



AWTTC

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

National Prescribing Indicators 2018–2019

Analysis of Prescribing Data to December 2018

The table summarising target/threshold achievement (page 5) was amended on 17 May 2019





All Wales Therapeutics and Toxicology Centre

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

Please direct any queries to AWTTC:

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

awttc@wales.nhs.uk
029 2071 6900

EXECUTIVE SUMMARY

The All Wales Medicines Strategy Group (AWMSG) has endorsed the National Prescribing Indicators (NPIs) as a means of promoting safe and cost-effective prescribing since 2003. NPIs for 2018–2019 include indicators for primary and secondary care, and have been categorised as safety, stewardship or efficiency indicators.

Background information supporting the choice of NPIs is detailed in the document [National Prescribing Indicators 2018–2019](#).

This report contains data relating to the NPIs for the third quarter of 2018–2019. Unit of measure and targets for each NPI are included in Appendix 1 and primary care NPI prescribing data for GP clusters is presented in Appendix 2.

SAFETY INDICATORS

For 2018–2019 there are four safety NPIs:

- The Prescribing Safety Indicators in primary care are new for 2018–2019; no targets have been set for these indicators.
- Hypnotics and anxiolytics prescribing (ADQs per 1,000 STAR-PUs) in primary care decreased by 6.15% across Wales, compared with the equivalent quarter of the previous year.
- Analgesics in primary care:
 - Tramadol prescribing (DDD per 1,000 patients) decreased by 8.68% across Wales, compared with the equivalent quarter of the previous year.
 - Opioid patch prescribing (as a percentage of all opioid prescribing) decreased by 3.35% across Wales, compared with the equivalent quarter of the previous year.
 - Gabapentin and pregabalin prescribing (DDD per 1,000 patients) increased by 6.59% across Wales, compared with the equivalent quarter of the previous year, despite the aim of the indicator being to reduce prescribing.
- Yellow Card reporting. Annual targets have been set for these indicators, with the aim of increasing the number of Yellow Card reports submitted. Quarter three data demonstrates:
 - A 5% decrease in reporting by GP practices across Wales, compared with the equivalent quarter of the previous year.
 - A 41% increase in secondary care reporting across Wales, compared with the equivalent quarter of the previous year.
 - An 11% increase in reporting by health boards / NHS Trusts across Wales, compared with the equivalent quarter of the previous year.
 - A 69% increase in reporting by members of the public across Wales, compared with the equivalent quarter of the previous year.
 - The figures for Yellow Cards submitted by community pharmacy are also included in the report; however, targets have not been set.

STEWARDSHIP INDICATORS

Stewardship indicators for 2018–2019 focus on antimicrobial prescribing in primary and secondary care, with the aim of reducing inappropriate prescribing and variation in primary care, and encouraging appropriate antimicrobial prophylaxis for colorectal surgical patients in secondary care. Specific targets have been set for these indicators, either at health board or GP practice level:

- Total antibacterial prescribing (items per 1,000 STAR-PUs) in primary care decreased by 10.9%, compared with the equivalent quarter of 2016–2017. All seven health boards achieved the target of a 5% reduction against the baseline of quarter 3 2016–2017.
- 4C (co-amoxiclav, cephalosporins, fluoroquinolones and clindamycin) antimicrobial prescribing in primary care includes two measures which should be considered together:
 - The number of 4C items prescribed per 1,000 patients decreased across Wales by 15.8%, compared with the baseline of quarter 3 2016–2017.
 - The number of 4C items prescribed as a percentage of total antibacterial items decreased across Wales by 5.94%, compared with the baseline of quarter 3 2016–2017.
- The proportion of elective colorectal patients receiving a single dose antimicrobial for surgical prophylaxis in secondary care: one health board achieved the target of an absolute measure of $\geq 90\%$, or a proportional increase of 20%, compared with the equivalent quarter of 2017–2018.

EFFICIENCY INDICATORS

There are three efficiency indicators for 2018–2019, covering primary and secondary care:

- Proton pump inhibitor (PPI) prescribing (DDDs per 1,000 PUs) in primary care, which aims to encourage appropriate use of PPIs, decreased by 1.95% across Wales, compared with the equivalent quarter of the previous year.
- Long-acting insulin analogue prescribing as a percentage of total long- and intermediate-acting insulin decreased in both secondary and primary care compared with the equivalent quarter of the previous year, in line with the aim of the NPI.
- There was an increase in the overall use of four of the five biosimilar medicines being monitored (infliximab, etanercept, rituximab and trastuzumab) compared with the equivalent quarter of the previous year, in line with the aim of the NPI. There was no adalimumab prescribing as at December 2018.

The 2018–2019 NPI report for quarter ending March 2019 will be available on 26th July 2019.



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CONTENTS

HEALTH BOARDS/PRACTICES ACHIEVING INDICATOR TARGETS/THRESHOLDS.....	5
SAFETY INDICATORS	6
1.0 PRESCRIBING SAFETY INDICATORS.....	6
2.0 HYPNOTICS AND ANXIOLYTICS	8
3.0 ANALGESICS.....	8
3.1 Tramadol.....	9
3.2 Opioid patches	9
3.3 Gabapentin and pregabalin	11
4.0 YELLOW CARD REPORTING.....	12
STEWARDSHIP INDICATORS	15
5.0 ANTIMICROBIAL STEWARDSHIP	15
5.1 Total antibacterial items.....	15
5.2 4C antimicrobials.....	16
5.3 Prophylaxis in colorectal surgery	18
EFFICIENCY INDICATORS	19
6.0 PROTON PUMP INHIBITORS.....	19
7.0 INSULIN	20
8.0 BIOSIMILARS.....	23
2.1 Infliximab.....	24

2.2 Etanercept.....	25
2.3 Rituximab	26
2.4 Trastuzumab	27
2.5 Adalimumab	28
2.6 Total biosimilar usage	29
CAUTION WITH INTERPRETING NPI MONITORING DATA.....	30
GLOSSARY	31
APPENDIX 1. AWMSG NATIONAL PRESCRIBING INDICATORS 2018–2019	32
APPENDIX 2. PRIMARY CARE NPI PRESCRIBING BY GP CLUSTER	34

HEALTH BOARDS/PRACTICES ACHIEVING INDICATOR TARGETS/THRESHOLDS

The table below shows the extent to which practices in each health board met the target or indicator thresholds:

- The figure in the cell is the number of practices in each health board meeting the target or indicator threshold.
- The percentage figure and cell colour represent the proportion of practices in each health board meeting the target or indicator threshold.

The targets for antibacterial items per 1,000 STAR-PU's and prophylactic antibiotics in colorectal surgery are by health board, therefore a tick demonstrates achievement.

Health boards/practices achieving the indicator targets/thresholds – Quarter ending December 2018

Indicator Description	Abertawe Bro Morgannwg UHB	Aneurin Bevan UHB	Betsi Cadwaladr UHB	Cardiff And Vale UHB	Cwm Taf UHB	Hywel Dda UHB	Powys Teaching HB
Hypnotic and anxiolytic ADQs per 1,000 STAR-PU's	15 22%	22 28%	24 23%	34 54%	9 23%	6 12%	8 47%
Tramadol DDDs per 1,000 patients	10 15%	25 32%	29 27%	31 49%	3 8%	15 29%	9 53%
Opioid patch items as percentage of all opioid prescribing	43 63%	15 19%	31 29%	24 38%	4 10%	3 6%	1 6%
Gabapentin and pregabalin DDDs per 1,000 patients	8 12%	4 5%	16 15%	33 52%	1 3%	13 25%	5 29%
Antibacterial items per 1,000 STAR-PU's	✓	✓	✓	✓	✓	✓	✓
4C antibacterials items per 1,000 patients	29 43%	60 76%	69 65%	39 62%	23 58%	31 61%	9 53%
4C antibacterial items as a percentage of all antimicrobials	37 54%	65 82%	48 45%	45 71%	16 40%	19 37%	9 53%
Proportion of elective colorectal patients receiving a single dose antimicrobial for surgical prophylaxis	✗	✗	✗	✗	✗	✓	—
Proton pump inhibitor DDDs per 1,000 PUs	15 22%	14 18%	27 25%	34 54%	8 20%	16 31%	3 18%

Percentage of practices meeting threshold



SAFETY INDICATORS

1.0 PRESCRIBING SAFETY INDICATORS

Purpose: To identify patients at high risk of adverse drug reactions (ADRs) and medicines-related harm in primary care.

Units of measure:

1. Number of patients with a peptic ulcer who have been prescribed NSAIDs without a PPI, as a percentage of all patients.
2. Number of patients with asthma who have been prescribed a beta-blocker, as a percentage of all patients.
3. Number of patients with concurrent prescriptions of verapamil and a beta-blocker, as a percentage of all patients.
4. Number of female patients with a past medical history of venous or arterial thrombosis who have been prescribed combined hormonal contraceptives, as a percentage of all female patients.
5. Number of female patients with a current prescription of oestrogen-only hormone replacement therapy without any hysterectomy READ/SNOMED codes, as a percentage of all female patients.
6. Number of patients with concurrent prescriptions of warfarin and an oral NSAID, as a percentage of all patients.
7. Number of patients under 12 with a current prescription of aspirin, as a percentage of all patients.
8. Number of patients aged 65 years or over prescribed an NSAID plus aspirin and/or clopidogrel but without gastroprotection (PPI or H₂ receptor antagonist), as a percentage of all patients aged 65 years or over.
9. Number of patients aged 65 years or over prescribed an antipsychotic, as a percentage of all patients aged 65 years or over.
10. Number of patients aged 75 and over with an Anticholinergic Effect on Cognition (AEC) score of 3 or more for items on active repeat, as a percentage of all patients aged 75 and over.
11. Number of patients on the CKD register (CKD stage 3–5) who have received a repeat prescription for an NSAID within the last 3 months, as a percentage of all patients on the CKD register.
12. Number of patients who are not on the CKD register but have an eGFR of < 59 ml/min and have received a repeat prescription for an NSAID within the last 3 months, as a percentage of all patients who are not on the CKD register but have an eGFR of < 59 ml/min.

Aim: To review patients identified as being at high risk of ADRs and reduce inappropriate prescribing.

In the UK, it is estimated that around 6.5% of hospital admissions are related to adverse drug reactions (ADRs). ADRs can often be predictable, making it possible to identify potential causes and address them before actual patient harm occurs. This new NPI for 2018–2019 provides a process of identifying patients electronically, enabling intervention and helping to avoid patient harm.

No target has been set for this NPI; however, data can provide a baseline for future quarters.

Table 1. Prescribing Safety Indicators – First three quarters of 2018–2019

Indicator Description		Abertawe Bro Morgannwg UHB	Aneurin Bevan UHB	Betsi Cadwaladr UHB	Cardiff and Vale UHB	Cwm Taf UHB	Hywel Dda UHB	Powys Teaching HB
01) Number of patients with a peptic ulcer who have been prescribed NSAIDs without a PPI, as a percentage of all patients	Percentage 0.02 0.01 0.00							
02) Number of patients with asthma who have been prescribed a beta-blocker, as a percentage of all patients	Percentage 0.3 0.2 0.1 0.0							
03) Number of patients with concurrent prescriptions of verapamil and a beta-blocker, as a percentage of all patients	Percentage 0.008 0.006 0.004 0.002							
04) Number of female patients with a past medical history of venous or arterial thrombosis who have been prescribed combined hormonal contraceptives, as a percentage of all female patients	Percentage 0.010 0.005 0.000							
05) Number of female patients with a current prescription of oestrogen-only hormone replacement therapy without any hysterectomy READ/SNOMED codes, as a percentage of all female patients	Percentage 0.3 0.2 0.1 0.0							
06) Number of patients with concurrent prescriptions of warfarin and an oral NSAID, as a percentage of all patients	Percentage 0.015 0.010 0.005 0.000							
07) Number of patients under 12 with a current prescription of aspirin, as a percentage of all patients	Percentage 0.004 0.002 0.000							
08) Number of patients aged 65 years or over prescribed an NSAID plus aspirin and/or clopidogrel but without gastroprotection (PPI or H2 receptor antagonist), as a percentage of all patients aged 65 years or over	Percentage 0.2 0.1 0.0							
09) Number of patients aged 65 years or over prescribed an antipsychotic, as a percentage of all patients aged 65 years or over	Percentage 1.5 1.0 0.5							
10) Number of patients aged 75 and over with an Anticholinergic Effect on Cognition (AEC) score of 3 or more for items on active repeat, as a percentage of all patients aged 75 and over	Percentage 8 6 4 2							
11) Number of patients on the CKD register (CKD stage 3–5) who have received a repeat prescription for an NSAID within the last 3 months, as a percentage of all patients on the CKD register	Percentage 3 2 1 0							
12) Number of patients who are not on the CKD register but have an eGFR of < 59 ml/min and have received a repeat prescription for an NSAID within the last 3 months, as a percentage of all patients who are not on the CKD register but have an eGFR of < 59 ml/min	Percentage 3 2 1							
		Q1 Q2 Q3	Q1 Q2 Q3	Q1 Q2 Q3	Q1 Q2 Q3	Q1 Q2 Q3	Q1 Q2 Q3	Q1 Q2 Q3

2.0 HYPNOTICS AND ANXIOLYTICS

Purpose: To encourage a reduction in the inappropriate prescribing of hypnotics and anxiolytics in primary care.

Unit of measure: Hypnotic and anxiolytic ADQs per 1,000 STAR-PUs.

Aim: To reduce prescribing

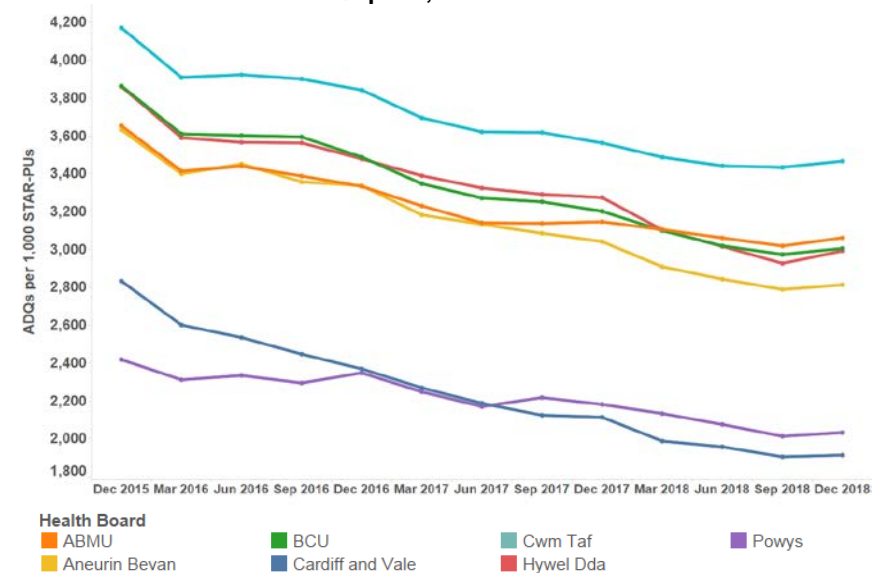
There has been ongoing concern with regard to the high level of hypnotic and anxiolytic prescribing in NHS Wales. Some prescribing may be inappropriate and contribute to the problem of physical and psychological dependence, and/or may be responsible for masking underlying depression.

- Across Wales, the prescribing of hypnotics and anxiolytics decreased by 6.15% for the quarter ending December 2018 compared with the equivalent quarter of the previous year, in line with the aim of this indicator.
- For the quarter ending December 2018, hypnotic and anxiolytic prescribing ranged from 1,914 to 3,467 ADQs per 1,000 STAR-PUs across the health boards.
- The health board with the lowest prescribing was Cardiff and Vale UHB, whilst the highest prescribing was seen in Cwm Taf UHB.
- Hypnotic and anxiolytic prescribing decreased compared with the equivalent quarter of the previous year in all of the health boards.
- The largest percentage decrease was seen in Cardiff and Vale UHB, and the smallest percentage decreases were seen in Abertawe Bro Morgannwg and Cwm Taf UHB.

Table 2. Hypnotic and anxiolytic ADQs per 1,000 STAR-PUs

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Cardiff and Vale	2,114	1,914	-9.47%
Hywel Dda	3,274	2,992	-8.61%
Aneurin Bevan	3,042	2,814	-7.49%
Powys	2,182	2,033	-6.81%
Betsi Cadwaladr	3,202	3,006	-6.13%
Abertawe Bro Morgannwg	3,146	3,062	-2.70%
Cwm Taf	3,563	3,467	-2.70%
Wales	3,006	2,821	-6.15%

Figure 1. Trend in hypnotic and anxiolytic prescribing ADQs per 1,000 STAR-PUs



3.0 ANALGESICS

There are three NPIs monitoring the usage of medicines used for the treatment of pain for 2018–2019:

1. Tramadol
2. Opioid patches
3. Gabapentin and pregabalin

3.1 Tramadol

Purpose: To encourage the appropriate use and review of tramadol in primary care, minimising the potential dependence, diversion, misuse and ADRs.

Unit of measure: Tramadol DDDs per 1,000 patients.

Aim: To reduce prescribing

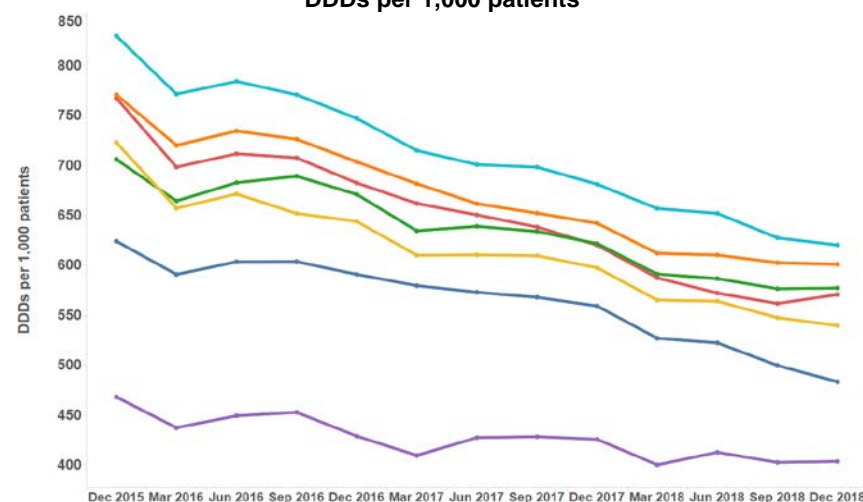
Whilst there is a recognised place in pain management for tramadol, there are concerns regarding the risks associated with dependence, diversion, misuse and ADRs. This NPI promotes a prudent approach to prescribing tramadol, taking into account the risks and benefits, and encouraging timely review.

- Across Wales, prescribing of tramadol was 8.68% lower in the quarter ending December 2018, than in the equivalent quarter of the previous year. This is in line with the aim of the indicator.
- For the quarter ending December 2018, tramadol prescribing ranged from 404 to 620 DDDs per 1,000 patients across the health boards.
- The health board with the lowest prescribing was Powys Teaching HB, whilst the highest prescribing was seen in Cwm Taf UHB.
- Tramadol prescribing decreased compared with the equivalent quarter of the previous year in all of the health boards.
- The largest percentage decrease was seen in Cardiff and Vale UHB, and the smallest percentage decrease was seen in Powys Teaching HB.

Table 3. Tramadol DDDs per 1,000 patients

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Cardiff and Vale	559	483	-13.6%
Aneurin Bevan	598	540	-9.69%
Cwm Taf	681	620	-8.96%
Hywel Dda	620	571	-7.96%
Betsi Cadwaladr	622	577	-7.16%
Abertawe Bro Morgannwg	642	601	-6.40%
Powys	426	404	-5.20%
Wales	608	555	-8.68%

Figure 2. Trend in tramadol prescribing DDDs per 1,000 patients



Health Board

- ABMU
- Aneurin Bevan
- BCU
- Cardiff and Vale
- Cwm Taf
- Hywel Dda
- Powys

3.2 Opioid patches

Purpose: To encourage the appropriate use and review of opioid patches in primary care, minimising the potential for diversion, misuse and ADRs.

Unit of measure: Opioid patch items as a percentage of all opioid prescribing.

Aim: To reduce prescribing

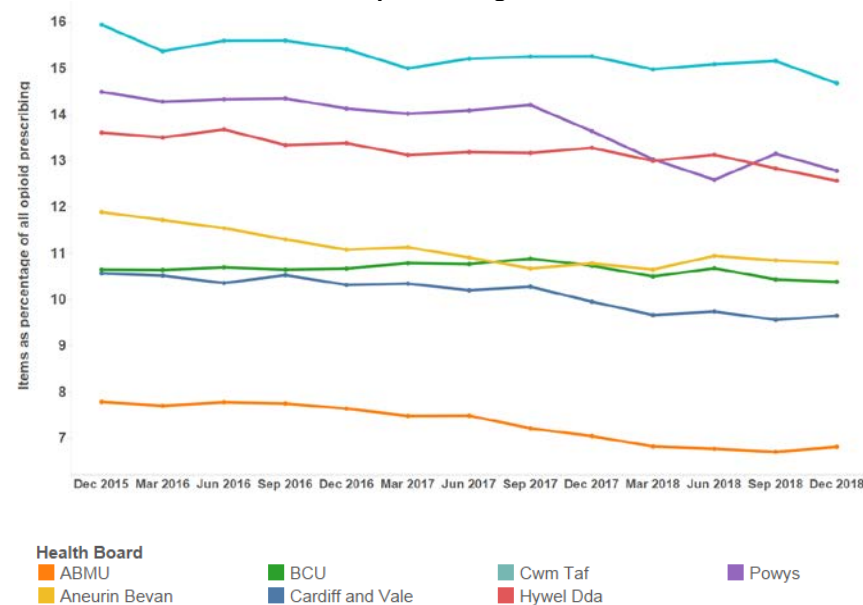
Opioid patches are recommended as a treatment option only where analgesic requirements are stable and where oral opioids are unsuitable. Prescribers should make evidence-based, informed decisions based on the individual needs of the patient. Prescribers should ensure that when an opioid patch is indicated, the patch with the lowest acquisition cost is initiated.

- Across Wales, use of opioid patches as a percentage of all opioid prescribing was 3.35% lower in the quarter ending December 2018 than in the equivalent quarter of the previous year. This is in line with the aim of the indicator.
- For the quarter ending December 2018, the proportion of opioid patch prescribing ranged from 6.81% to 14.7%.
- The health board with the lowest proportion was Abertawe Bro Morgannwg UHB, whilst the highest proportion was seen in Cwm Taf UHB.
- The proportion of opioid patches prescribed decreased compared with the equivalent quarter of the previous year in six out of the seven health boards.
- The largest percentage decrease was seen in Powys Teaching HB. Aneurin Bevan UHB demonstrated a small increase in prescribing.

Table 4. Opioid patch items as a percentage of all opioid prescribing

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Powys	13.6	12.8	-6.28%
Hywel Dda	13.3	12.6	-5.35%
Cwm Taf	15.3	14.7	-3.83%
Abertawe Bro Morgannwg	7.05	6.81	-3.29%
Betsi Cadwaladr	10.7	10.4	-3.27%
Cardiff and Vale	9.95	9.65	-3.08%
Aneurin Bevan	10.8	10.8	0.09%
Wales	11.0	10.6	-3.35%

Figure 3. Trend in opioid patch items as a percentage of all opioid prescribing



3.3 Gabapentin and pregabalin

Purpose: To encourage the appropriate use and review of gabapentin and pregabalin, minimising the potential for dependence, diversion, misuse and ADRs.

Unit of measure: Gabapentin and pregabalin DDDs per 1,000 patients.

Aim: To reduce prescribing

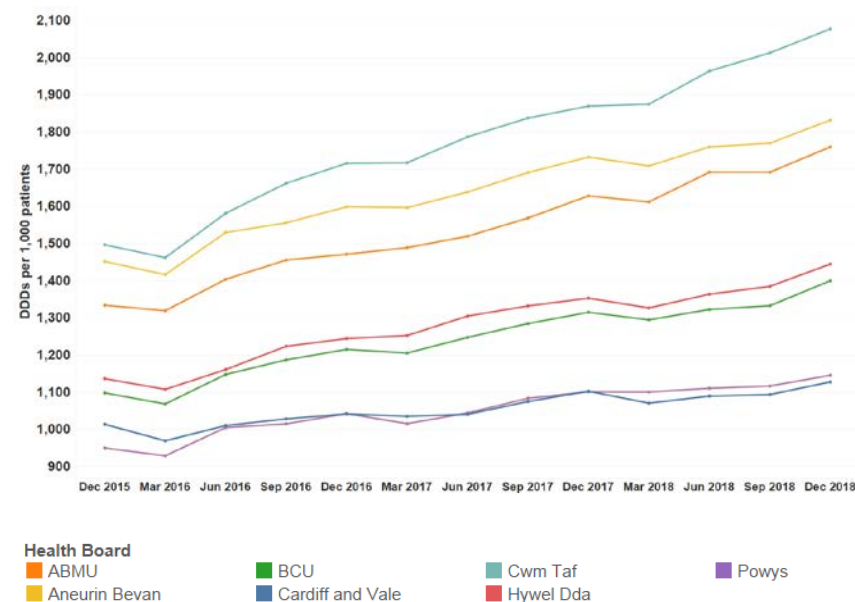
Gabapentin and pregabalin have a well-defined role in the management of a number of conditions including epilepsy and neuropathic pain, and pregabalin also has a role in treatment of generalised anxiety disorder. Both gabapentin and pregabalin have known psychiatric side effects and there is a potential risk of dependence, diversion, misuse and ADRs. Prescribers should make evidence-based, informed decisions on whether to prescribe, taking into account the risks and benefits of these medicines.

- Across Wales, for the quarter ending December 2018, prescribing of gabapentin and pregabalin increased by 6.59% compared with the same quarter of the previous year.
- For the quarter ending December 2018, gabapentin and pregabalin prescribing ranged from 1,128 to 2,077 DDDs per 1,000 patients across the health boards.
- The health board with the lowest prescribing was Cardiff and Vale UHB, whilst the highest prescribing was seen in Cwm Taf UHB.
- Gabapentin and pregabalin prescribing increased compared with the equivalent quarter of the previous year in all of the health boards.
- The smallest percentage increase was seen in Cardiff and Vale UHB and the largest percentage increase was seen in Cwm Taf UHB.

Table 5. Gabapentin and pregabalin DDDs per 1,000 patients

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Cardiff and Vale	1,103	1,128	2.25%
Powys	1,102	1,146	4.02%
Aneurin Bevan	1,733	1,832	5.70%
Betsi Cadwaladr	1,315	1,400	6.43%
Hywel Dda	1,353	1,445	6.77%
Abertawe Bro Morgannwg	1,628	1,760	8.07%
Cwm Taf	1,870	2,077	11.1%
Wales	1,462	1,558	6.59%

Figure 4. Trend in gabapentin and pregabalin prescribing DDDs per 1,000 patients



4.0 YELLOW CARD REPORTING

Purpose: To encourage an increase in the number of Yellow Cards submitted in Wales.

Unit of measure: Number of Yellow Cards submitted per GP practice, per hospital, per health board and by members of the public.
Number of Yellow Cards submitted by community pharmacies, by health board.

Aim: To increase reporting

The Yellow Card Scheme is vital in helping the Medicines and Healthcare products Regulatory Agency (MHRA) monitor the safety of medicines and vaccines that are on the market.

Yellow Card reporting supports the identification and collation of ADRs, which might not have been known about before.

A strong safety culture requires good reporting of adverse events and critical incidents from across all professions and healthcare settings, as well as from patients.

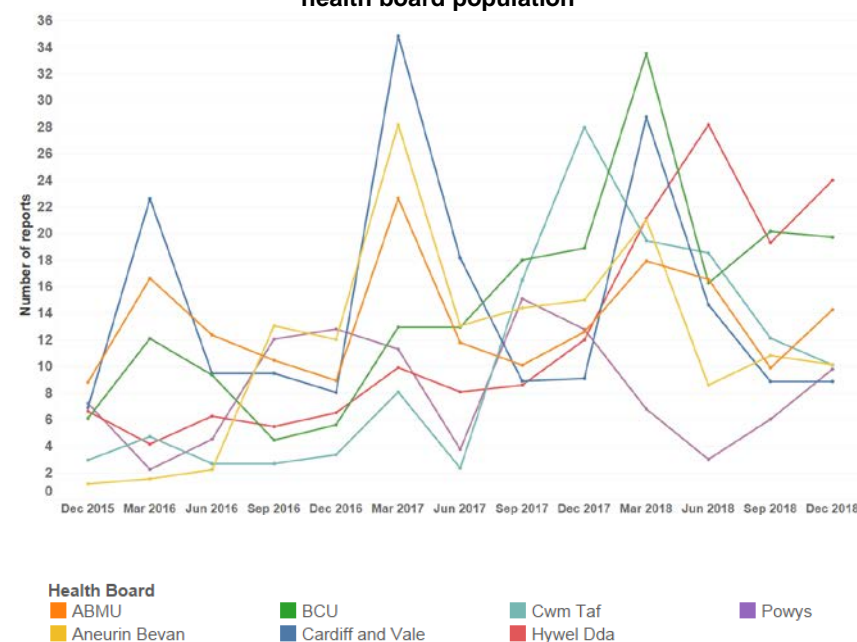
GP practices

- The number of Yellow Cards submitted by GP practices in Wales decreased by 5% compared with the equivalent quarter of the previous year.
- The largest percentage increase in GP practice Yellow Card reporting was seen in Hywel Dda UHB. The largest percentage decrease was seen in Cwm Taf UHB.

Table 6. Number of Yellow Cards submitted by GP practices

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Hywel Dda	46	92	100%
Abertawe Bro Morgannwg	66	75	14%
Betsi Cadwaladr	131	137	5%
Cardiff and Vale	44	43	-2%
Powys	17	13	-24%
Aneurin Bevan	87	59	-32%
Cwm Taf	83	30	-64%
Wales	474	449	-5%

Figure 5. Number of Yellow Cards submitted by GP practices per 100,000 health board population



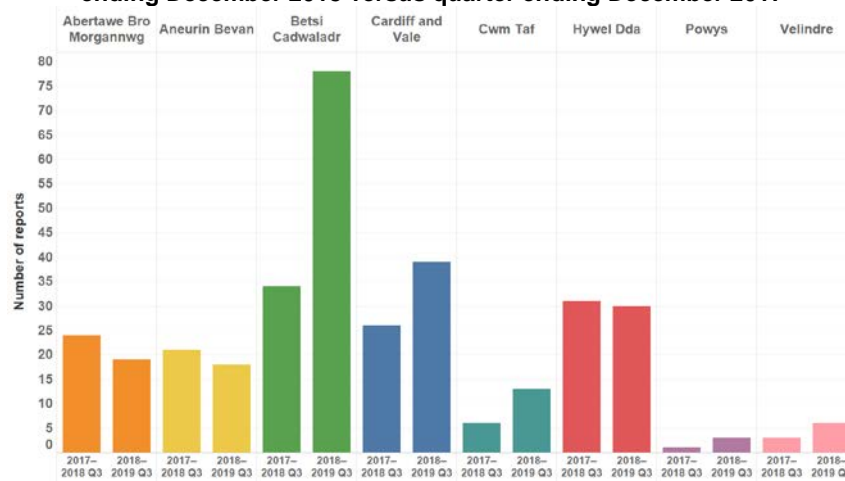
Secondary care

- The number of Yellow Cards submitted by secondary care increased by 41% compared with the equivalent quarter of the previous year.
- The largest percentage increase in secondary care reporting was seen in Powys Teaching HB. The largest percentage decrease was seen in Abertawe Bro Morgannwg UHB.

Table 7. Number of Yellow Cards submitted by secondary care

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Powys	1	3	200%
Betsi Cadwaladr	34	78	129%
Cwm Taf	6	13	117%
Velindre	3	6	100%
Cardiff and Vale	26	39	50%
Hywel Dda	31	30	-3%
Aneurin Bevan	21	18	-14%
Abertawe Bro Morgannwg	24	19	-21%
Wales	146	206	41%

Figure 6. Number of Yellow Cards submitted by secondary care – Quarter ending December 2018 versus quarter ending December 2017



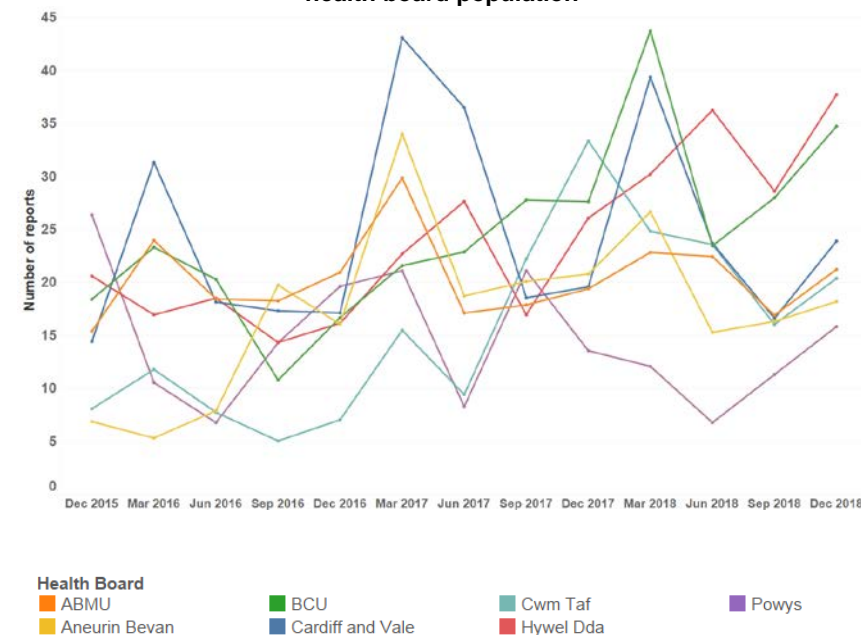
Health boards

- The number of Yellow Cards submitted by health boards increased by 11% compared with the equivalent quarter of the previous year.
- The largest percentage increase in health board reporting was seen in Velindre NHS Trust. The largest percentage decrease was seen in Cwm Taf UHB.

Table 8. Number of Yellow Cards submitted by health board/NHS Trust

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Velindre	3	6	100%
Hywel Dda	100	145	45%
Betsi Cadwaladr	192	242	26%
Cardiff and Vale	95	118	24%
Powys	18	21	17%
Abertawe Bro Morgannwg	102	113	11%
Aneurin Bevan	121	107	-12%
Cwm Taf	99	61	-38%
Wales	730	813	11%

Figure 7. Number of Yellow Cards submitted by health boards per 100,000 health board population



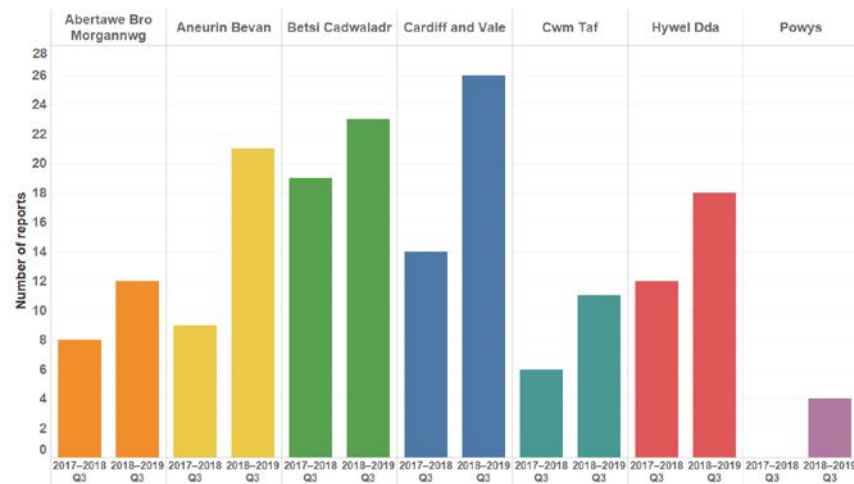
Members of the public

- The number of Yellow Cards submitted by members of the public increased by 69% compared with the equivalent quarter of the previous year.
- The largest percentage increase in member of the public reporting was seen in Aneurin Bevan UHB. The smallest percentage increase was seen in Betsi Cadwaladr UHB.

Table 9. Number of Yellow Cards submitted by members of the public

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Aneurin Bevan	9	21	133%
Cardiff and Vale	14	26	86%
Cwm Taf	6	11	83%
Abertawe Bro Morgannwg	8	12	50%
Hywel Dda	12	18	50%
Betsi Cadwaladr	19	23	21%
Powys	0	4	N/A
Wales	68	115	69%

Figure 8. Number of Yellow Cards submitted by members of the public – Quarter ending December 2018 versus quarter ending December 2017



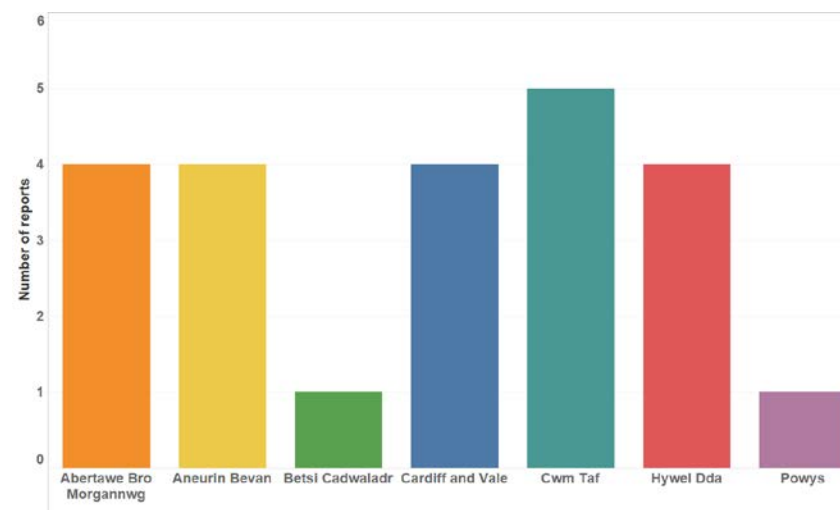
Community pharmacy

- Across Wales, a total of 23 Yellow Card reports were submitted by community pharmacies during the quarter ending December 2018.
- The number of Yellow Card reports submitted by community pharmacies in health boards across Wales ranged from 1 to 5.

Table 10. Number of Yellow Cards submitted by community pharmacies

	2018–2019 Qtr 3
Abertawe Bro Morgannwg	4
Aneurin Bevan	4
Betsi Cadwaladr	1
Cardiff and Vale	4
Cwm Taf	5
Hywel Dda	4
Powys	1
Wales	23

Figure 9. Number of Yellow Cards submitted by community pharmacy – Quarter ending December 2018



STEWARDSHIP INDICATORS

5.0 ANTIMICROBIAL STEWARDSHIP

There are three antimicrobial NPIs for 2018–2019:

1. Total antibacterial items per 1,000 STAR-PU
2. 4C antimicrobials (co-amoxiclav, cephalosporins, fluoroquinolones and clindamycin)
 - a. Items per 1,000 patients
 - b. Items as a percentage of total antibacterial prescribing
3. Proportion of elective colorectal patients receiving a single dose antimicrobial for surgical prophylaxis.

5.1 Total antibacterial items

Purpose: To encourage the appropriate prescribing of all antibiotics in primary care.

Unit of measure: Total antibacterial items per 1,000 STAR-PU.

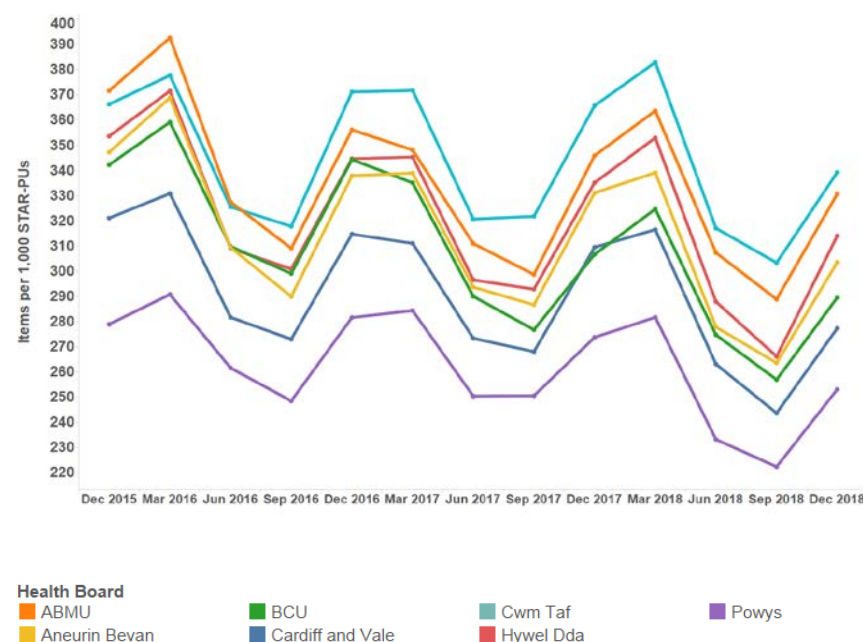
Aim: To reduce prescribing

- Across Wales, for the quarter ending December 2018, total antibacterial items per 1,000 STAR-PU reduced by 10.9%, compared with the quarter ending December 2016. This is in line with the indicator target.
- For the quarter ending December 2018, the total number of antibacterial items per 1,000 STAR-PU ranged from 253 to 339 across the health boards.
- The health board with the lowest prescribing was Powys Teaching HB, whilst the highest prescribing was seen in Cwm Taf UHB.
- For the quarter ending December 2018, all seven health boards achieved the target of a 5% reduction against the baseline of quarter 3 2016–2017.
- Betsi Cadwaladr UHB demonstrated the greatest percentage reduction in prescribing, compared with December quarter 2016.
- Abertawe Bro Morgannwg UHB demonstrated the smallest percentage reduction in prescribing, compared with December quarter 2016.

Table 11. Total antibacterial items per 1,000 STAR-PU

	2016–2017 Qtr 3	2018–2019 Qtr 3	% Change
Betsi Cadwaladr	344	290	-15.9%
Cardiff and Vale	315	277	-11.9%
Aneurin Bevan	338	304	-10.2%
Powys	282	253	-10.1%
Hywel Dda	345	314	-8.88%
Cwm Taf	371	339	-8.60%
Abertawe Bro Morgannwg	356	331	-7.14%
Wales	340	303	-10.9%

Figure 10. Trend in antibacterial prescribing items per 1,000 STAR-PU



5.2 4C antimicrobials

Purpose: To encourage a reduction in variation and reduce overall prescribing of the 4C antimicrobials (co-amoxiclav, cephalosporins, fluoroquinolones and clindamycin).

Unit of measure: This antibacterial indicator is monitored using two measures which should be considered together:

1. 4C items per 1,000 patients
2. 4C items as a percentage of total antibacterial items

Aim: To reduce prescribing

The use of simple generic antibiotics and the avoidance of these broad-spectrum antibiotics preserve them from resistance and reduce the risk of *C. difficile*, MRSA and resistant urinary tract infections.

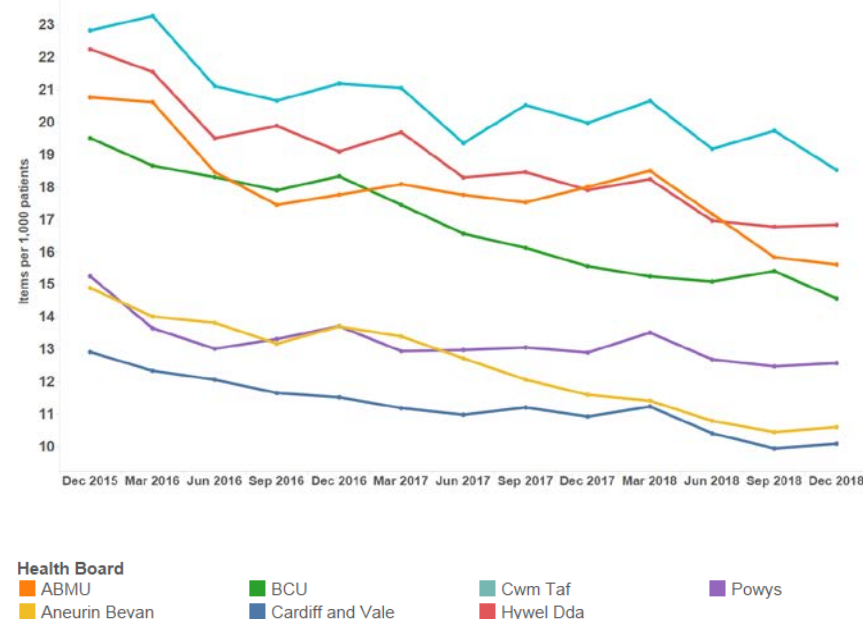
5.2.1 4C antimicrobial items per 1,000 patients

- Across Wales, for the quarter ending December 2018, the number of 4C antimicrobial items per 1,000 patients decreased by 15.8%, compared with the quarter ending December 2016, in line with the aim of this indicator.
- For the quarter ending December 2018, 4C prescribing ranged from 10.1 to 18.5 items per 1,000 patients across the health boards.
- The health board with the lowest prescribing was Cardiff and Vale UHB, whilst the highest prescribing was seen in Cwm Taf UHB.
- 4C prescribing decreased, compared with quarter ending December 2016, in all seven health boards.
- The largest percentage decrease was seen in Aneurin Bevan UHB.
- The smallest percentage decrease was seen in Powys Teaching HB.

Table 12. 4C antimicrobial items per 1,000 patients

	2016–2017 Qtr 3	2018–2019 Qtr 3	% Change
Aneurin Bevan	13.7	10.6	-22.6%
Betsi Cadwaladr	18.3	14.6	-20.5%
Cwm Taf	21.2	18.5	-12.5%
Cardiff and Vale	11.5	10.1	-12.4%
Abertawe Bro Morgannwg	17.8	15.6	-12.1%
Hywel Dda	19.1	16.8	-11.8%
Powys	13.7	12.6	-8.30%
Wales	16.4	13.8	-15.8%

Figure 11. Trend in 4C antimicrobial items per 1,000 patients



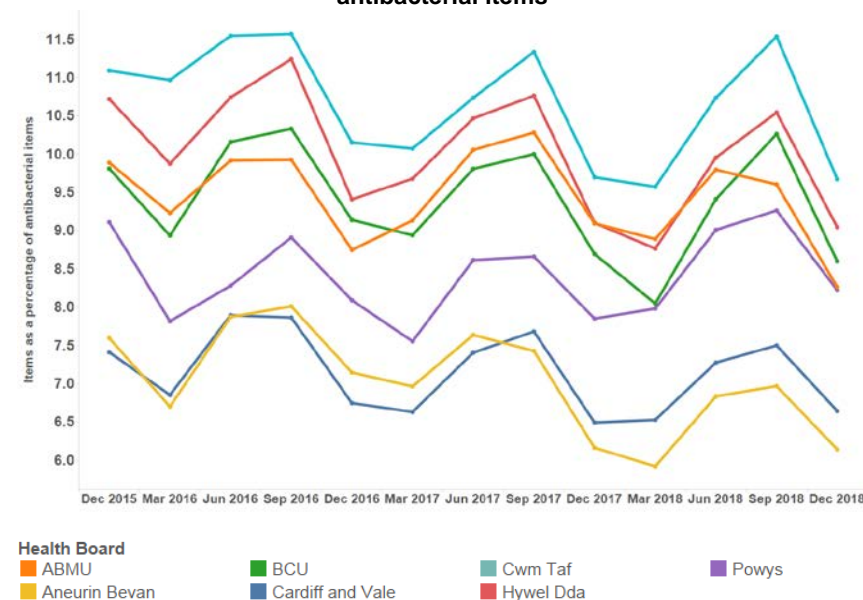
5.2.2 4C antimicrobials as a percentage of total antibacterial items

- Across Wales, for the quarter ending December 2018, the number of 4C antimicrobials as a percentage of total antibacterial items decreased by 5.94%, compared with the quarter ending December 2016, in line with the aim of this indicator.
- For the quarter ending December 2018, the number of 4C antimicrobials as a percentage of total antibacterial items ranged from 6.14% to 9.67% across the health boards.
- The health board with the lowest percentage was Aneurin Bevan UHB, whilst the highest percentage was seen in Cwm Taf UHB.
- For the quarter ending December 2018, the percentage of 4C antimicrobials decreased in six out of the seven health boards, compared with the quarter ending December 2016.
- The health board with the greatest percentage reduction, compared with the quarter ending December 2016, was Aneurin Bevan UHB.
- Powys Teaching HB demonstrated an increase, compared with the quarter ending December 2016.

Table 13. 4C antimicrobial items as a percentage of total antibacterial items

	2016–2017 Qtr 3	2018–2019 Qtr 3	% Change
Aneurin Bevan	7.15	6.14	-14.1%
Betsi Cadwaladr	9.14	8.60	-5.90%
Abertawe Bro Morgannwg	8.75	8.26	-5.56%
Cwm Taf	10.2	9.67	-4.72%
Hywel Dda	9.41	9.05	-3.87%
Cardiff and Vale	6.75	6.65	-1.53%
Powys	8.09	8.22	1.61%
Wales	8.46	7.96	-5.94%

Figure 12. Trend in 4C antimicrobial items as a percentage of total antibacterial items



5.3 Prophylaxis in colorectal surgery

Purpose: To encourage appropriate antimicrobial prophylaxis for colorectal surgical patients in secondary care.

Unit of measure: Proportion of elective colorectal patients receiving a single dose antimicrobial for surgical prophylaxis.

Aim: To increase percentage

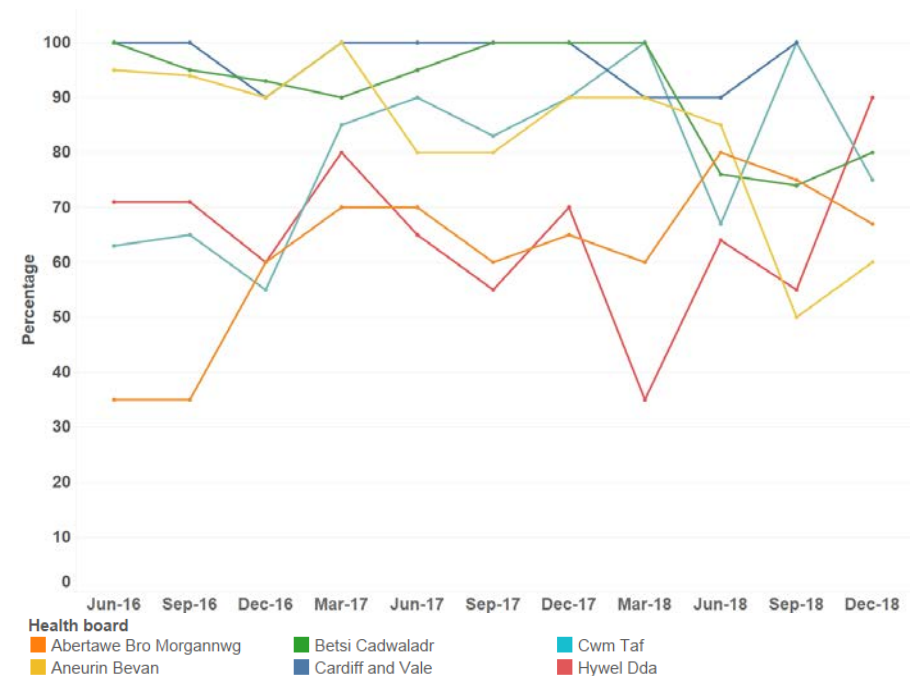
Due to surgical prophylaxis numbers being small and prone to misinterpretation at hospital level, the data are presented at health board level. Hospital level data are available if required.

- Across Wales, there was a 17% decrease in the percentage of patients receiving a single dose antimicrobial for colorectal surgical prophylaxis for quarter ending December 2018 compared with the equivalent quarter of the previous year.
- For the quarter ending December 2018, the percentage of patients receiving a single dose antimicrobial for colorectal surgical prophylaxis ranged from 60% to 90% across the health boards.
- The health board with the highest proportion of patients receiving a single dose antimicrobial for colorectal surgical prophylaxis was Hywel Dda UHB and whilst the lowest was Aneurin Bevan UHB.
- Hywel Dda UHB was the only health board to achieve the target for quarter ending December 2018 (absolute measure of $\geq 90\%$, or a proportional increase of 20%, compared with the equivalent quarter of 2017–2018).
- Abertawe Bro Morgannwg UHB and Hywel Dda UHB demonstrated an increase in the proportion of patients receiving a single dose antimicrobial for colorectal surgical prophylaxis, compared with the equivalent quarter of the previous year.
- There was a decrease in the proportion of patients receiving a single dose antimicrobial for colorectal surgical prophylaxis for Cwm Taf, Betsi Cadwaladr and Aneurin Bevan UHBs.
- No data was received for Cardiff and Vale UHB.

Table 14. Percentage of patients receiving a single dose antimicrobial for colorectal surgical prophylaxis

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Hywel Dda	70	90	29%
Abertawe Bro Morgannwg	65	67	3%
Cwm Taf	90	75	-17%
Betsi Cadwaladr	100	80	-20%
Aneurin Bevan	90	60	-33%
Cardiff and Vale	100	No Data	N/A
Wales	86	71	-17%

Figure 13. Percentage of patients receiving a single dose antimicrobial for colorectal surgical prophylaxis



EFFICIENCY INDICATORS

6.0 PROTON PUMP INHIBITORS

Purpose: To encourage appropriate use of proton pump inhibitors (PPIs) in primary care.

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

Aim: To reduce prescribing

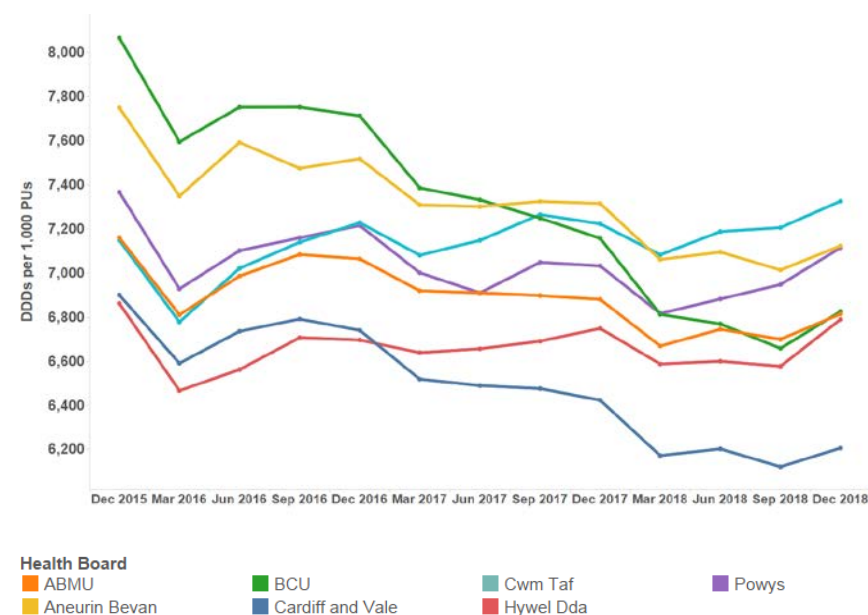
Although PPIs are generally well tolerated, there is emerging evidence that serious adverse effects may be linked with long-term PPI use. These include fractures of the hip, wrist and spine, *Clostridium difficile* infection, and hypomagnesaemia. Prescribers are therefore encouraged to review and reduce where possible.

- Across Wales, for the quarter ending December 2018, PPI DDDs per 1,000 PUs decreased by 1.95%, compared with the quarter ending December 2017, in line with the aim of this indicator
- For the quarter ending December 2018, PPI usage ranged from 6,206 to 7,326 DDDs per 1,000 PUs across the health boards.
- The health board with the lowest prescribing was Cardiff and Vale UHB whilst the highest prescribing was seen in Cwm Taf UHB.
- Four out of seven health boards demonstrated a reduction in DDDs per 1,000 PUs, compared with the equivalent quarter of the previous year.
- Betsi Cadwaladr UHB demonstrated the largest percentage decrease.
- Cwm Taf UHB, Powys Teaching HB and Hywel Dda UHB demonstrated percentage increases.

Table 15. PPI DDDs per 1,000 PUs

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Betsi Cadwaladr	7,157	6,826	-4.63%
Cardiff and Vale	6,424	6,206	-3.38%
Aneurin Bevan	7,315	7,123	-2.62%
Abertawe Bro Morgannwg	6,881	6,815	-0.96%
Hywel Dda	6,749	6,790	0.60%
Powys	7,032	7,115	1.17%
Cwm Taf	7,223	7,326	1.42%
Wales	6,979	6,843	-1.95%

Figure 14. Trend in PPI prescribing DDDs per 1,000 PUs



7.0 INSULIN

Purpose: To encourage a reduction in the prescribing of long-acting insulin analogues in line with NICE guidance to maximise cost-effectiveness in Wales.

Unit of measure: Items/number of long-acting insulin analogues expressed as a percentage of total long- and intermediate-acting insulin prescribed in primary and secondary care.

Aim: To reduce prescribing

NICE guidance recommends human isophane (neutral protamine Hagedorn [NPH]) insulin as the first choice insulin-based treatment when prescribing insulin in type 2 diabetes mellitus. For most people with type 2 diabetes, long-acting insulin analogues offer no significant benefit over human isophane insulin and are more expensive.

This report considers data sets from both secondary and primary care, as prescribing will usually be continued in the primary care setting following secondary care initiation.

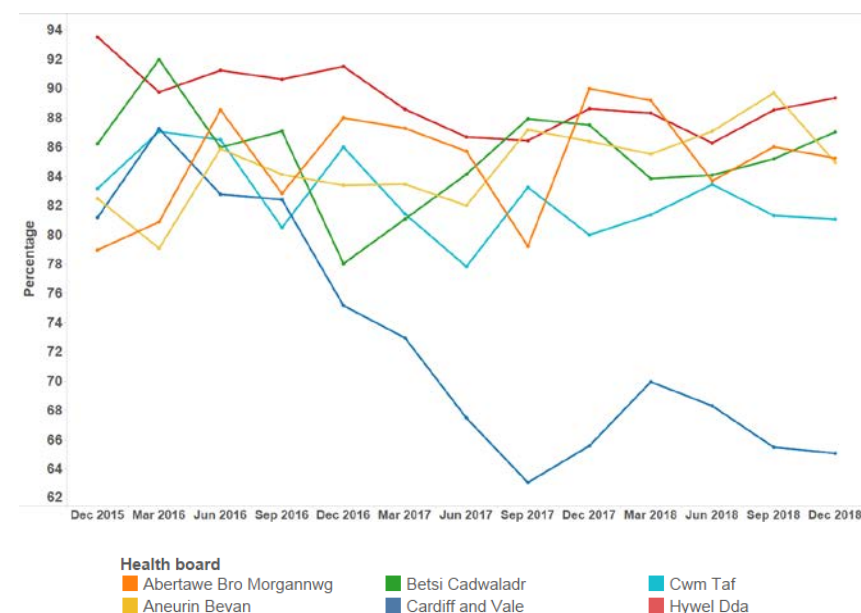
As of Quarter 3 2018-2019, the method of calculating secondary care data for the Insulin NPI has changed. Therefore, any historic comparison should be made via SPIRA rather than any previously published quarterly reports.

Secondary care prescribing

- Across Wales, secondary care use of long-acting insulin as a percentage of all long- and intermediate-acting insulin prescribing was 0.59% lower in the quarter ending December 2018 than in the equivalent quarter of the previous year.
- For the quarter ending December 2018, prescribing of long-acting insulin analogues as a percentage of total long- and intermediate-acting insulin ranged from 65.1% to 89.4%.
- The health board/trust with the lowest prescribing percentage was Cardiff and Vale UHB. The highest prescribing percentage was seen in Hywel Dda UHB.
- The proportion of long-acting insulin analogue prescribing decreased in four of the seven health boards/trusts, compared with the equivalent quarter of the previous year.
- Abertawe Bro Morgannwg UHB showed the greatest percentage decrease.
- The health board/trust with the greatest percentage increase was Cwm Taf UHB.

Table 16. Long-acting insulin analogues as a percentage of total long- and intermediate-acting insulin prescribing in secondary care

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Abertawe Bro Morgannwg	90.0	85.2	-5.29%
Aneurin Bevan	86.4	85.0	-1.67%
Cardiff and Vale	65.6	65.1	-0.78%
Betsi Cadwaladr	87.5	87.0	-0.55%
Hywel Dda	88.6	89.4	0.84%
Cwm Taf	80.0	81.1	1.35%
Wales	81.8	81.3	-0.59%

Figure 15. Trend in long-acting analogue prescribing as a percentage of total long- and intermediate-acting insulin prescribed in secondary care

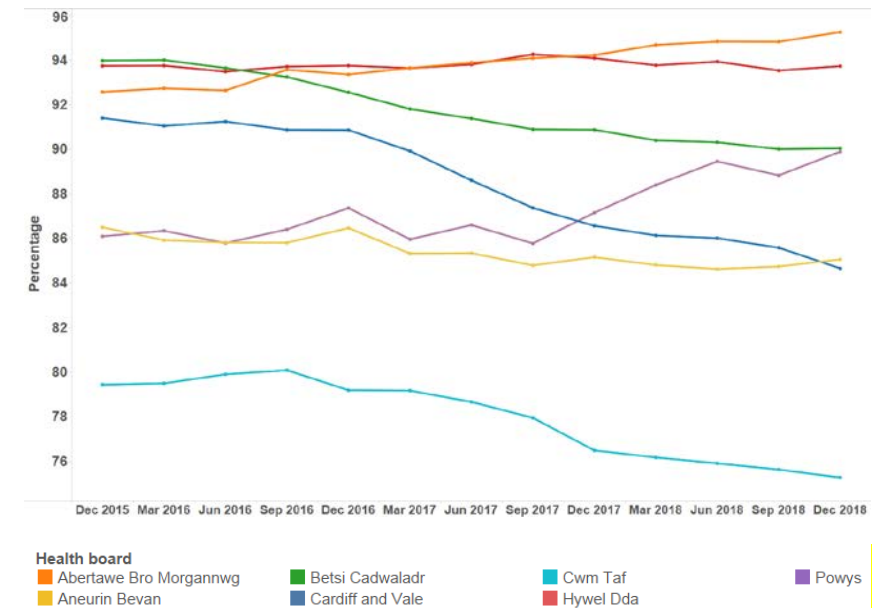
Primary care prescribing

- Across Wales, the prescribing of long-acting insulin analogues as a proportion of total long- and intermediate-acting insulin prescribing decreased by 0.33% for the quarter ending in December 2018, compared with the equivalent quarter of the previous year. This is in line with the aim of the indicator.
- For the quarter ending December 2018, long-acting insulin analogue prescribing ranged from 75.3% to 95.3% across the health boards.
- The health board with the lowest prescribing was Cwm Taf UHB, whilst the highest prescribing was seen in Abertawe Bro Morgannwg UHB.
- Across the seven health boards in Wales prescribing decreased compared with the equivalent quarter of the previous year in five health boards and increased in two health boards.
- The health board/trust with the greatest percentage decrease was Cardiff and Vale UHB.
- The largest percentage increase was seen in Powys Teaching HB.

Table 17. Long-acting insulin analogues as a percentage of total long- and intermediate-acting insulin prescribing in primary care

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Cardiff and Vale	86.6	84.7	-2.21%
Cwm Taf	76.5	75.3	-1.59%
Betsi Cadwaladr	90.9	90.0	-0.92%
Hywel Dda	94.1	93.7	-0.38%
Aneurin Bevan	85.2	85.1	-0.12%
Abertawe Bro Morgannwg	94.2	95.3	1.10%
Powys Teaching	87.2	89.9	3.14%
Wales	88.3	88.0	-0.33%

Figure 16. Trend in long-acting analogue prescribing as a percentage of total long- and intermediate-acting insulin prescribed in primary care



8.0 BIOSIMILARS

Purpose: To ensure prescribing of biological medicines supports cost-effective prescribing in Wales.

Unit of measure: Quantity of biosimilar medicines prescribed as a percentage of total 'reference' product plus biosimilar.

Aim: Increase the appropriate use of cost-effective biological medicines, including biosimilar medicines.

Biological medicines are those that are made or derived from a biological source and, as such, are complex, with inherent variability in their structure. A biosimilar medicine is a biological medicine that is developed to be highly similar and clinically equivalent to an existing biological medicine (i.e. 'reference' medicine or 'originator' medicine). Continuing development of biosimilar medicines offers an increased choice for patients and clinicians.

There is an increasing range of biosimilar products becoming available and therefore new products will be monitored and reported on in this section of the NPI report as they begin to be used within NHS Wales.

MHRA guidelines state that biological medicines, including biosimilar medicines, must be prescribed by brand name to prevent automatic substitution taking place without clinician and patient involvement, and to support ongoing pharmacovigilance of the individual products.

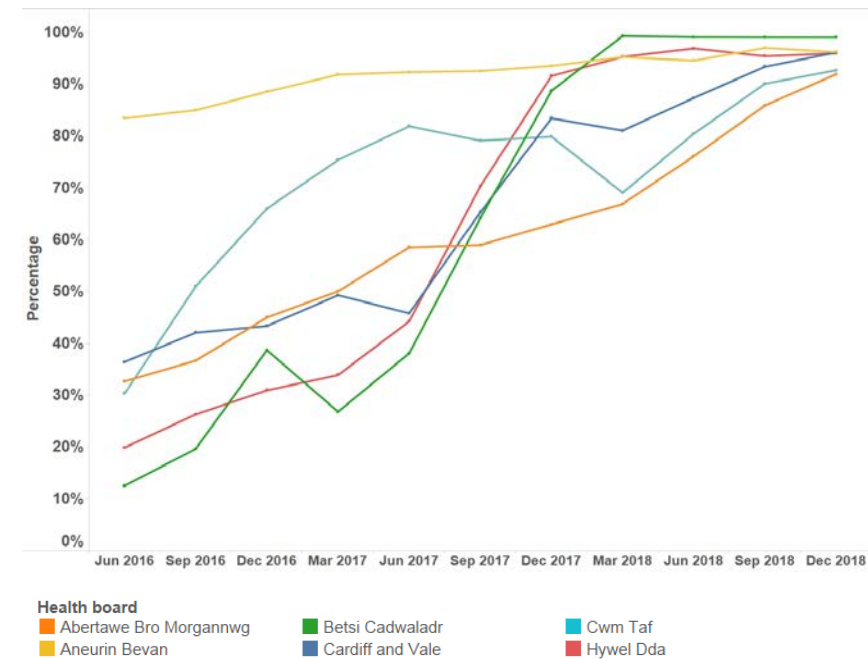
2.1 Infliximab

- Across Wales, for the quarter ending December 2018, infliximab biosimilar prescribing increased by 15.4%, compared with the equivalent quarter of the previous year. This is in line with the aim of this indicator
- For the quarter ending December 2018, infliximab biosimilar prescribing ranged from 91.9% to 99.0% across the health boards.
- The health board with the highest percentage was Betsi Cadwaladr UHB whilst the lowest percentage was seen in Abertawe Bro Morgannwg UHB.
- All seven health boards demonstrated an increase in percentage, compared with the equivalent quarter of the previous year.
- Abertawe Bro Morgannwg UHB demonstrated the largest percentage increase.
- Hywel Dda UHB demonstrated the smallest percentage increase.

Table 18. Infliximab biosimilars as a percentage of reference and biosimilar prescribed

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Abertawe Bro Morgannwg	62.9	91.9	46.1%
Cardiff and Vale	83.4	96.1	15.2%
Betsi Cadwaladr	88.7	99.0	11.6%
Cwm Taf	79.8	92.6	16.0%
Aneurin Bevan	93.5	96.2	2.89%
Hywel Dda	91.6	95.9	4.69%
NHS Wales	82.7	95.4	15.4%

Figure 17. Trend in infliximab biosimilar (Inflectra®) prescribing as a percentage of total infliximab prescribed



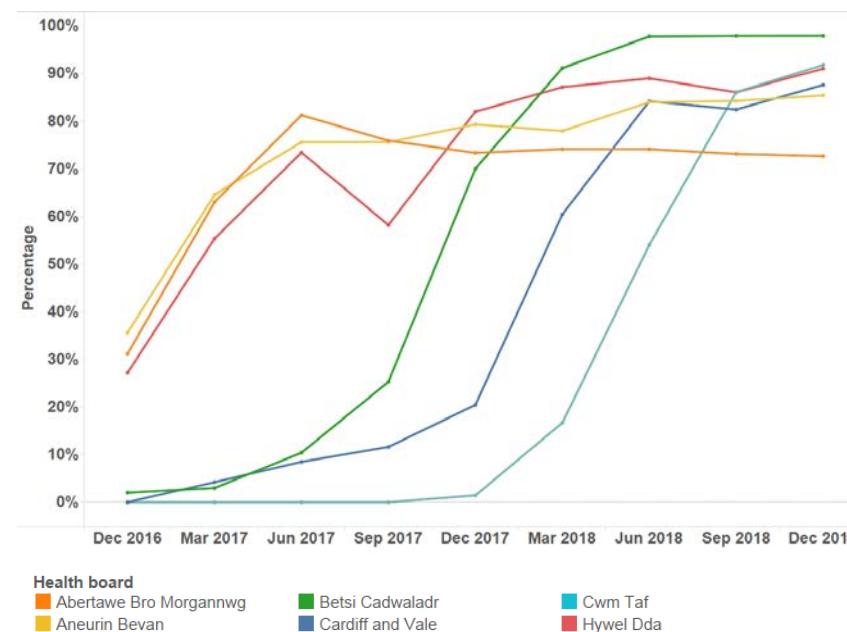
2.2 Etanercept

- Across Wales, for the quarter ending December 2018, etanercept biosimilar prescribing increased by 33.5%, compared with the equivalent quarter of the previous year. This is in line with the aim of this indicator.
- For the quarter ending December 2018, etanercept biosimilar prescribing ranged from 72.7% to 97.9% across the health boards.
- The health board with the highest percentage was Betsi Cadwaladr UHB whilst the lowest percentage was seen in Abertawe Bro Morgannwg UHB.
- Five health boards demonstrated an increase in percentage, compared with the equivalent quarter of the previous year.
- Cwm Taf UHB demonstrated the largest percentage increase.
- Abertawe Bro Morgannwg UHB demonstrated a percentage decrease.

Table 19. Etanercept biosimilars as a percentage of reference and biosimilar prescribed

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Cwm Taf	1.4	91.8	6,409%
Cardiff and Vale	20.4	87.6	329%
Betsi Cadwaladr	70.0	97.9	39.9%
Hywel Dda	82.0	91.0	11.0%
Aneurin Bevan	79.3	85.4	7.73%
Abertawe Bro Morgannwg	73.3	72.7	-0.95%
Wales	64.2	85.7	33.5%

Figure 18. Trend in etanercept biosimilar (Benepali®, Erelzi®) prescribing as a percentage of total etanercept prescribed



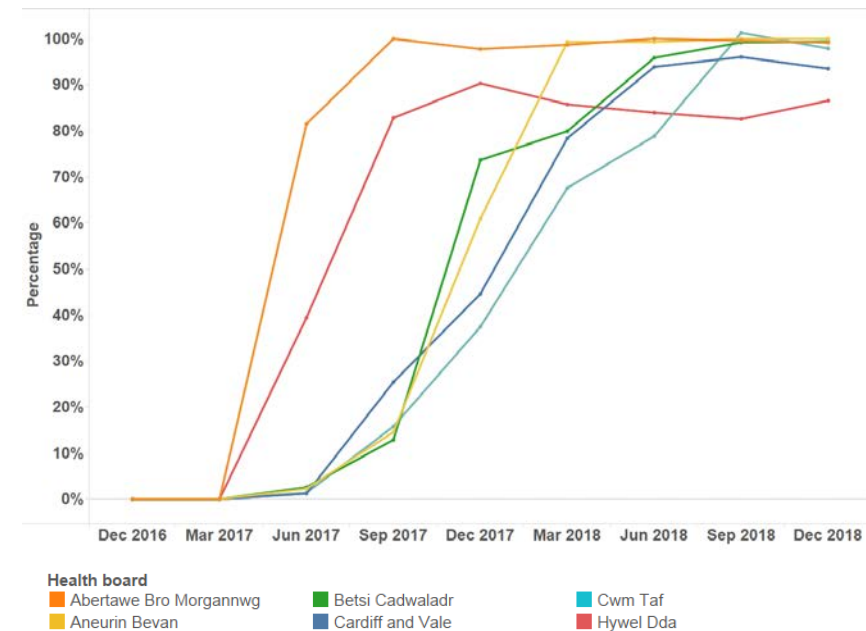
2.3 Rituximab

- Across Wales, for the quarter ending December 2018, rituximab biosimilar prescribing increased by 44.0%, compared with the equivalent quarter of the previous year. This is in line with the aim of this indicator
- For the quarter ending December 2018, rituximab biosimilar prescribing ranged from 0.00% to 100% across the health boards.
- The health board with the highest percentage was Aneurin Bevan UHB whilst the lowest percentage was seen in Velindre Trust
- Five health boards demonstrated an increase in percentage, compared with the equivalent quarter of the previous year.
- Cwm Taf UHB demonstrated the largest percentage increase.
- Hywel Dda UHB demonstrated a percentage decrease.

Table 20. Rituximab biosimilar as a percentage of reference and biosimilar prescribed

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Cwm Taf	37.4	97.9	162%
Cardiff and Vale	44.6	93.5	110%
Aneurin Bevan	60.9	100.0	64.2%
Betsi Cadwaladr	73.6	99.4	35.1%
Abertawe Bro Morgannwg	97.8	99.2	1.43%
Velindre	0.0	0.0	N/A
Hywel Dda	90.4	86.6	-4.20%
Wales	66.2	95.4	44.0%

Figure 19. Trend in rituximab biosimilar (Truxima®) prescribing as a percentage of total rituximab prescribed



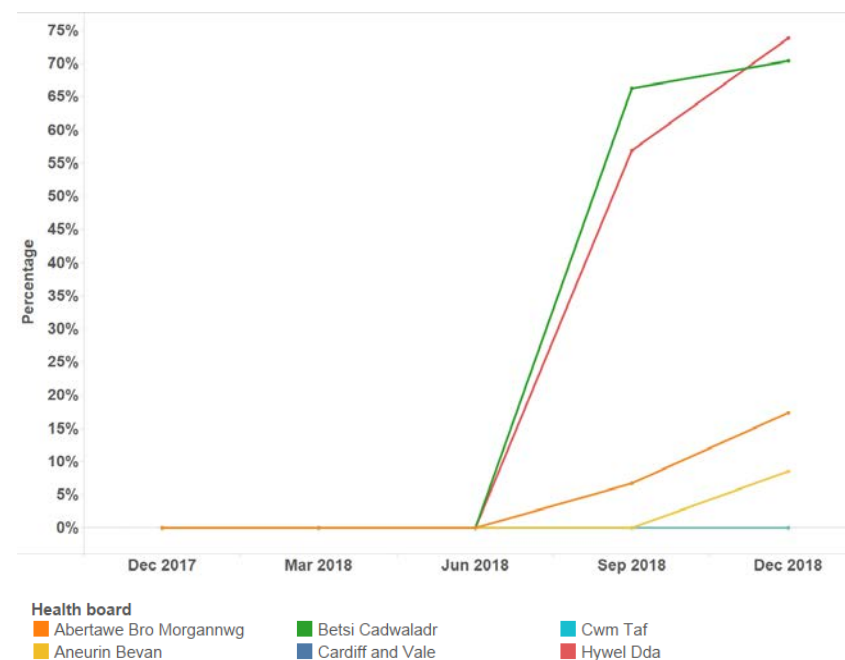
2.4 Trastuzumab

- Across Wales, trastuzumab biosimilar prescribing increased from 0% to 32.7%, for the quarter ending December 2018 compared with the equivalent quarter of the previous year. This is in line with the aim of this indicator
- For the quarter ending December 2018, trastuzumab biosimilar prescribing ranged from 0% to 73.8% across the health boards.
- The health board with the highest percentage was Hywel Dda UHB whilst the lowest percentage was seen in Cwm Taf UHB and Velindre Trust.
- Four health boards demonstrated an increase in percentage, compared with the equivalent quarter of the previous year.
- Hywel Dda UHB demonstrated the largest percentage increase.
- Cwm Taf UHB and Velindre Trust demonstrated no increase from zero percent.

Table 21. Trastuzumab biosimilar as a percentage of reference and biosimilar prescribed

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Hywel Dda	0.0	73.8	N/A
Betsi Cadwaladr	0.0	70.4	N/A
Abertawe Bro Morgannwg	0.0	17.4	N/A
Aneurin Bevan	0.0	8.56	N/A
Cwm Taf	0.0	0.0	N/A
Velindre	0.0	0.0	N/A
Wales	0	32.7	N/A

Figure 20. Trend in trastuzumab biosimilar (Ontruzant®) prescribing as a percentage of total trastuzumab prescribed



2.5 Adalimumab

- Across Wales, for the quarter ending December 2018, there is no adalimumab biosimilar prescribing.

Table 22. Adalimumab biosimilar as a percentage of reference and biosimilar prescribed

	2017–2018 Qtr 3	2018–2019 Qtr 3	% Change
Abertawe Bro Morgannwg	0	0	0%
Aneurin Bevan	0	0	0%
Betsi Cadwaladr	0	0	0%
Cardiff and Vale	0	0	0%
Cwm Taf	0	0	0%
Hywel Dda	0	0	0%
Wales	0	0	0%

2.6 Total biosimilar usage

Within Wales there was an increase in the use of the reported biosimilar medicines (infliximab, etanercept, rituximab, trastuzumab, adalimumab) combined as a percentage of reported 'reference' biological medicines plus biosimilars combined, from 47% to 61% for the quarter ending December 2018 compared with the equivalent quarter of the previous year.

Figure 21. Biological reference and biosimilar as a proportion of total reference plus biosimilar prescribed – Quarter ending December 2018

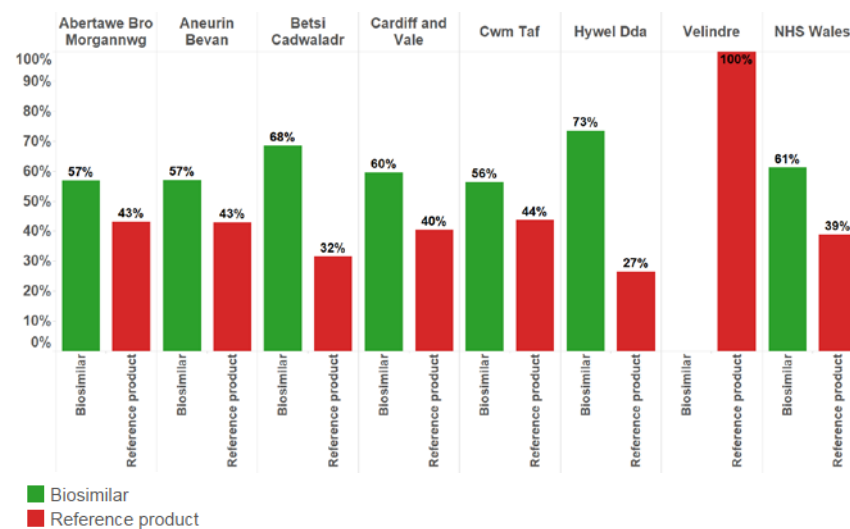
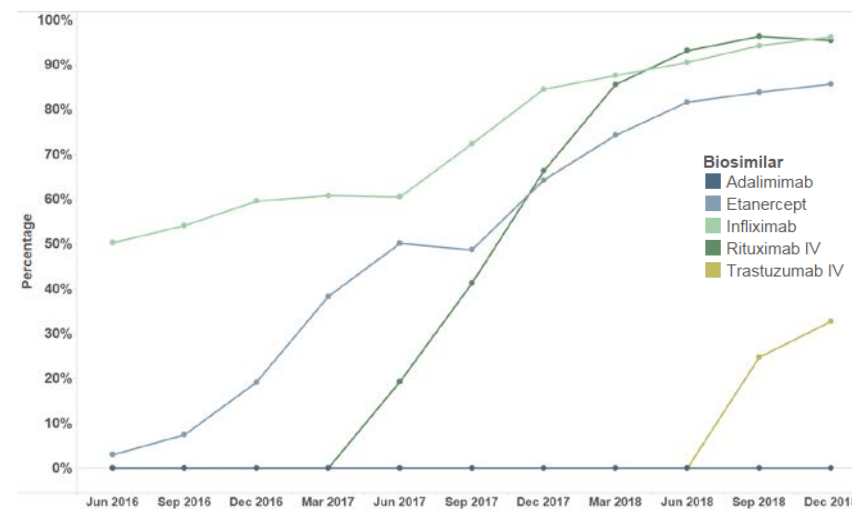


Figure 22. Trend in biosimilar percentage in Wales



CAUTION WITH INTERPRETING NPI MONITORING DATA

Calculations for the percentage difference reported are based on raw data, and values may therefore vary slightly from those calculated from the data tables or graphs, where figures have been rounded up or down.

Data for the Prescribing Safety Indicators have been provided by Audit+, the GP software tool delivered and supported by the NHS Wales Informatics Service (NWIS).

As of Quarter 3 2018-2019, the method of calculating secondary care data for the Insulin NPI has changed. Therefore, any historic comparison should be made via SPIRA rather than any previously published quarterly reports.

The Medusa data warehouse is reliant on data input by individual hospital pharmacy departments. If the data on a medicine are input under an alternative name to the usual generic or brand name, it may not be identified at extraction.

Medusa records the issue of medicines within the secondary care setting in Wales. Where supplies are issued to named patients, it can be assumed that the difference between number of medicines issued and number administered to patients is not significant. However, when the supplies are issued to wards or clinics, these items are often held as stock and therefore may be administered to patients at a considerably later point in time. However, within this report they are only considered for analysis within the time period they were issued.

The report includes medicines supplied by homecare and recorded through the hospital system; medicines supplied through other homecare providers are not included in this report. Therefore some medicines use data may currently be incomplete. This issue is being worked on within NHS Wales as a priority.

Medicines supplied through hospitals in England or on FP10HP (issued by hospital clinicians in NHS England) to patients resident in Wales, which do not get issued via Medusa or recorded through CASPA, are not included in this report.

Combining data obtained from two different software systems provides challenges, particularly as CASPA and Medusa report data via different measurement criteria. Hence, in order to amalgamate data, total cost of medicine usage is reported for all indicators and, where relevant, other measures such as total quantity, items and number are also reported.

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. The 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 Organization, 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 DDIs 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 at both the practice and primary care organisational level.

PRESCRIBING – Although the term ‘prescribing’ is used in this report, the data presented within the primary care section of the report 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 not significant, and that dispensing provides an accurate representation of prescribing. In relation to the secondary care data presented within this report please see information above.

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 of items within therapeutic groups.

APPENDIX 1. AWMMSG NATIONAL PRESCRIBING INDICATORS 2018–2019

National Prescribing Indicator	Applicable to:	Unit of measure	Target for 2018–2019	Data source	
Safety					
Prescribing Safety Indicators	Primary care	Number of patients identified as a percentage of the practice population	No target set	Audit+	
Hypnotics and anxiolytics	Primary care	Hypnotic and anxiolytic ADQs per 1,000 STAR-PUs	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below	NWSSP	
Analgesics	Primary care	Tramadol DDDs per 1,000 patients	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below	NWSSP	
		Opioid patch items as a percentage of all opioid prescribing	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below	NWSSP	
		Gabapentin and pregabalin DDDs per 1,000 patients	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below	NWSSP	
Yellow Card Reporting	Primary care	Number of Yellow Cards submitted	One Yellow Card per 2,000 GP practice population	MHRA	
	Secondary care		In excess of a 20% increase from baseline		
	Health board		In excess of one Yellow Card per 2,000 health board population		
			In excess of a 50% increase from baseline for Yellow Cards submitted by members of the public		
			Community pharmacy		No target set. Reported as the number of Yellow Cards submitted by health board.
Stewardship					
Antimicrobial stewardship	Primary care	Total antibacterial items per 1,000 STAR-PUs	Health board target: a reduction of 5% against a baseline of April 2016–March 2017	NWSSP	
	Primary care	4C antimicrobials (co-amoxiclav, cephalosporins, fluoroquinolones and clindamycin): – the number of 4C items per 1,000 patients – the number of 4C items as a percentage of total antibacterial prescribing.	Absolute measure ≤7% or a proportional reduction of 10% against a baseline of April 2016–March 2017	NWSSP	
	Secondary care	Prophylaxis in colorectal surgery: proportion of elective colorectal patients receiving a single dose of antimicrobial for surgical prophylaxis	Absolute measure ≥90% or a proportional increase of 20% against performance for 2017–2018	Data collection by antimicrobial pharmacists	

Efficiency				
Proton pump inhibitors	Primary care	PPI DDDs per 1,000 PUs	Maintain performance levels within the lower quartile, or show a reduction towards the quartile below	NWSSP
Biosimilars	Primary + secondary care	Quantity of biosimilar medicines prescribed as a percentage of total 'reference' product plus biosimilar	Increase the appropriate use of cost-effective biological medicines, including biosimilar medicines.	NWSSP Medusa
Long-acting insulin analogues	Primary + secondary care	Items/number of long-acting insulin analogues expressed as a percentage of total long- and intermediate-acting insulin prescribed	Reduce prescribing of long-acting insulin analogues and achieve prescribing levels below the Welsh average	NWSSP Medusa

APPENDIX 2. PRIMARY CARE NPI PRESCRIBING BY GP CLUSTER

Figure 1. Hypnotic and anxiolytic prescribing – Quarter ending December 2018 versus quarter ending December 2017

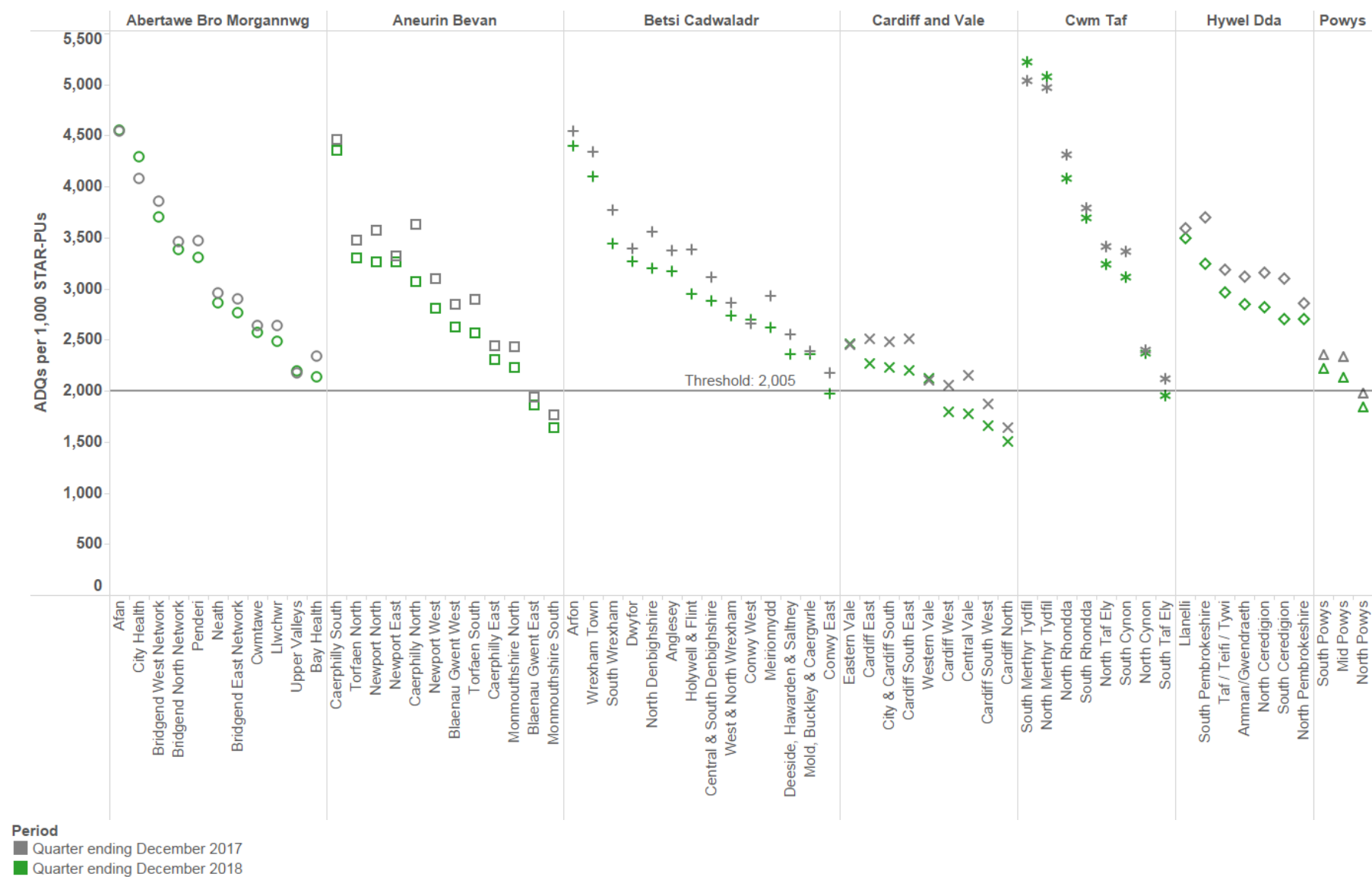


Figure 2. Tramadol prescribing – Quarter ending December 2018 versus quarter ending December 2017

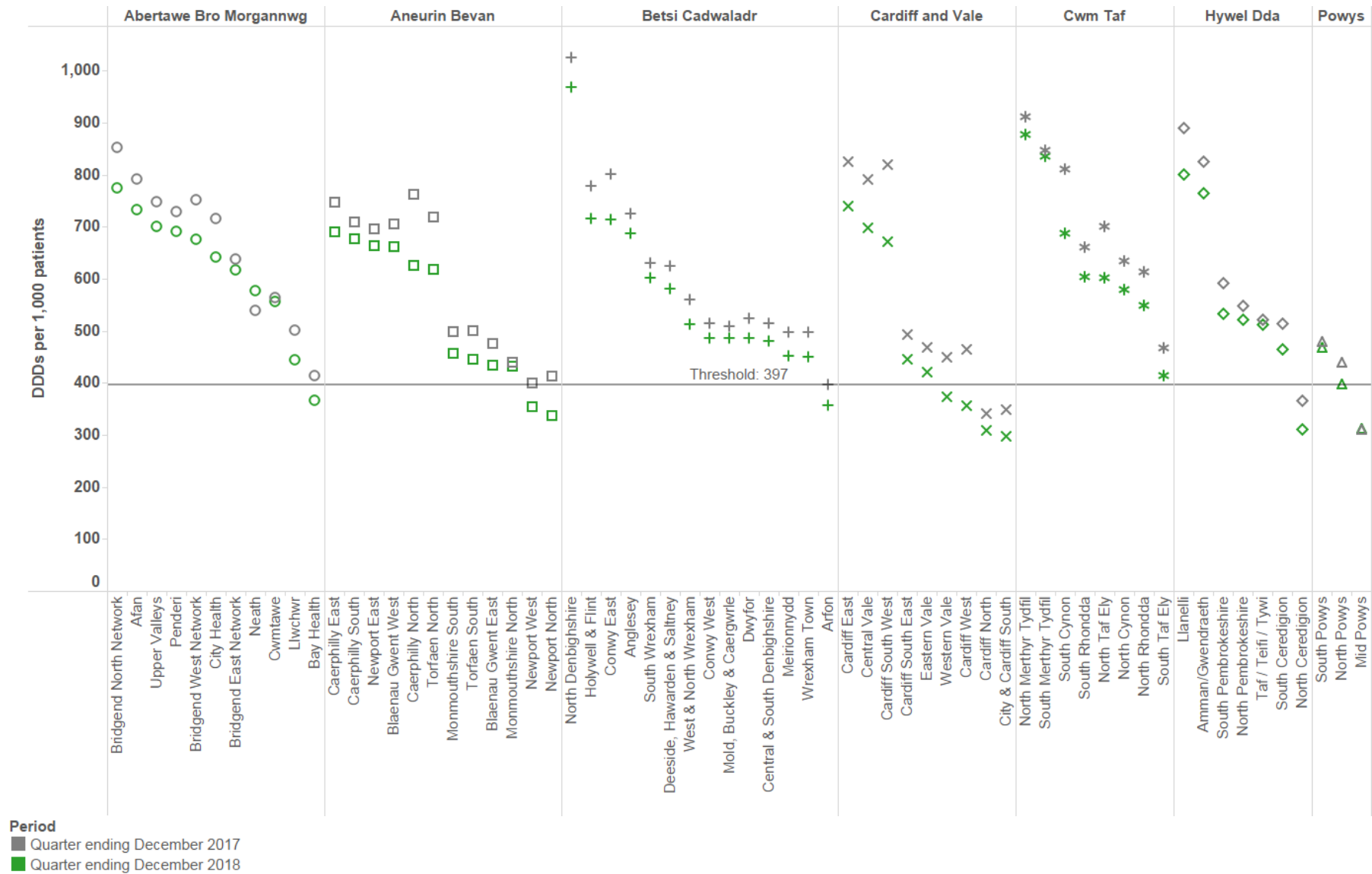


Figure 3. Opioid patch prescribing – Quarter ending December 2018 versus quarter ending December 2017

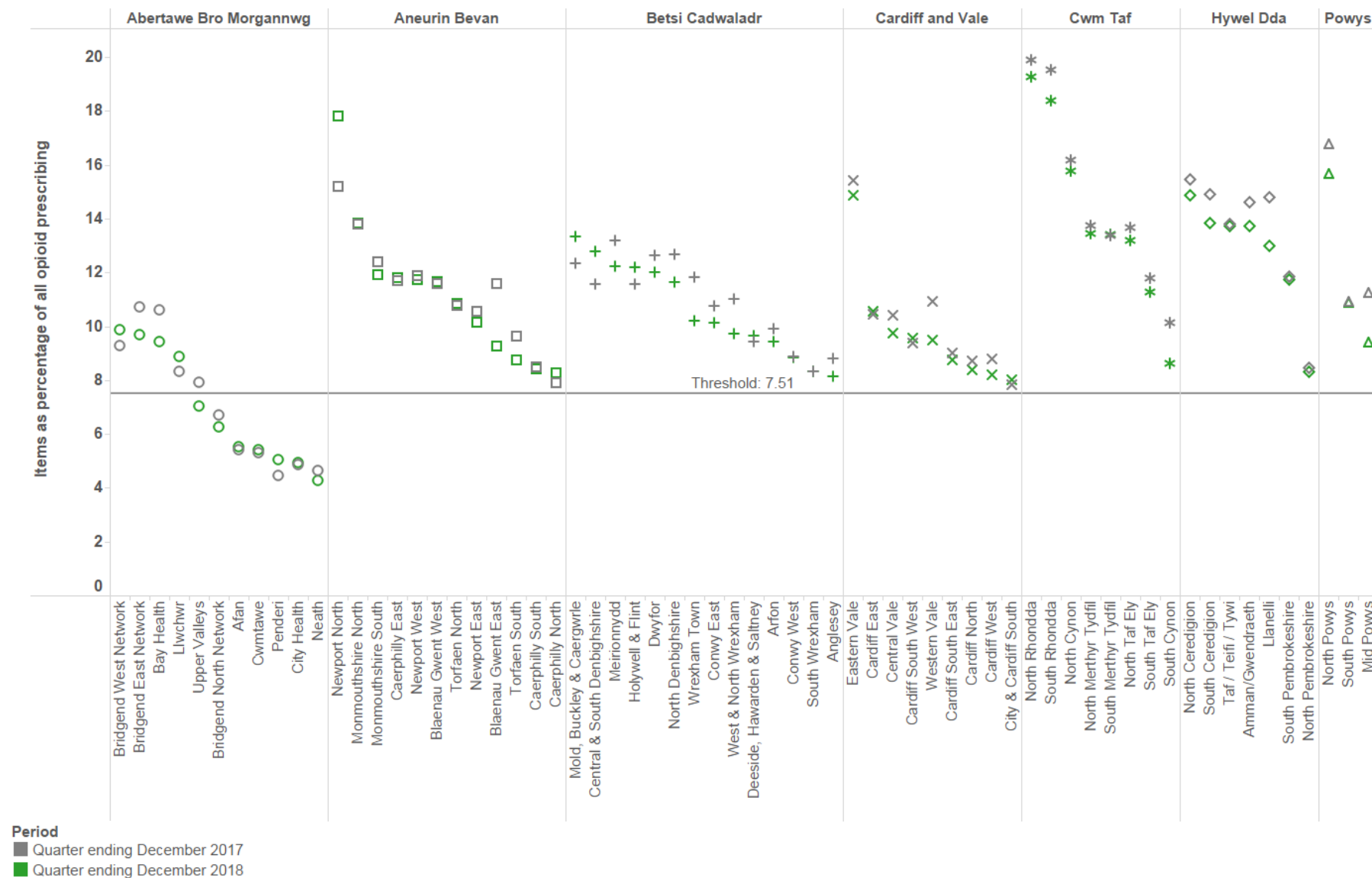


Figure 4. Gabapentin and pregabalin prescribing – Quarter ending December 2018 versus quarter ending December 2017

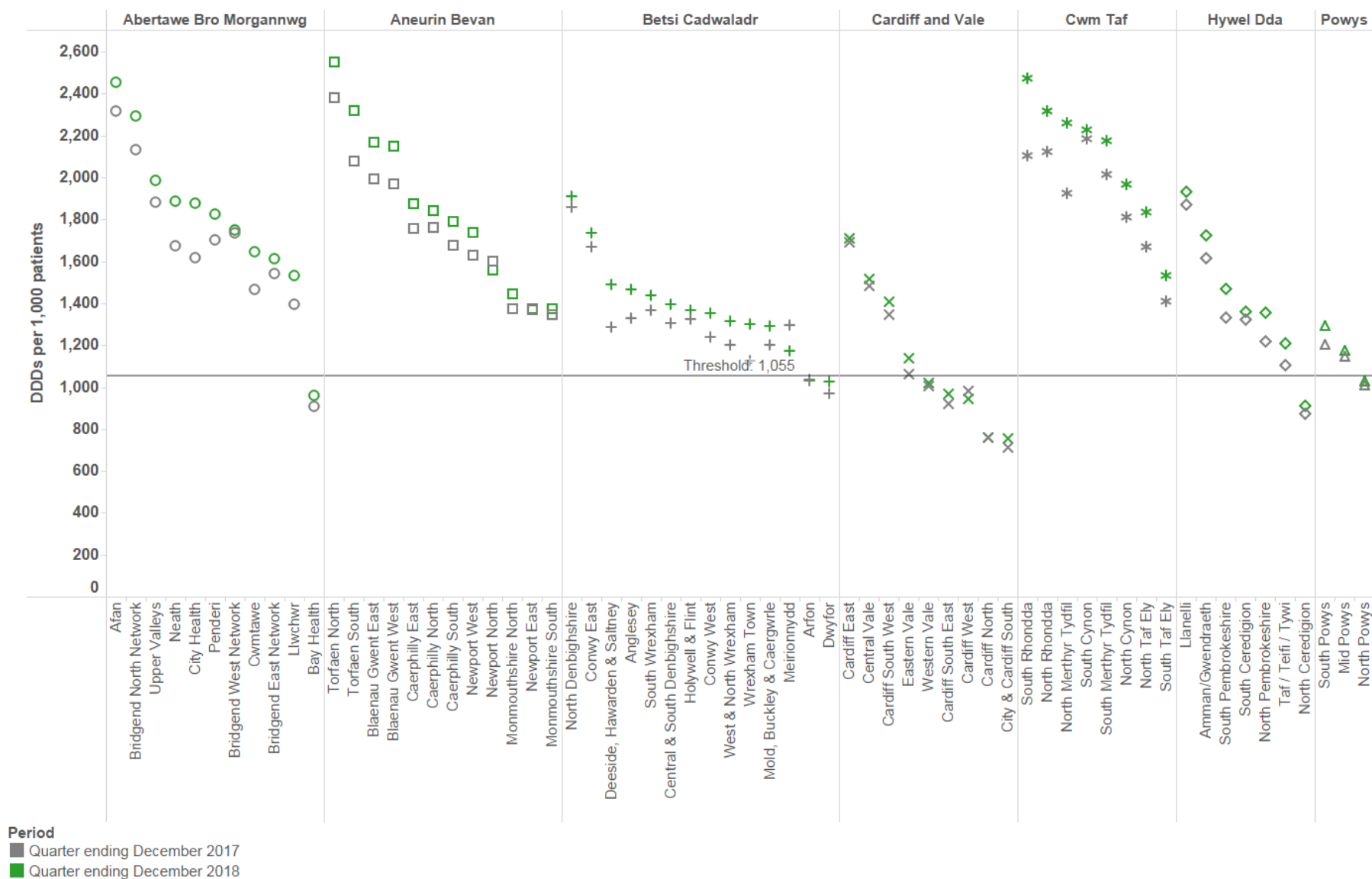


Figure 5. Antibacterial prescribing – Quarter ending December 2018 versus quarter ending December 2016

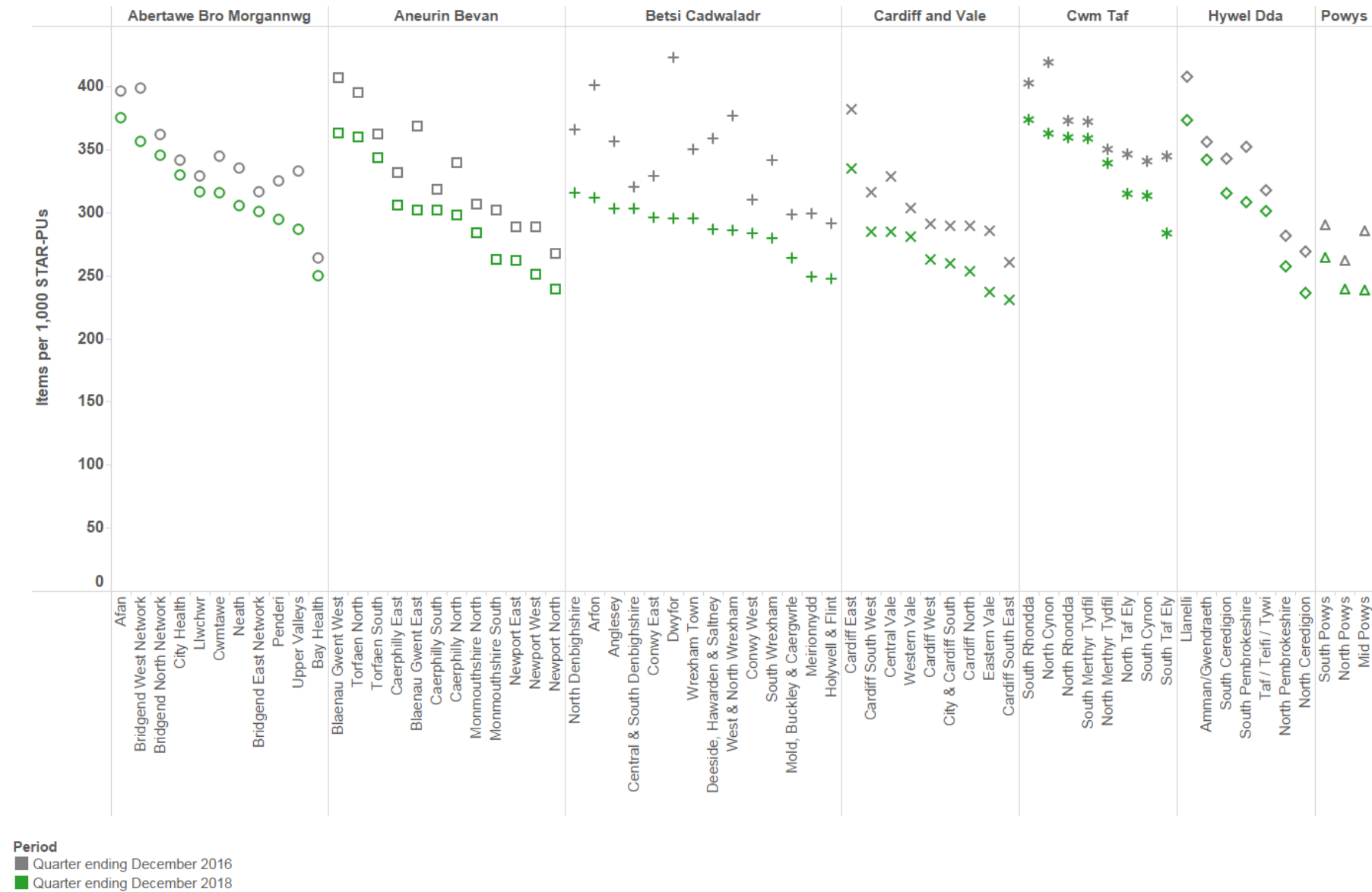


Figure 6. 4C prescribing – Quarter ending December 2018 versus quarter ending December 2016

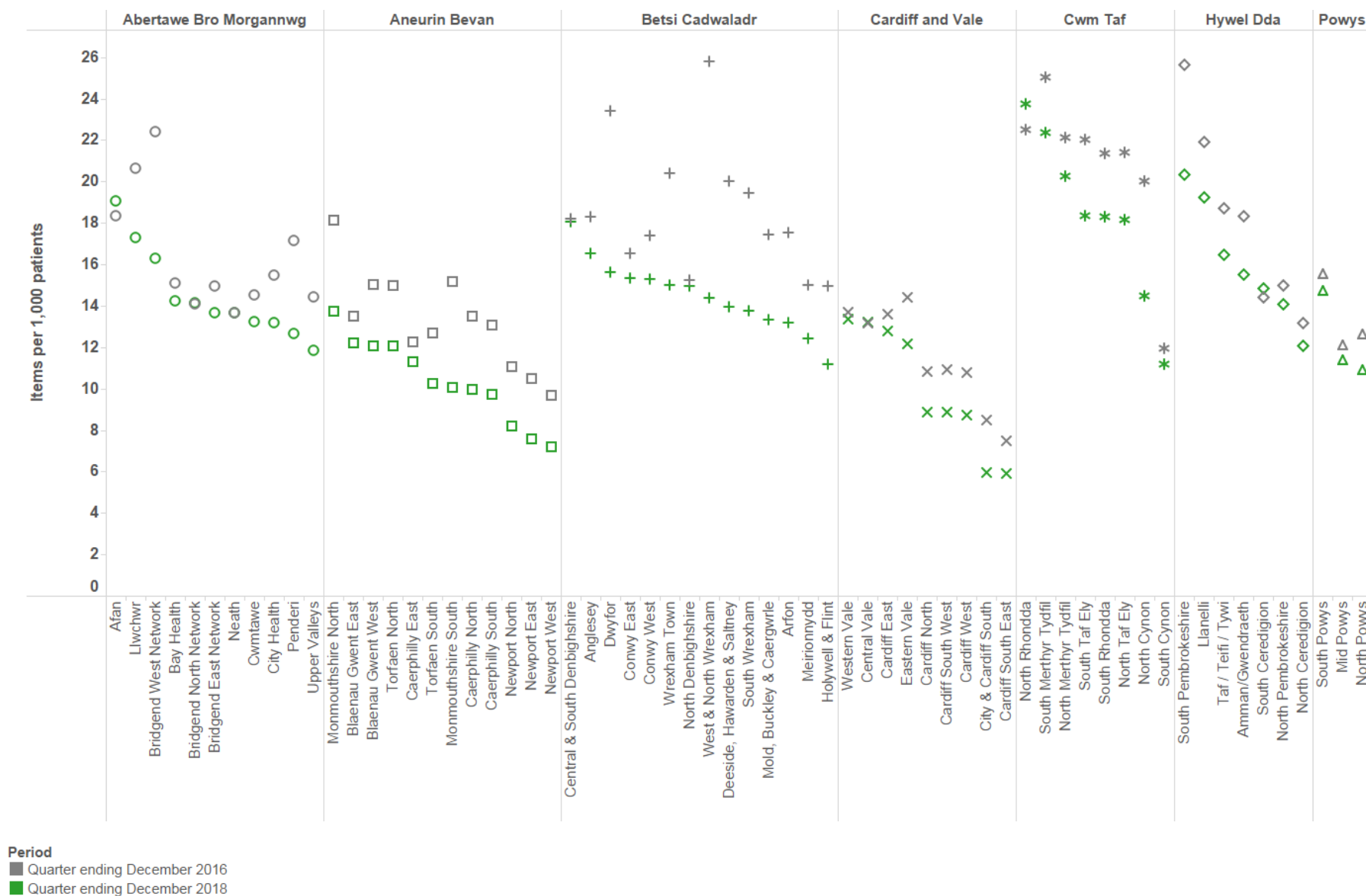


Figure 7. 4C prescribing – Quarter ending December 2018 versus quarter ending December 2016

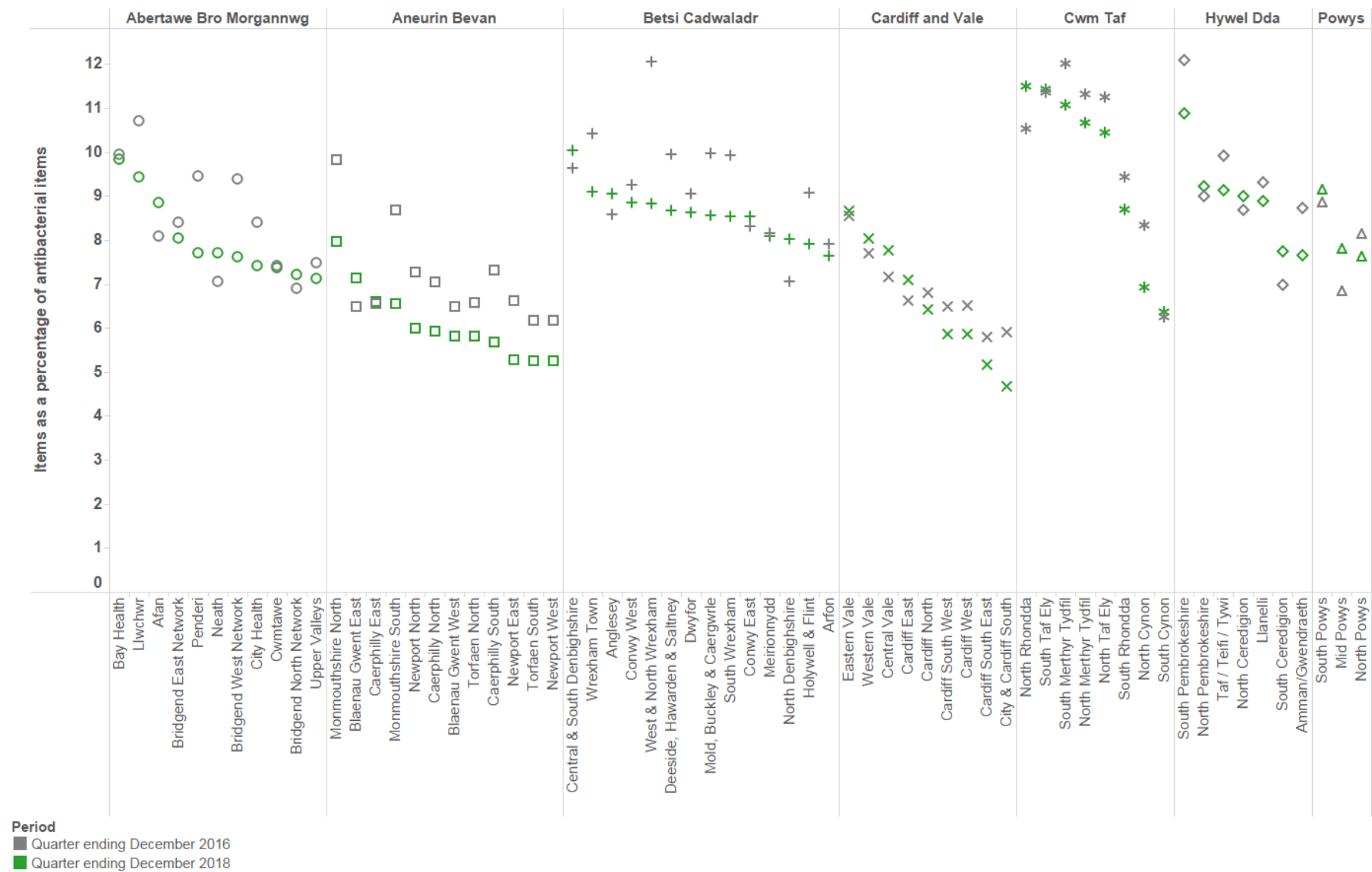


Figure 8. Proton pump inhibitor prescribing – Quarter ending December 2018 versus quarter ending December 2017

