



Antibiotic Consumption in the Community in Ireland

REPORT FOR
First Half of
2013

Summary: Community Antibiotic Use

- The rate for Quarter 1 of 2013 (1st January to 31st March) was 27.4 Defined Daily Doses per 1000 Inhabitants per Day (DID) – the highest recorded rate in any quarter
- The rate for Quarter 2 of 2013 (1st April to 30st June) was 23.0 DID
- Antibiotic use in the community in Ireland decreased in 2008 and 2009, however, antibiotic use increased again in 2012 to 22.9 and was 25.1 DID in the first half of 2013
- Antibiotic use is seasonal: the average winter usage has remained higher than summer usage
- Use of specific antibiotic groups, especially co-amoxiclav and related substances, has increased

See the report for the full year (2012) [here](#) for further analyses including county-level breakdown and European-level comparisons

Latest Data:

Table 1 : Total outpatient antibiotic use in Ireland for the first half of 2013 and 2012, and the quarter two of 2013 expressed in DDD per 1000 inhabitants per day.

	2012	Percent of 2012	<u>2013 First Half</u>	Percent of 2013	Percent Change 2012 to 2013	2013Q1	2012Q2	<u>2013Q2</u>	Percent Change 2012Q2 to 2013Q2
Penicillins	12.5	54.6%	13.7	54.7%	9.9%	15.4	11.9	12.2	2.0%
Narrow spectrum penicillins	1.0	4.4%	1.1	4.4%	9.5%	1.1	1.0	1.1	6.7%
Beta-lactamase resistant penicillins	1.0	4.6%	1.1	4.3%	2.9%	1.0	1.0	1.1	12.5%
Broad spectrum penicillins	3.7	15.9%	4.2	16.7%	14.8%	4.8	3.4	3.6	4.4%
Penicillin with beta-lactamase inhibitor	6.8	29.7%	7.4	29.3%	8.3%	8.4	6.5	6.4	-1.6%
Macrolides and related drugs	4.2	18.2%	4.9	19.7%	18.9%	5.3	3.9	4.6	19.0%
Tetracyclines	2.9	12.8%	3.1	12.6%	7.7%	3.1	2.9	3.2	7.9%
Cephalosporins and other beta-lactam drugs	1.2	5.2%	1.3	5.2%	8.9%	1.5	1.1	1.1	7.4%
First-generation cephalosporins	0.2	0.8%	0.2	0.7%	4.4%	0.2	0.2	0.2	9.8%
Second-generation cephalosporins	0.9	4.0%	1.0	4.0%	10.7%	1.2	0.8	0.9	8.3%
Third-generation cephalosporins	0.1	0.4%	0.1	0.4%	1.4%	0.1	0.1	0.1	-3.9%
Quinolones	0.9	3.8%	0.9	3.5%	-0.1%	0.9	0.8	0.8	3.8%
Sulfonamides and Trimethoprim	1.2	5.0%	1.0	4.0%	-13.9%	1.1	1.1	0.9	-21.1%
Other antibiotics	0.1	0.5%	0.1	0.4%	-5.1%	0.1	0.1	0.1	-0.2%
TOTAL	22.9	100.0%	25.1	100.0%	9.5%	27.4	21.9	23.0	5.0%

Monthly Changes:

Antibiotic use in 2012 is in line with rates for the last four years, though slightly higher and greater rise in November

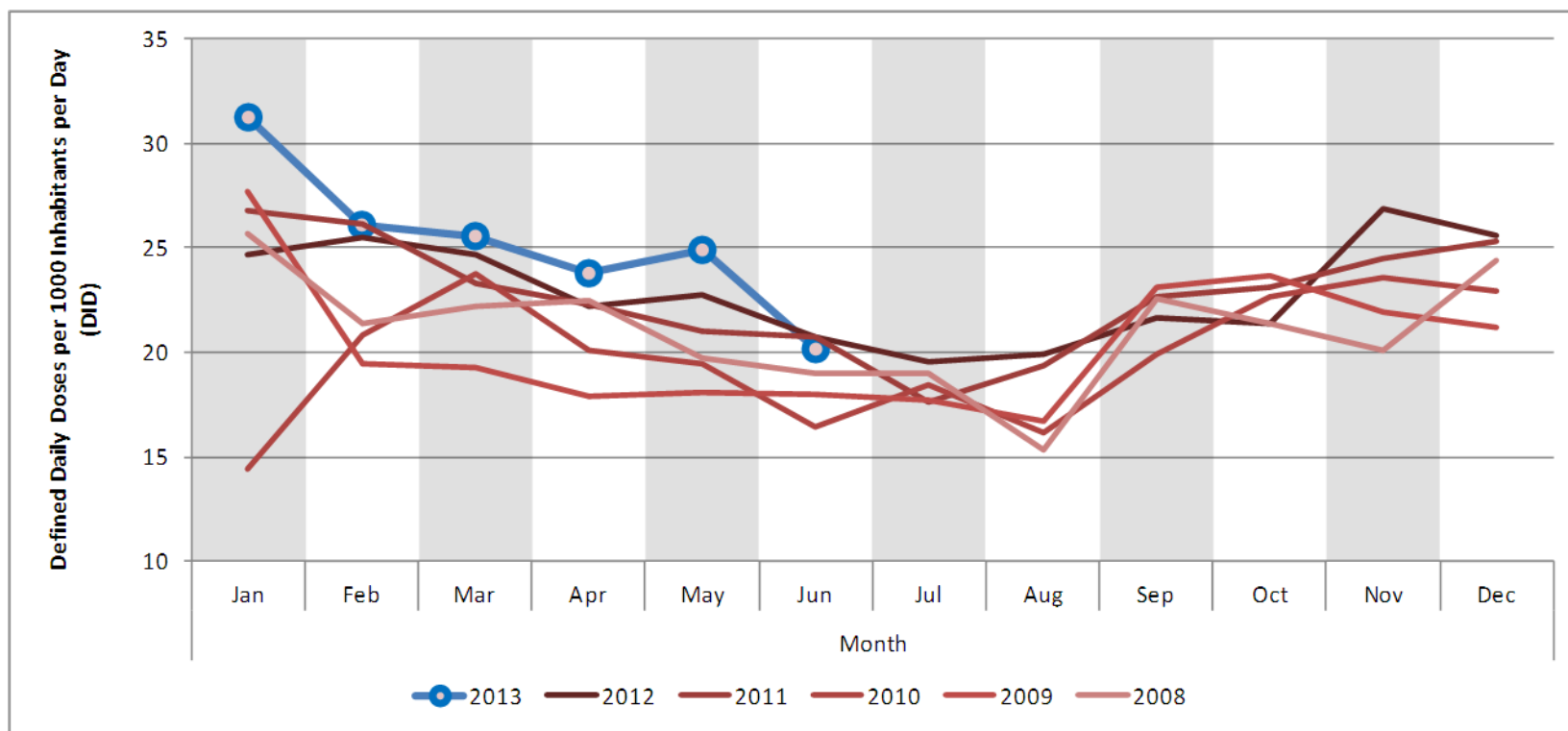


Fig 1 : Total outpatient antibiotic use in Ireland by month from January 2008 to December 2012 expressed in DDD per 1000 inhabitants per day.

Quarterly Changes:

The underlying trend was generally rising but declined in 2008 and 2009, though has returned to previous levels

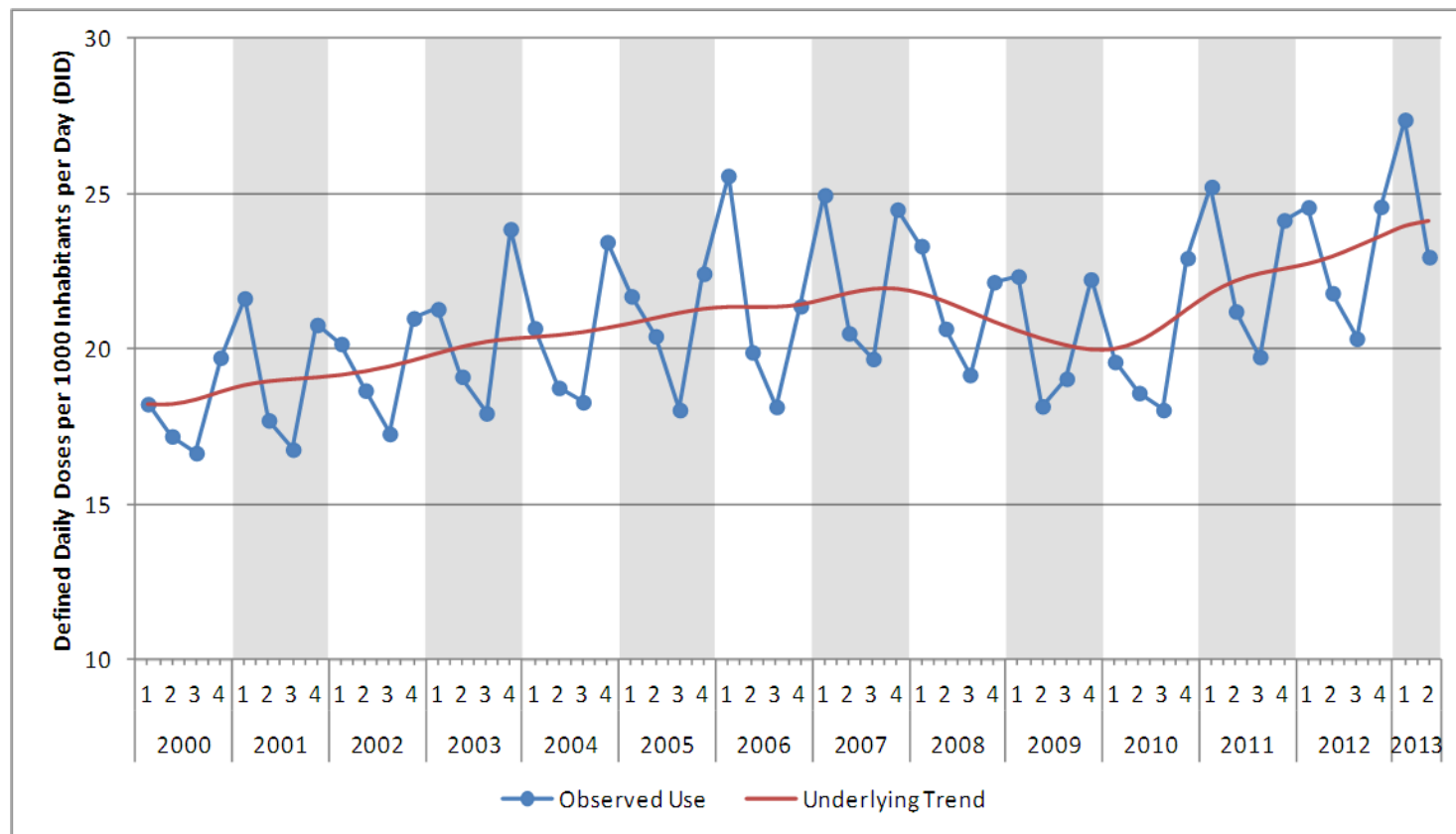


Fig 3: Total outpatient antibiotic use in Ireland from Quarter 1 of 2000 to Quarter 2 of 2013 expressed in DDD per 1000 inhabitants per day.

Effects of Influenza:

Seasonal fluctuation with high winter peaks has remained strong over the years. Note: Modelled use takes into account periods of high influenza activity

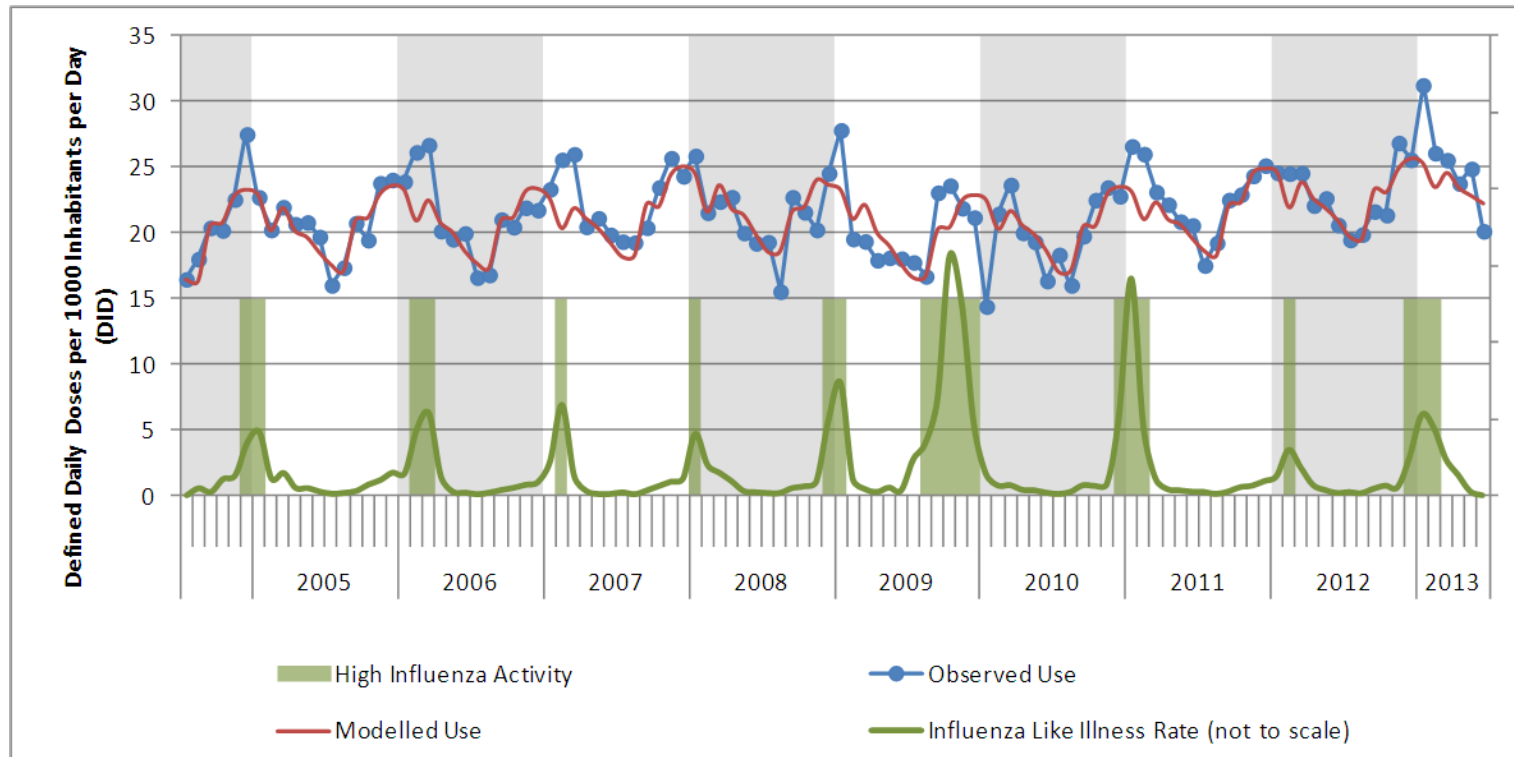


Fig 4: Total outpatient antibiotic use in Ireland from January 2004 to June 2013 expressed in DDD per 1000 inhabitants per day.

Quarterly Changes - Pharmacological Subgroup:

Rate for penicillins and macrolides increased while quinolones and cephalosporin rates decreased

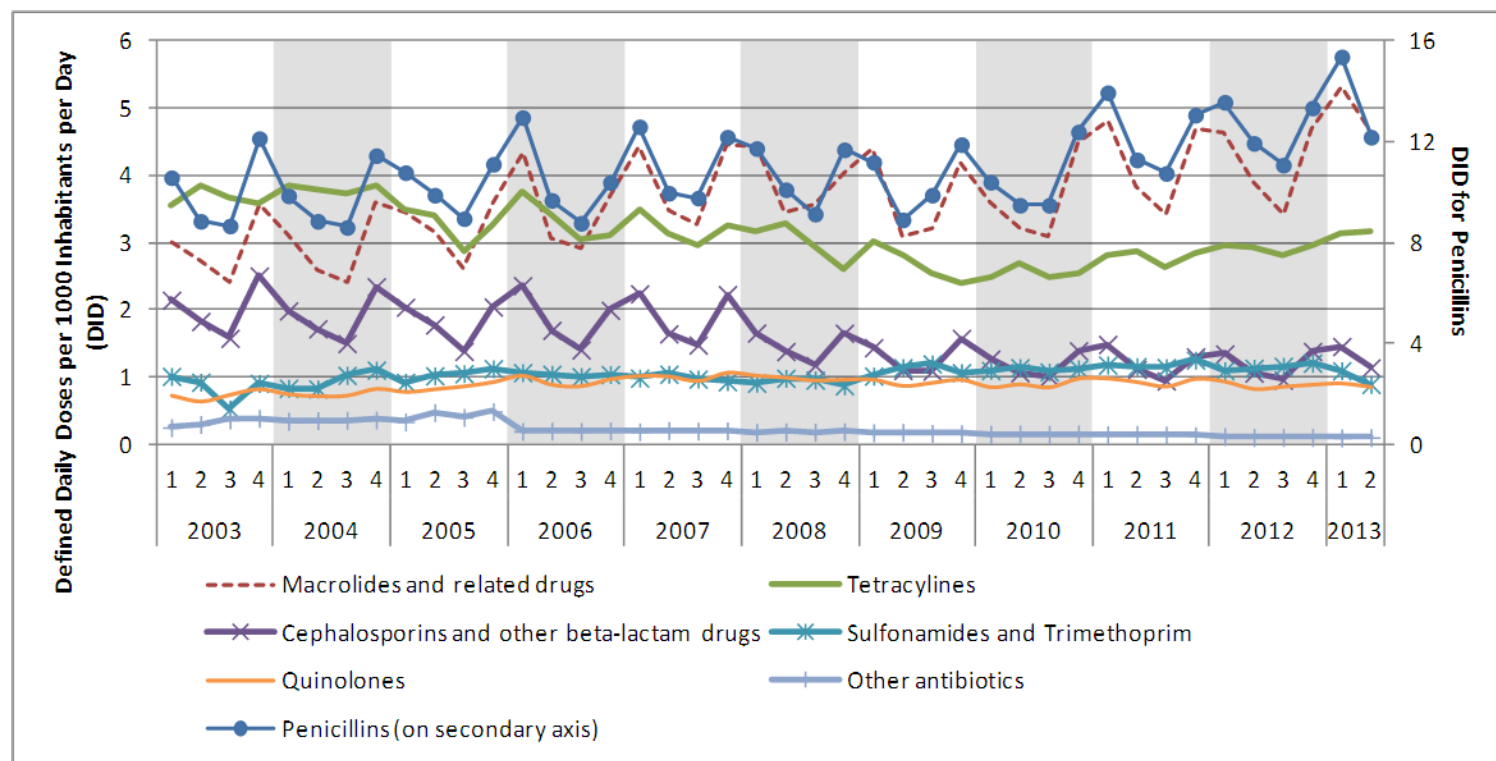


Fig 6: Antibiotic use in Ireland outpatient care from Q1 of 2003 to Q2 of 2013 expressed in DDD per 1000 inhabitants per day by pharmacological subgroup (ATC level 3).

Quarterly Changes – Penicillins:

Penicillin with beta-lactamase inhibitor (such as co-amoxiclav) use is increasing

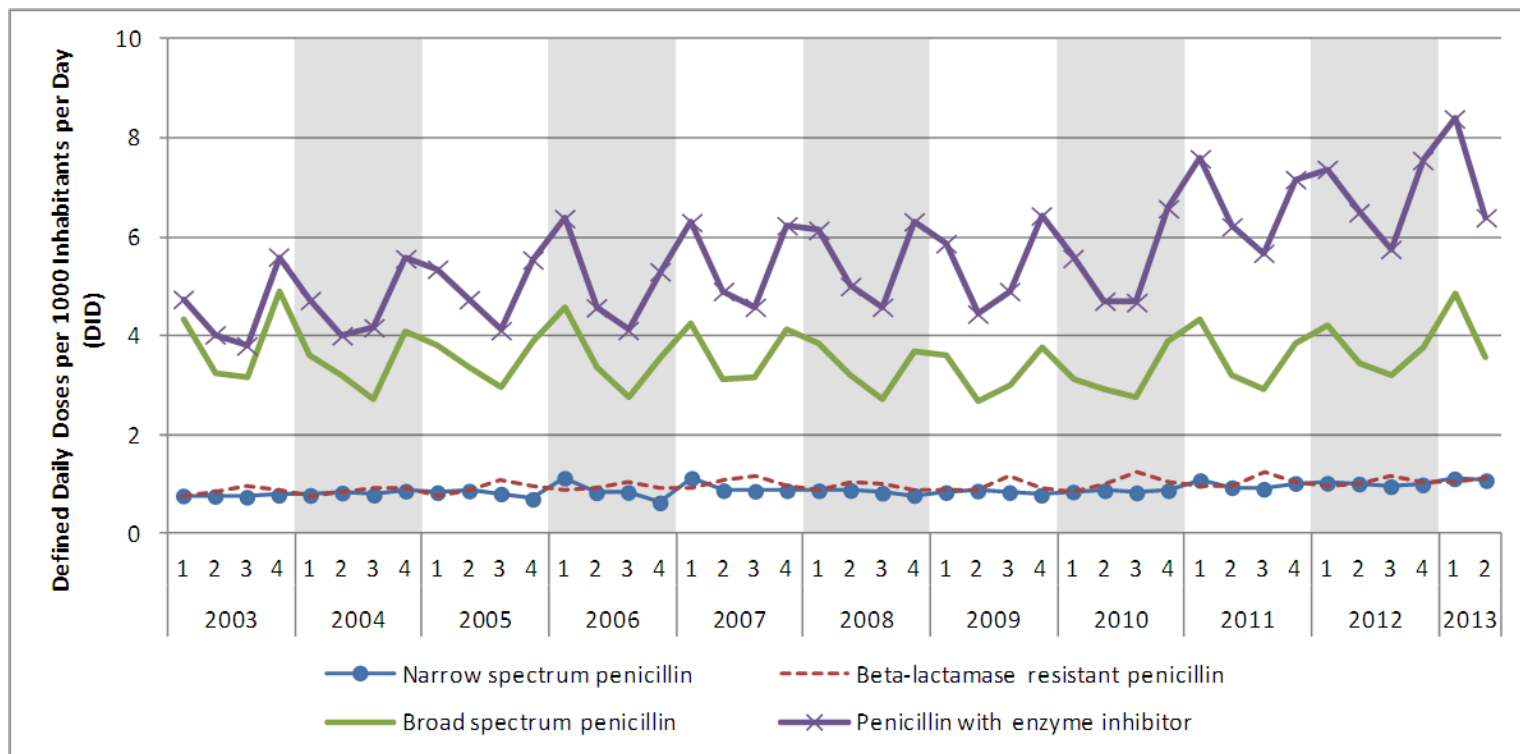


Fig 7: Antibiotic use in Ireland outpatient care from Q1 of 2003 to Q2 of 2013 expressed in DDD per 1000 inhabitants per day by penicillin subgroup (ATC level 4).

Quarterly Changes – Cephalosporins:

Use of second generation cephalosporins decreased in 2008 to a new annual level

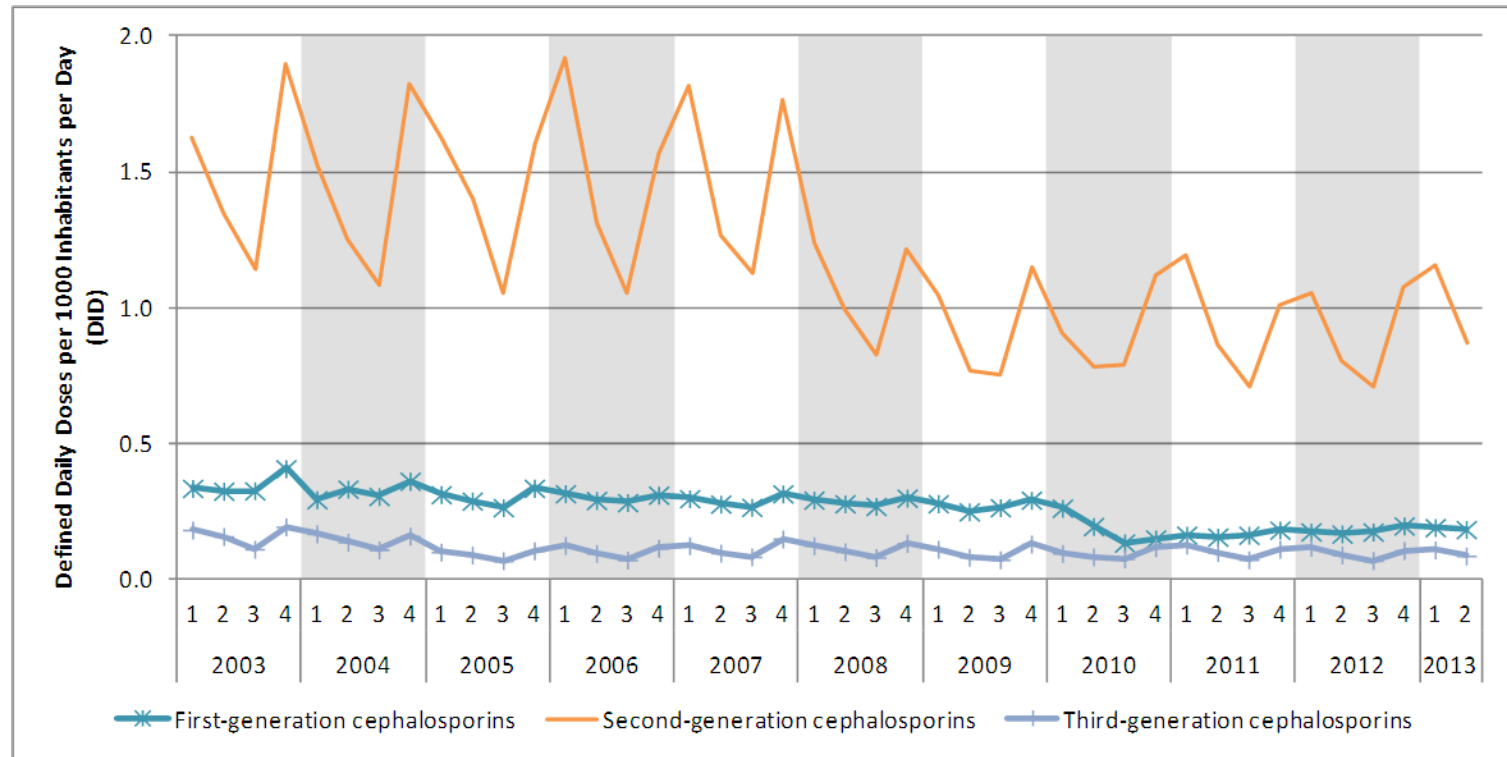


Fig 8: Antibiotic use in Ireland outpatient care from Q1 to 2003 to Q2 of 2013 expressed in DDD per 1000 inhabitants per day by cephalosporin subgroup (ATC level 4).

Methods

- Irish antibiotic sales data were from IMS Health, a pharmaceutical market research company. This dataset contains regional, monthly wholesaler to retail pharmacy sales data from over 95% of the wholesalers and manufacturers in Ireland.
- Consumption is measured in Defined Daily Dose (DDD), which is the assumed average maintenance dose per day for a drug used for its main indication in adults. The current WHO Anatomical Therapeutic Chemical index was used to classify the antibiotics.
- Rates were calculated in DDD per 1000 inhabitants per day (DID) for the outpatient antibiotic consumption data. Updated population size estimates were obtained from the Central Statistics Office and used to calculate monthly and quarterly rates.
- Monthly expected usage values were calculated from time-series data using an ARIMA transfer model in which the influenza-like illness level over the national threshold was used a binary event variable along with a point for Jan 2010 when drug sales were impacted by severe weather conditions. The underlying trend on the quarterly graph was derived via seasonal decomposition.

Further information

- See: [Guidelines on HPSC Website](#)
 - Antibiotic prescribing guidelines in primary care
 - Also www.antibioticprescribing.ie
 - Diagnosis and management of urinary tract infection in residents of long term care facilities
 - Hand hygiene, MRSA, *C. difficile* and many other guidelines
- European Surveillance of Antimicrobial Consumption Network ([ESAC-Net](#))
- WHO Collaborating Centre for Drug Statistics Methodology (for [ATC-DDD method](#))