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# Antimicrobial Usage in Secondary Care in Wales (2005 – 2010q1)

Authors: Maggie Heginbothom Robin Howe	Date: 29/11/2010	Status: <b>Amended Final Report</b>
Version: 1 'Antimicrobial Usage in Secondary Care in Wales'	Page: 1 of 35	Welsh Antibacterial Resistance Programme: Surveillance Unit

# Executive Summary

- Data presented on antimicrobial use in secondary care are derived from pharmacy stock data (individual prescription data are not available). Caution should be exercised when comparing hospitals due to potential differences in the use of “Patients’ Own Medication” (POMS) and “To-Take-Away medication” (TTAs).
- Gross antimicrobial use in hospitals across Wales has remained fairly stable over the period 2005-2010q1; use in 2005q1 (Jan-Mar) was 992 DDDs/1000 BD (Defined Daily Doses/1000 Bed Days), and use in 2010q1 (Jan-Mar) was 1005 DDDs/1000 BD.
- There is significant inter-hospital variability in gross annual antimicrobial use; in 2009 the lowest use was recorded at Princess of Wales hospital (791 DDDs/1000 BD) and highest use at Nevill Hall hospital (1451 DDDs/1000 BD).
- There is significant inter-hospital variability in the proportion of antimicrobials that are used orally; in 2009 this ranged from 61% to 83%.
- There are inter-hospital differences in the use of different classes of antimicrobials; in 2009 the commonest agent in 10 hospitals was co-amoxiclav, in 6 hospitals it was macrolides, and in one hospital it was cephalosporins.
- Over the last 5 years, many hospitals have instituted antimicrobial stewardship strategies to modify antimicrobial use and thereby control antimicrobial resistance and antibiotic-associated diarrhoea. Across Wales there has been a decrease in use of fluoroquinolones from 103 DDDs/1000 BD to 75 DDDs/1000 BD, and a decrease in cephalosporin use from 121 DDDs/1000 BD to 90 DDDs/1000 BD.
- Across Wales, the use of carbapenems (very broad spectrum beta-lactams) has increased over the last 5 years from 7 DDDs/1000 BD to 17 DDDs/1000 BD. This is presumably a reflection of increasing problems with antimicrobial resistance.

# SECTION 1: Introduction

This is the second report from the Welsh Antimicrobial Resistance Programme Surveillance Unit regarding antimicrobial usage in secondary care, and is aimed at providing an overview of trends in hospital antimicrobial usage in Wales. The report has had to be selective in what is presented, and concentrates on the major acute hospitals and district general hospitals in Wales. **This is an amended report which contains updated data for glycopeptide usage in Ysbyty Glan Clwyd. Any figures that are different from the original report will have '(amended)' added to the title.**

## ***Collation and Presentation of Antimicrobial Usage Data***

### **Data sources**

Antimicrobial ward stock data was extracted from the MEDUSA database.

<http://www.wales.nhs.uk/sites3/home.cfm?orgid=428&redirect=yes>

The ward stock data held on pharmacy systems is not primarily intended for analysis of comparative usage and thus there is significant data processing required to standardize the data. Thus the data presented in this report has been coded and measured using the ATC/DDD system as described below. The denominator for antimicrobial usage is Defined Daily Doses per 1000 Bed Days (DDD/1000 BD). Bed days have been calculated using in-patient activity (average daily occupied beds) downloaded from Health Solutions Wales Information and Statistics website: e-Quest.

<http://eproducts.wales.nhs.uk/equest/>

### **The ATC/DDD system**

In 1969 the Drug Utilization Research Group in Oslo was established and tasked with the development of internationally applicable methods for drug utilization research. By modifying and extending the European Pharmaceutical Market Research Association (EPHRA) classification system, Norwegian researchers developed a system known as the Anatomical Therapeutic Chemical (ATC) classification and a technical unit of measurement called the Defined Daily Dose (DDD).

In 1981, the WHO Regional Office for Europe recommended the ATC/DDD system for international drug utilization studies. In connection with this, and to make the methodology more widely used, there was a need for a central body responsible for coordinating the use of the methodology. The WHO Collaborating Centre for Drug Statistics Methodology was accordingly established in Oslo in 1982. The Centre is now located at the Norwegian Institute of Public Health and is linked directly to WHO Headquarters in Geneva. <http://www.whocc.no/atcddd/>

### **Explanation of ATC coding system e.g. amoxicillin (J01CA04)**

- **J** denotes that the item is an anti-infective
- **J01** an anti-infective for systemic use
- **J01C** a beta-lactam antibacterial, penicillin
- **J01CA** a penicillin with extended spectrum
- **J01CA04** is the specific code for amoxicillin

## Antimicrobial Groups

Data is presented for the following antimicrobials/antimicrobial groups (ATC code):

• Tetracyclines e.g. oxytetracycline	(J01AA)
• Amphenicols e.g. chloramphenicol	(J01BA)
• Broad spectrum penicillins (BSP) e.g. amoxicillin	(J01CA)
• Beta-lactamase sensitive penicillins (BLSP) e.g. penicillin V	(J01CE)
• Beta-lactamase resistant penicillins (BLRP) e.g. flucloxacillin	(J01CF)
• Beta-lactam/beta-lactamase inhibitor combinations (BLI)	(J01CR)
• Cephalosporins and carbapenems	(J01D)
• Cephalosporins alone	(J01D*)
• First generation cephalosporins e.g. cefalexin	(J01DB)
• Second generation cephalosporins e.g. cefuroxime	(J01DC)
• Third generation cephalosporins e.g. cefotaxime	(J01DD)
• Monobactams e.g. aztreonam	(J01DF)
• Carbapenems e.g. imipenem	(J01DH)
• Trimethoprim & sulphonamides	(J01E)
• Macrolides e.g. erythromycin	(J01FA)
• Lincosamides & streptogramins e.g. clindamycin	(J01F)
• Streptomycin	(J01GA)
• Aminoglycosides e.g. gentamicin	(J01GB)
• Fluoroquinolones e.g. ciprofloxacin	(J01MA)
• Glycopeptides e.g. vancomycin	(J01XA)
• Polymixins e.g. colistin	(J01XB)
• Fusidic Acid	(J01XC)
• Imidazole derivatives e.g. metronidazole	(J01XD)
• Nitrofurans derivatives e.g. nitrofurantoin	(J01XE)
• Linezolid	(J01XX)
• Rifampicin	(J04AB)

## Data presented

Pharmacy systems are primarily designed to support stock control and distribution and may be differently configured in different Trusts/Hospitals. In order to increase comparability, the antimicrobial usage data presented in this report only includes the following “issue types” from pharmacy:

- In-patient Scripts (IP Scripts)
- Patients’ Own Medications (POMs) or One Stop Medications
- Returns
- To Take Away (TTA)/Discharge Scripts
- Ward Requisitions

The main objective of this report is to show trends in antimicrobial usage within the hospital. Thus the dataset does not include the issue types A&E scripts, Clinics, Day cases, Day hospital, OP scripts and Sales usage. As we are unable to resolve returns against their original issue type, and as only IP scripts, POMs, returns, TTAs and ward requisitions are included in the analysis, there is a possibility that the usage is higher than the figures shown in this report. However, with the inclusion of POMs and TTAs in the report, there is also a possibility that usage is lower than the figure shown in the report. Interpretation of the data requires an understanding of the local pharmacy system and knowledge of local dispensing practices.

**Note:** Only data for oral and parenteral antimicrobial usage are included in this report; it DOES NOT include topical, inhaled, rectal or genital preparation usage. Data for Singleton Hospital is not included in this report as their data was not available from MEDUSA at the time of data extraction, and for no other reason. It is hoped that this data will be included in future reports. The hospitals with their code included in this report comprise:

**Table 1: Hospital codes**

Hospital	Code	Code2
Bronglais General Hospital, Aberystwyth	A	BGH
Princess of Wales Hospital, Bridgend	B	POW
Royal Glamorgan Hospital, Pontypridd	C	RGL
Royal Gwent Hospital, Newport	D	RGW
Morrison Hospital, Morrison	E	MOR
University Hospital of Wales, Cardiff	F	UHW
Withybush General Hospital, Haverfordwest	G	WBH
Wrexham Maelor Hospital, Wrexham	H	WMH
West Wales General Hospital, Carmarthen	J	WWGH
Ysbyty Gwynedd, Bangor	K	YGB
Ysbyty Glan Clwyd, Rhyl	L	YGC
Nevill Hall Hospital, Abergavenny	M	NHH
Prince Charles, Merthyr	N	PCH
Llandough Hospital, Llandough	P	LLH
Prince Philip Hospital, Llanelli	R	PPH
Neath Port Talbot Hospital, Aberafan	T	NPT
All-Wales (includes all of the above)	Z	

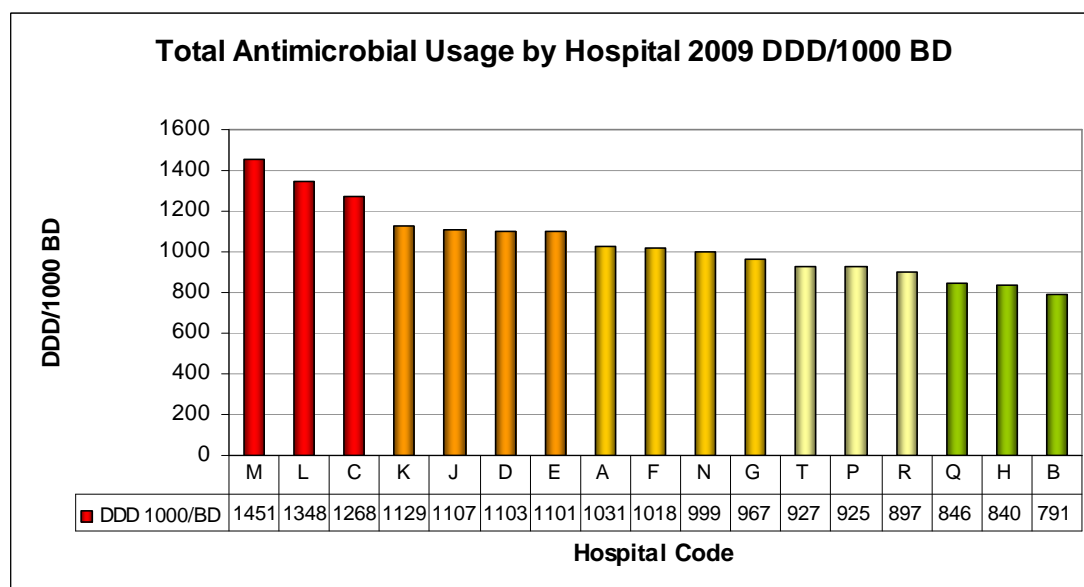
### Data Interpretation

In interpreting the data presented in this report it is important to appreciate the ways in which the data is collated and the factors that may drive variability in antimicrobial usage between hospitals. Important issues that should be considered include:

- Data applicability. As noted above, the data is drawn from Pharmacy computer systems that are designed primarily for stock control, and which are configured slightly differently in different units. These differences may mean that some antimicrobials that are used out-of-hospital are included in the data.
- The usage of antimicrobials is standardised against a denominator of patient activity (i.e. 1000 bed days) but may also be influenced by patient case-mix in different hospitals. Thus a hospital which treats significant numbers of immunocompromised patients might be expected to use comparatively larger amounts of broad-spectrum antimicrobials.
- The usage of antimicrobials should normally reflect the antimicrobial policies of each unit. For example the usage of piperacillin/tazobactam rather than an alternative broad spectrum agent is a reflection of the hospital policy for the treatment of patients presenting with neutropenic sepsis.
- The data presented can be used to identify changes in usage and monitor the effect of interventions.
- When interpreting graphs it is important to note that the y-axis scales vary between graphs and care should be used in interpretation.

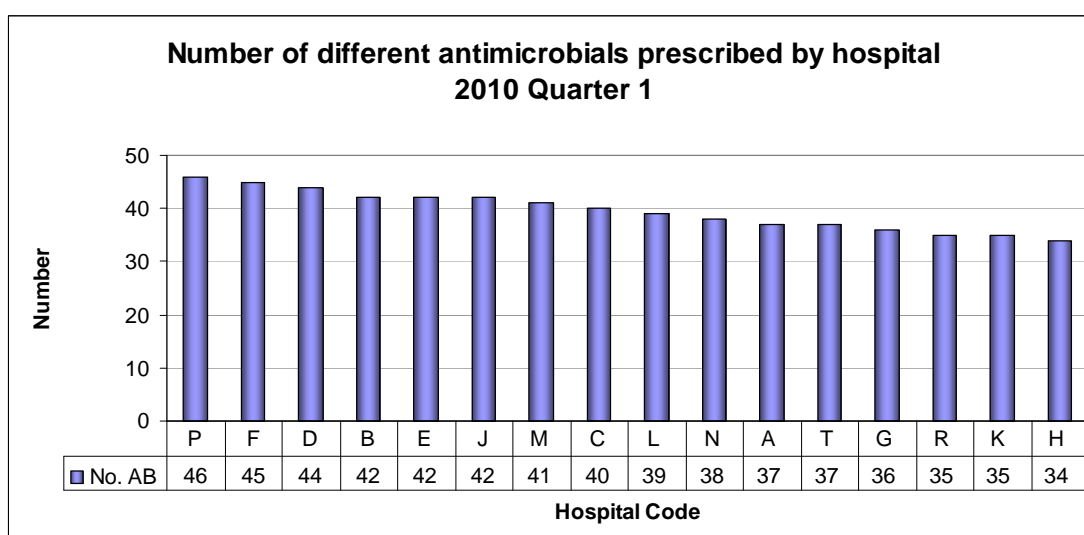
## SECTION 2: Antimicrobial Usage Data

### Individual hospital antimicrobial usage data



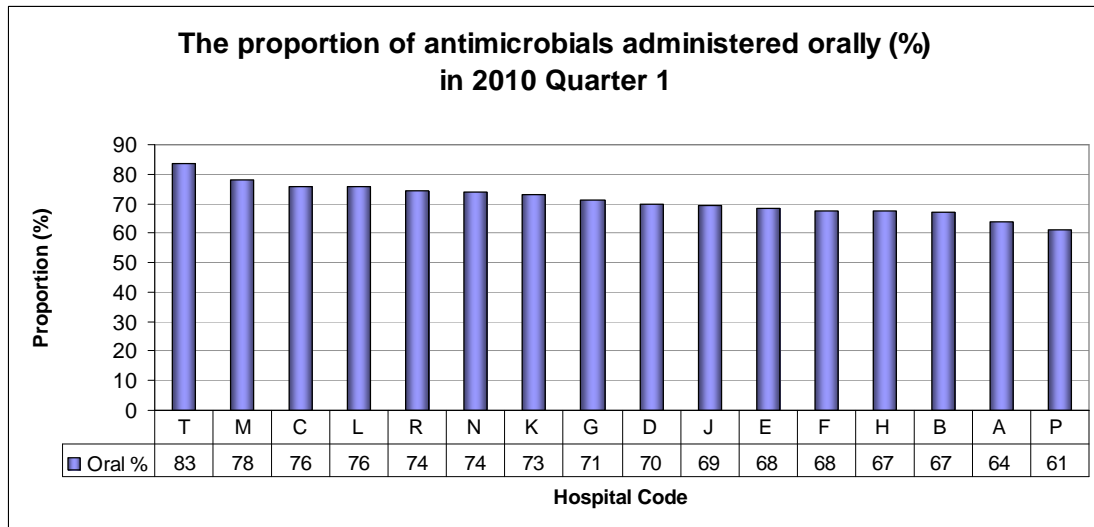
**Figure 1: Total antimicrobial usage by hospital (amended)**

The difference in total antimicrobial usage between hospitals in Wales for 2009 is shown in **Figure 1**. There is almost a two-fold variation in antimicrobial usage between hospitals at either end of the scale; the hospital at the low end of the scale used 791 DDD/1000 BD, compared to 1451 DDD/1000 BD for the hospital at the high end of the scale. There may be many good reasons for these differences e.g. case-mix, amounts dispensed as TTA and POMs, but there may also be room for improvement and a reduction of antimicrobial prescribing.



**Figure 2: Number of different antimicrobials dispensed by each hospital**

**Figure 2** shows the number of different antimicrobials dispensed as IP scripts, POMs, returns, TTA or ward discharges varied between hospitals from 34 to 46. The biggest number of different antimicrobials was used by Llandough hospital (hospital P), and the smallest number by Wrexham Maelor hospital (hospital H).



**Figure 3: Proportion of total oral antimicrobial usage by hospital**

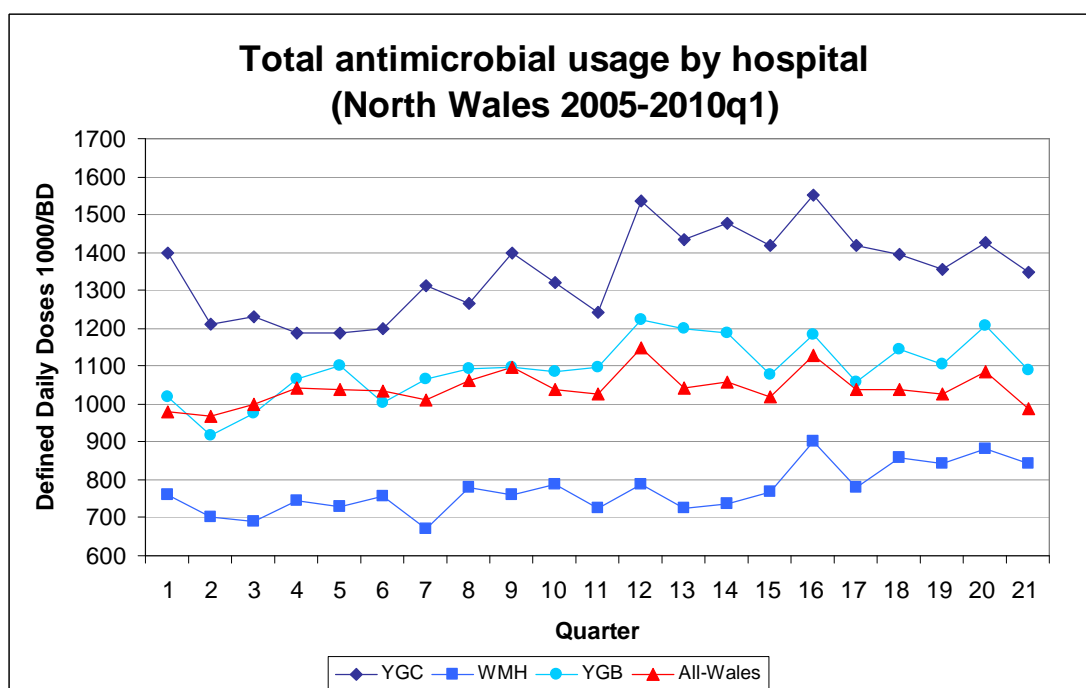
**Figure 3** shows the proportion of total oral antimicrobial usage by hospital in 2010q1, which varied between 61.2% and 83.4%. The hospital with the lowest proportion of oral antimicrobial usage was a specialist referral hospital (P) and the one with the highest proportion of oral usage was a non-specialist general hospital (T).

## Trends in total antimicrobial usage by geographical area

Figures 4-8 show the trend data split by geographical area as shown in Table 2; for comparison the All-Wales average total usage is presented with each figure. Across Wales antimicrobial usage has remained fairly stable over the period 2005-2010q1; use in 2005q1 was 992 DDDs/1000 BD, and in 2010q1 was 1005 DDDs/1000 BD.

**Table 2: Geographical Areas**

Geographical Area	Hospital Code	Hospital Name
North Wales	YGC	Ysbyty Glan Clwyd
	WMH	Wrexham Maelor Hospital
	YGB	Ysbyty Gwynedd
Mid & West Wales Area 1	BGH	Bronglais General Hospital
	WWGH	West Wales General Hospital
	PPH	Prince Philip Hospital, Llanelli
	WBH	Withybush General Hospital
Mid & West Wales Area 2	MOR	Morrison Hospital
	NPT	Neath Port Talbot Hospital
	POW	Princess of Wales Hospital
South East Wales Area 1	UHW	University Hospital of Wales
	LLH	Llandough Hospital
South East Wales Area 2	RGL	Royal Glamorgan Hospital
	PCH	Prince Charles
	RGW	Royal Gwent Hospital
	NHH	Nevill Hall Hospital



**Figure 4: Trends in total antimicrobial usage for North Wales (amended)**



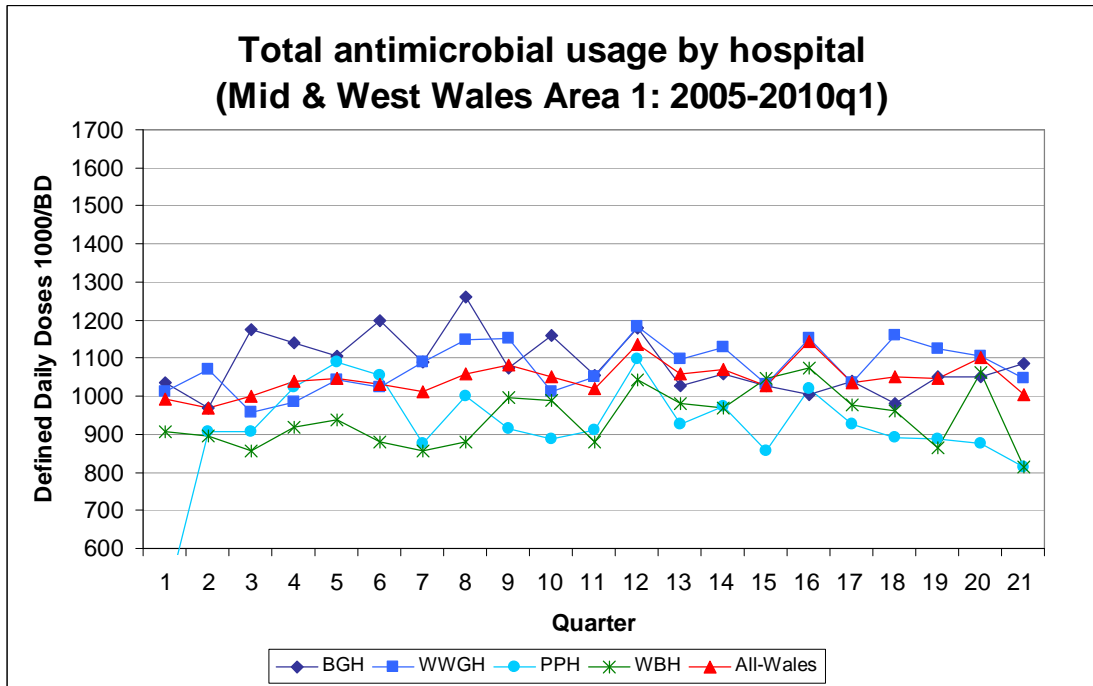


Figure 5: Trends in total antimicrobial usage for M&W Wales Area 1

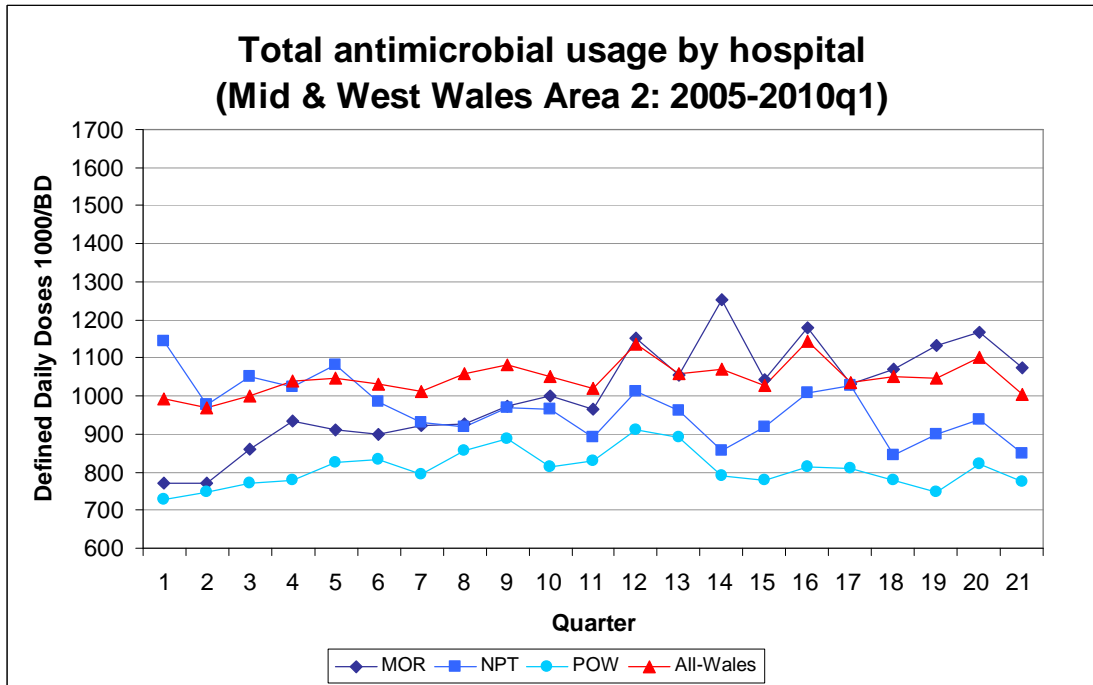


Figure 6: Trends in total antimicrobial usage for M&W Wales Area 2

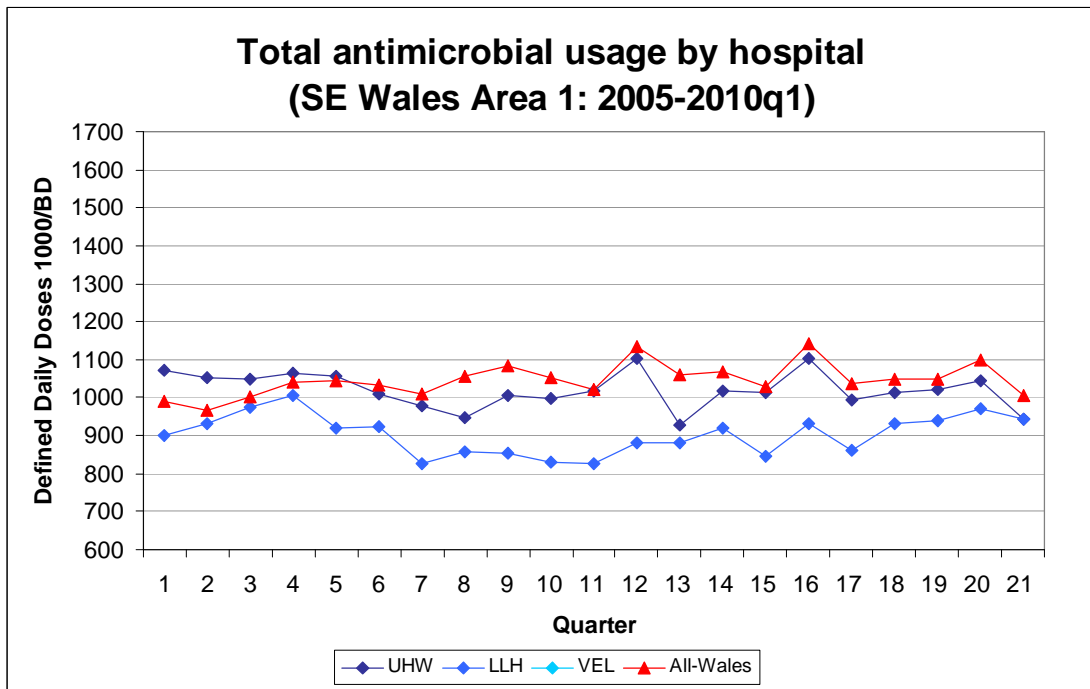


Figure 7: Trends in total antimicrobial usage for SE Wales Area 1

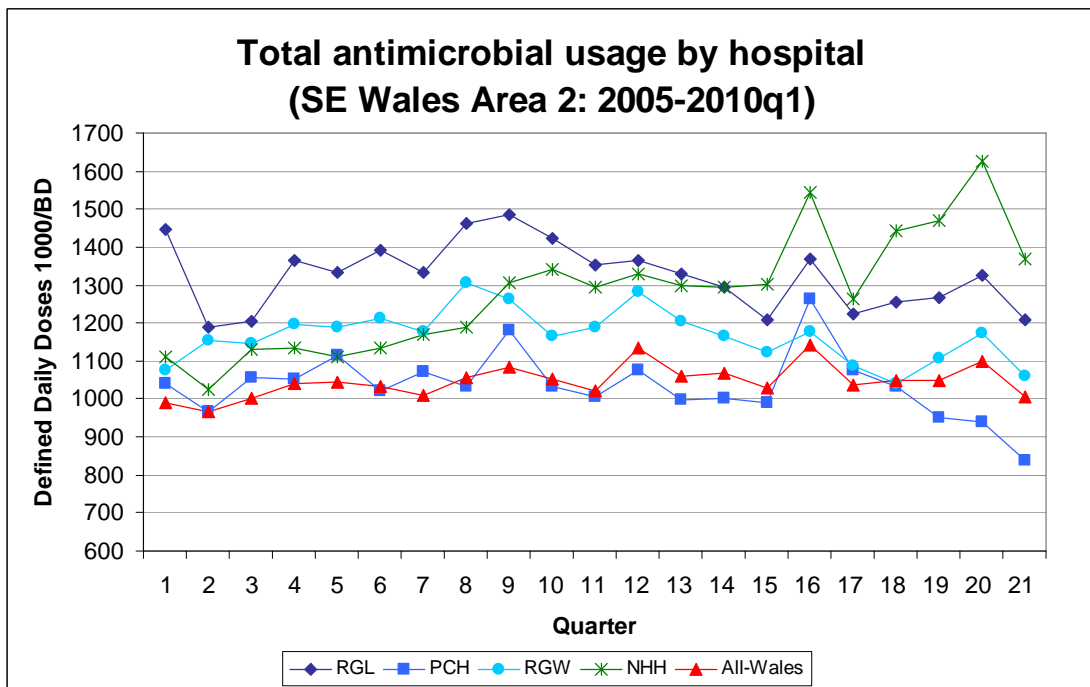


Figure 8: Trends in total antimicrobial usage for SE Wales Area 2

## ***Proportion of usage by antimicrobial group/hospital***

Data is presented by antimicrobial group using ATC coding, the groups comprise:

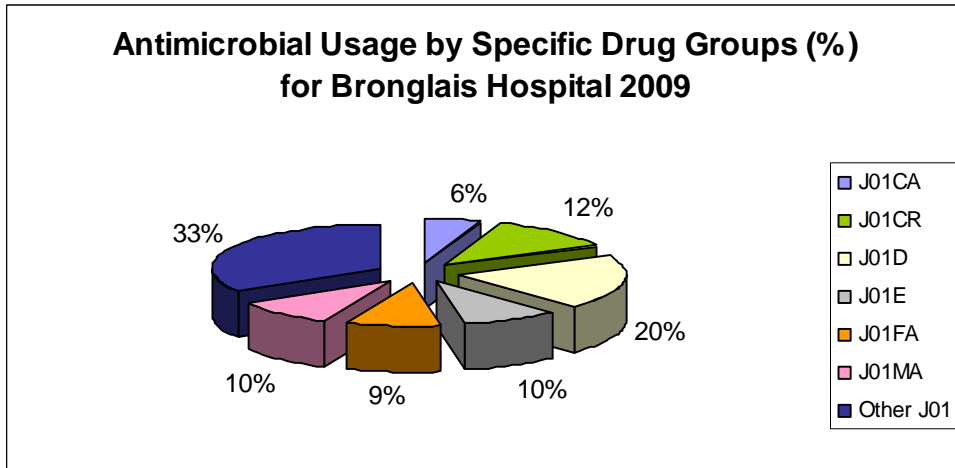
- J01CA (broad spectrum penicillins e.g. amoxicillin)
- J01CR (beta-lactam/beta-lactamase inhibitor e.g. co-amoxiclav)
- J01D (cephalosporins & carbapenems e.g. cefuroxime & imipenem)
- J01E (sulphonamides & trimethoprim)
- J01FA (macrolides e.g. clarithromycin)
- J01MA (fluoroquinolones e.g. ciprofloxacin)

Other J01 (all other antimicrobial groups e.g. imidazoles)

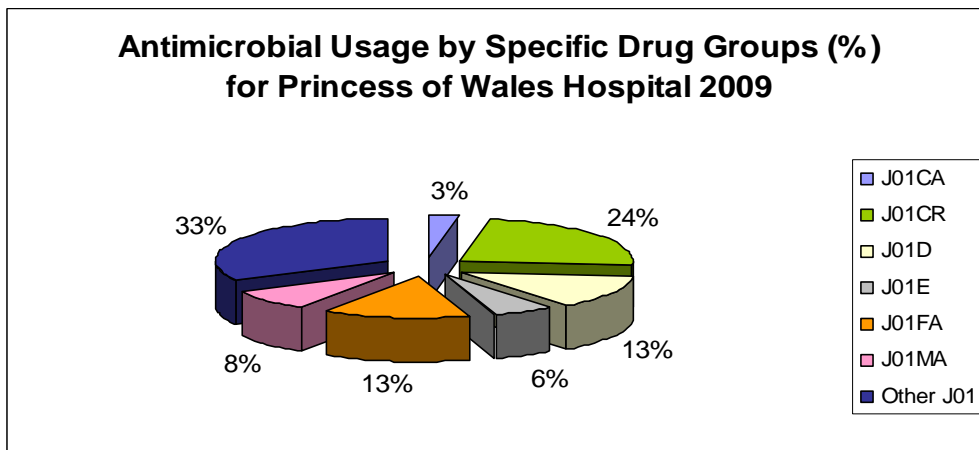
**Figures 9-24** show the variability between hospitals in the commonly used agents in 2009. **Table 3** shows the most common antimicrobial group (excluding 'Other J01') for each hospital. For ten of the seventeen hospital surveyed, J01CR was the most common antimicrobial group. The most common members of the J01CR group are co-amoxiclav and piperacillin/tazobactam. J01CR usage ranged from 7% in Ysbyty Glan Clwyd hospital (see Figure 19) to 32% in the Royal Gwent hospital (Figure 12) and Nevill Hall hospital (Figure 20). Six hospitals use macrolides (J01FA) most commonly; the most common members of the J01FA group are clarithromycin and erythromycin. Usage ranged from 6% in Morryston hospital (Figure 13) to 23% in Prince Philip hospital (Figure 23). One hospital (Bronglais hospital) used J01D most commonly; this group which includes all cephalosporins and carbapenems accounted for 20% of prescribing (Figure 9).

**Table 3: Geographical Areas**

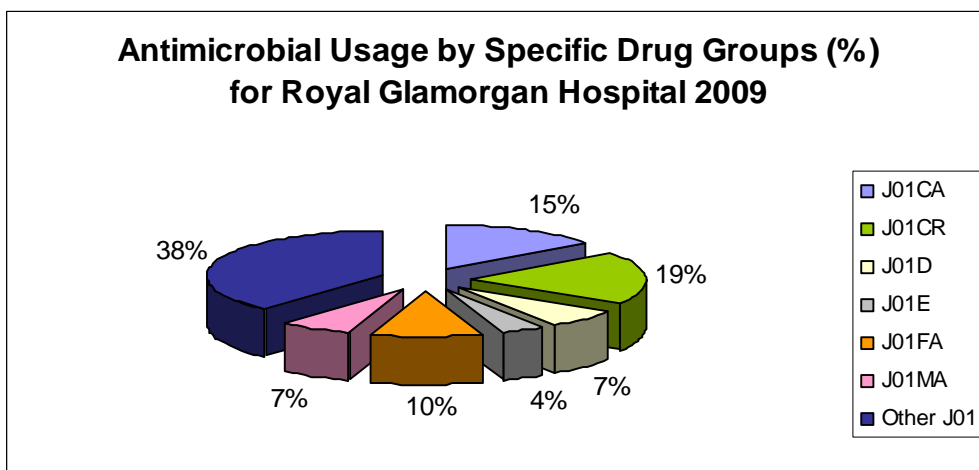
<b>Hospital</b>	<b>Code</b>	<b>Commonest Antimicrobial Group</b>
Bronglais General Hospital, Aberystwyth	<b>A</b>	<b>J01D</b>
Princess of Wales Hospital, Bridgend	<b>B</b>	<b>J01CR</b>
Royal Glamorgan Hospital, Pontypridd	<b>C</b>	<b>J01CR</b>
Royal Gwent Hospital, Newport	<b>D</b>	<b>J01CR</b>
Morryston Hospital, Morryston	<b>E</b>	<b>J01CR</b>
University Hospital of Wales, Cardiff	<b>F</b>	<b>J01CR</b>
Withybush General Hospital, Haverfordwest	<b>G</b>	<b>J01FA</b>
Wrexham Maelor Hospital, Wrexham	<b>H</b>	<b>J01FA</b>
West Wales General Hospital, Carmarthen	<b>J</b>	<b>J01CR</b>
Ysbyty Gwynedd, Bangor	<b>K</b>	<b>J01FA</b>
Ysbyty Glan Clwyd, Rhyl	<b>L</b>	<b>J01FA</b>
Nevill Hall Hospital, Abergavenny	<b>M</b>	<b>J01CR</b>
Prince Charles, Merthyr	<b>N</b>	<b>J01CR</b>
Llandough Hospital, Llandough	<b>P</b>	<b>J01CR</b>
Velindre Hospital, Cardiff	<b>Q</b>	<b>J01CR</b>
Prince Philip Hospital, Llanelli	<b>R</b>	<b>J01FA</b>
Neath Port Talbot Hospital, Aberafan	<b>T</b>	<b>J01FA</b>



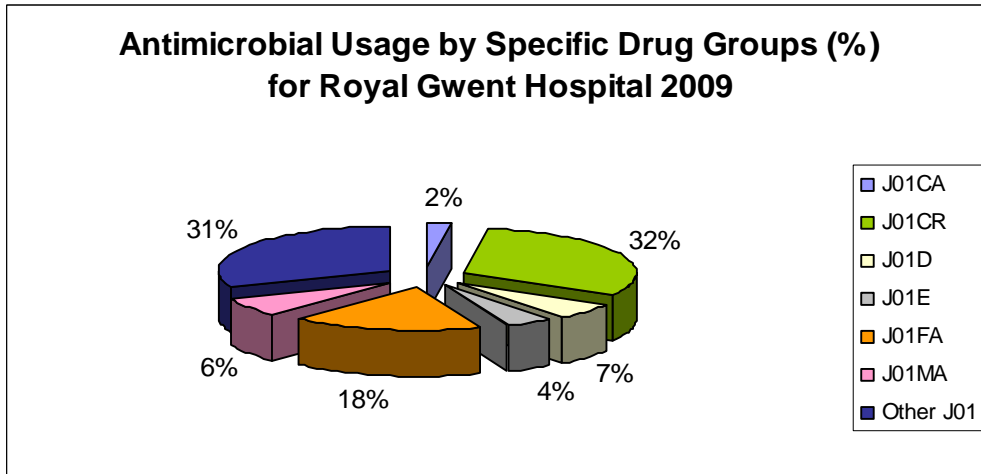
**Figure 9: Antimicrobial usage for hospital A**



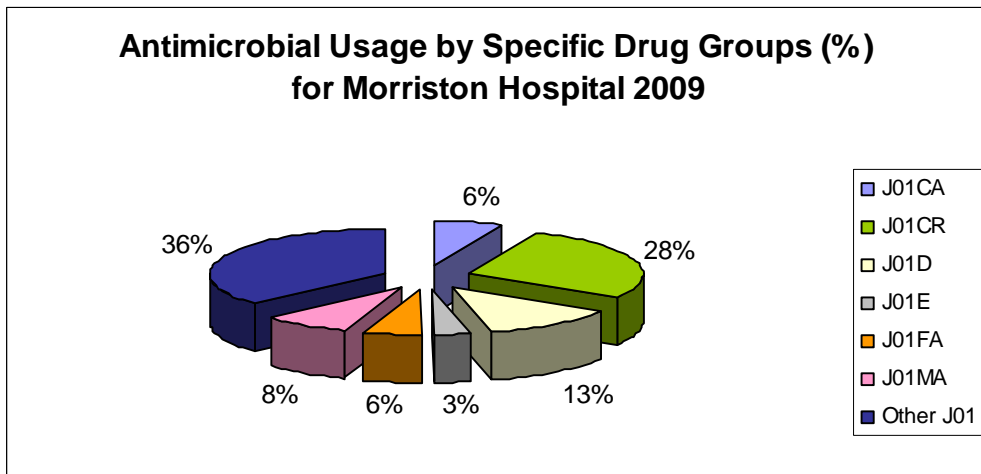
**Figure 10: Antimicrobial usage for hospital B**



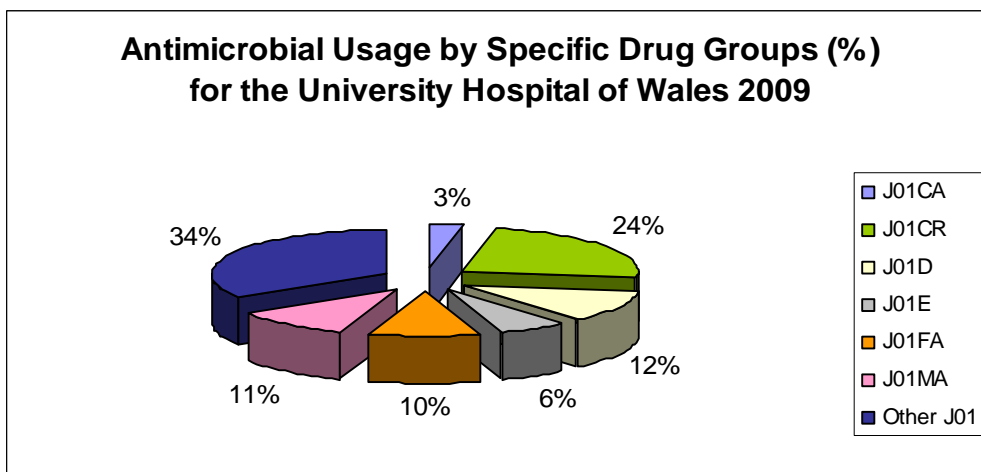
**Figure 11: Antimicrobial usage for hospital C**



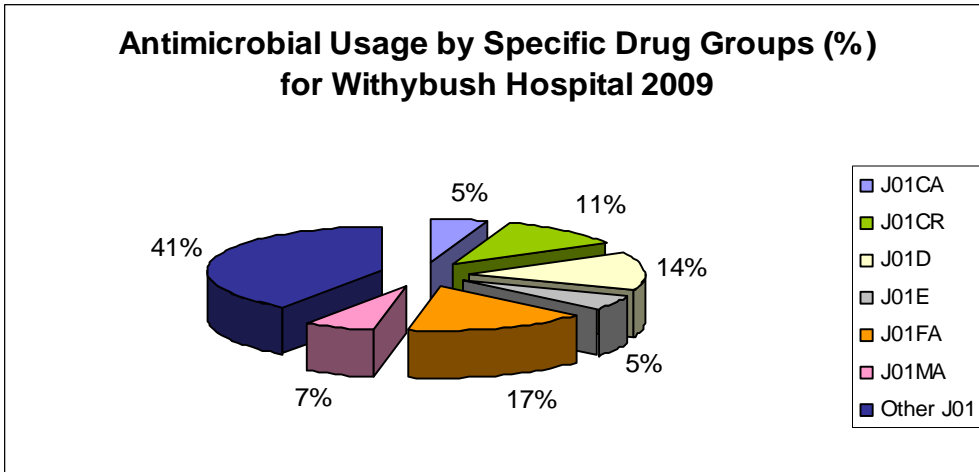
**Figure 12: Antimicrobial usage for hospital D**



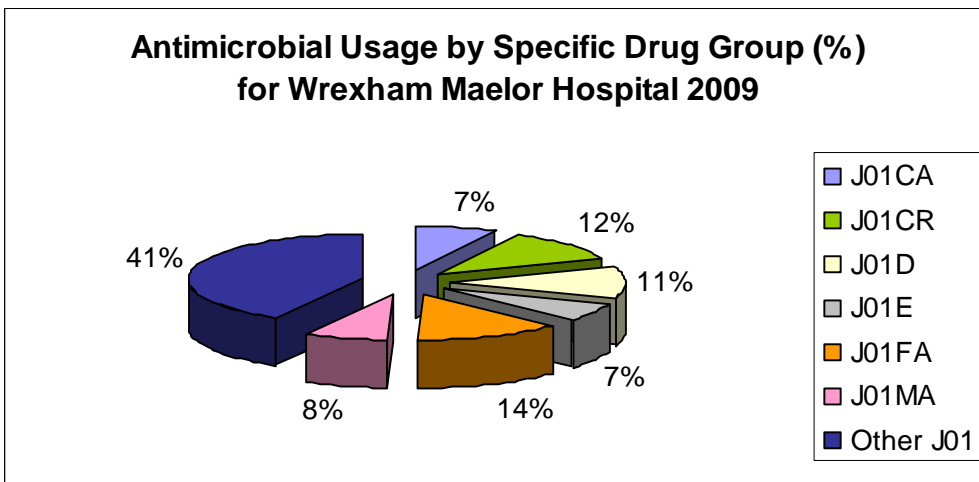
**Figure 13: Antimicrobial usage for hospital E**



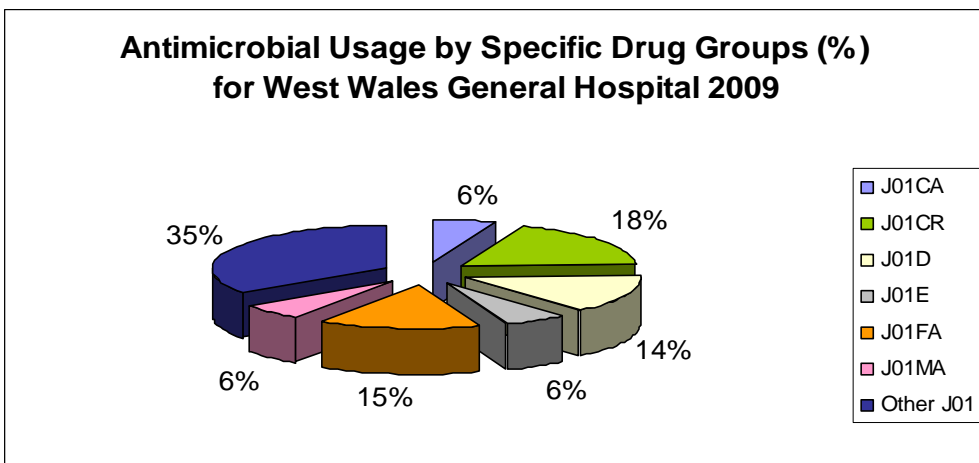
**Figure 14: Antimicrobial usage for hospital F**



**Figure 15: Antimicrobial usage for hospital G**



**Figure 16: Antimicrobial usage for hospital H**



**Figure 17: Antimicrobial usage for hospital J**

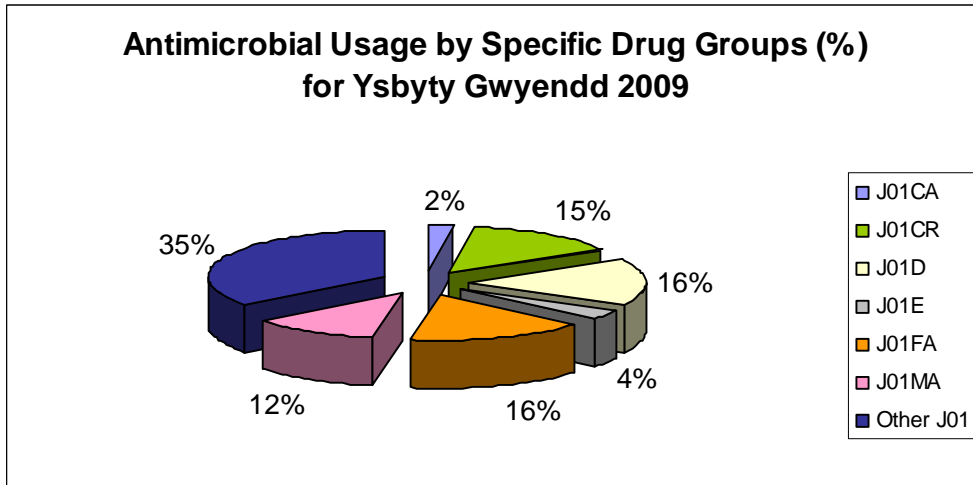


Figure 18: Antimicrobial usage for hospital K

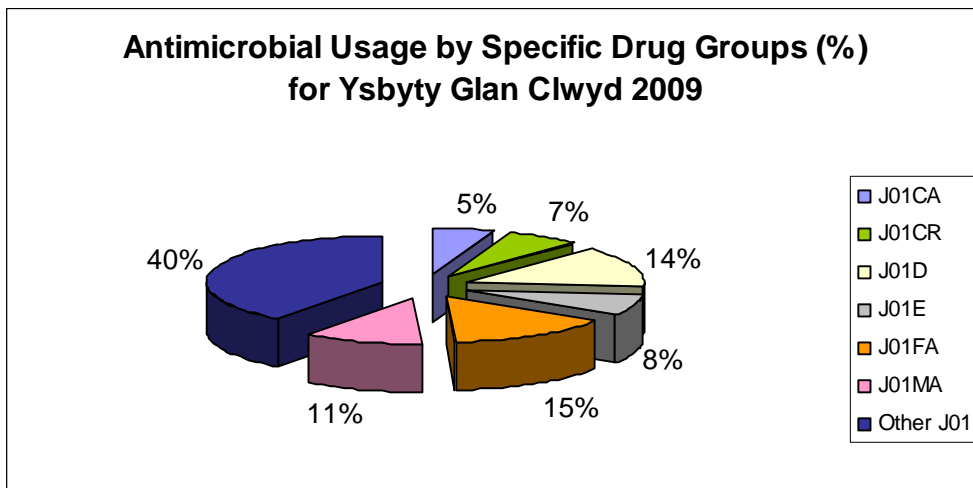


Figure 19: Antimicrobial usage for hospital L (amended)

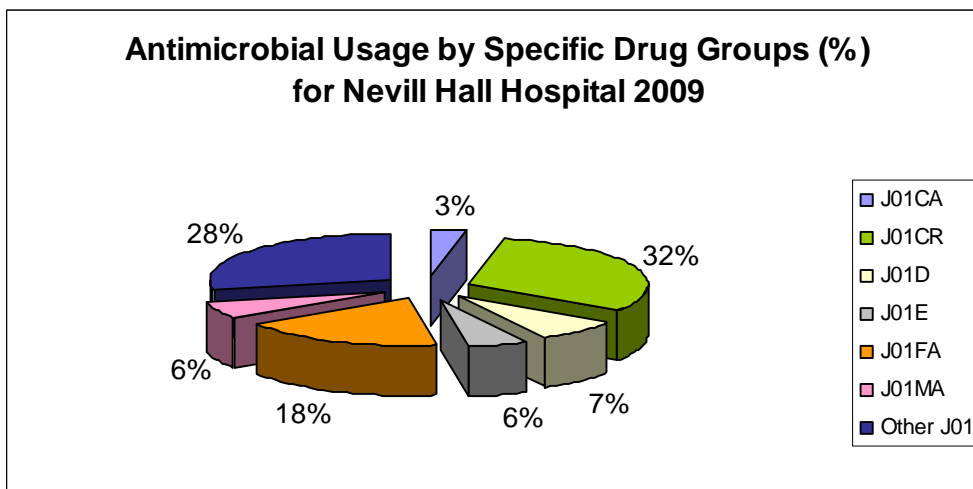
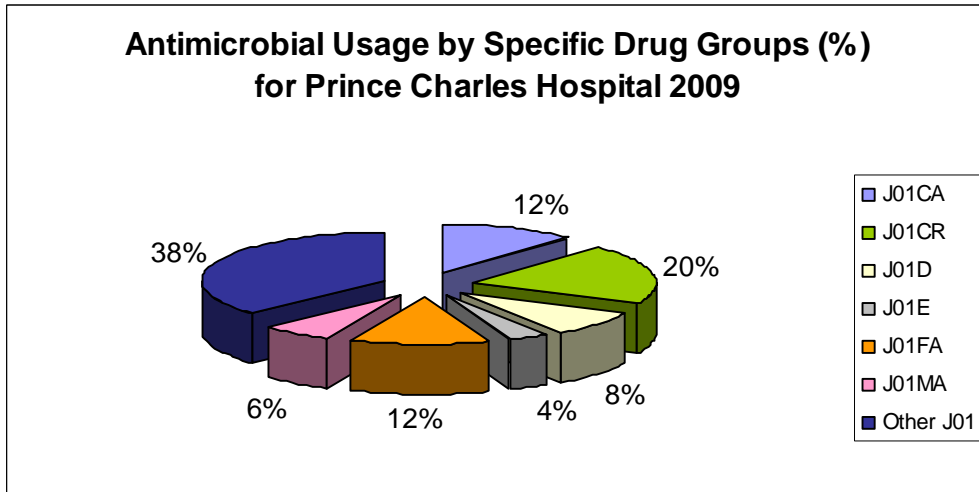
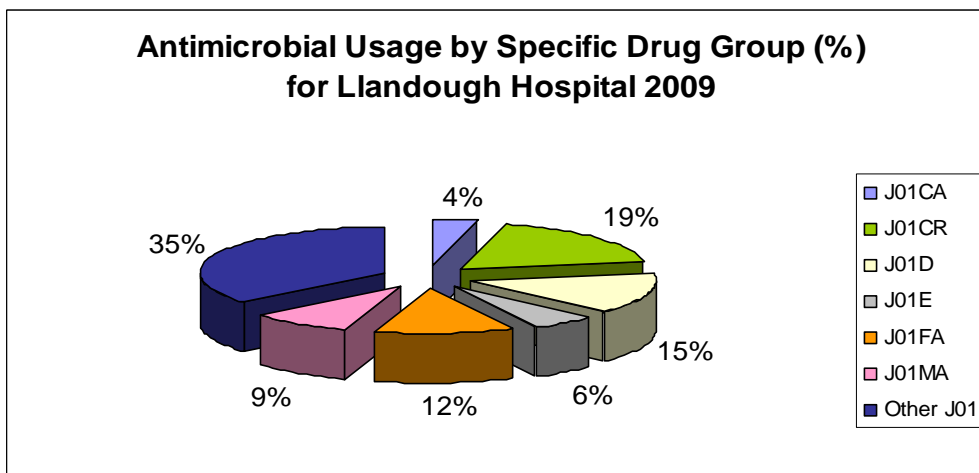


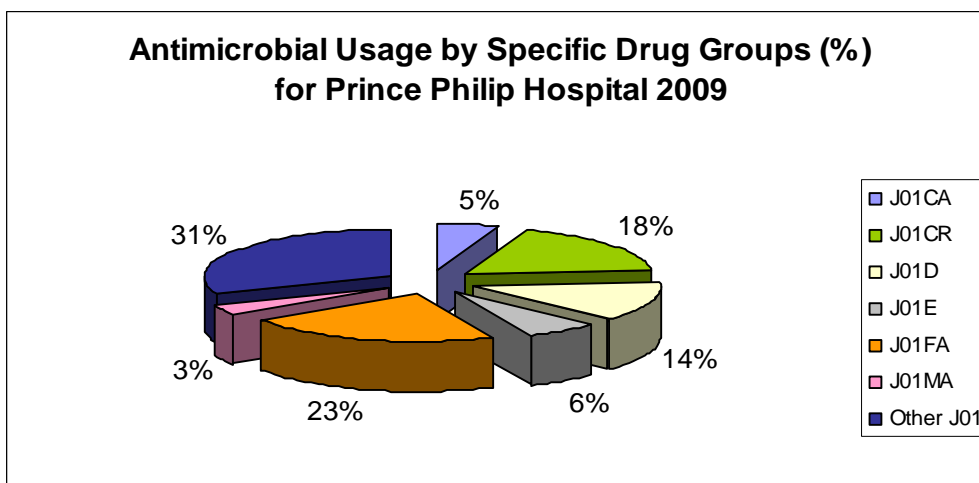
Figure 20: Antimicrobial usage for hospital M



**Figure 21: Antimicrobial usage for hospital N**

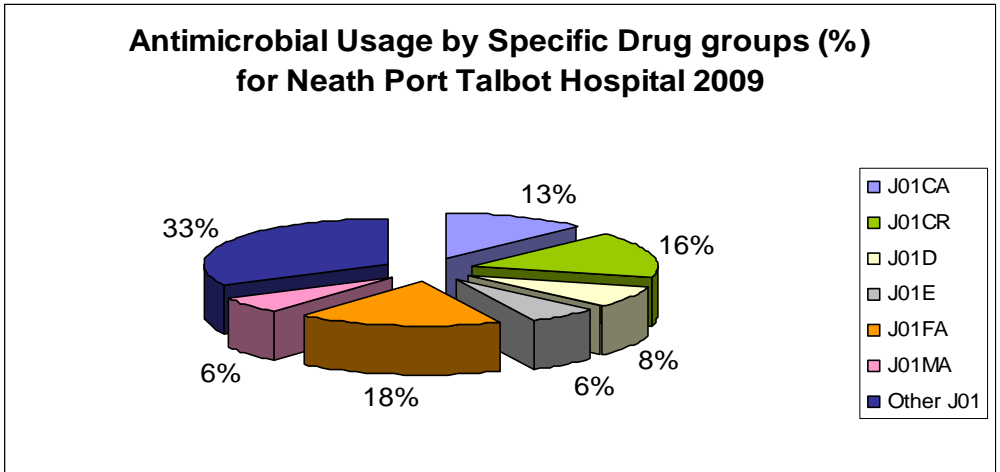


**Figure 22: Antimicrobial usage for hospital P**



**Figure 23: Antimicrobial usage for hospital R**





**Figure 24: Antimicrobial usage for hospital T**

## Trends in usage by antimicrobial group by area/hospital

### Tetracyclines (J01AA)

Figures 25-29 show trends in tetracycline usage (J01AA) for the period 2005-2010q1 by geographical area. The All-Wales average J01AA usage showed an upward trend, predominantly due to an increase in doxycycline usage in Royal Glamorgan hospital (see Figure 29).

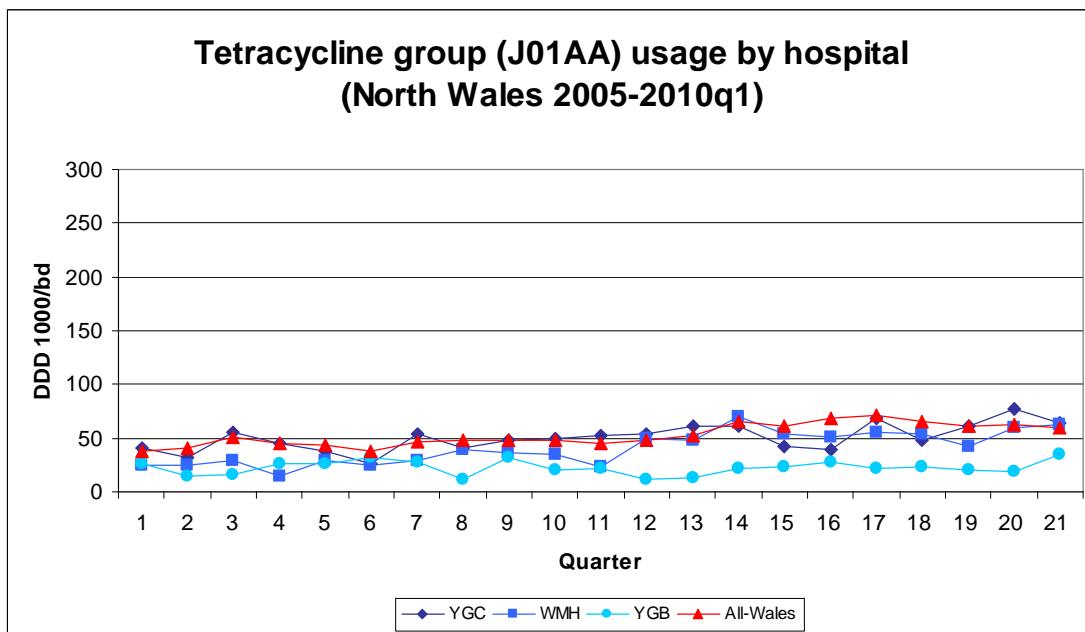


Figure 25: Trends in J01AA usage - North Wales

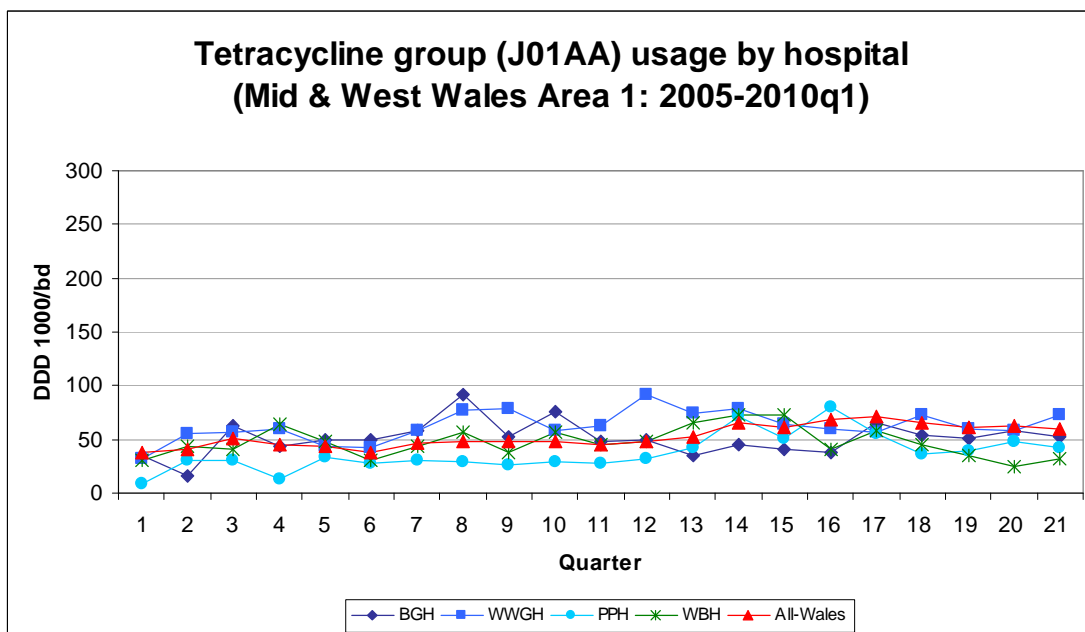
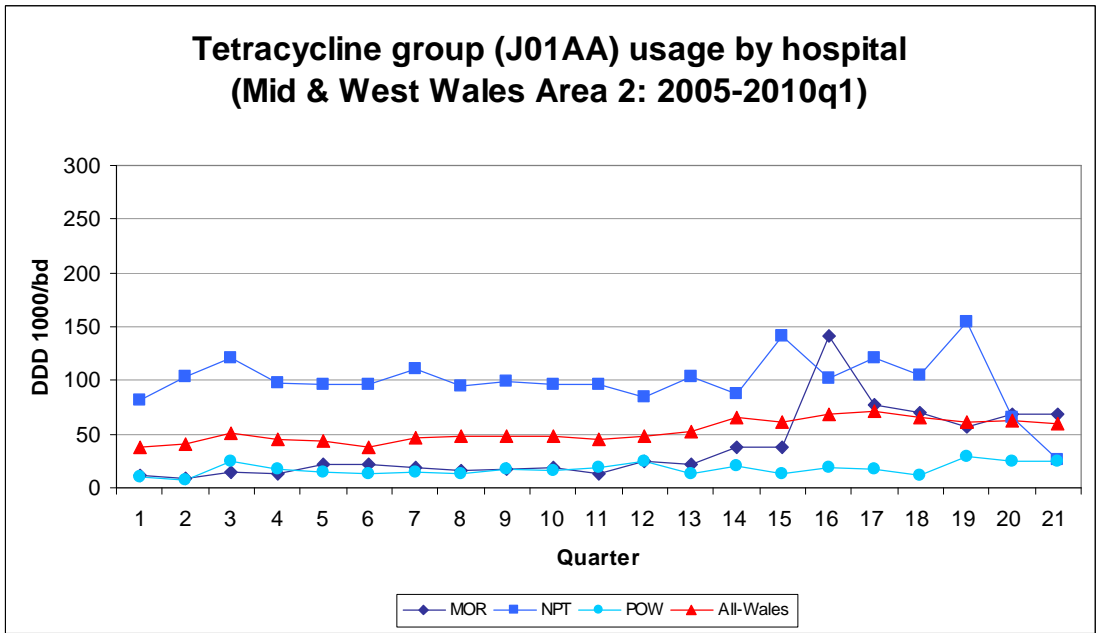
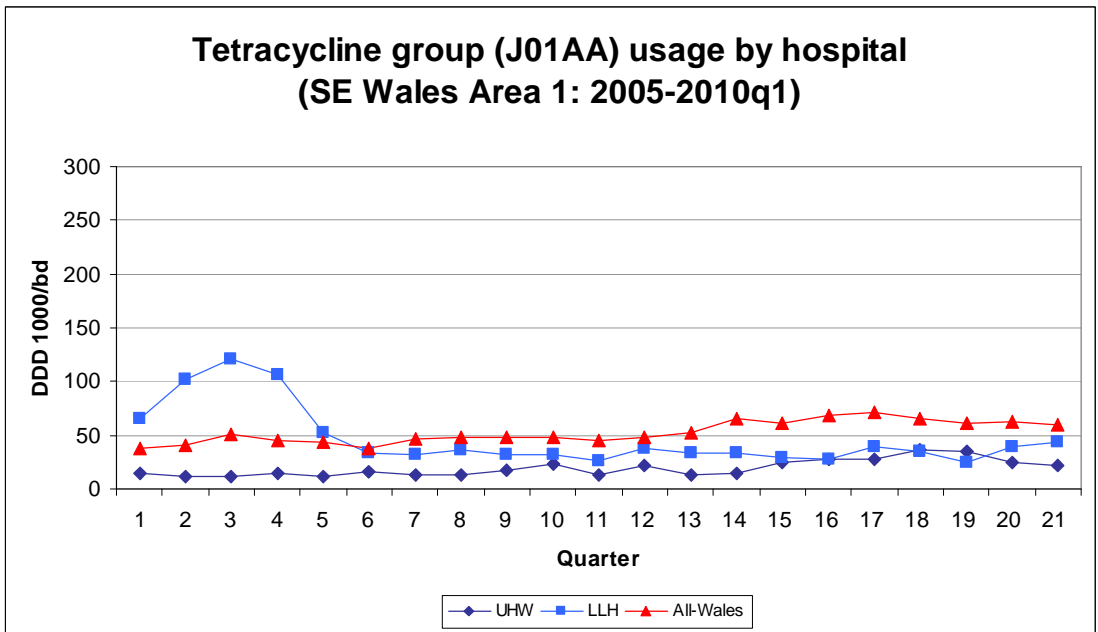


Figure 26: Trends in J01AA usage - Mid & West Wales Area 1



**Figure 27: Trends in J01AA usage - Mid & West Wales Area 2**



**Figure 28: Trends in J01AA usage - South East Wales Area 1**

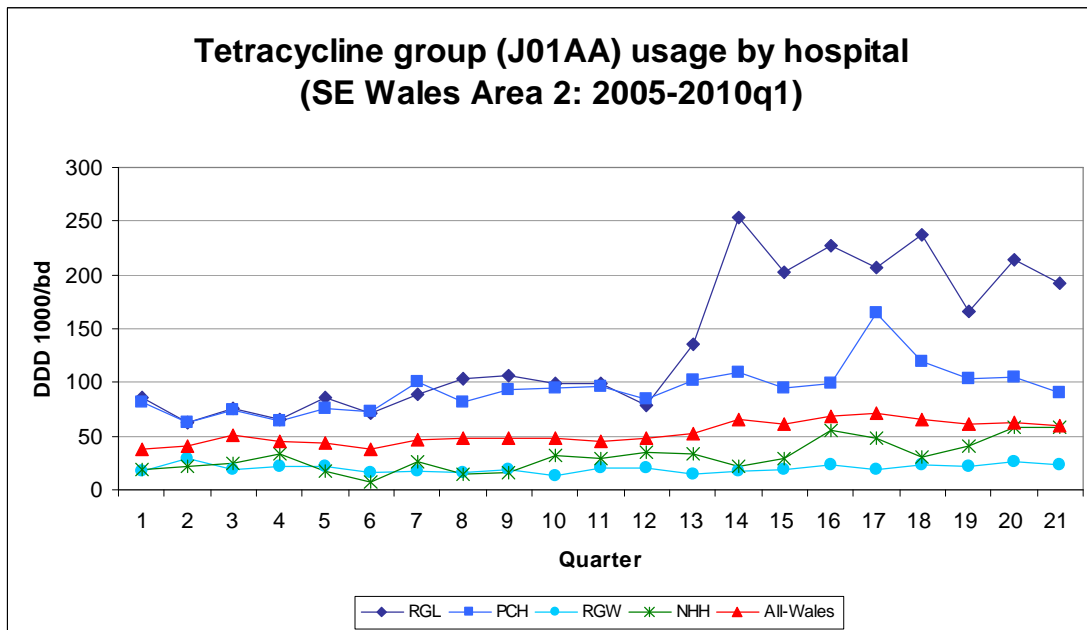


Figure 29: Trends in J01AA usage - South East Wales Area 2

### Broad Spectrum Penicillins (J01CA)

Figures 30-34 show trends in broad spectrum penicillin (J01CA) usage for the period 2005-2010q1 by geographical area. The All-Wales data shows seasonal usage of J01CA occurs with generally higher prescribing in the winter quarters than summer quarters. At an All-Wales level there has been no change in J01CA usage, however, at hospital level there has been some change e.g. for Ysbyty Glan Clwyd (see Figure 30), there is a marked upward trend in prescribing whilst for Neath Port Talbot hospital (Figure 32) there is a noticeable downward trend.

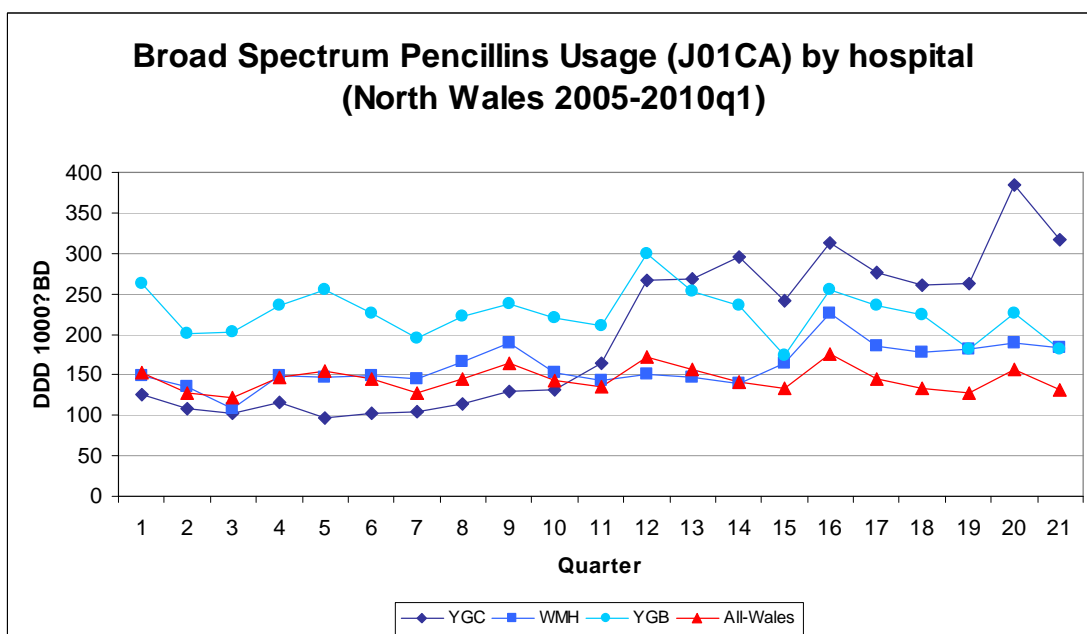


Figure 30: Trends in J01CA usage - North Wales

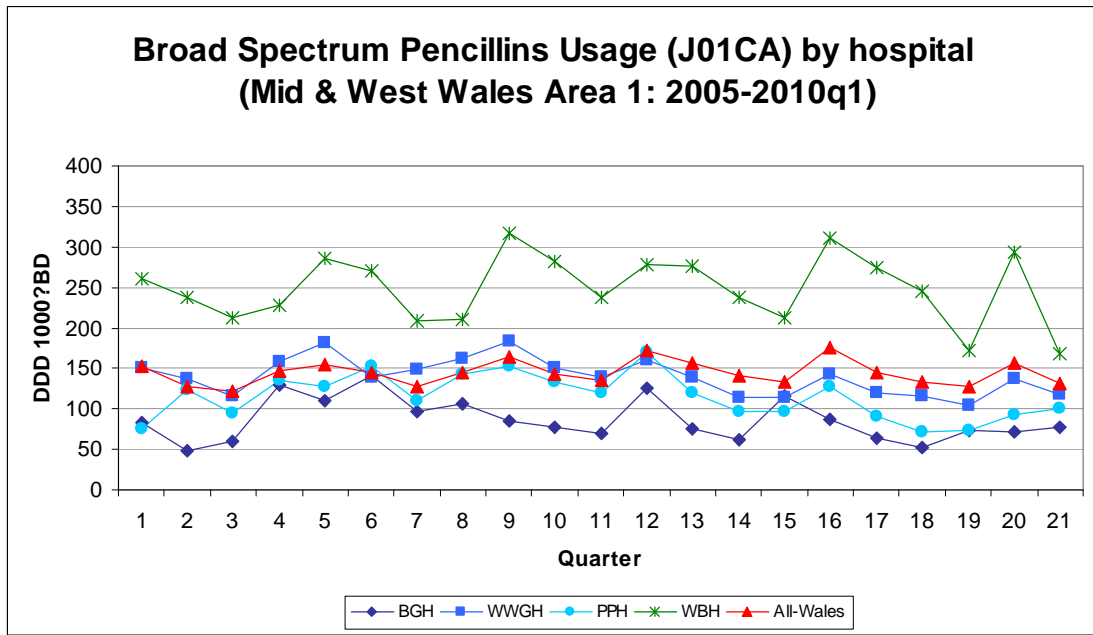


Figure 31: Trends in J01CA usage - Mid & West Wales Area 1

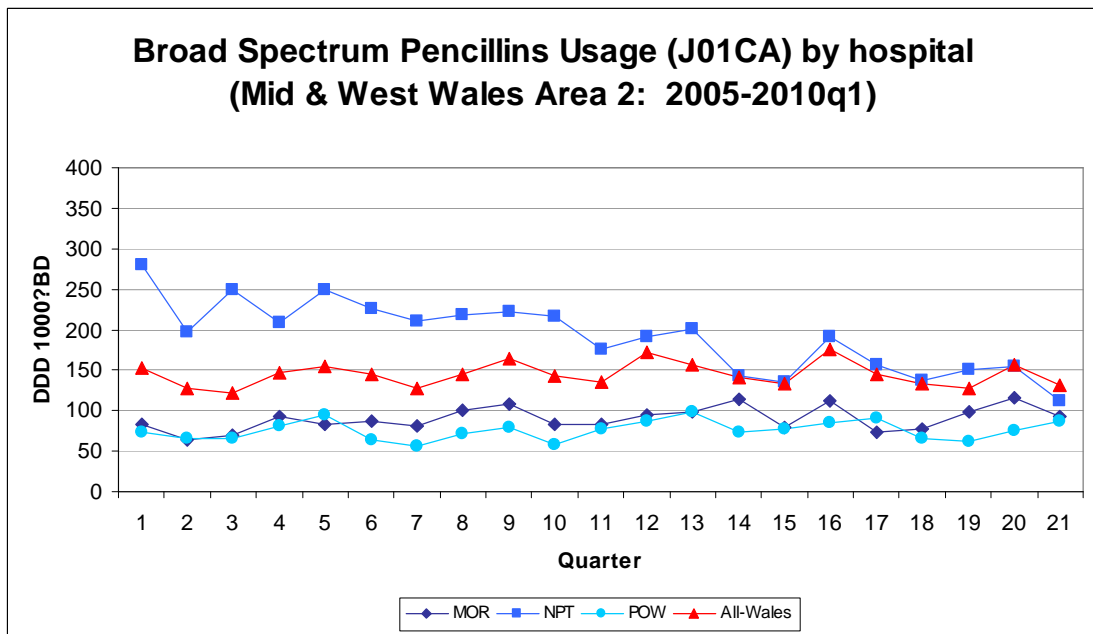


Figure 32: Trends in J01CA usage - Mid & West Wales Area 2

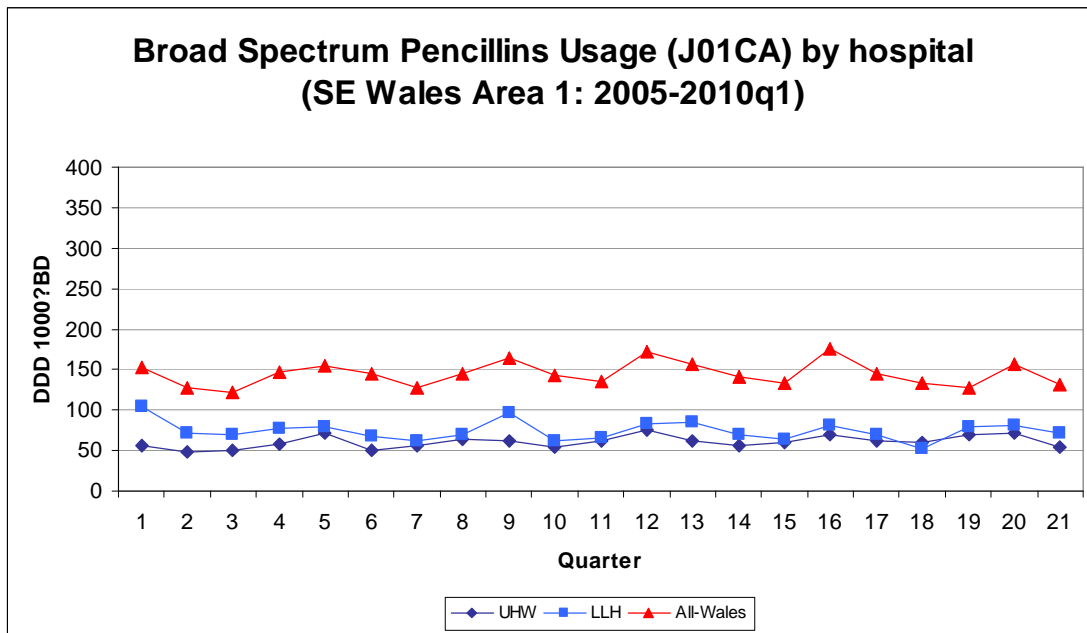


Figure 33: Trends in J01CA usage - South East Wales Area 1

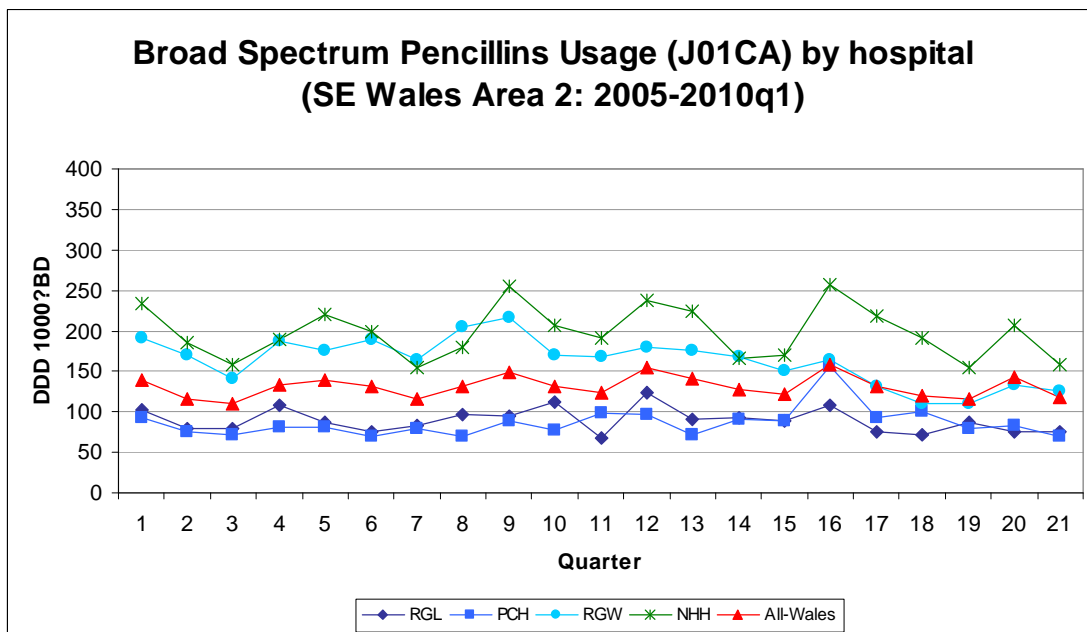


Figure 34: Trends in J01CA usage - South East Wales Area 2

## Beta-lactam/beta-lactamase inhibitor combinations (J01CR)

Figures 35-39 show trends in beta-lactam/beta-lactamase inhibitor combination (J01CR) usage for the period 2005-2010q1 by geographical area. The All-Wales data shows an upward trend in prescribing between 2005-2010q1. Whilst this general trend is reflected in hospitals such as Morriston (see Figure 37), other hospitals show a marked downward trend e.g. Ysbyty Glan Clwyd (Figure 35).

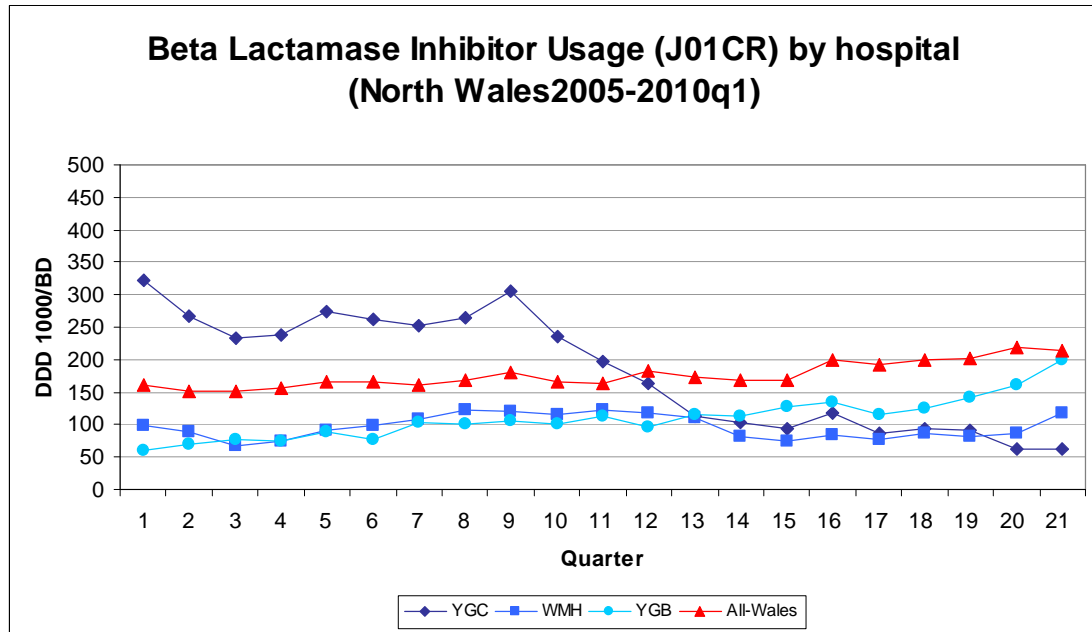


Figure 35: Trends in J01CR usage - North Wales

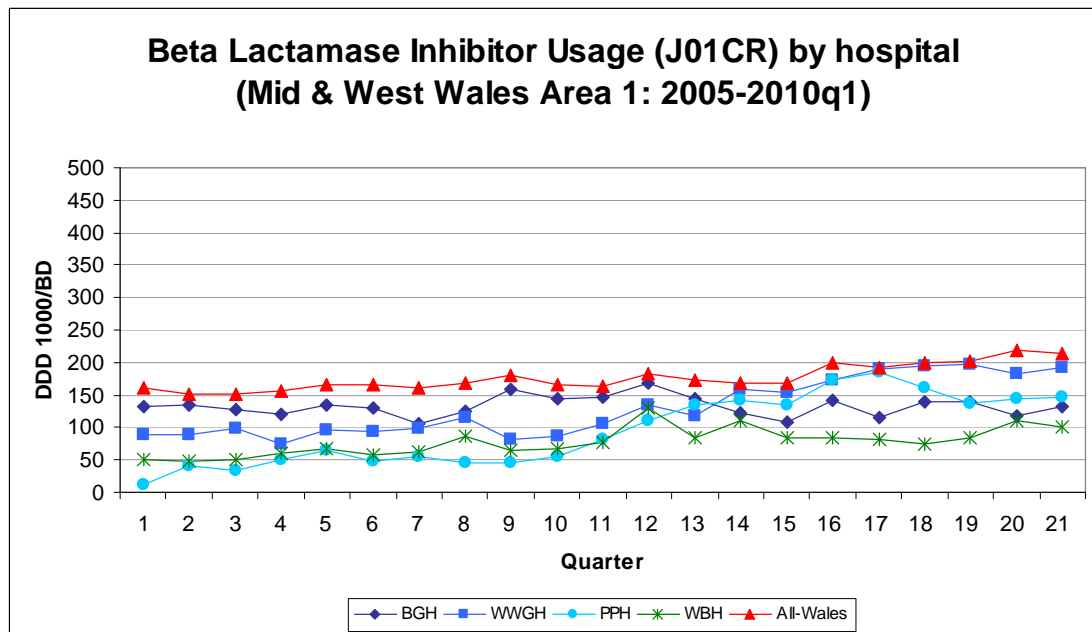


Figure 36: Trends in J01CR usage - Mid & West Wales Area 1

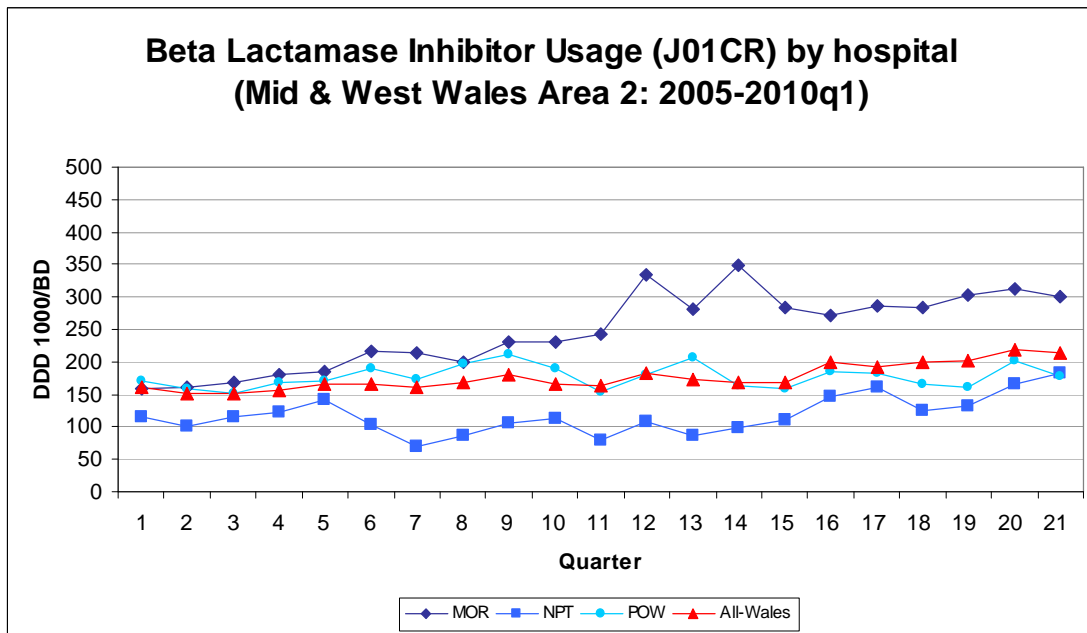


Figure 37: Trends in J01CR usage - Mid & West Wales Area 2

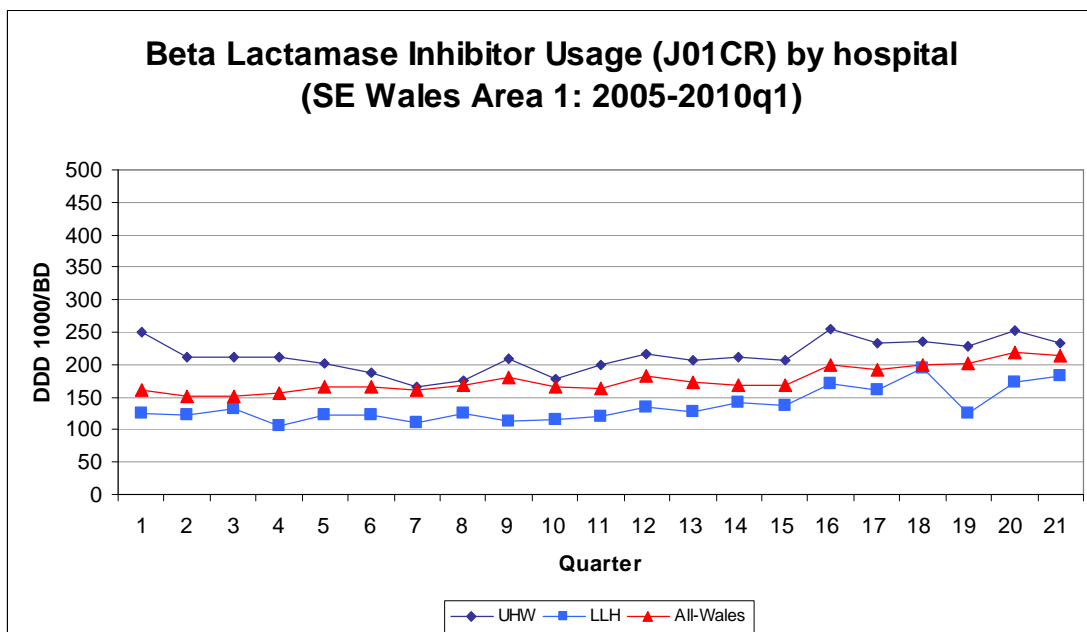


Figure 38: Trends in J01CR usage - South East Wales Area 1



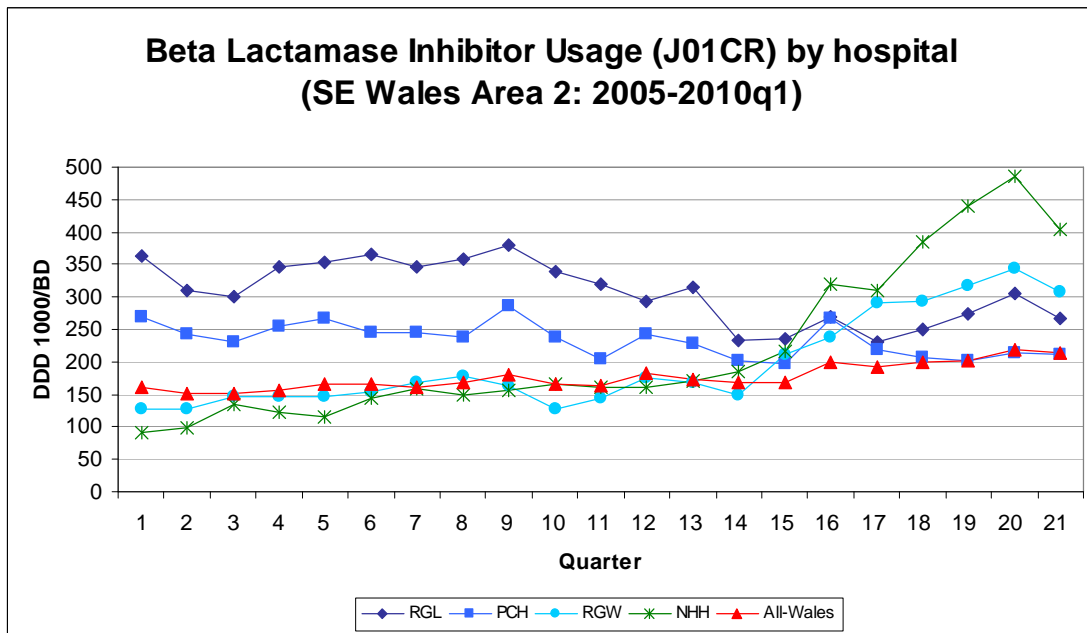


Figure 39: Trends in J01CR usage - South East Wales Area 2

### Cephalosporin Usage (J01D\*)

Figures 40-44 show trends in cephalosporin (J01D\*) usage for the period 2005-2010q1 by geographical area. The All-Wales data shows a downward trend in usage decreasing from 121 DDD/1000 BD in 2005q1 to 90 DDD/1000 BD in 2010q1; the trend is influenced by the notable decrease in usage for Nevill Hall hospital and the Royal Gwent hospital (see Figure 44) during this period.

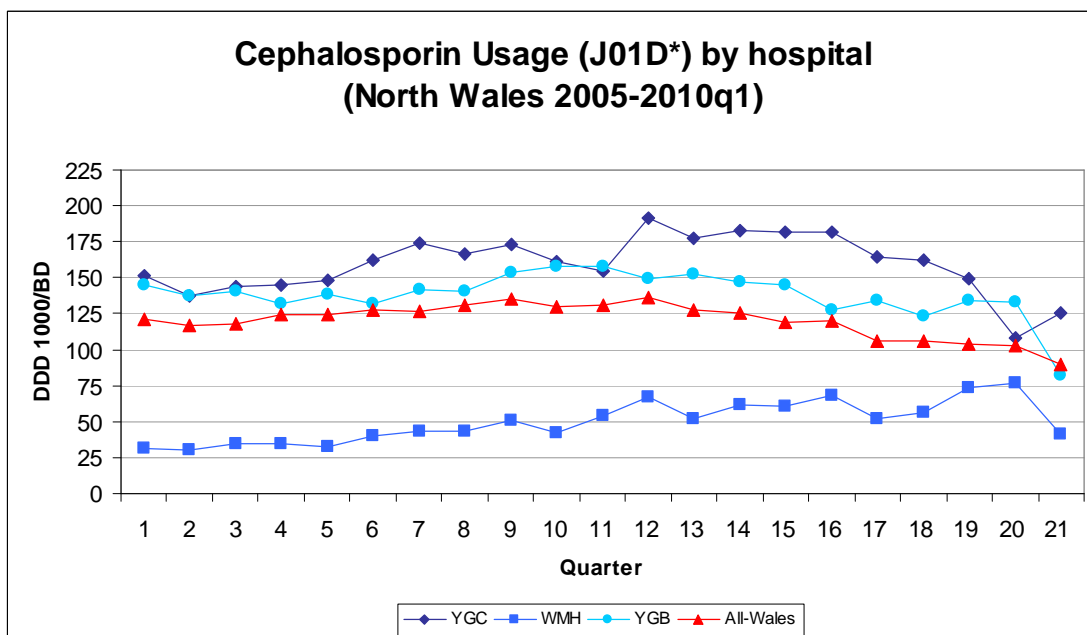
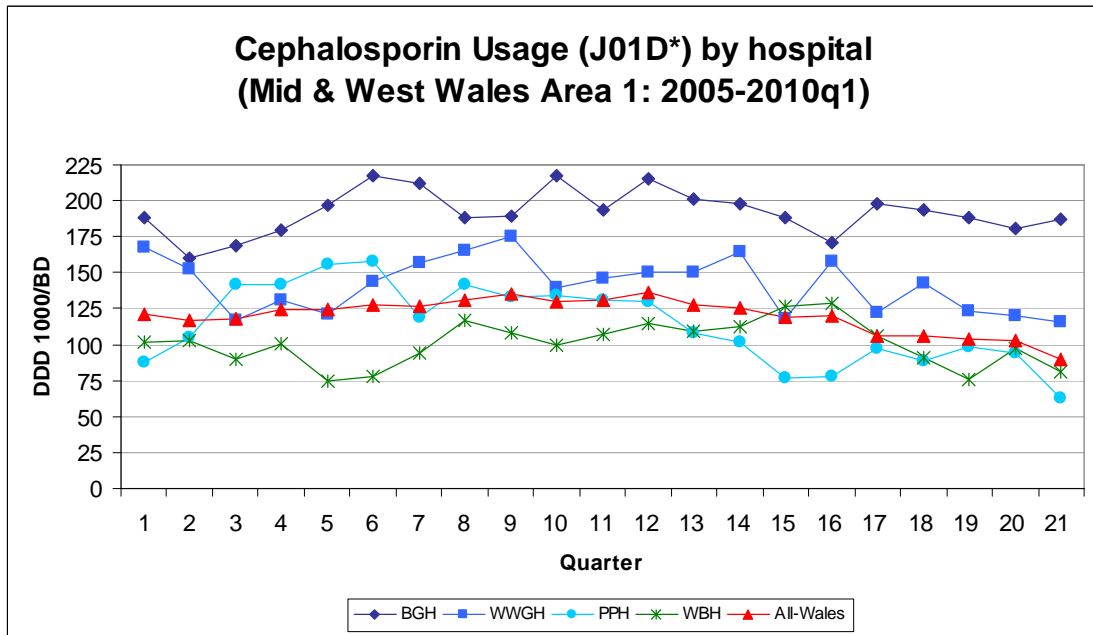
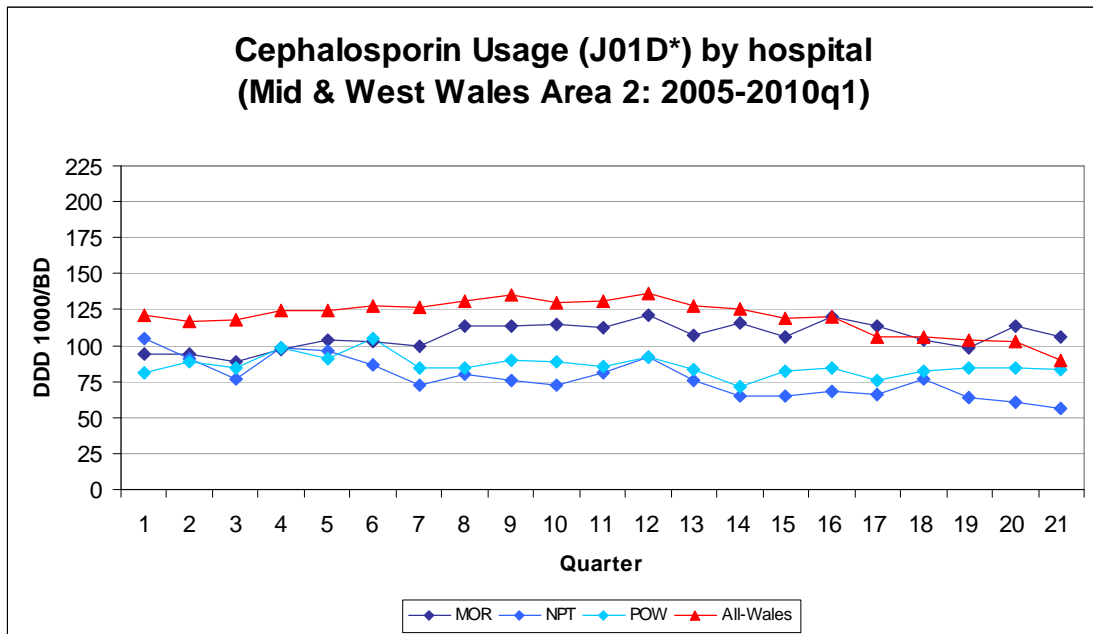


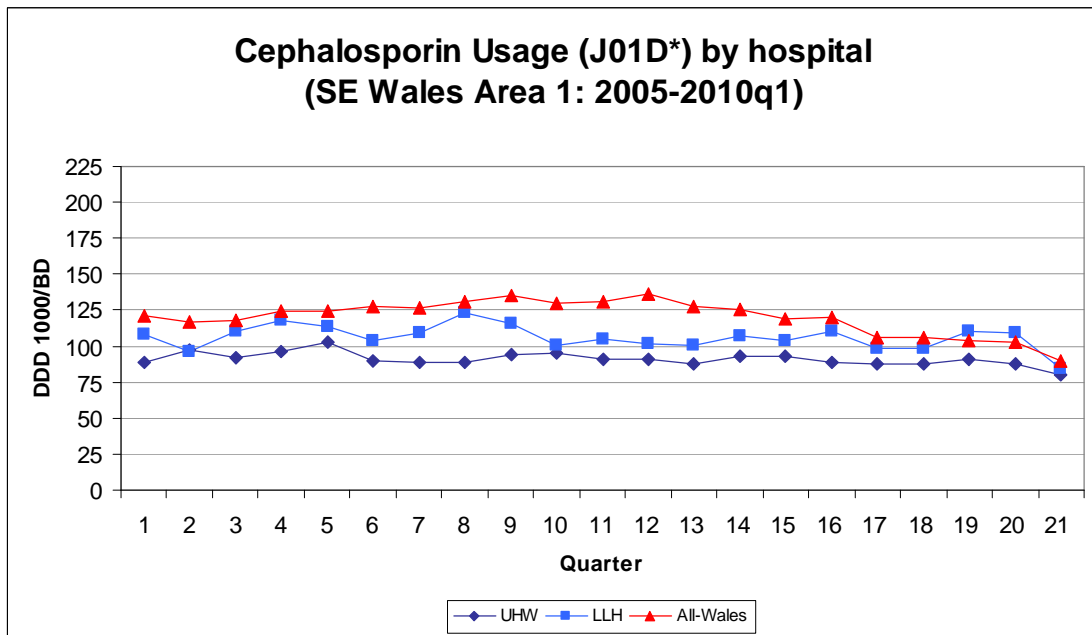
Figure 40: Trends in J01D\* usage - North Wales



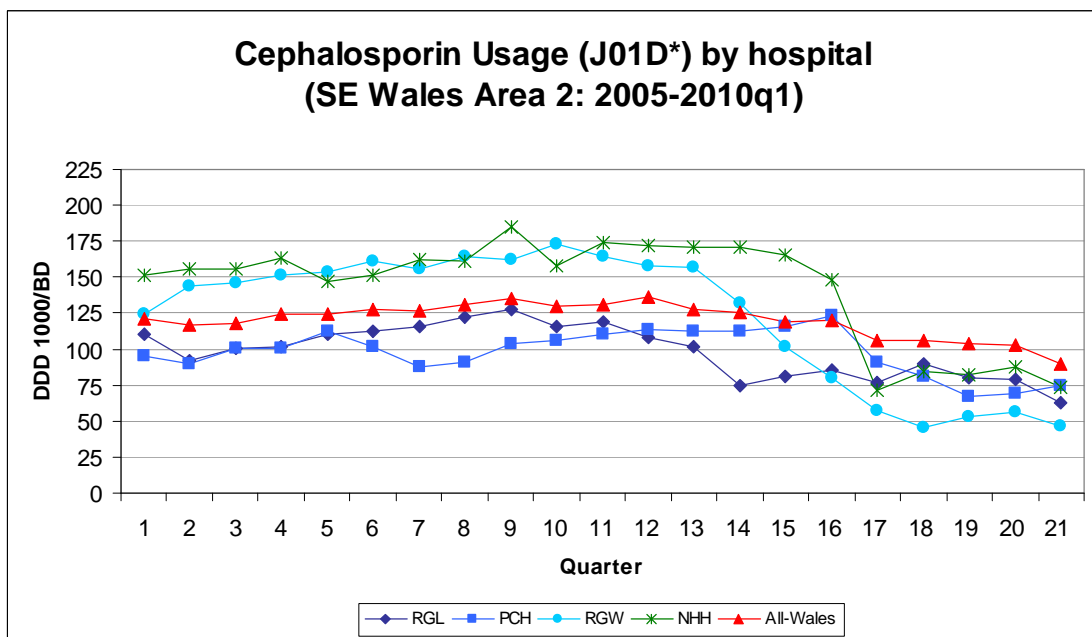
**Figure 41: Trends in J01D\* usage - Mid & West Wales Area 1**



**Figure 42: Trends in J01D\* usage - Mid & West Wales Area 2**



**Figure 43: Trends in J01D\* usage - South East Wales Area 1**



**Figure 44: Trends in J01D\* usage - South East Wales Area 2**

## Carbapenem Usage (J01DH)

Figures 45-49 show trends in carbapenem (J01DH) usage for the period 2005-2010q1 by geographical area. The All-Wales data shows an upward trend in prescribing, with usage increasing from 7 DDD/1000 BD in 2005q1 to 17 DDD/1000 BD in 2010q1. The trend is particularly marked in a number of hospitals; including Prince Philip (see Figure 46), Morrision (Figure 47), and Llandough (Figure 48).

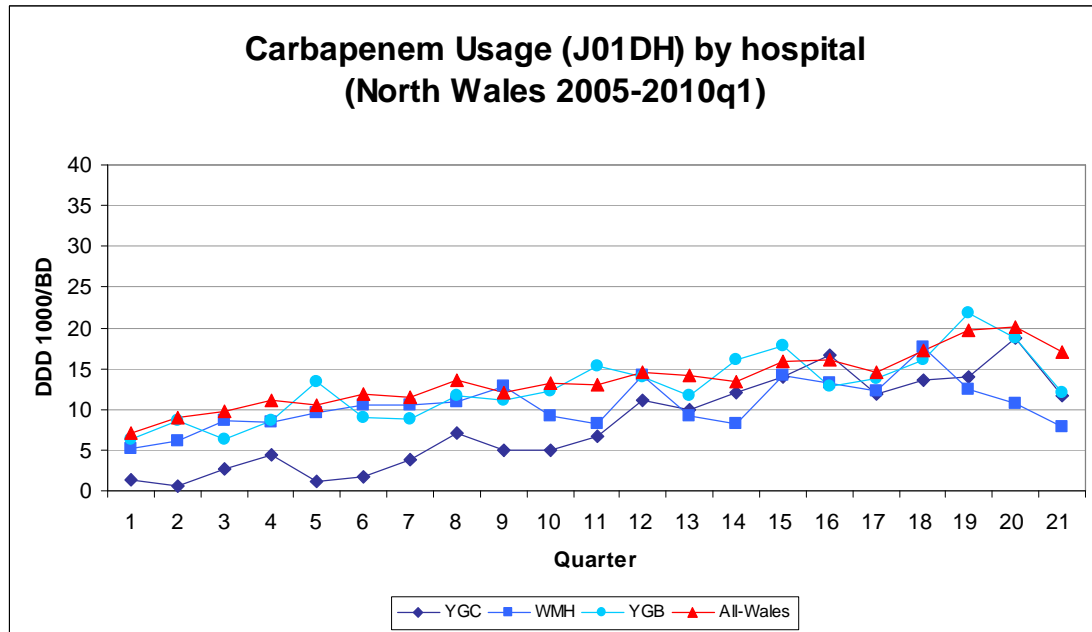


Figure 45: Trends in J01DH usage - North Wales

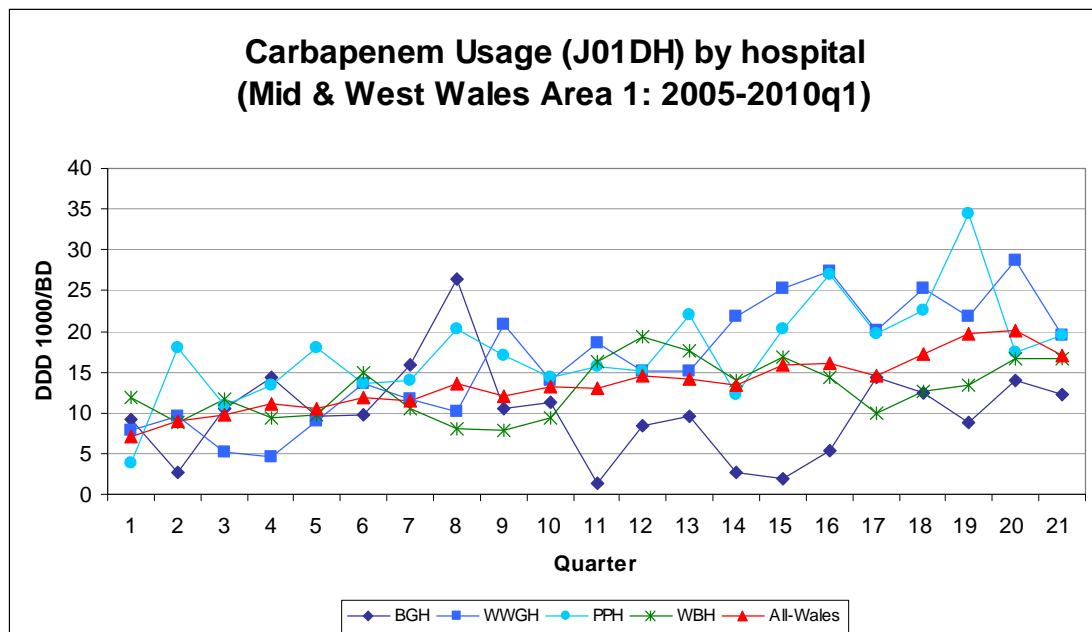
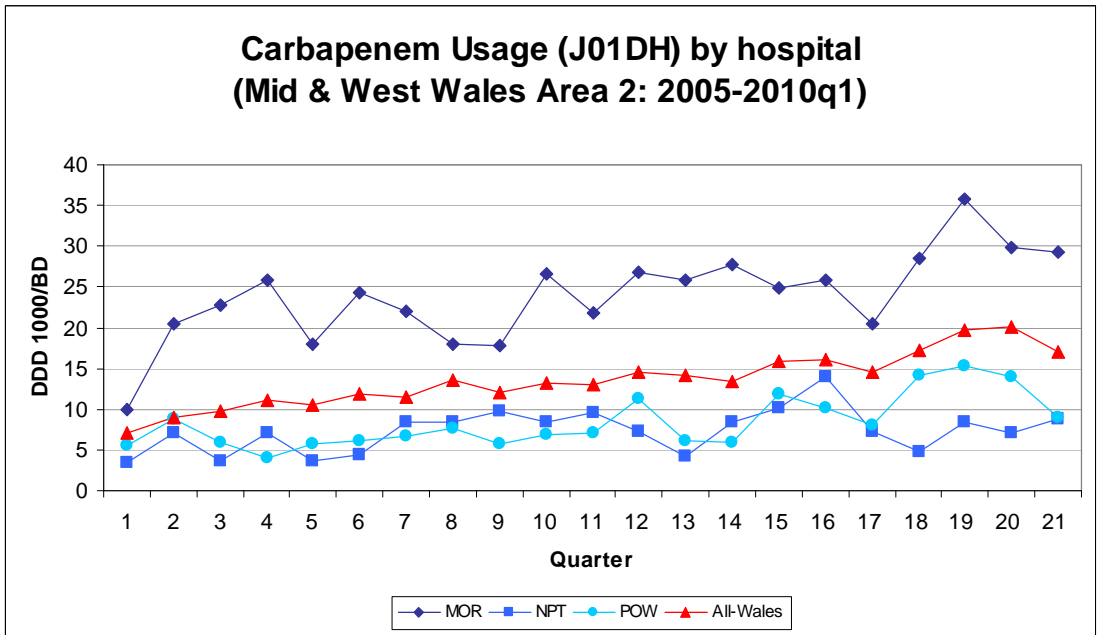
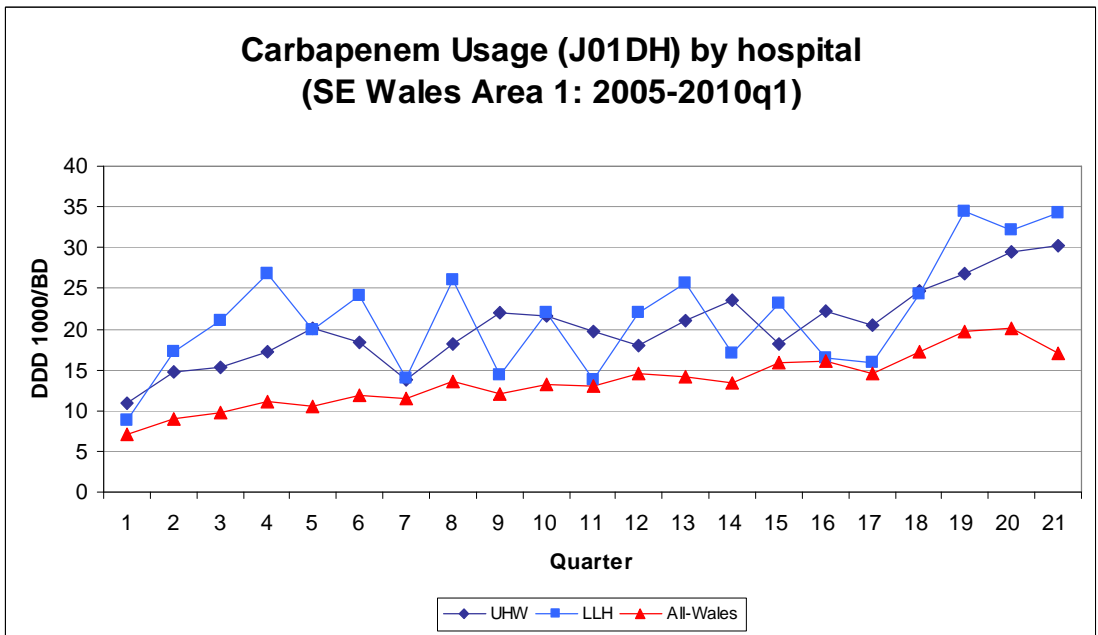


Figure 46: Trends in J01DH usage - Mid & West Wales Area 1



**Figure 47: Trends in J01DH usage - Mid & West Wales Area 2**



**Figure 48: Trends in J01DH usage - South East Wales Area 1**

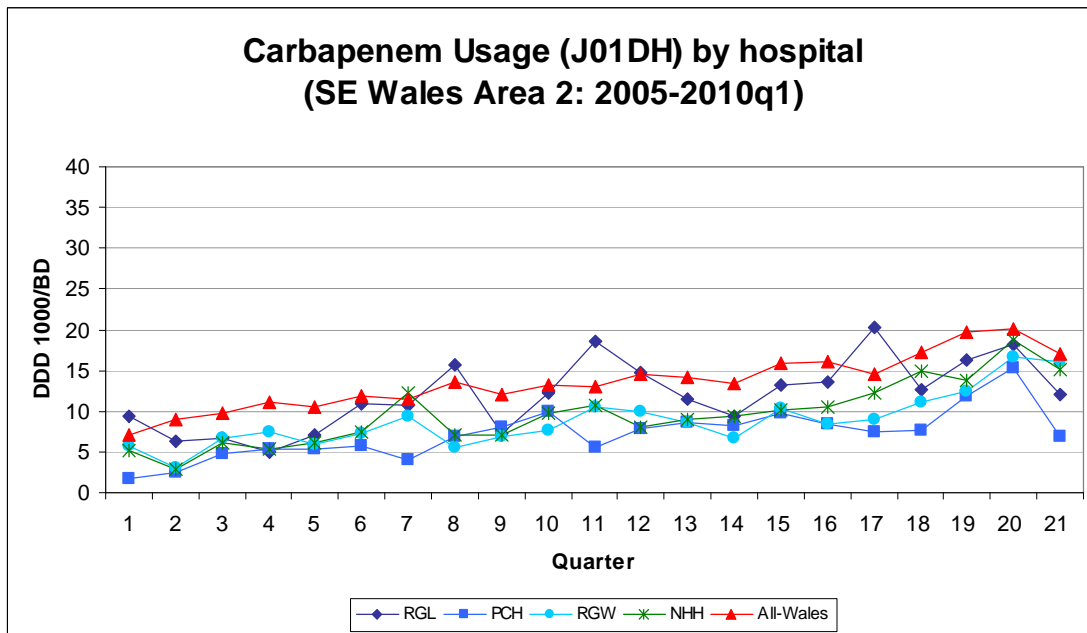


Figure 49: Trends in J01DH usage - South East Wales Area 2

### Fluoroquinolone Usage (J01MA)

Figures 50-54 show trends in fluoroquinolone (J01MA) usage for the period 2005-2010q1 by geographical area. The All-Wales data shows a general downward trend in prescribing between 2005-2010q1, decreasing from 103 DDD/1000 BD in 2005q1 to 75 DDD/1000 BD in 2010q1. Whilst this trend is reflected in hospitals such as Neath Port Talbot Hospital (see Figure 52), the trend for Ysbyty Glan Clwyd shows an overall increase in prescribing, and Wrexham Maelor which showed a dramatic decrease between quarters 6 & 7 has also increased somewhat (Figure 50).

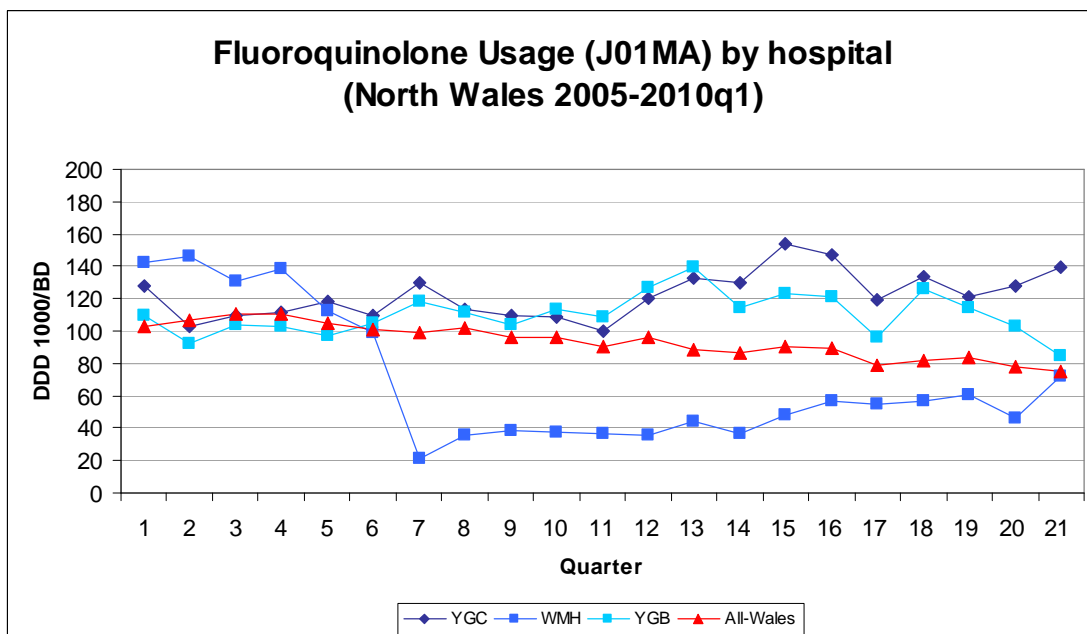


Figure 50: Trends in J01MA usage - North Wales

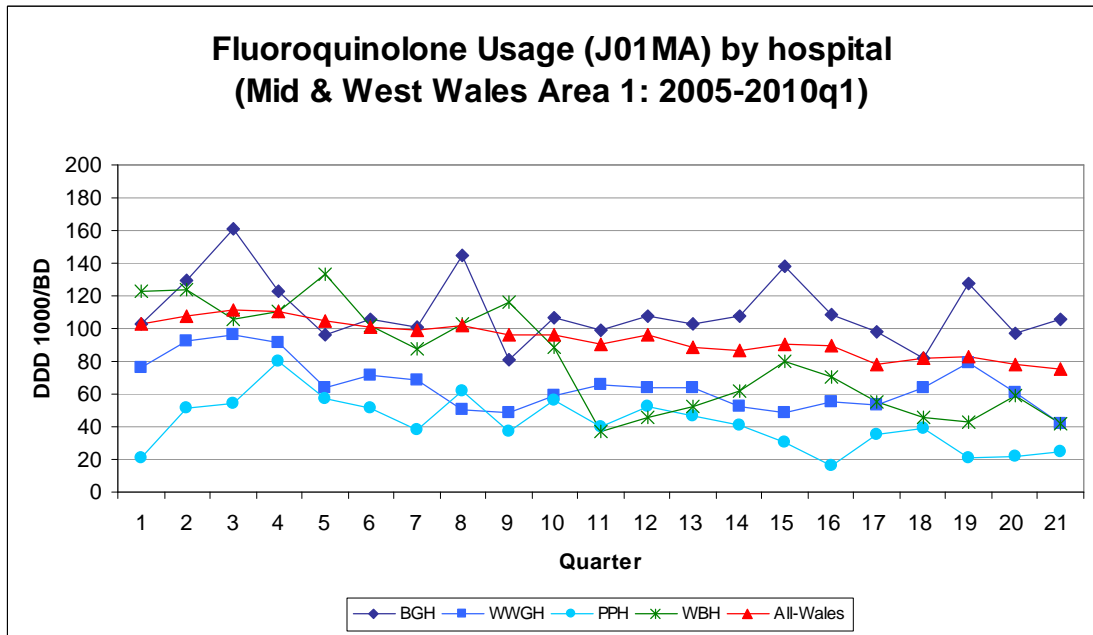


Figure 51: Trends in J01MA usage - Mid & West Wales Area 1

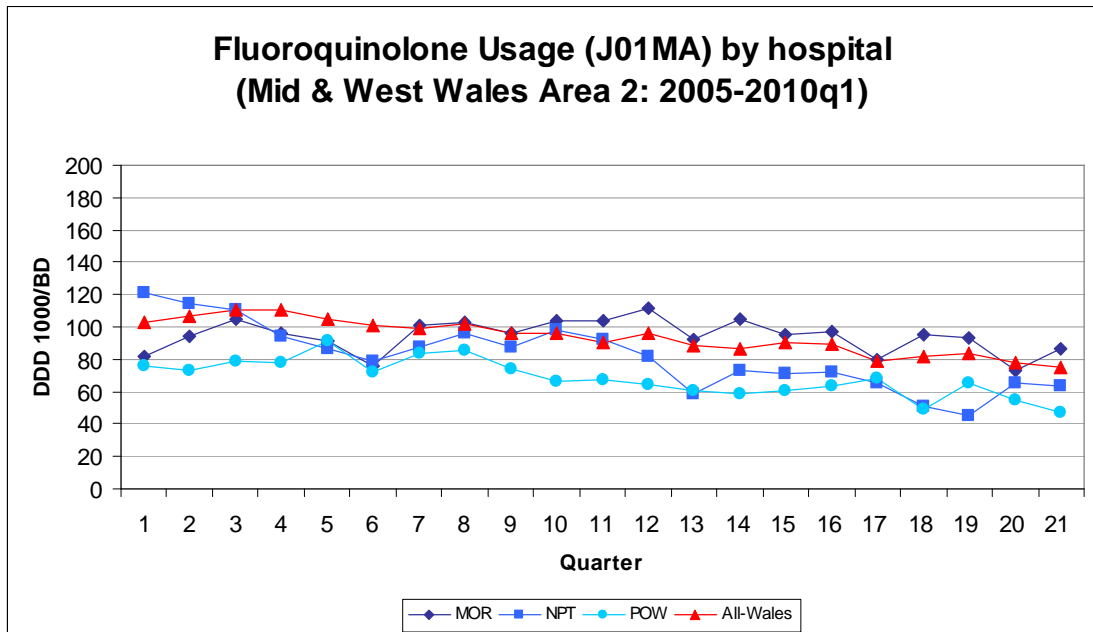
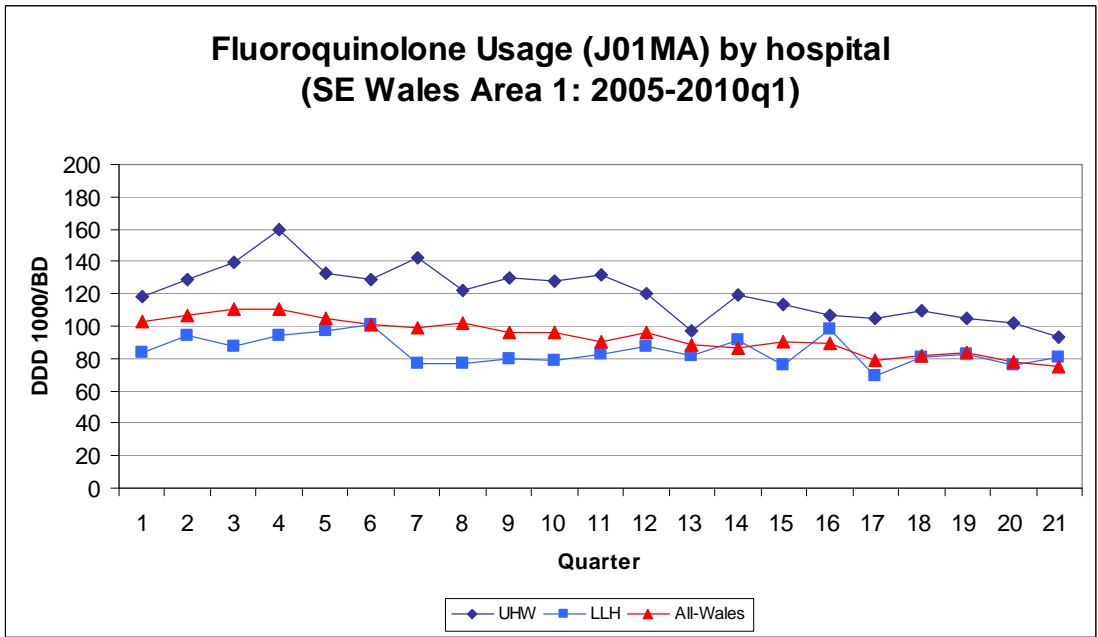
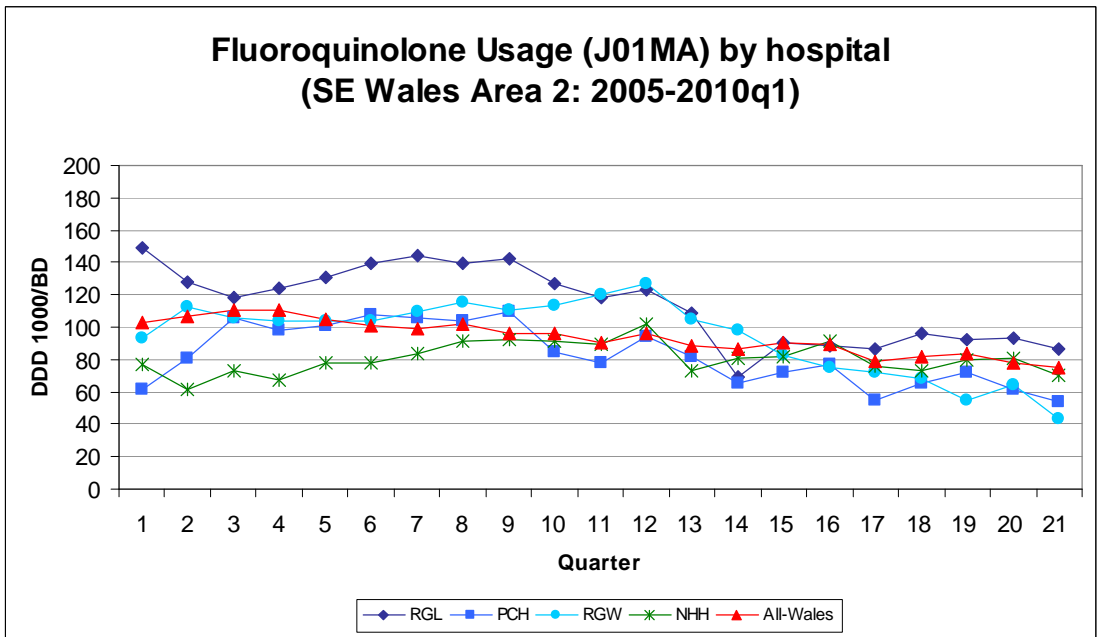


Figure 52: Trends in J01MA usage - Mid & West Wales Area 2



**Figure 53: Trends in J01MA usage - South East Wales Area 1**

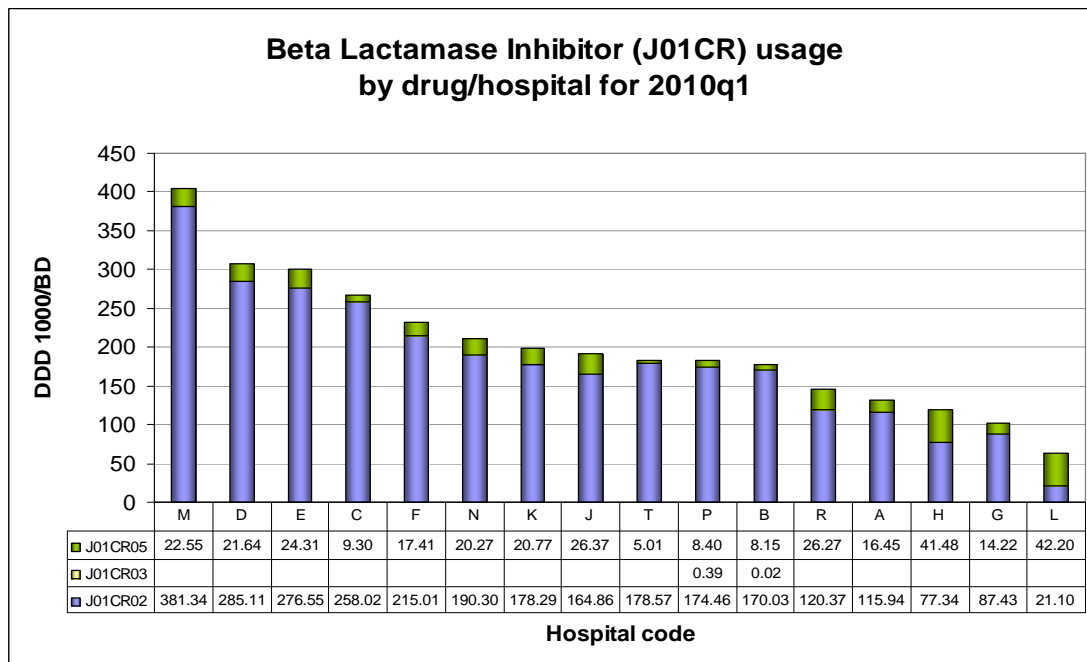


**Figure 54: Trends in J01MA usage - South East Wales Area 2**



## Usage at drug level for specific antimicrobial groups

### Beta-lactam/beta-lactamase inhibitor combinations (J01CR)

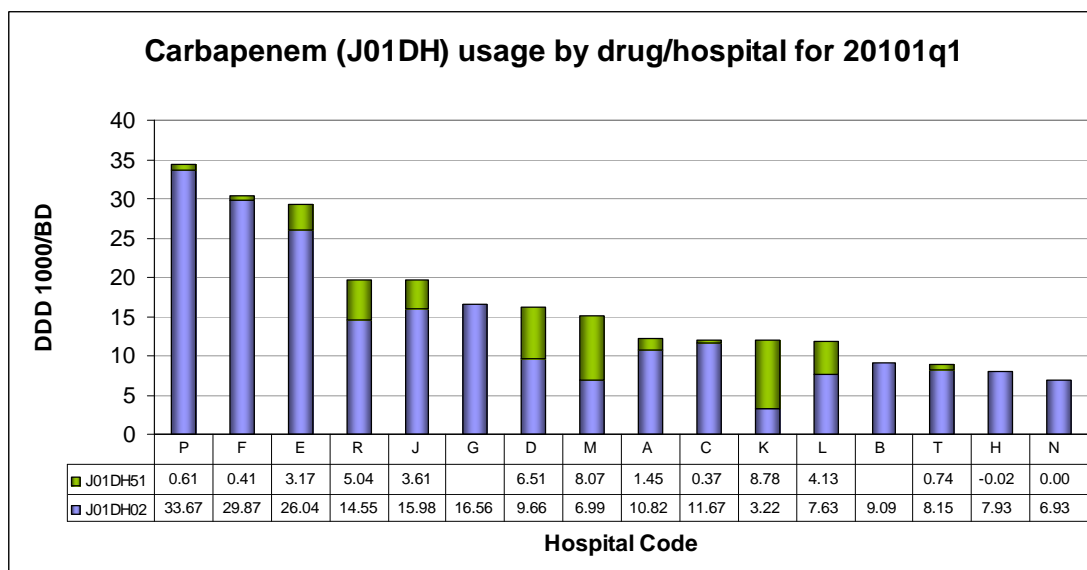


**Figure 55: J01CR usage by drug/hospital**

Key: J01CR02 = co-amoxiclav, J01CR03 = ticarcillin & enzyme inhibitor, J01CR05 = piperacillin/tazobactam.

Figure 55 shows the prescribing figures for the beta-lactam/beta-lactamase inhibitor combinations at drug level for 2010q1, by hospital. Total usage varied from 403.9 DDD /1000 BD at Nevill Hall hospital (M) to 63.3 DDD/1000 BD at Ysbyty Glan Clwyd (L). The proportion of piperacillin/tazobactam (J01CR05) usage varied between 3% in Neath Port Talbot hospital (T) to 63% in Ysbyty Glan Clwyd (L).

### Carbapenems (J01DH)

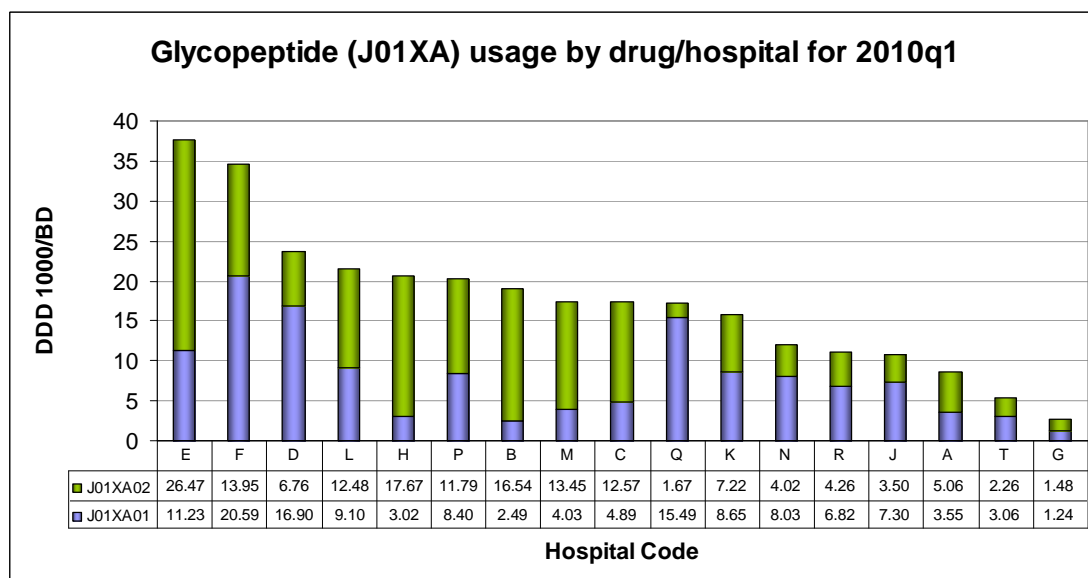


**Figure 56: J01DH usage by drug/hospital**

Key: J01DH02 = meropenem & J01DH51 = imipenem with cilastatin.

**Figure 56** shows the prescribing figures for carbapenem usage at drug level for 2010q1, by hospital. Total usage varied from 34.3 DDD/1000 BD at Llandough hospital (P) to 6.9 DDD/1000 BD at Prince Charles hospital (N). The proportion of imipenem (J01DH51) usage varied between 0% in Prince Charles hospital to 73% in Ysbyty Gwynedd.

### Glycopeptides (J01XA)



**Figure 57: J01XA usage by drug/hospital (amended)**

Key: J01XA01 = vancomycin & J01XA02 = teicoplanin.

**Figure 57** shows the prescribing figures for glycopeptide usage at drug level for 2010q1, by hospital. Total usage varied from 37.7 DDD/1000 BD at Morryston hospital (E) to 2.7 DDD/1000 BD at Witherbush hospital (G). The proportion of teicoplanin (J01XA02) usage varied between 32% in West Wales General hospital (J) to 87% in Princess of Wales hospital (B).

## SECTION 3: Acknowledgments

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