. Accessed Oct 2014.
39 1000 Lives Plus. Assessment of falls risk in older people. 2014. Available at: http://www.1000livesplus.wales.nhs.uk/sitesplus/documents/1011/FRATtool.pdf. Accessed Oct 2014.
40 All Wales Medicines Strategy Group. tapentadol (Palexia® SR). 2012. Available at: http://www.awmsg.org/awmsgonline/app/appraisalinfo/651. Accessed Oct 2014.
41 Scottish Intercollegiate Guidelines Network. SIGN 136. Management of chronic pain. 2013. Available at: http://sign.ac.uk/pdf/SIGN136.pdf. Accessed Nov 2014.
42 British Pain Society. Opioids for persistent pain: Good practice. 2010. Available at: http://www.britishpainsociety.org/book_opioid_main.pdf. Accessed Oct 2014.
43 World Health Organization. WHO's Pain Relief Ladder. 2012. Available at: http://www.who.int/cancer/palliative/painladder/en/. Accessed Oct 2014.
44 National Institute for Health and Care Excellence. Clinical Guideline 140. Opioids in palliative care: safe and effective prescribing of strong opioids for pain in palliative care of adults. May 2012. Available at: https://www.nice.org.uk/guidance/cg140. Accessed Oct 2014.

45 Scottish Intercollegiate Guidelines Network. Control of pain in adults with cancer. 2012. Available at: http://www.sign.ac.uk/guidelines/fulltext/106/index.html. Accessed Oct 2014.

46 Medicines and Healthcare products Regulatory Agency. Drug Safety Update: Volume 2, Issue 2 September 2008. 2008. Available at: http://www.mhra.gov.uk/Publications/Safetyguidance/%20DrugSafetyUpdate/CON025631. Accessed Oct 2014.

47 Directorate for Public Health Welsh Government. Chief Medical Officer for Wales Update 61. 2013. Available at: http://www.wales.nhs.uk/sites3/Documents/428/CMO%20Update%2061.pdf. Accessed Oct 2014.

48 Office for National Statistics. Deaths related to drug poisoning in England and Wales, 2013. 2014. Available at: http://www.ons.gov.uk/ons/rel/subnational-health3/deaths-related-to-drug-poisoning/england-and-wales---2013/stb---deaths-related-to-drug-poisoning-in-england-and-wales--2013.html#tab-Tramadol. Accessed Oct 2014.

49 Grunenthal Ltd. Zydol 50 mg capsules. Summary of Product Characteristics. 2014. Available at: http://www.medicines.org.uk/emc/medicine/16371/SPC/Zydol+50mg+Capsules/#UNDESIRABLE_EFFECTS. Accessed Oct 2014.

50 Committee on Safety of Medicines. Current Problems in Pharmacovigilance: In focus: Tramadol (Zydol, Tramake and Zamadol). Oct 1996. 22:11. Available at: http://www.mhra.gov.uk/home/groups/pl-p/documents/websiteresources/con2023218.pdf. Accessed Oct 2014.

51 Public Health Wales. Welsh Antimicrobial Resistance Programme. Apr 2010. Available at: http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=28418. Accessed Oct 2014.

52 Public Health Wales Antimicrobial Resistance Programme Surveillance Unit. Antimicrobial Resistance and Usage in Wales 2005-2011. Nov 2012. Available at: http://www2.nphs.wales.nhs.uk:8080/WARPDocs.nsf/85c50756737f79ac80256f2700534ea3/ef0c7cdf195e947380257ab800357677/$FILE/ARP%202012%20Report%20on%20Antimicrobial%20Resistance%20and%20Usage%20-%20FINAL.pdf. Accessed Oct 2014.

53 Department of Health, Department for Environment FaRA. UK Five Year Antimicrobial Resistance Strategy 2013-2018. 2013. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244058/20130902_UK_5_year_AMR_strategy.pdf. Accessed Oct 2014.

54 Chief Medical Officer, Chief Nursing Officer. Code of practice for the prevention and control of healthcare associated infections. 2014. Available at: http://wales.gov.uk/topics/health/cmo/publications/cmo/2014/cmo-june14/?lang=en. Accessed Oct 2014.

55 Public Health England. Management of infection guidance for primary care for consultation and local adaptation. 2014. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/377509/PHE_Primary_Care_guidance_14_11_14.pdf. Accessed Oct 2014.

56 Monaghan T, Boswell T, Mahida YR. Recent advances in *Clostridium difficile*-associated disease. *Gut* 2008; 57 (6): 850-60. Available at: http://www.ncbi.nlm.nih.gov/pubmed/18252748.

57 Committee on Safety of Medicines, Medicines and Healthcare products Regulatory Agency. Current Problems in Pharmacovigilance: Revised indications for co-amoxiclav (Augmentin). 1997. Report No.: 23. Available at: http://www.mhra.gov.uk/home/groups/pl-p/documents/websiteresources/con2023230.pdf. Accessed Oct 2014.

58 Medicines and Healthcare products Regulatory Agency, Committee on Safety of Medicines. Current Problems in Pharmacovigilance: Reminder: Gastrointestinal toxicity of NSAIDs. 2003. Report No.: 29. Available at:

http://www.mhra.gov.uk/home/groups/pl-p/documents/websiteresources/con007450.pdf. Accessed Oct 2014.

59 Medicines and Healthcare products Regulatory Agency. Safety of selective and non-selective non-steroidal anti-inflammatory drugs (NSAIDs). Oct 2006. Available at: http://www.mhra.gov.uk/Safetyinformation/Safetywarningsalertsandrecalls/Safetywarningsandmessagesformedicines/CON2025040. Accessed Oct 2014.

60 Medicines and Healthcare products Regulatory Agency. Drug Safety Update: Volume 1, Issue 5, December 2007. 2007. Available at: http://www.mhra.gov.uk/home/groups/pl-p/documents/publication/con2033217.pdf. Accessed Oct 2014.

61 Medicines and Healthcare products Regulatory Agency. Drug Safety Update: Volume 2, Issue 10. Non-steroidal anti-inflammatory drugs: reminder on renal failure and impairment. May 2009. Available at: http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON088004. Accessed Oct 2014.

62 Medicines and Healthcare products Regulatory Agency. MHRA response to published research paper concerning non-steroidal anti-inflammatory drugs (NSAIDs). 2013. Available at: http://www.mhra.gov.uk/NewsCentre/Whatsnew/CON282755. Accessed Oct 2014.

63 Loke YK, Trivedi AN, Singh S. Meta-analysis: gastrointestinal bleeding due to interaction between selective serotonin uptake inhibitors and non-steroidal anti-inflammatory drugs. *Aliment Pharmacol Ther* 2008; 27 (1): 31-40. Available at: http://www.ncbi.nlm.nih.gov/pubmed/17919277.

64 National Prescribing Centre. MeReC monthly: NSAID risks in heart failure. May 2009. Available at: http://www.npc.co.uk/merec/pain/musculo/merec_monthly_no14.php. Accessed Oct 2014.

65 McGettigan P, Henry D. Cardiovascular risk with non-steroidal anti-inflammatory drugs: systematic review of population-based controlled observational studies. *PLoS Med* 2011; 8 (9). Available at: http://www.ncbi.nlm.nih.gov/pubmed/21980265.

66 Medicines and Healthcare products Regulatory Agency. Press release: MHRA confirms advice on the use of diclofenac. 2013. Available at: http://www.mhra.gov.uk/NewsCentre/Pressreleases/CON287042. Accessed Oct 2014.

67 European Medicines Agency. Press release: European Medicines Agency finalises review of recent published data on cardiovascular safety of NSAIDs. Oct 2012. Available at: http://www.ema.europa.eu/ema/index.jsp?curl=pages/news_and_events/news/2012/10/news_detail_001637.jsp&mid=WC0b01ac058004d5c1. Accessed Oct 2014.

68 National Institute for Health and Care Excellence. Clinical Guideline 169. Acute kidney injury: Prevention, detection and management of acute kidney injury up to the point of renal replacement therapy. 2013. Available at: https://www.nice.org.uk/guidance/CG169. Accessed Oct 2014.

69 Lapi F, Azoulay L, Yin H et al. Concurrent use of diuretics, angiotensin converting enzyme inhibitors, and angiotensin receptor blockers with non-steroidal anti-inflammatory drugs and risk of acute kidney injury: nested case-control study. *BMJ* 2013. Available at: http://www.bmj.com/content/346/bmj.e8525.

70 National Institute for Health and Care Excellence. Clinical Guideline 182. Chronic kidney disease: early identification and management of chronic kidney disease in adults in primary and secondary care. 2014. Available at: http://www.nice.org.uk/guidance/cg182. Accessed Oct 2014.

71 Pirmohamed M, James S, Meakin S et al. Adverse drug reactions as cause of admission to hospital: prospective analysis of 18 820 patients. *BMJ* 2004; 329 (7456): 15-9. Available at: http://www.ncbi.nlm.nih.gov/pubmed/15231615.

72 Impicciatore P, Choonara I, Clarkson A et al. Incidence of adverse drug reactions in paediatric in/out-patients: a systematic review and meta-analysis of prospective studies. *Br J Clin Pharmacol* 2001; 52 (1): 77-83. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2014499/.

GLOSSARY

ADQ: The average daily quantity (ADQ) is a measure of prescribing volume based upon prescribing behaviour in England. It represents the assumed average maintenance dose per day for a medicine used for its main indication in adults. ADQ is not a recommended dose but an analytical unit to compare prescribing activity.

DDD: The defined daily dose (DDD) developed by the World Health Organisation is a unit of measurement whereby each medicine is assigned a value within its recognised dosage range. The value is the assumed average maintenance dose per day for a medicine when used for its main indication in adults. A medicine can have different DDDs depending on the route of administration.

PU: Prescribing units (PUs) were adopted to take account of the greater need of elderly patients for medication in reporting prescribing performance in primary care. Patients aged 65 years and over are counted as three prescribing units; patients under 65 years and temporary residents are counted as one.

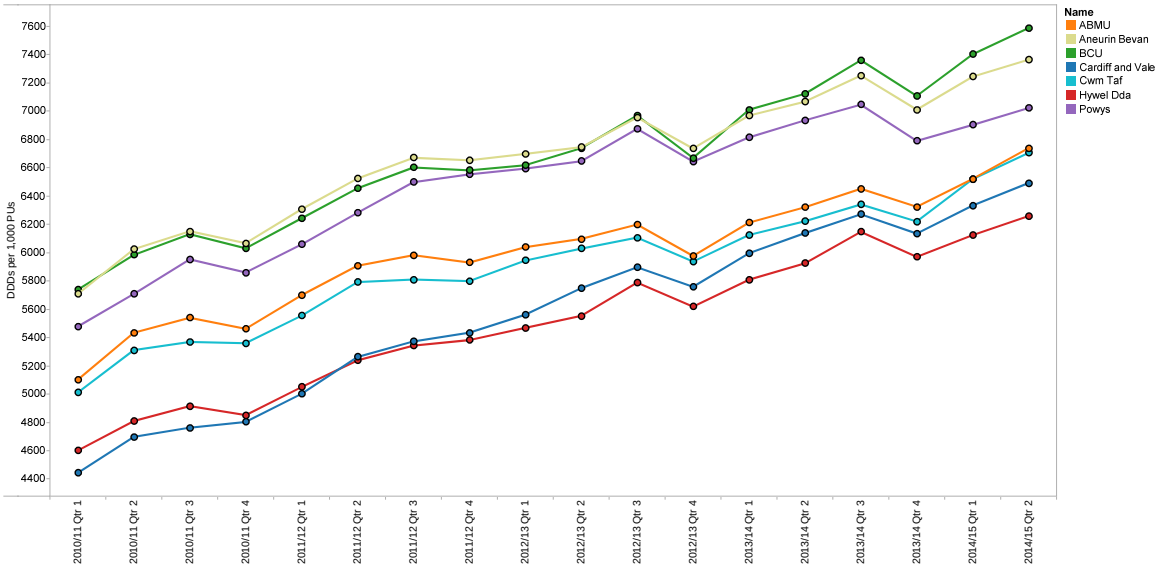
STAR-PU: Specific therapeutic group age–sex related prescribing units (STAR-PUs) are designed to measure prescribing weighted for age and sex of patients. There are differences in the age and sex of patients for whom medicines in specific therapeutic groups are usually prescribed. To make such comparisons, STAR-PUs have been developed based on costs of prescribing items within therapeutic groups.

APPENDIX 1. NHS WALES HEALTH BOARDS PERFORMANCE AND COMPARISON WITH ENGLISH CCGS AGAINST THE PROPOSED 2015–2016 NPIS

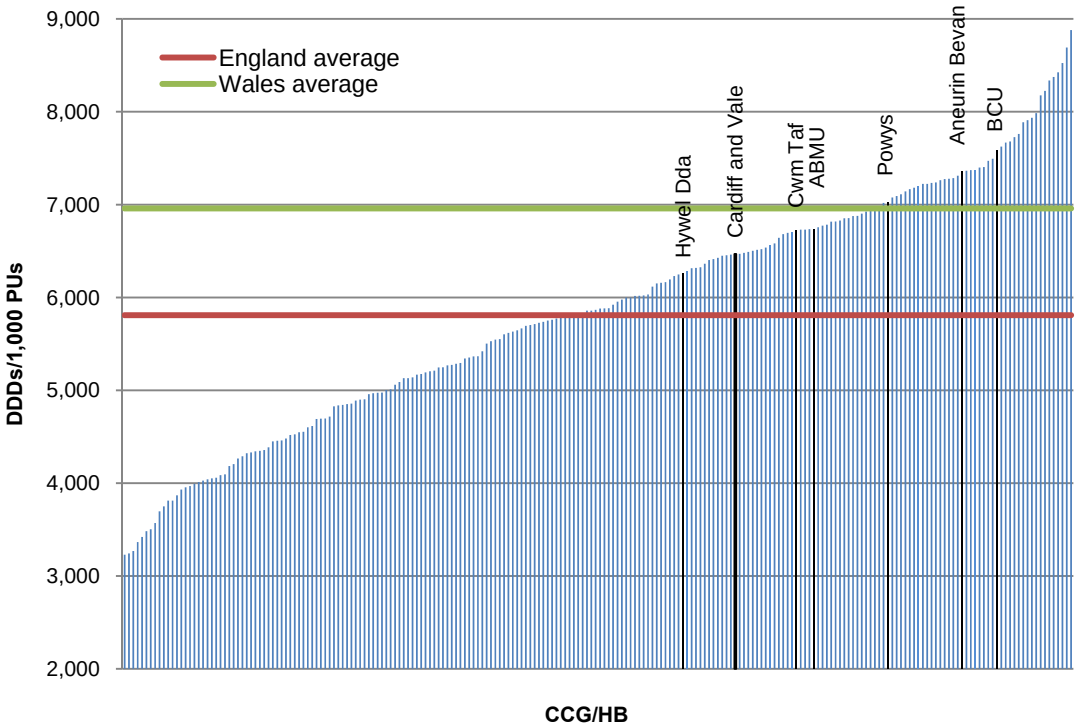
Data for each NPI are presented in two ways: a line graph/bar chart showing the trend in prescribing for each health board and a bar chart comparing prescribing of each health board with that of each CCG in England. The black bars represent the seven health boards in Wales; the blue bars represent the 211 CCGs in England.

1.0 PROTON PUMP INHIBITORS

Trend in PPI DDDs per 1,000 PUs to quarter ending September 2014

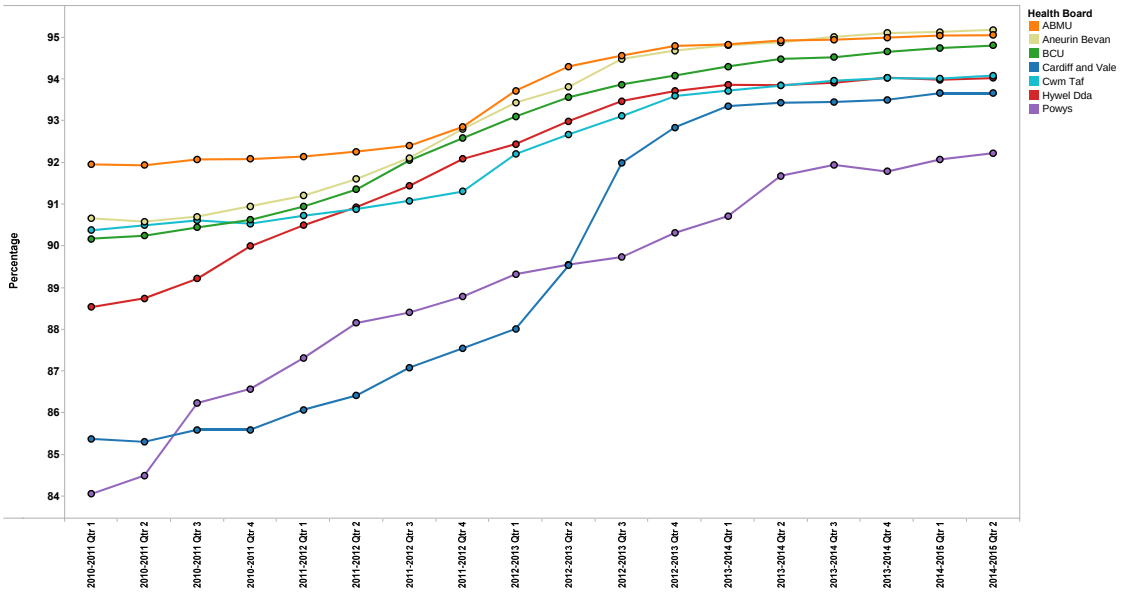


PPI DDDs per 1,000 PUs – Quarter ending September 2014

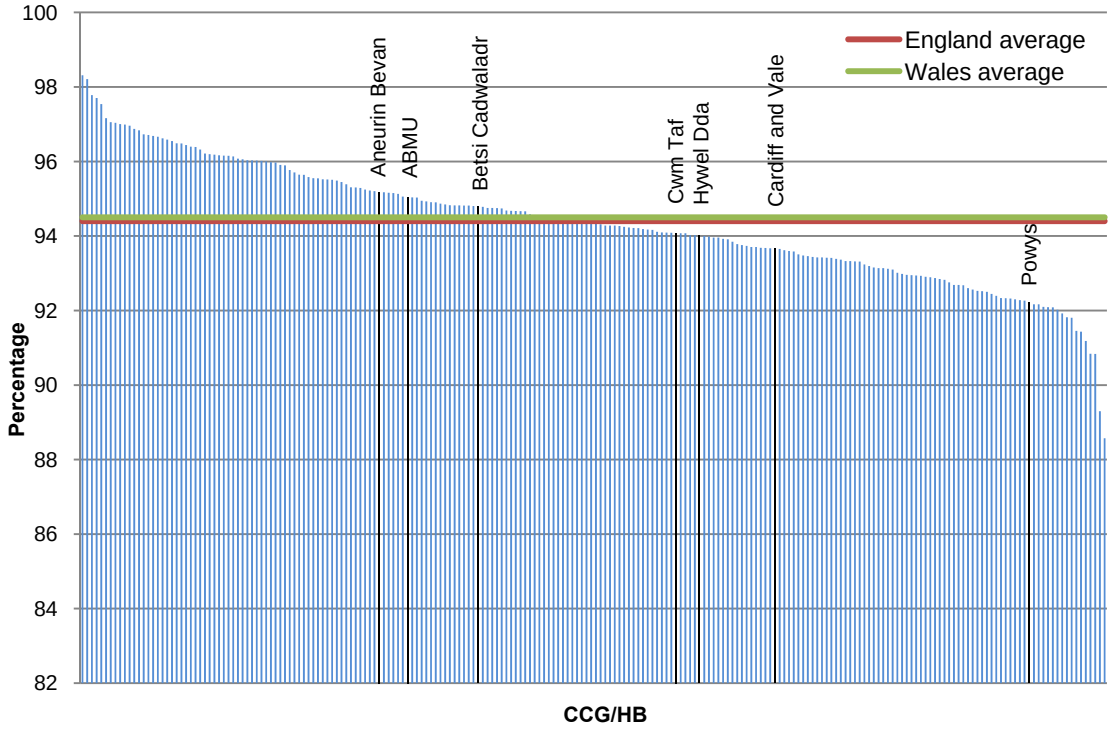


2.0 LIPID-MODIFYING DRUGS

Trend in LAC statin prescribing as a percentage of all statin, ezetimibe and simvastatin/ezetimibe combination prescribing to quarter ending September 2014

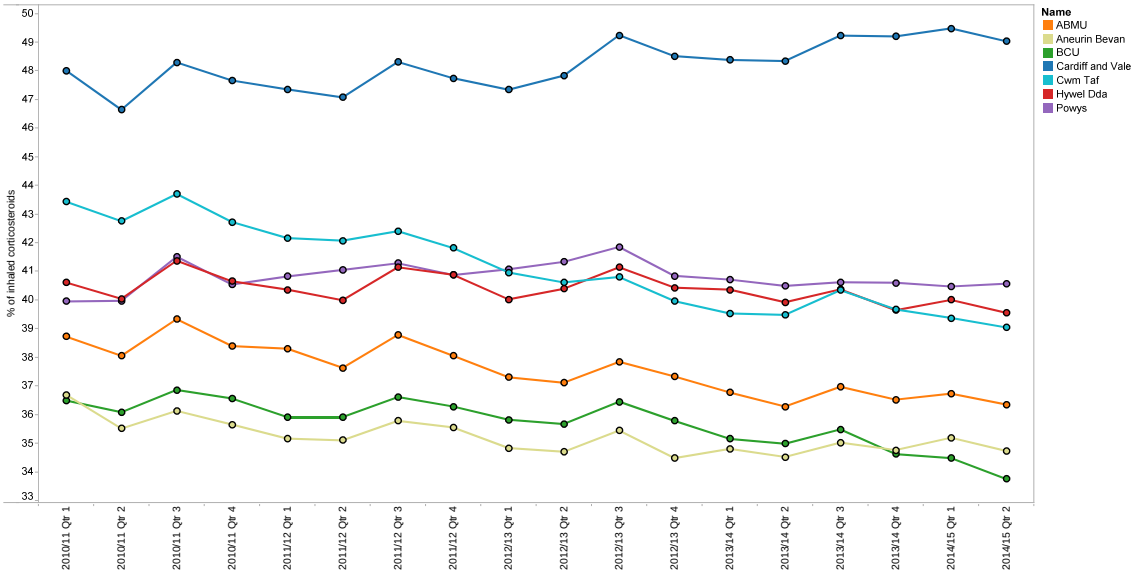


LAC statin items as a percentage of all statin, ezetimibe and simvastatin/ezetimibe combination prescribing – Quarter ending September 2014

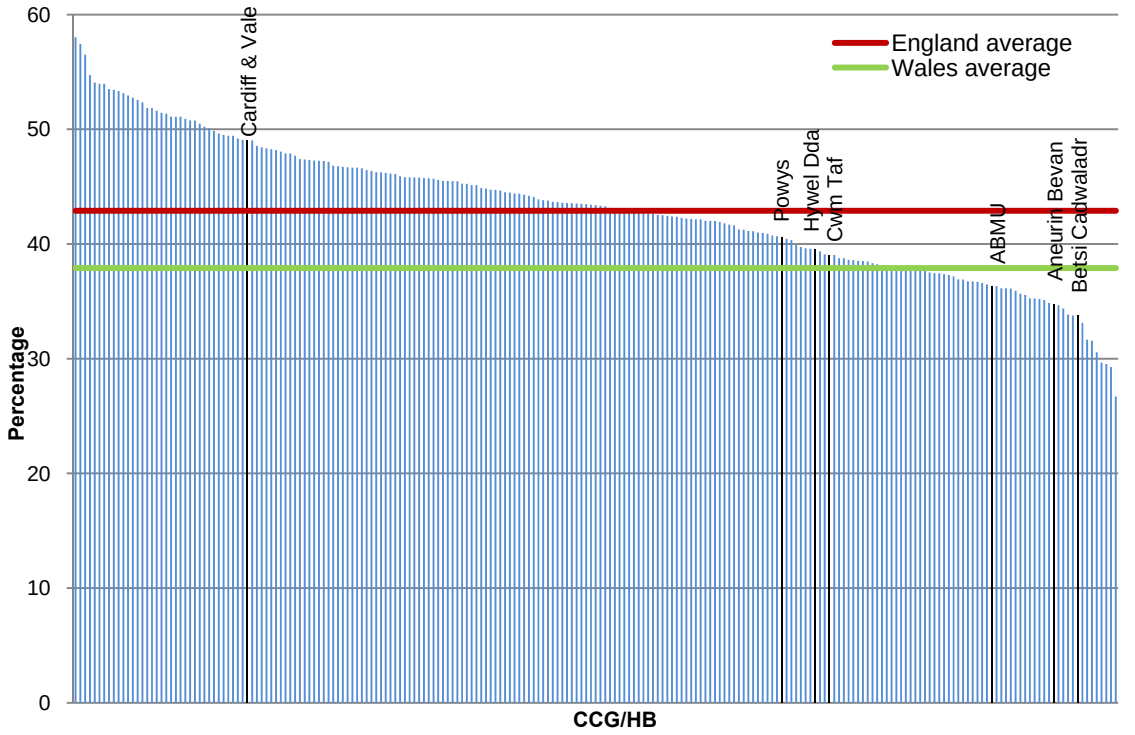


3.0 INHALED CORTICOSTEROIDS

Trend in low strength ICS as a percentage of all ICS prescribing to quarter ending September 2014

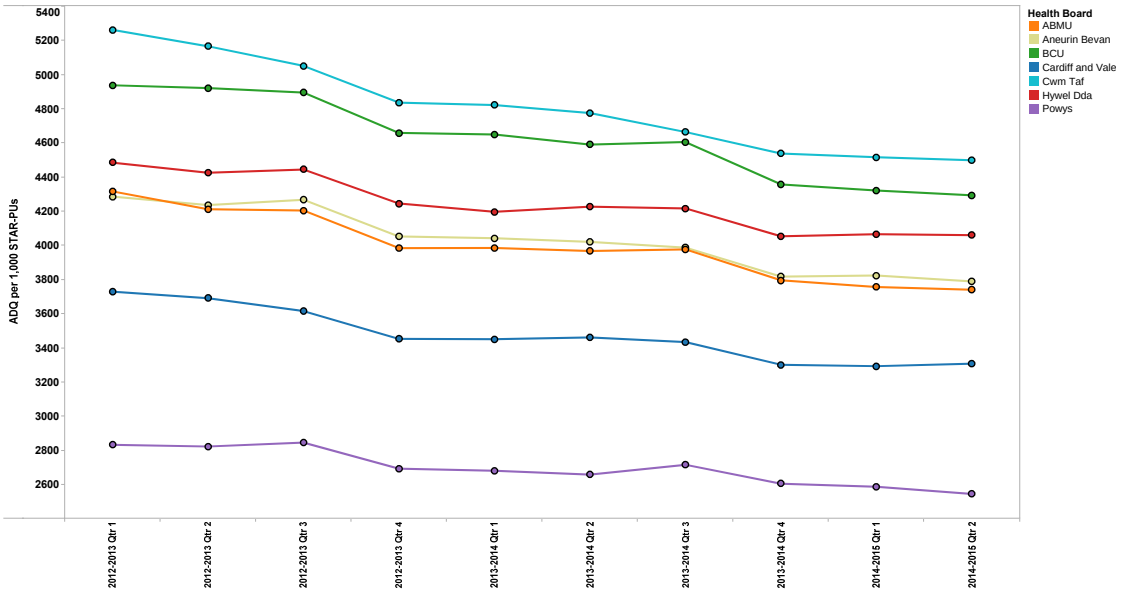


Low strength ICS items as a percentage of all ICS prescribing – Quarter ending September 2014

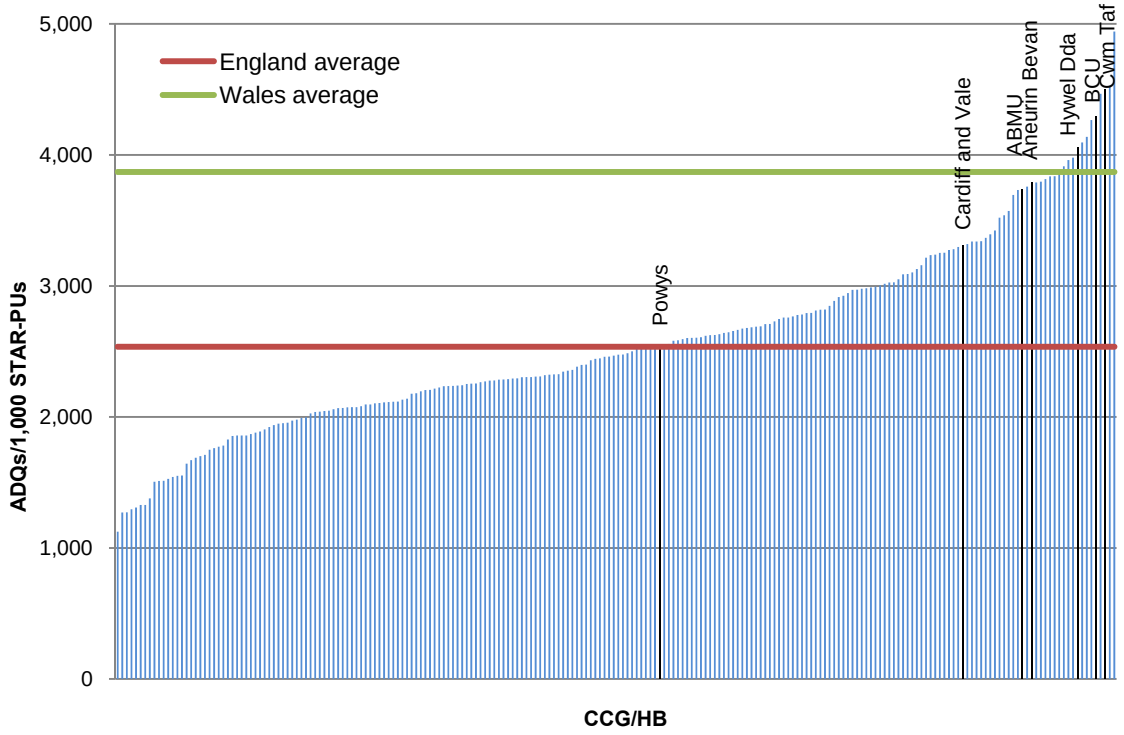


4.0 HYPNOTICS AND ANXIOLYTICS

Trend in hypnotic and anxiolytic prescribing (ADQs per 1,000 STAR-PUs (13)† (2012–2013 UDG) to quarter ending September 2014



Hypnotics and anxiolytics ADQs per 1,000 STAR-PUs (13) (2012–2013 UDG) Quarter ending September 2014

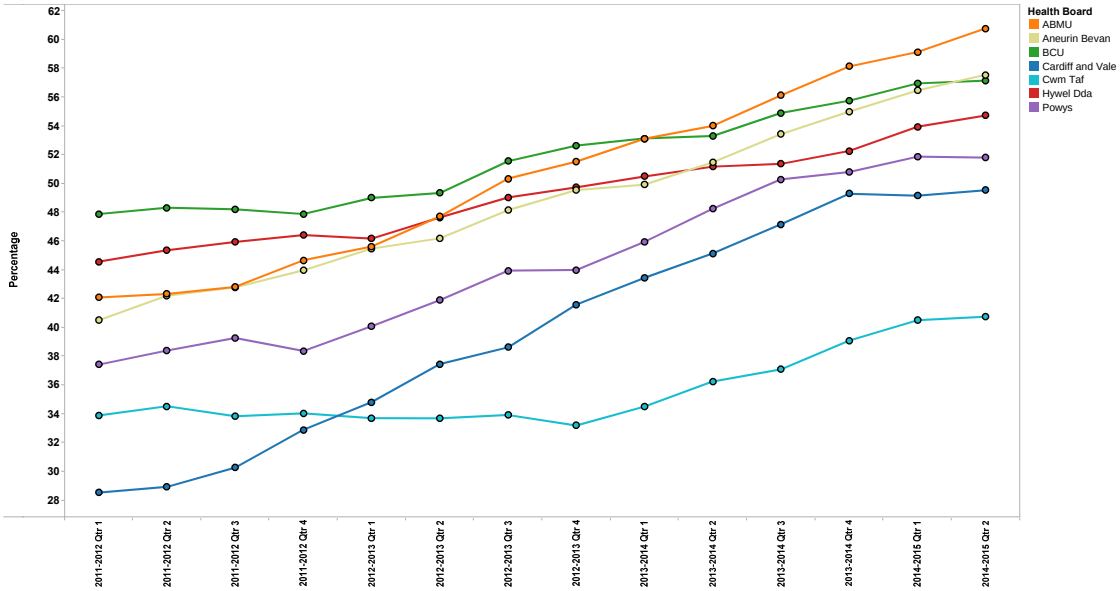


† STAR-PU weightings have been revised by the Health and Social Care Information Centre. STAR-PU (09) weightings have been updated to the STAR-PU (13) versions. These measures are routinely being used in data reported from April 2014. The data used in this document have been retrospectively calculated to provide comparisons dating back to April 2013.

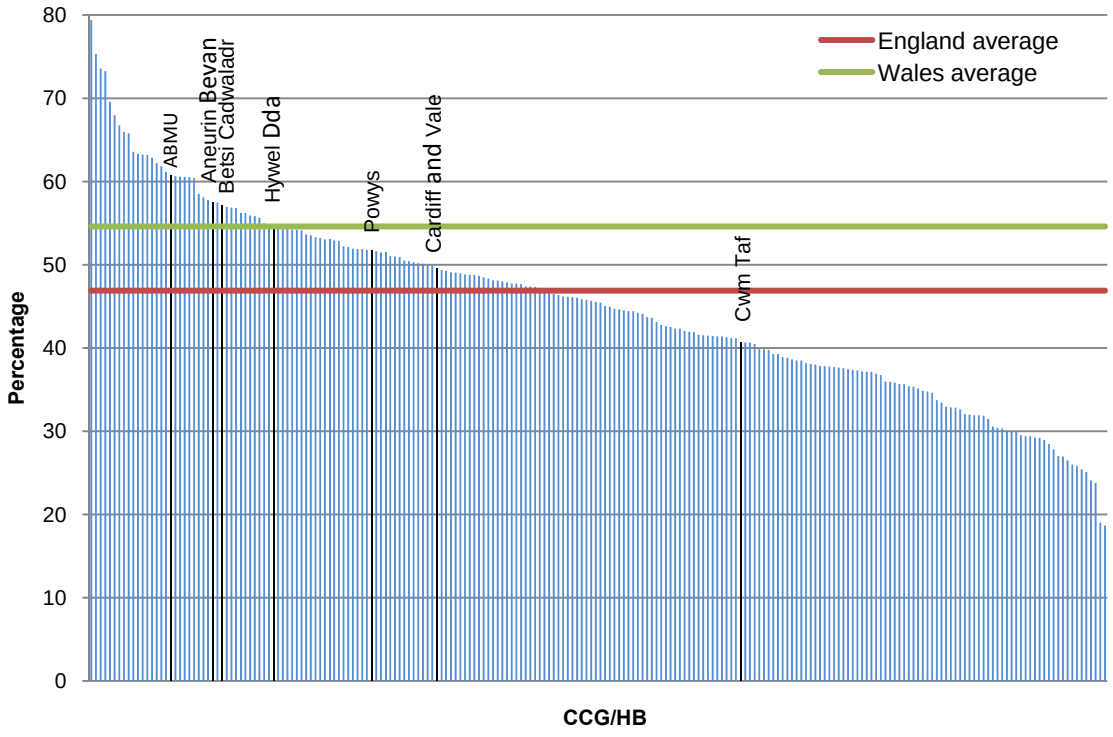
5.0 OPIOID ANALGESICS

5.1 Morphine

Trend in morphine prescribing as a percentage of strong opioid prescribing (2013–2014 UDG) to quarter ending September 2014

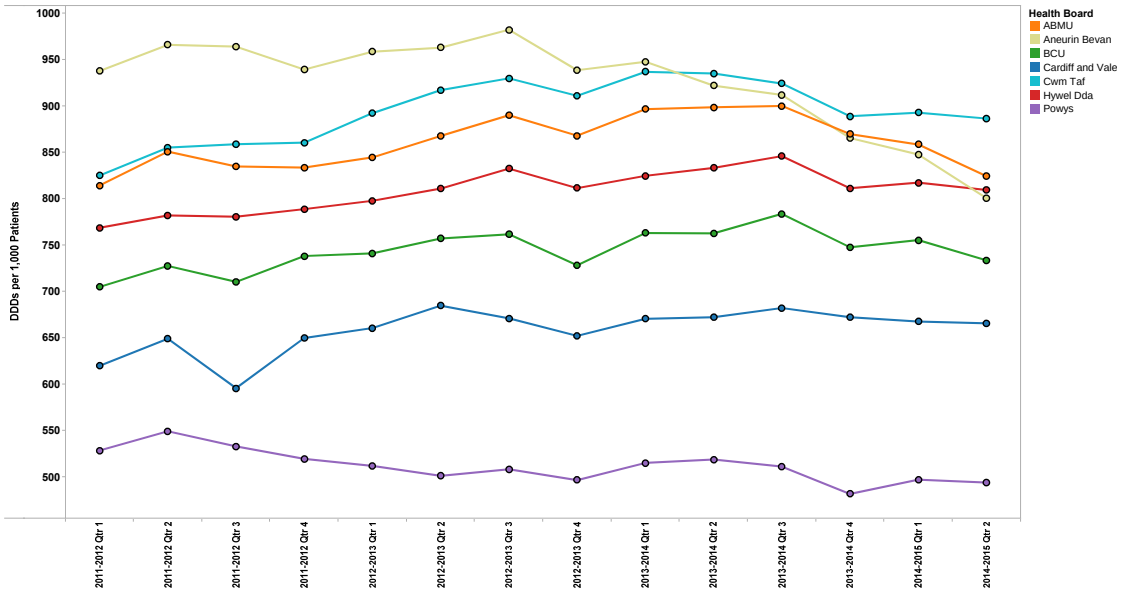


Morphine items as a percentage of strong opioid prescribing (2013–2014 UDG) Quarter ending September 2014

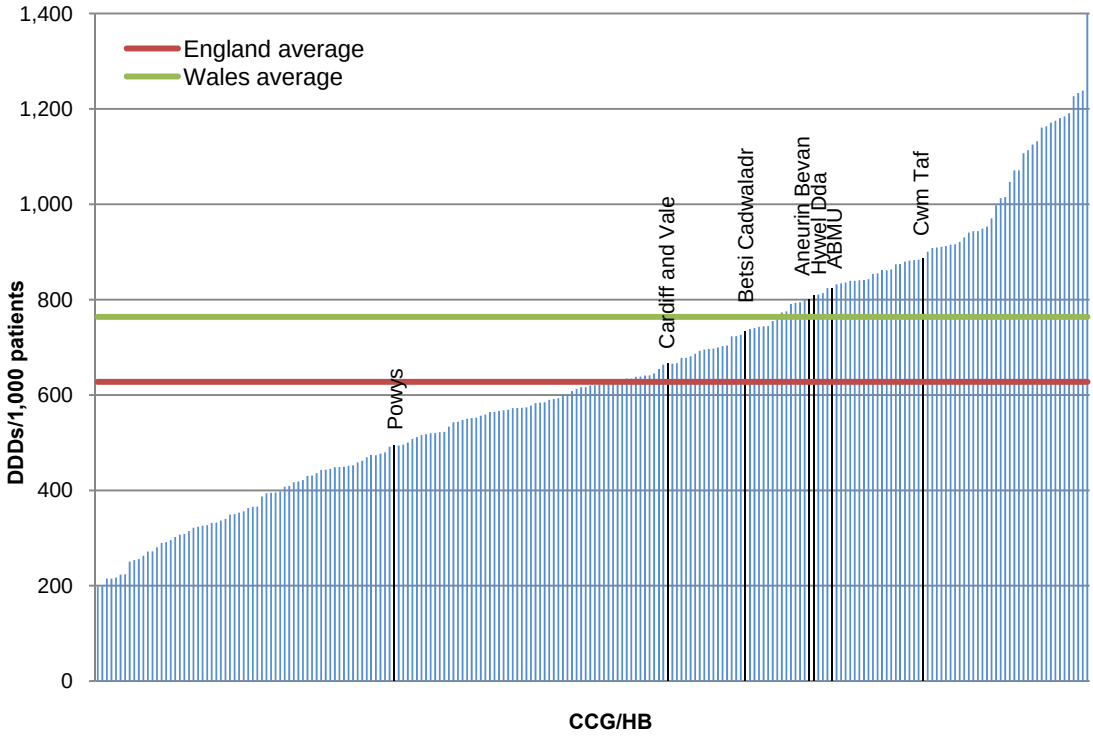


5.2 Tramadol

Trend in tramadol prescribing (DDDs per 1,000 patients) to quarter ending September 2014



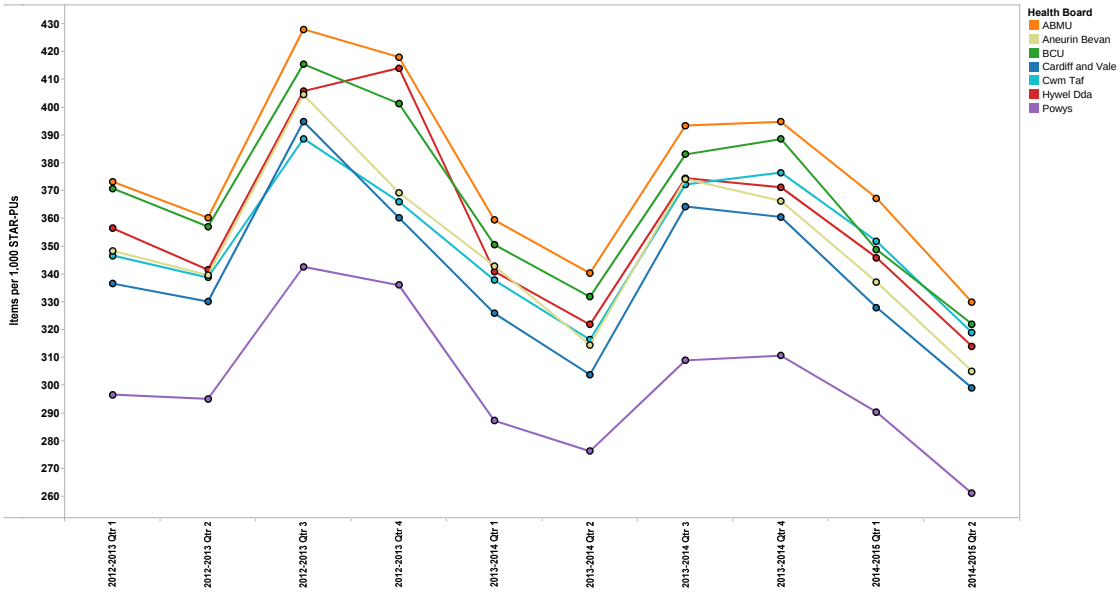
Tramadol DDDs per 1,000 patients – Quarter ending September 2014



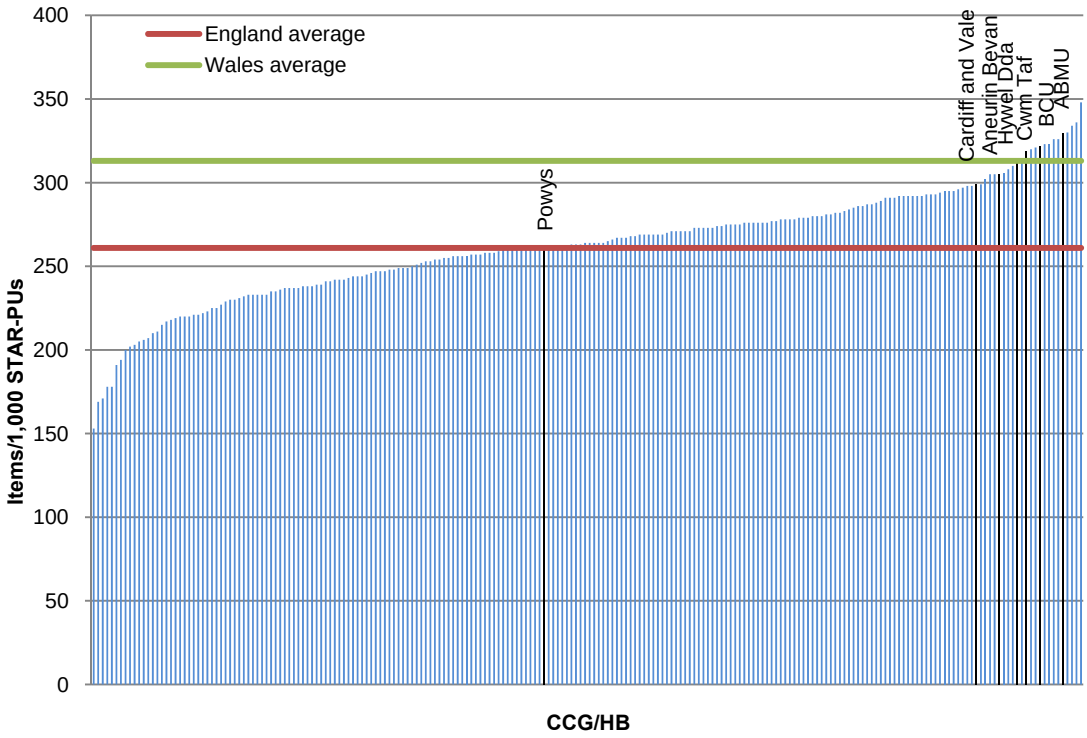
6.0 ANTIBIOTICS

6.1 Total antibiotics

Trend in total antibacterial prescribing (items per 1,000 STAR-PUs [13]) to quarter ending September 2014

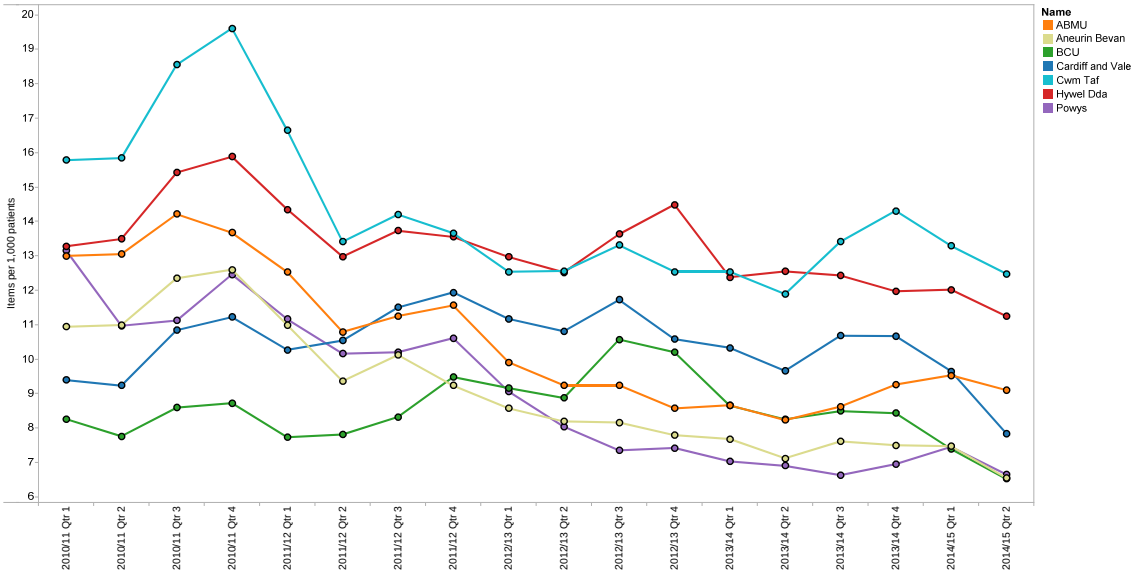


Total antibacterial items per 1,000 STAR-PUs (13) – Quarter ending September 2014

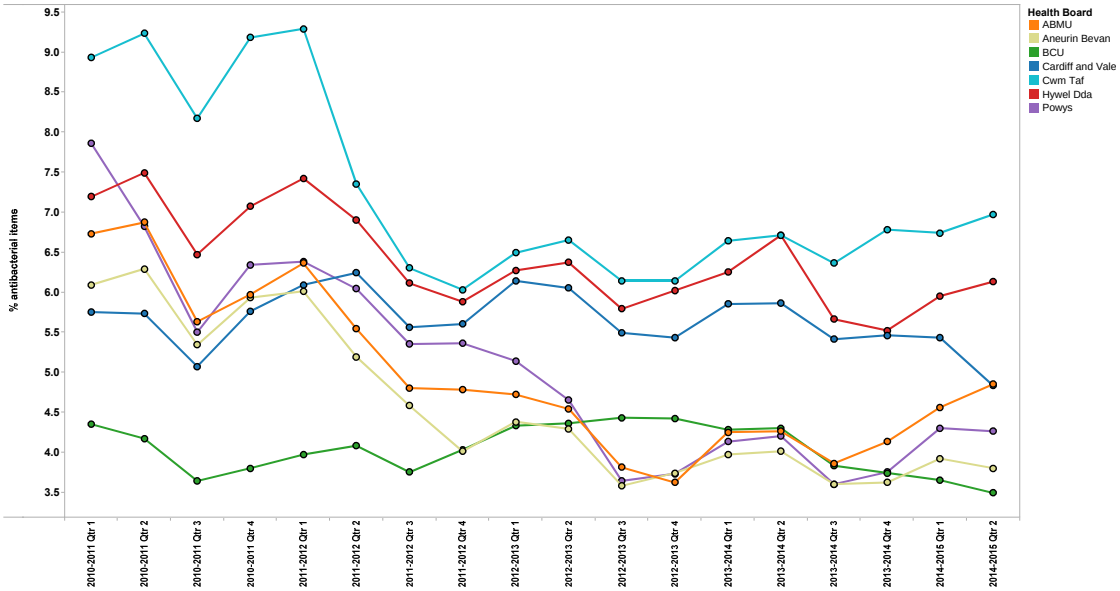


6.2 Co-amoxiclav

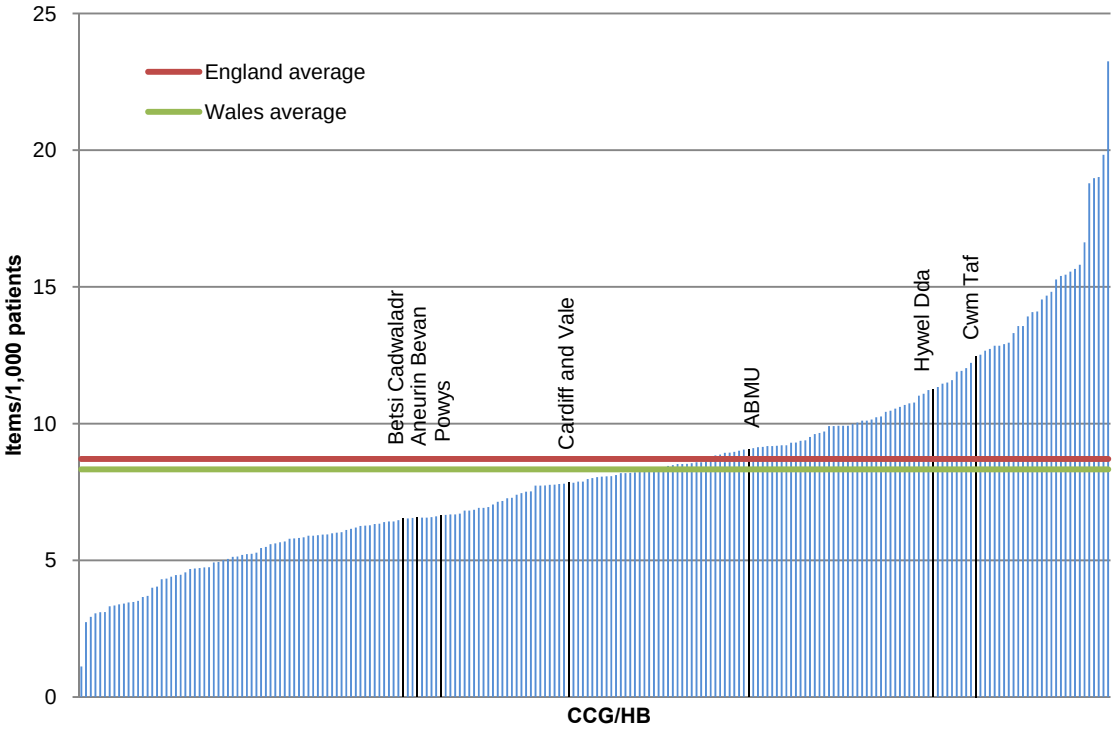
Trend in co-amoxiclav items per 1,000 patients to quarter ending September 2014



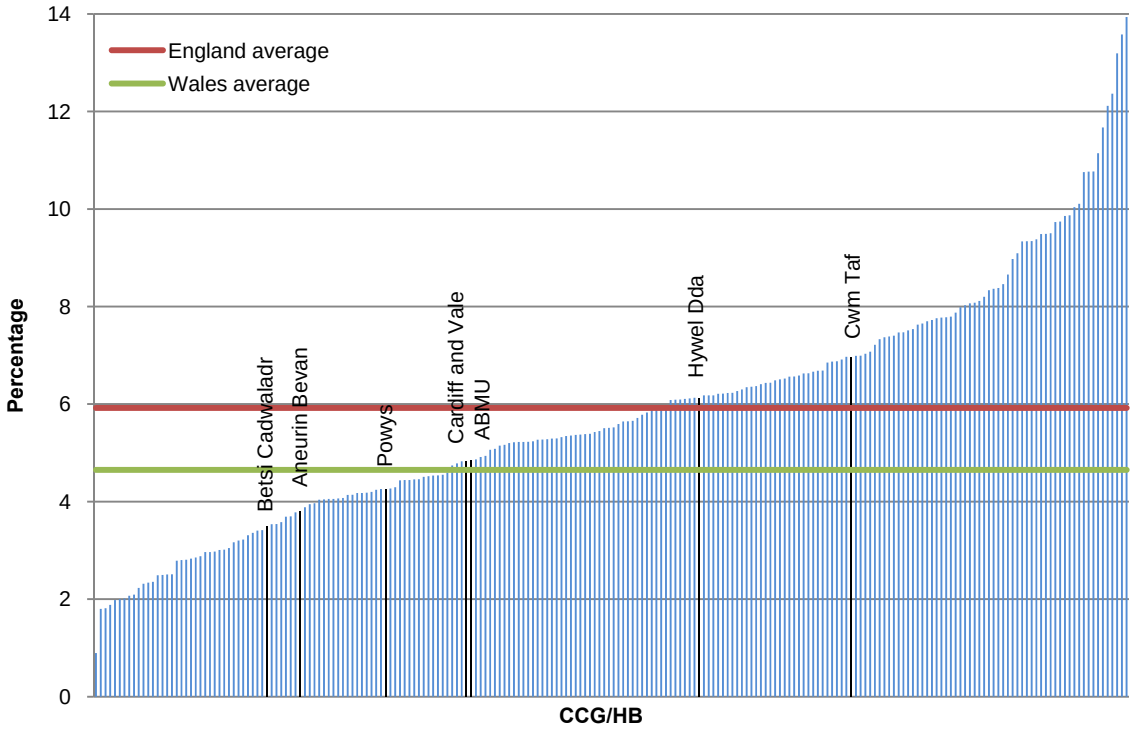
Trend in co-amoxiclav prescribing as a percentage of total antibacterial items to quarter to September 2014



Co-amoxiclav items per 1,000 patients – Quarter ending September 2014

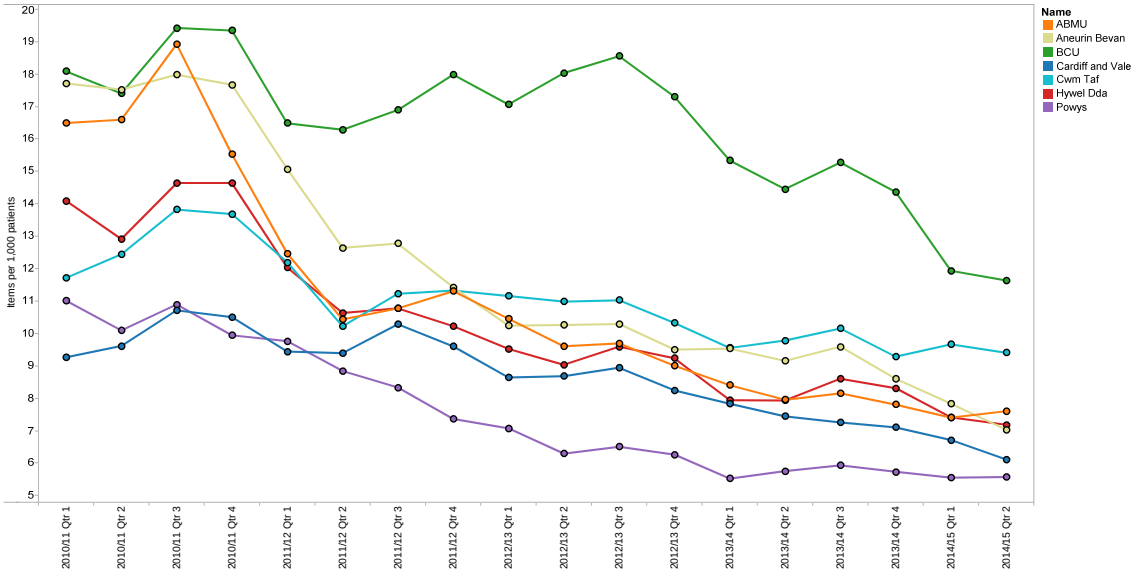


Co-amoxiclav prescribing as a percentage of total antibacterial items – Quarter ending September 2014

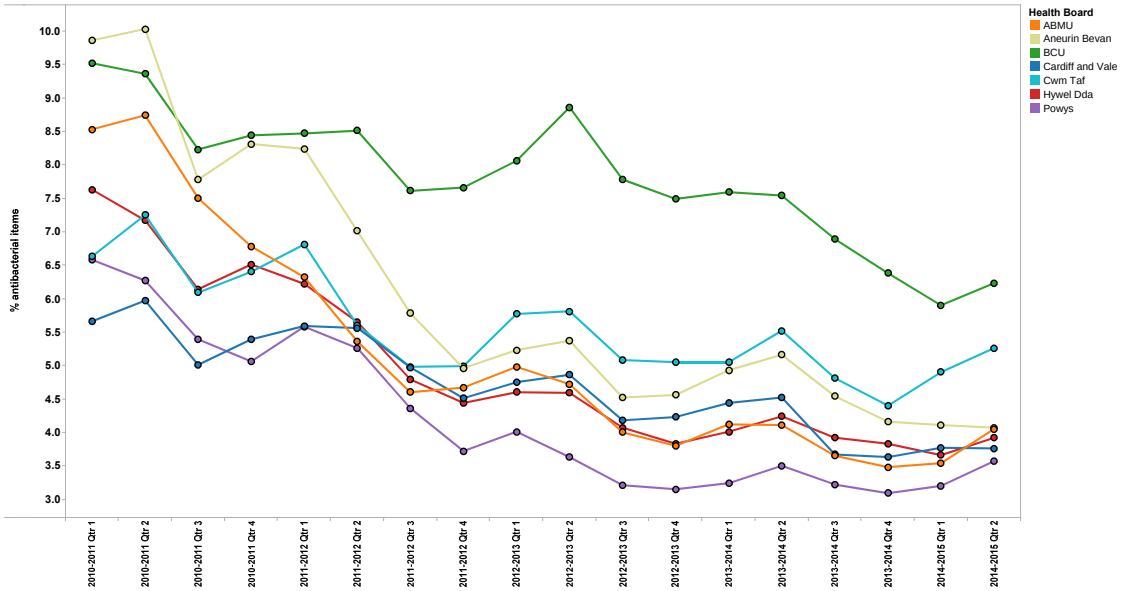


6.3 Cephalosporins

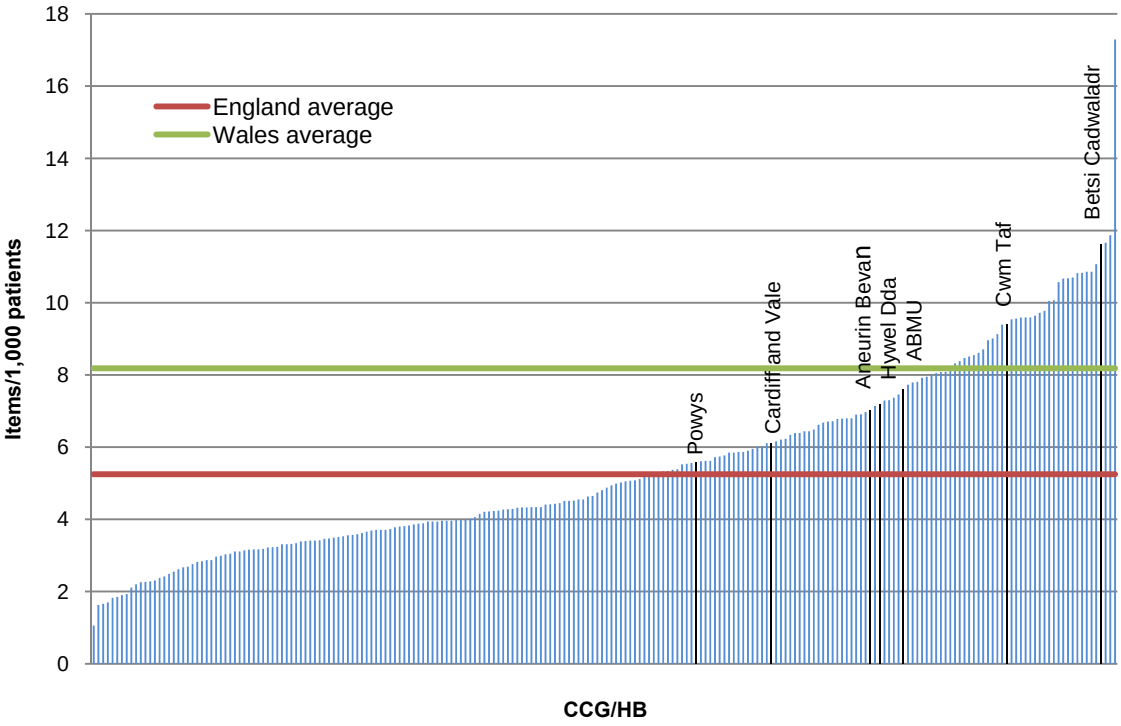
Trend in cephalosporin items per 1,000 patients to quarter ending September 2014



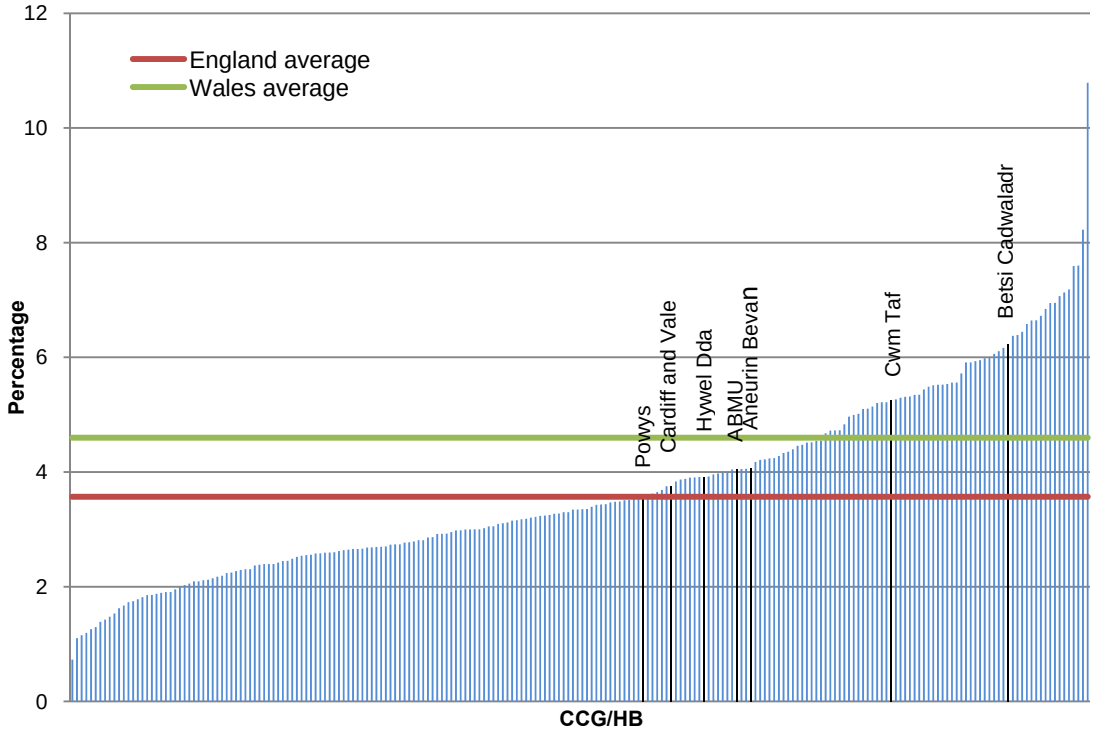
Trend in cephalosporin prescribing as a percentage of total antibacterial items to quarter September 2014



Cephalosporin items per 1,000 patients – Quarter ending September 2014

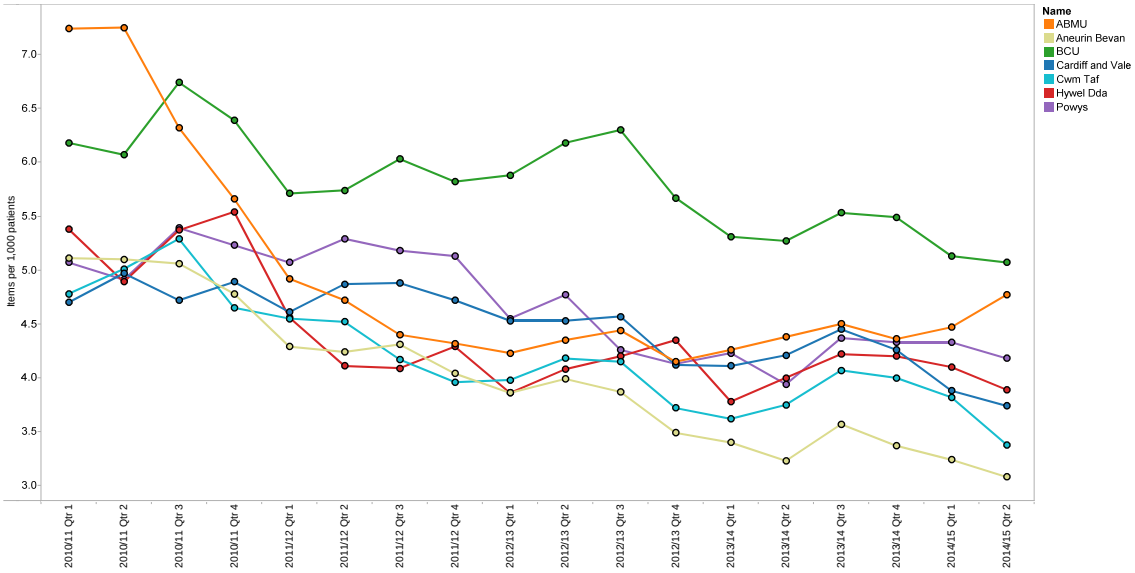


Cephalosporin prescribing as a percentage of total antibacterial items – Quarter ending September 2014

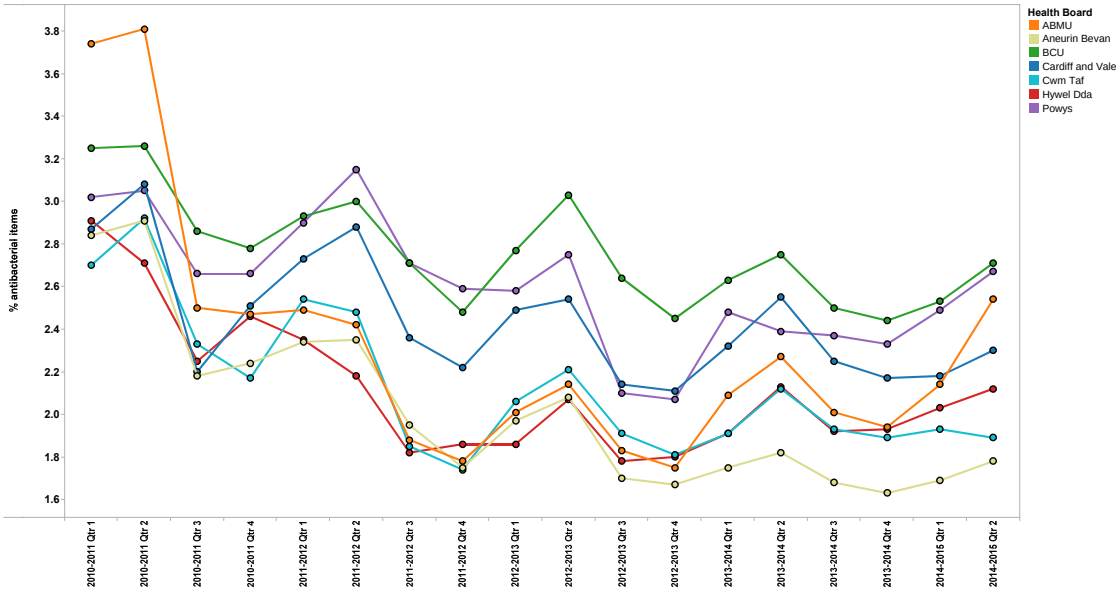


6.4 Fluoroquinolones

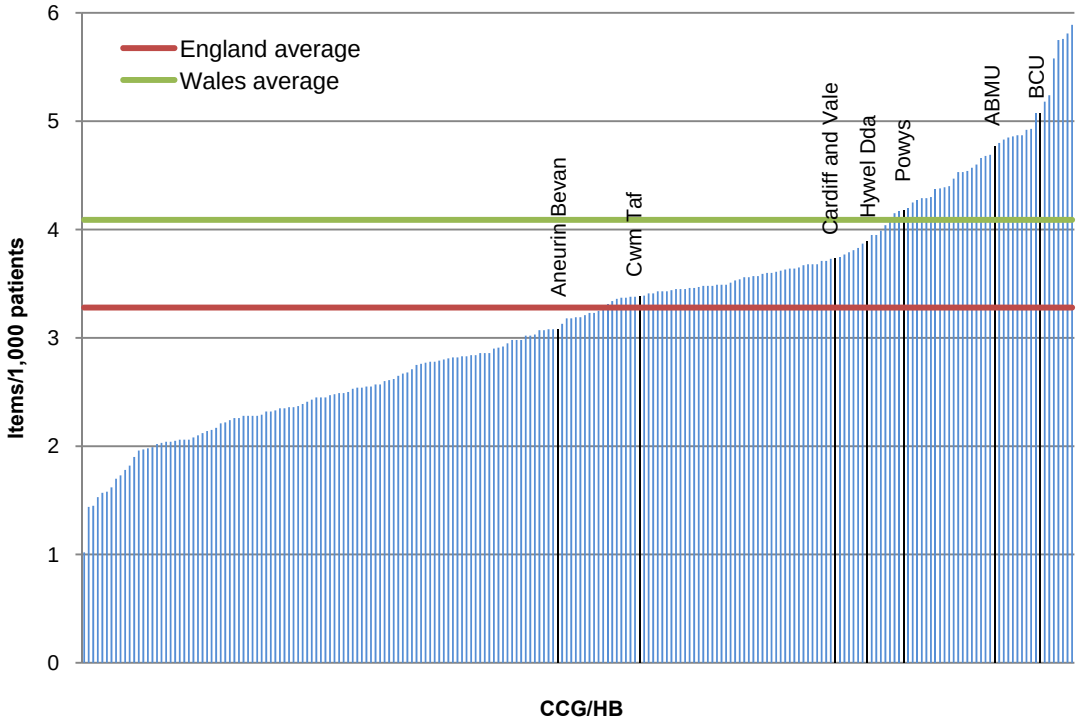
Trend in fluoroquinolone items per 1,000 patients to quarter ending September 2014



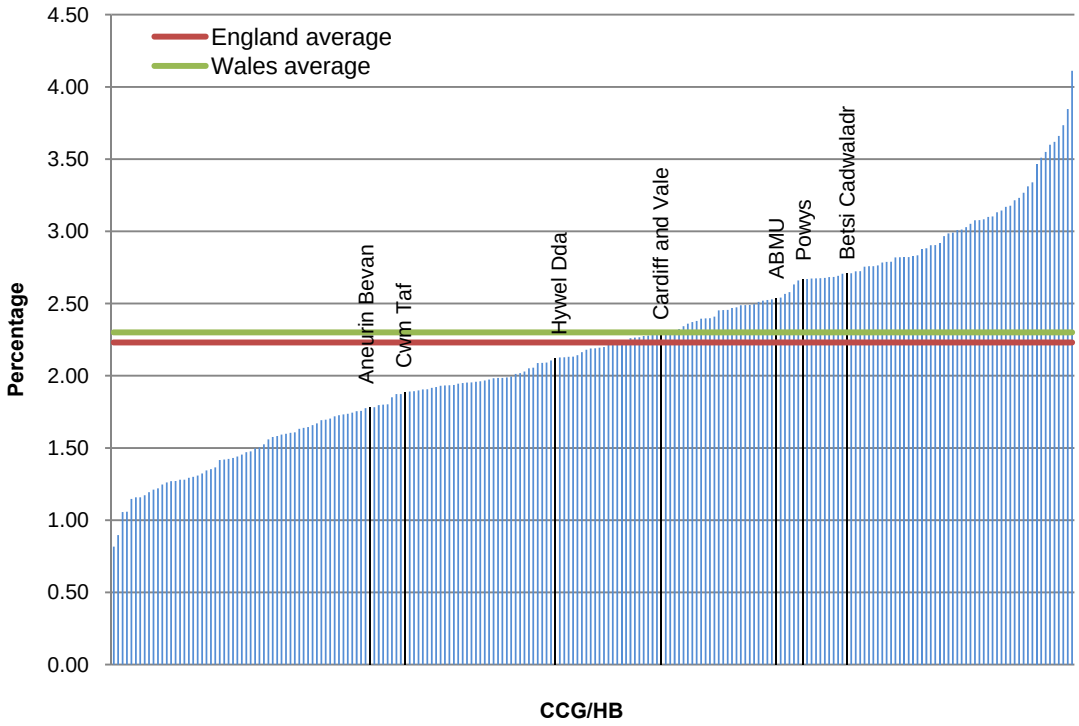
Trend in fluoroquinolone prescribing as a percentage of total antibacterial items to quarter ending September 2014



Fluoroquinolone items per 1,000 patients – Quarter ending September 2014



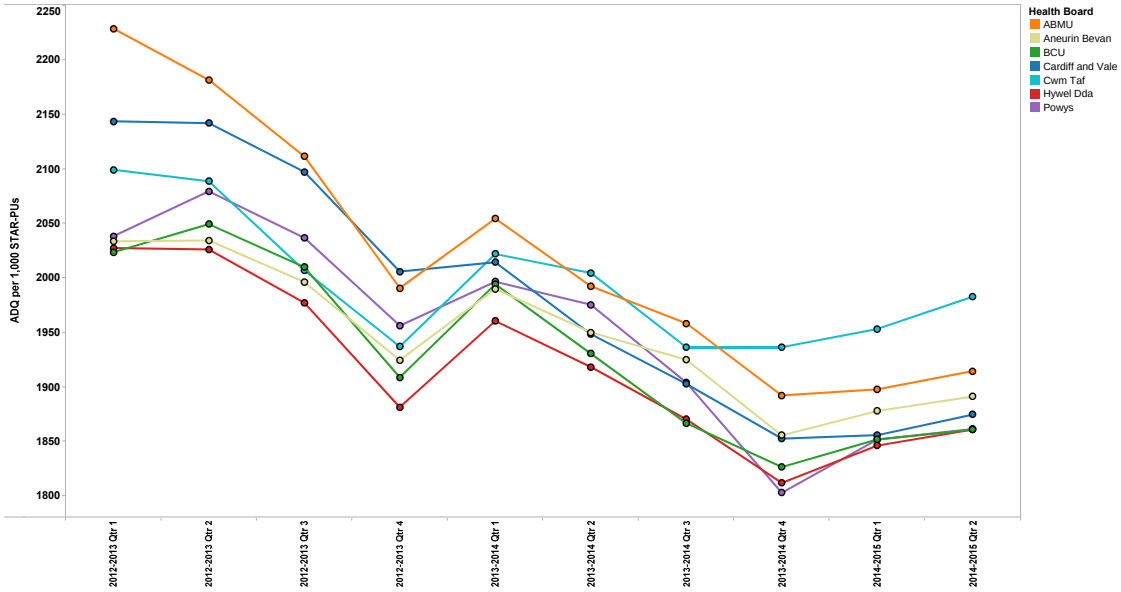
Fluoroquinolone prescribing as a percentage of total antibacterial items – Quarter ending September 2014



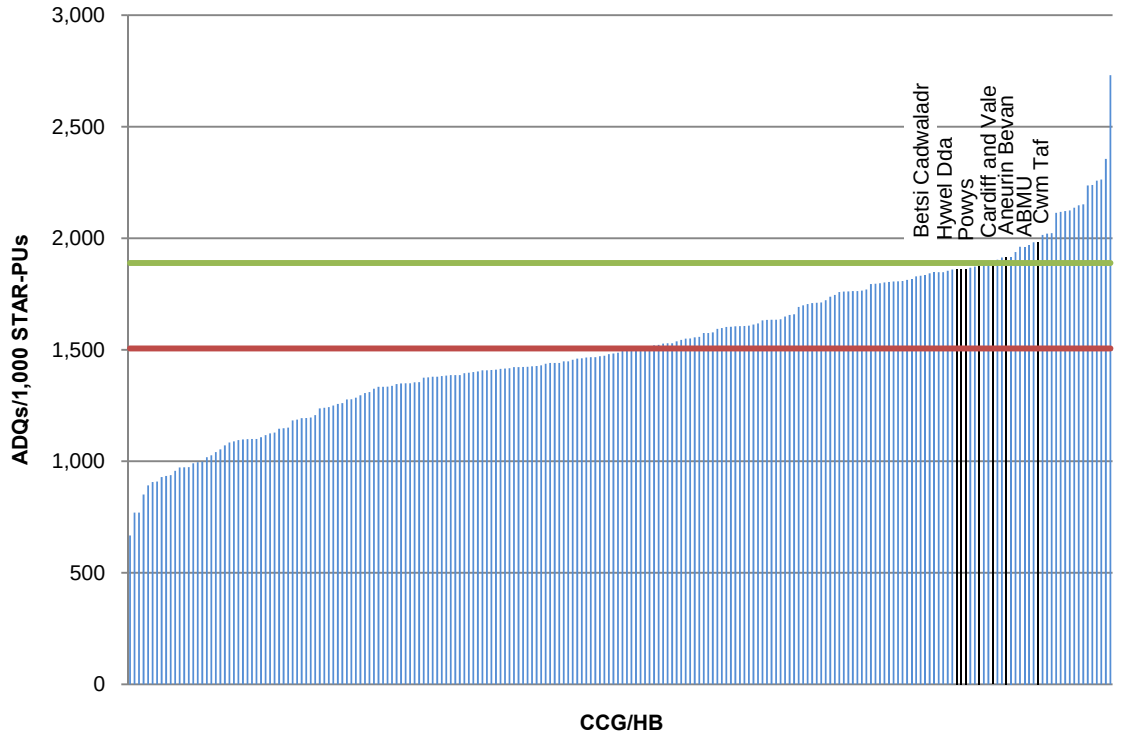
7.0 NON-STEROIDAL ANTI-INFLAMMATORY DRUGS

7.1 Total NSAIDS

Trend in NSAID prescribing (ADQs per 1,000 STAR-PUs (13)) to quarter ending September 2014

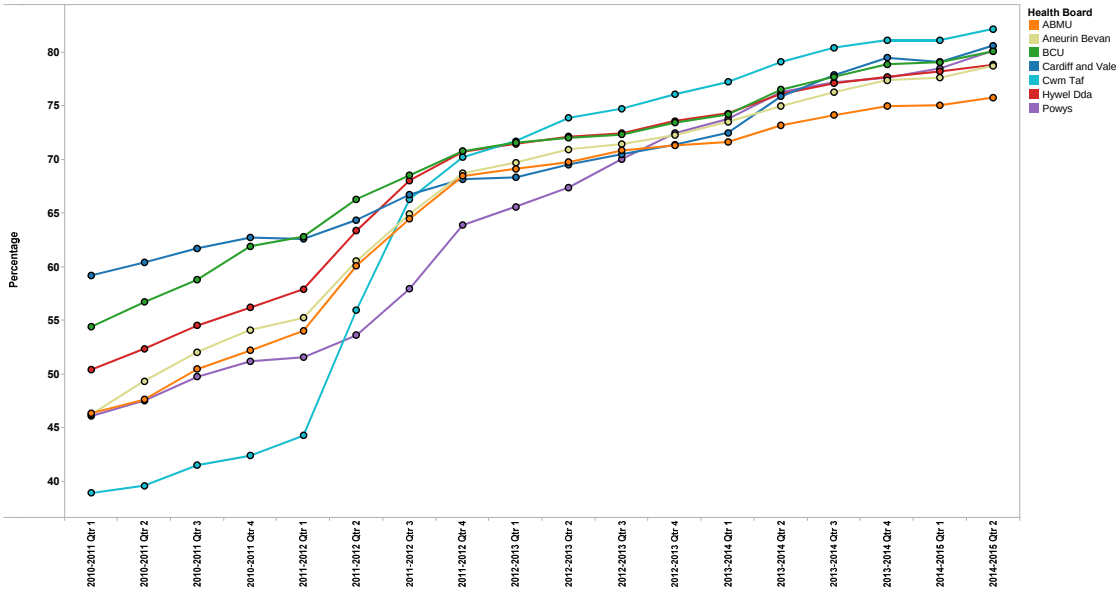


NSAID ADQs per 1,000 STAR-PUs (13) – Quarter ending September 2014

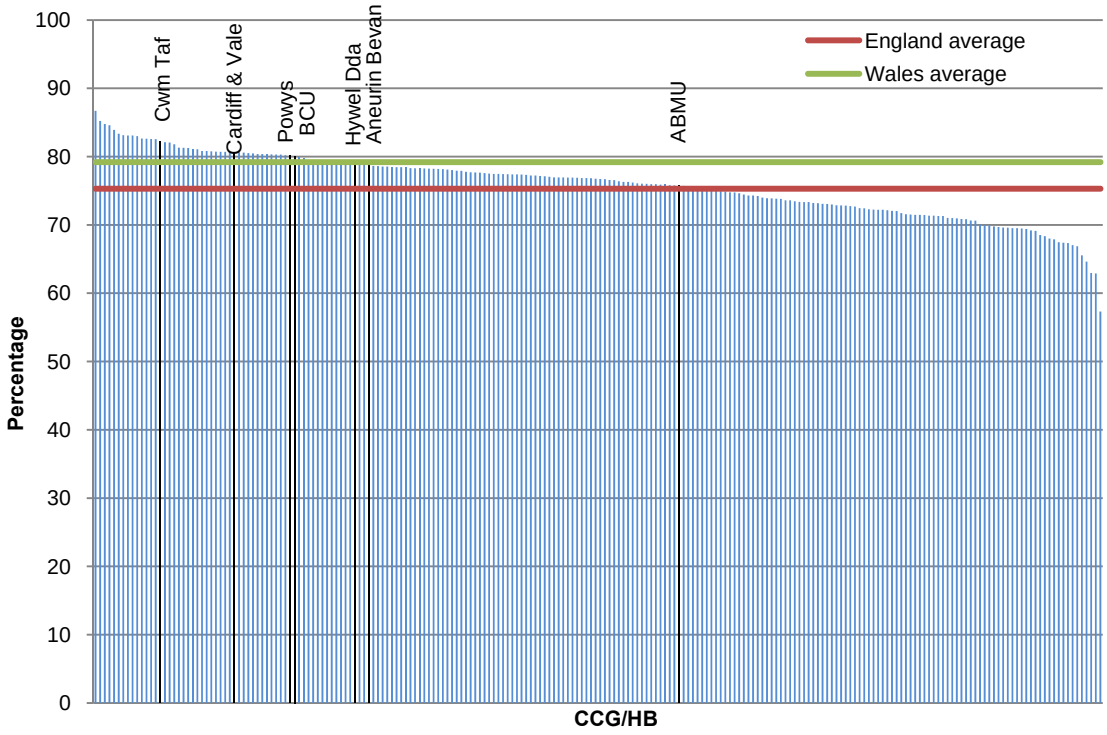


7.2 Ibuprofen and naproxen

Trend in ibuprofen and naproxen items as a percentage of NSAID prescribing to quarter ending September 2014

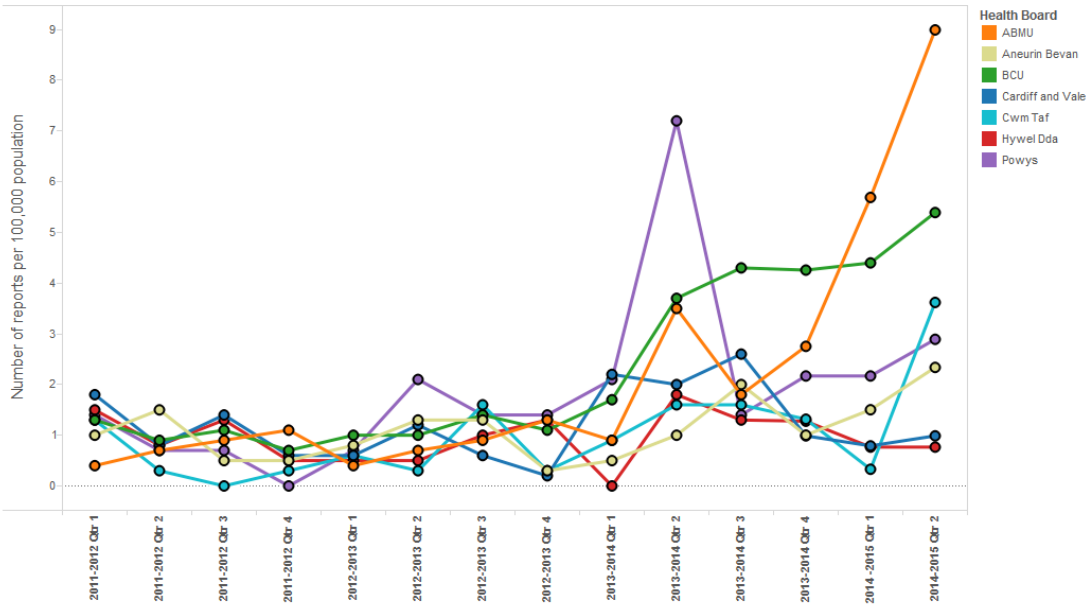


Ibuprofen and naproxen items as a percentage of NSAID prescribing Quarter ending September 2014



8.0 YELLOW CARDS

Trend in yellow card reporting to quarter ending September 2014



APPENDIX 2. USER-DEFINED GROUP OF LOW-STRENGTH ICS

The list below is the user-defined group being monitored as low-strength ICS, i.e. any inhaler device, which when used at the usual dose provides < 800 mcg of beclometasone or equivalent.

BNF name	BNF code
Beclomet Diprop_Inha 50mcg (200d)	0302000C0AAAAAA
Beclomet Diprop_Inha 100mcg (200d)	0302000C0AAABAB
Beclomet Diprop_Inha B/a 50mcg (200 D)	0302000C0AAASAS
Beclomet Diprop_Inha B/a 100mcg (200 D)	0302000C0AAATAT
Beclomet Diprop_Inha 50mcg (200 D) Cff	0302000C0AABEBE
Beclomet Diprop_Inha 100mcg (200 D) Cff	0302000C0AABFBF
Beclomet Diprop_Inha B/a 50mcg(200 D)cff	0302000C0AABGBG
Beclomet Diprop_Inha B/a100mcg(200 D)cff	0302000C0AABHBH
Beclomet Diprop_Pdr For Inh 100mcg(200 D	0302000C0AABJBJ
Beclomet Diprop_Inha B/a 100mcg (100 D)	0302000C0AABQBQ
Beclomet Diprop_Inha B/a 200mcg (100 D)	0302000C0AABRBR
Beclazone 100 E-Breathe_Inha 100mcg(200d	0302000C0BFAEAT
Asmabec Clickhaler_D/p Inh 50mcg (200 D)	0302000C0BIADBI
Asmabec Clickhaler_D/p Inh 100mcg (200d)	0302000C0BIAEBJ
Qvar 50_Inha 50mcg (200 D)	0302000C0BJAABE
Qvar 50_Autohaler 50mcg (200 D)	0302000C0BJACBG
Qvar 50 E-Breathe_Inha 50mcg (200 D)	0302000C0BJAEBG
Pulvinal Beclomet_Inha 200mcg (100 D)	0302000C0BLAABM
Pulvinal Beclomet_Inha 100mcg (100 D)	0302000C0BLABBN
Clenil Modulite_Inha 50mcg (200d)	0302000C0BPAABE
Clenil Modulite_Inha 100mcg (200d)	0302000C0BPABBF
Budesonide_Pdr For Inh 200mcg (100 D)	0302000K0AAAGAG
Budesonide_Pdr For Inh 100mcg (200 D)	0302000K0AAAKAK
Gppe Pdr For Inhb/a_Symbicort 100/6(120d	0302000K0AAALAL
Gppe Pdr For Inhb/a_Symbicort 200/6(120d	0302000K0AAAMAM
Budesonide_Pdr For Inh 200mcg (100d)+dev	0302000K0AAAVAV
Budesonide_Pdr For Inh 200mcg (100d) Ref	0302000K0AAAWAW
Budesonide_Pdr For Inh 200mcg (200 D)	0302000K0AAAXAX
Pulmicort_Turbohaler 200mcg (100 D)	0302000K0BBAHAG
Pulmicort_Turbohaler 100mcg (200 D)	0302000K0BBAKAK
Symbicort_Turbohaler 100mcg/6mcg (120 D)	0302000K0BDAAAL
Symbicort_Turbohaler 200mcg/6mcg (120 D)	0302000K0BDABAM
Easyhaler_Budesonide 100mcg (200 D)	0302000K0BGAAAK
Easyhaler_Budesonide 200mcg (200 D)	0302000K0BGABAX
Duoresp Spiromax_Inh 160mcg/4.5mcg(120d)	0302000K0BHAAAM
Fluticasone Prop_Pdr For Inh 50mcg (60d)	0302000N0AAARAR
Fluticasone Prop_Pdr For Inh 100mcg(60d)	0302000N0AAASAS
Gppe Pdr For Inh_Seretide 100 (60 D)	0302000N0AAAXAX
Gppe Inha_Seretide 50 Evohaler (120d)cff	0302000N0AABEBE
Fluticasone Prop_Inha 50mcg (120 D) Cff	0302000N0AABHBH
Fluticasone/formoterol_Inh 50/5mcg 120 D	0302000N0AABLBL
Flixotide_Accuhaler 50mcg (60 D)	0302000N0BBARAR
Flixotide_Accuhaler 100mcg (60 D)	0302000N0BBASAS
Flixotide_Evohaler 50mcg (120 D)	0302000N0BBBBBH
Seretide 100_Accuhaler 100mcg/50mcg(60d)	0302000N0BCAAAX
Seretide 50_Evohaler 50mcg/25mcg (120 D)	0302000N0BCADBE
Flutiform_Inha 50/5mcg (120 D)	0302000N0BDACBL
Mometasone Fur_Pdr For Inh 200mcg (30 D)	0302000R0AAAAAA
Mometasone Fur_Pdr For Inh 200mcg (60 D)	0302000R0AAABAB

Asmanex Twisthaler_D/p Inh 200mcg (30 D)	0302000R0BBAAAA
Asmanex Twisthaler_D/p Inh 200mcg (60 D)	0302000R0BBABAB
Ciclesonide_Inh 80mcg (120 D) Cff	0302000U0AAAAAA
Alvesco 80_Inh 80mcg (120 D) Cff	0302000U0BBAAAA