



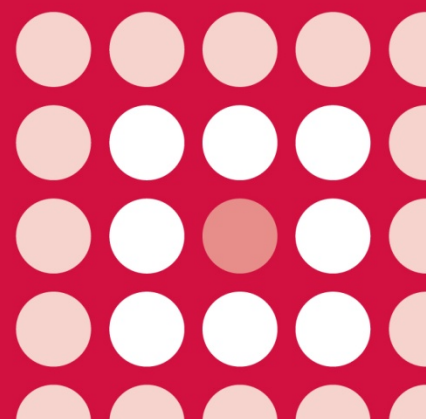
All Wales Therapeutics
and Toxicology Centre
Canolfan Therapiwteg a
Thocsicoleg Cymru Gyfan

NATIONAL PRESCRIBING INDICATORS

ANALYSIS OF ANTIBACTERIAL PRESCRIBING DATA TO MARCH 2014



October 2014



This report has been prepared by the Welsh Analytical Prescribing Support Unit (WAPSU), part of the All Wales Therapeutics and Toxicology Centre (AWTTC).

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1.0 INTRODUCTION

The All Wales Medicines Strategy Group (AWMSG) has endorsed National Prescribing Indicators (NPIs) as a means of promoting safe and cost-effective prescribing since 2003. These indicators are evidence-based and are designed to be clear and applicable at practice level, addressing both efficiency and quality.

Although NPIs are used to compare practice in primary care, the principles supporting these NPIs are applicable to all healthcare professionals working across all NHS healthcare sectors. The Welsh Analytical Prescribing Support Unit (WAPSU) currently provides quarterly reports outlining medicines usage and monitoring for all of the NPIs at health board level. In addition to these quarterly reports, WAPSU provides more detailed information on specific NPIs individualised to health board locality cluster (the term given to clusters of GP practices grouped geographically by health boards).

This report has been prepared in collaboration with the Welsh Antimicrobial Resistance Programme Surveillance Unit and provides primary care prescribing information on the four antibiotic NPIs. Total antibacterial prescribing and quinolone prescribing have been included as NPIs since 2010 (although the measures have changed in this time). Co-amoxiclav and cephalosporin prescribing have been included since 2012. The development of NPIs to monitor antibacterial prescribing supports one of the key elements of the Welsh Antimicrobial Resistance Programme: to inform, support and promote the prudent use of antimicrobials.

Although the term 'prescribing' is used in this report, the data presented represent prescriptions that have been dispensed and forwarded for pricing. It is assumed that the difference between the number of prescriptions issued and those dispensed is small, and that dispensing therefore provides an acceptable measure of prescribing.

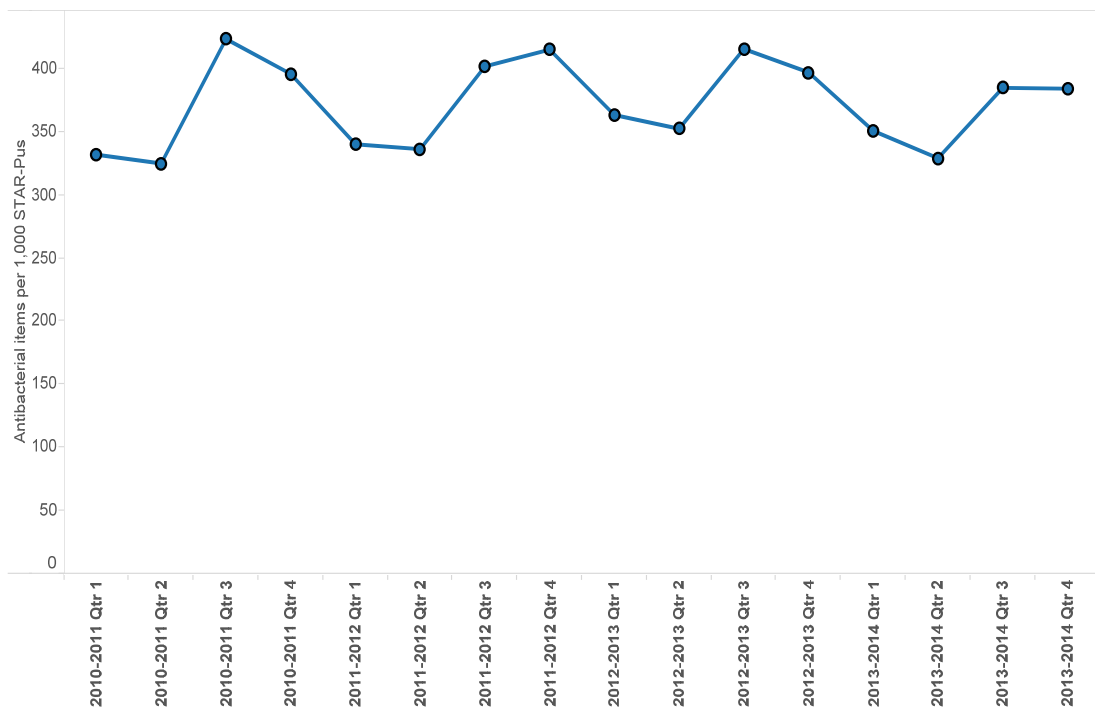
2.0 NATIONAL PRESCRIBING DATA

2.1 Total antibacterial prescribing

Unit of measurement: Total antibacterial items per 1,000 specific therapeutic age-sex related prescribing units (STAR-PU) (no target threshold set due to seasonal variation in prescribing)*

Antibiotic prescribing has always shown seasonal variation, with increased volumes in the winter as shown in Figure 1. The peaks in prescribing over the most recent winter quarters (October 2013 to March 2014) appear to be reduced compared with previous years. This is consistent with the 4.92% fall in total antibacterial items prescribed in primary care in Wales during the financial year 2013–2014, compared to 2012–2013 (2,550,702 versus 2,682,757 items respectively). This contrasts with the consistent rise in the number of prescribed items over the previous three years.

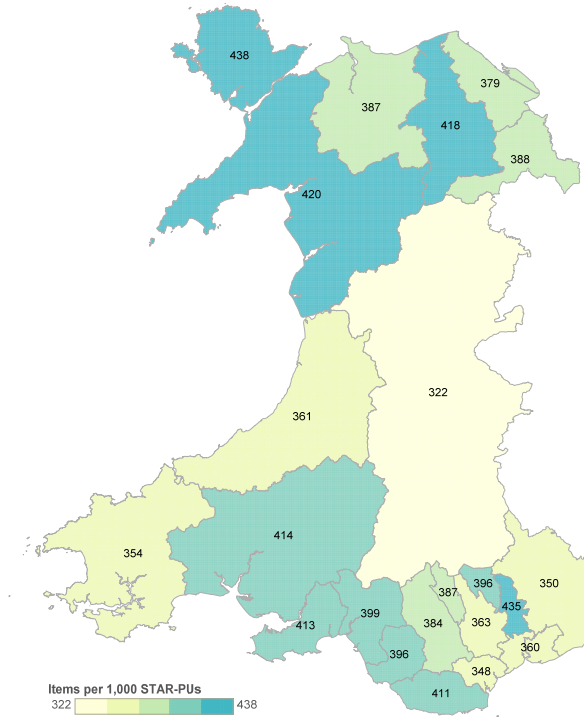
Figure 1. Trend in antibacterial prescribing



* Specific therapeutic group age-sex related prescribing units (STAR-PU) 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-PU have been developed based on costs of prescribing of items within therapeutic groups.

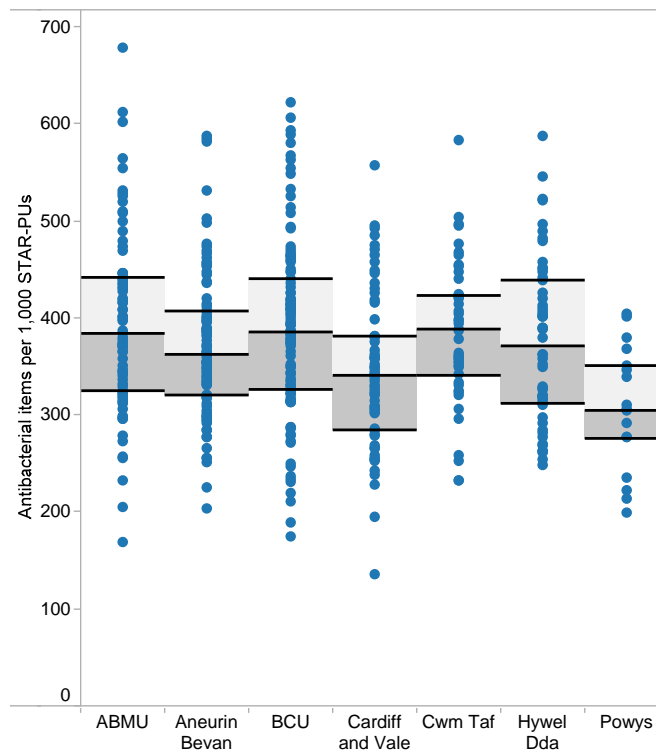
The map in Figure 2 illustrates the variation in antibacterial prescribing across the former local health board regions for the quarter ending March 2014.

Figure 2. Antibacterial prescribing – Quarter to March 2014



There is also considerable variation between practices within individual health boards as shown in Figure 3. The box and whisker plot below shows the range of prescribing within each health board. The central horizontal line represents the median value, and the outer lines represent the range of the middle 50% of practices.

Figure 3. Variation in antibacterial prescribing – Quarter to March 2014



2.2 Cephalosporins, co-amoxiclav and quinolones

Units of measurement:

Cephalosporins as a percentage of total antibacterial items with the aim of reducing prescribing towards the threshold of 2.7%

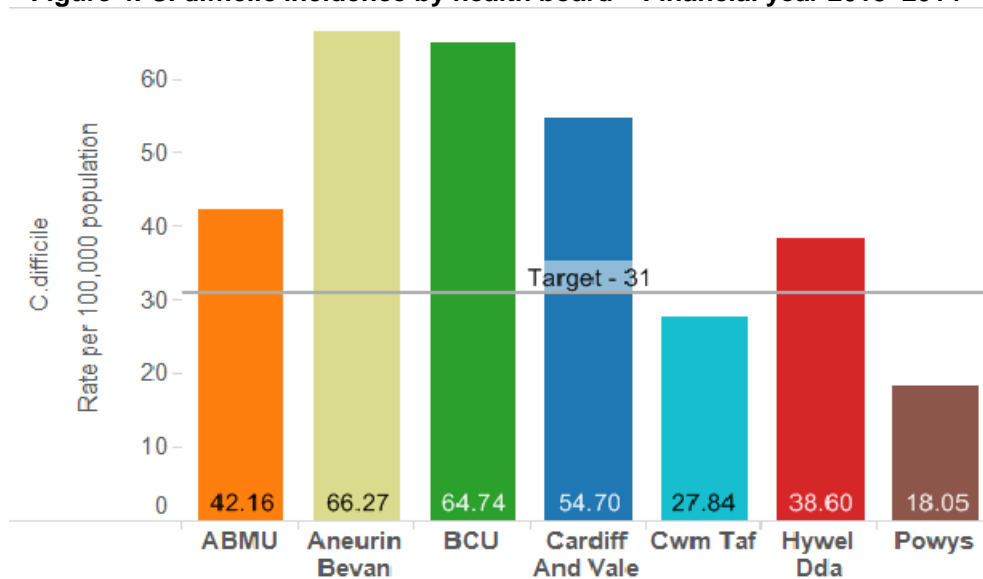
Co-amoxiclav as a percentage of total antibacterial items with the aim of reducing prescribing towards the threshold of 2.7%

Quinolones as a percentage of total antibacterial items with the aim of reducing prescribing towards the threshold of 1.4%

Cephalosporins, co-amoxiclav and quinolones are monitored as these antibiotics/groups of antibiotics increase the risk of *Clostridium difficile*, methicillin-resistant *Staphylococcus aureus* (MRSA) and resistant urinary tract infections. The Health Protection Agency states: "Use simple generic antibiotics if possible. Avoid broad spectrum antibiotics (e.g. co-amoxiclav, quinolones and cephalosporins) when narrow spectrum antibiotics remain effective"¹.

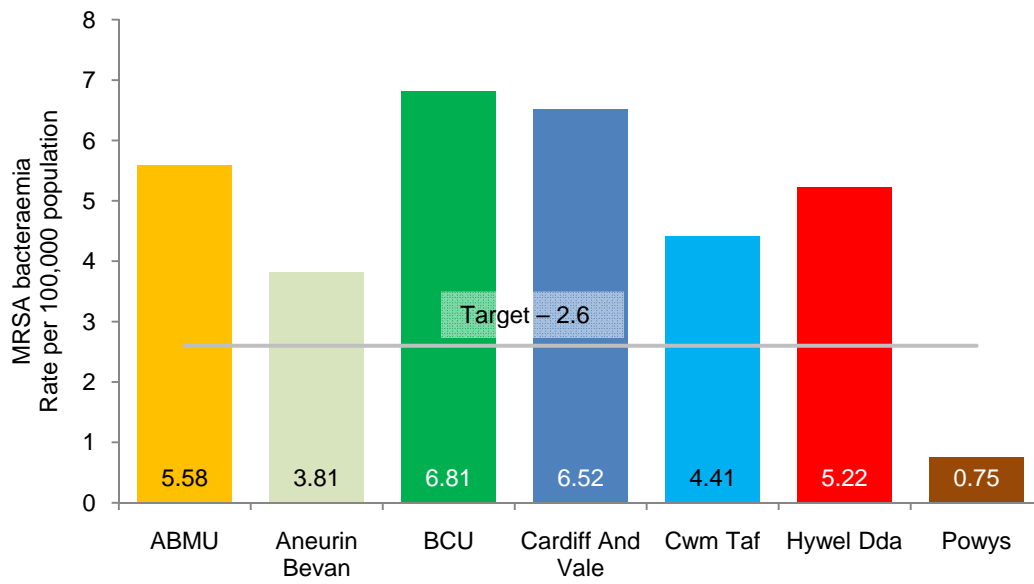
The Welsh Government has set targets for reducing *C. difficile* and MRSA bacteraemia. These targets are based on total *C. difficile* (patients aged 2 and over) and MRSA bacteraemia diagnosed in the whole health board (not only those in secondary care). To achieve the national target, each of the health boards is required to reduce rates to no more than 31 per 100,000 population for *C. difficile* cases, and 2.6 per 100,000 population for MRSA bacteraemias².

Figure 4. *C. difficile* incidence by health board – Financial year 2013–2014[†]



[†]Data from Welsh Healthcare Associated Infection Programme, available at: www.wales.nhs.uk/sites3/page.cfm?orgId=379&pid=23913 accessed August 2014.

Figure 5. MRSA bacteraemia incidence by health board – Financial year 2013–2014[‡]



[‡]Data from Welsh Healthcare Associated Infection Programme, available at: www.wales.nhs.uk/sites3/page.cfm?orgId=379&pid=23913 accessed August 2014.

Figure 6 shows the trend in prescribing of each of the antibiotics or groups of antibiotics that are monitored as a percentage of total antibacterial items. The three proportional NPIs (cephalosporins, co-amoxiclav and quinolones) should be viewed alongside total antibacterial prescribing, as high total prescribing may mask high prescribing of a particular group of antibacterials. As seen from the graph, both proportional usage and overall prescribing of these antibiotics has fallen over recent years.

Figure 6. Trend in cephalosporin, co-amoxiclav and quinolone prescribing

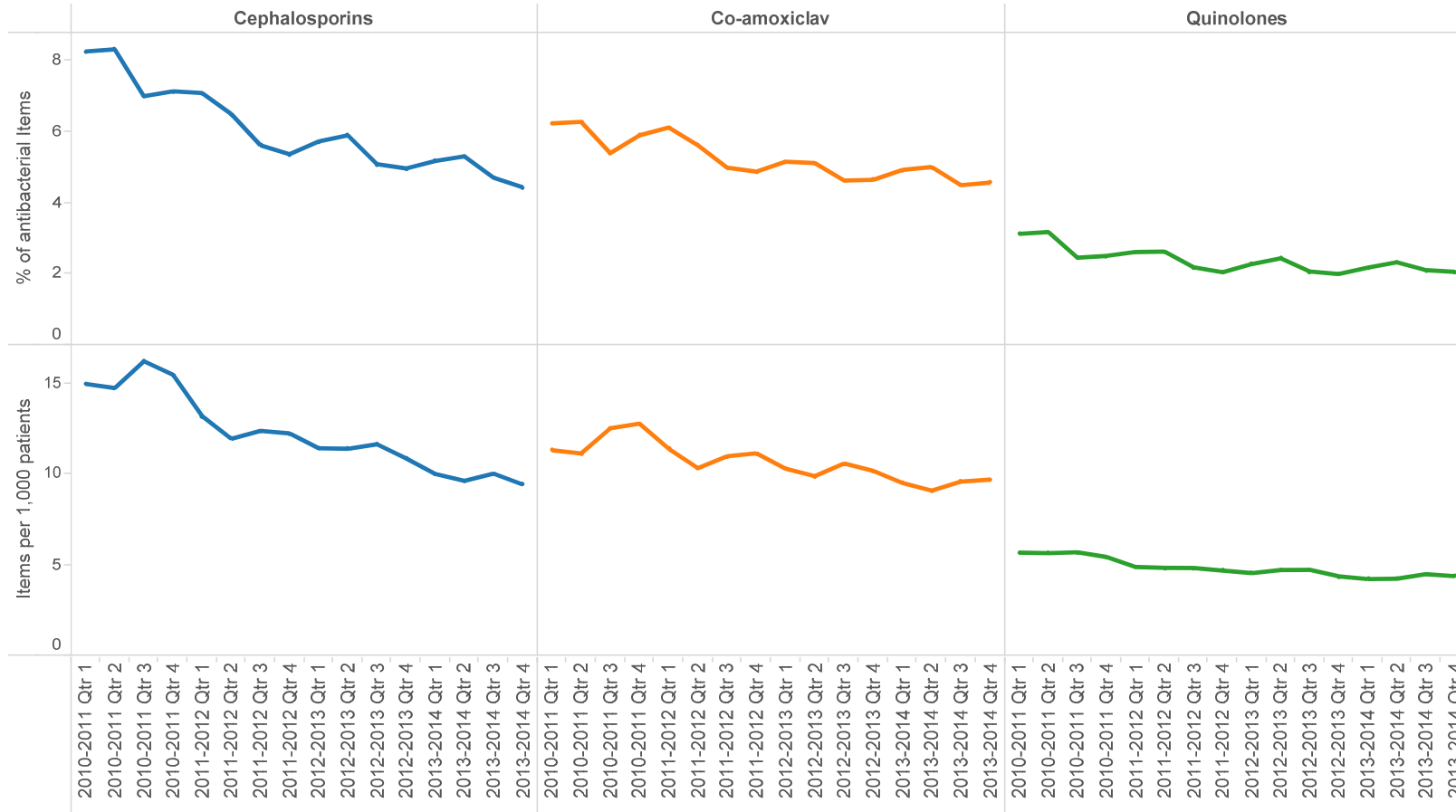
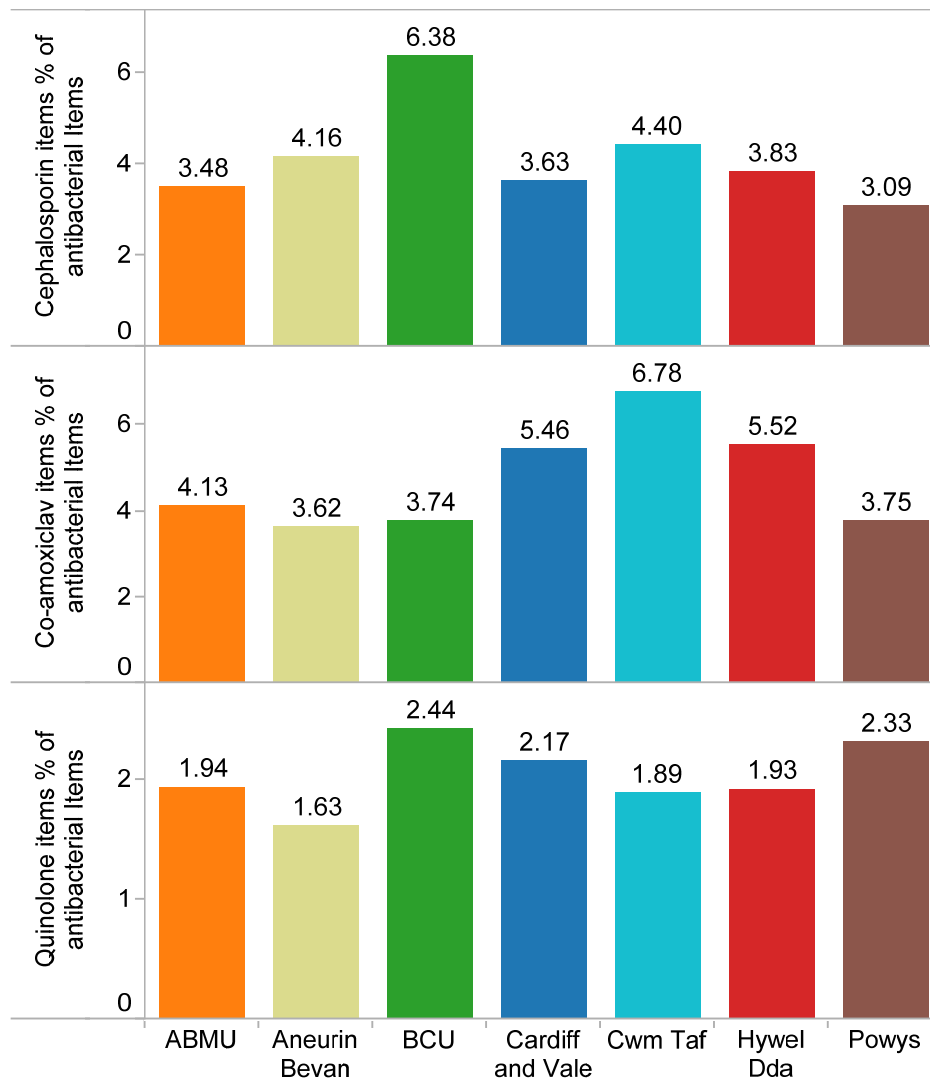


Figure 7 shows the proportional prescribing of each of the antibiotics or groups of antibiotics for each health board during 2013–2014.

It should be noted that neither proportional usage nor usage measured as DDDs per 1,000 patients necessarily correlate with the incidence of *C. difficile* shown in Figure 4 (Spearman $r = 0.0$; $p = 1.0$ and $r = 0.07$; $p = 0.9$ respectively) or the incidence of MRSA bacteraemias shown in Figure 5 (Spearman $r = 0.54$; $p = 0.24$ and $r = 0.61$; $p = 0.17$ respectively). One of the reasons for this is that the prescribing data shown below are specific to primary care, whereas the incidence of *C. difficile* and MRSA cases reflect both primary and secondary care reporting.

Figure 7. Proportional prescribing of cephalosporins, co-amoxiclav and quinolones by health board – Quarter ending March 2014



Figures 8, 9 and 10 show the trend in the proportional prescribing (prescribing of each of the antibiotics or groups of antibiotics as a percentage of total antibiotic prescribing) for each health board. The graphs show reductions in the proportional prescribing for all of the health boards over time.

Figure 8. Trend in proportional prescribing of cephalosporins

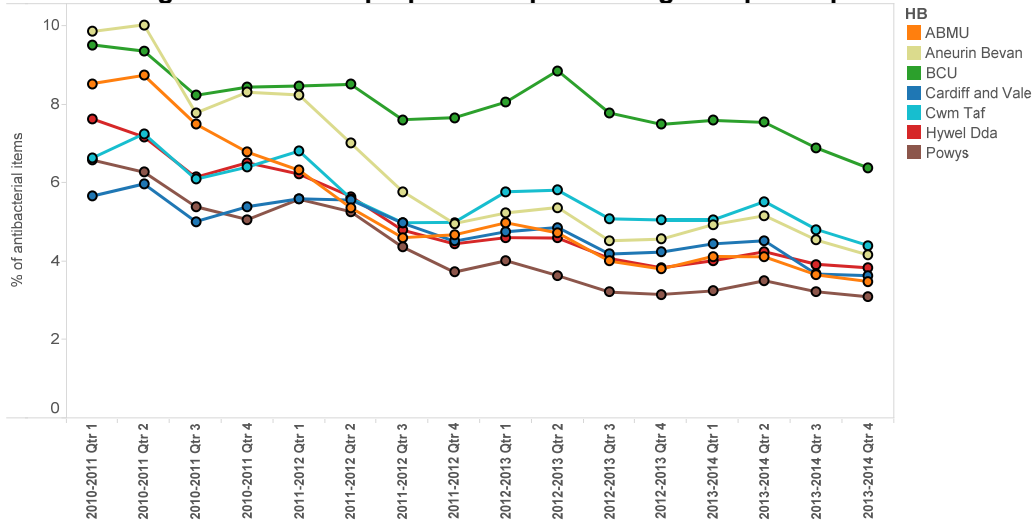


Figure 9. Trend in proportional prescribing of co-amoxiclav

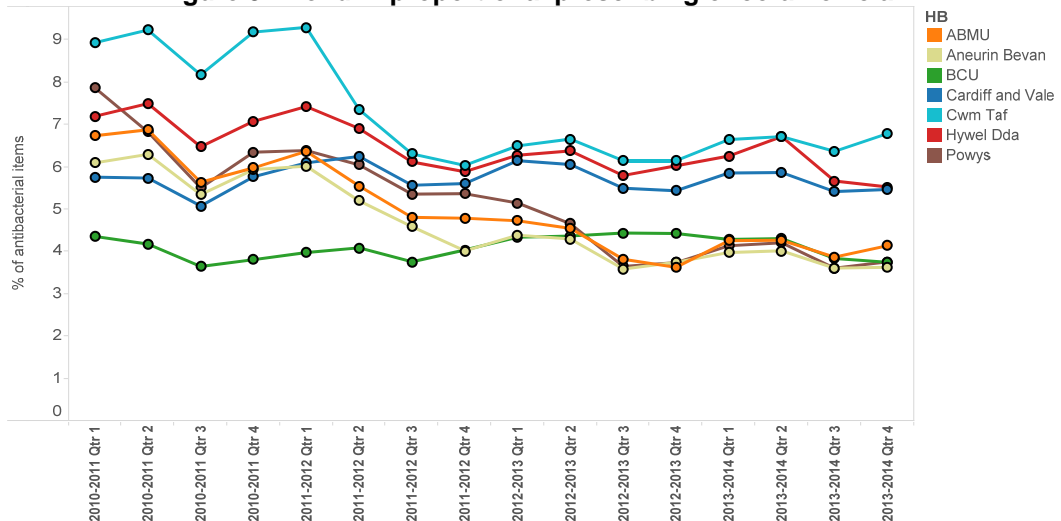
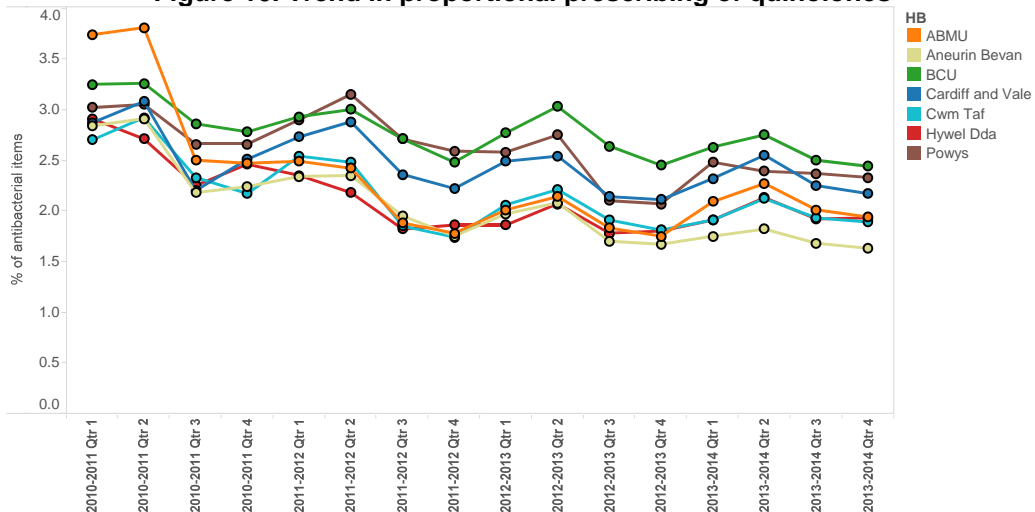


Figure 10. Trend in proportional prescribing of quinolones



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- 1 Health Protection Agency. Management of Infection Guidance for Primary Care for Consultation and Local Adaptation. 2014. Available at: http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1279888711402. Accessed Aug 2014.
- 2 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 Aug 2014.