



One Health Event 23/06/2022

HSE-AMRIC Team: Antibiotic
Quality Improvement Initiative for
Community Prescribers



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Antimicrobial Resistance &
Infection Control Programme



Antibiotic Quality Improvement Initiative for Community Prescribers

- AMRIC and HSE Primary Care Reimbursement Service
- Nationally co-ordinated quality improvement initiative
- Supporting good practice in the prescribing of antibiotics in community settings
- Since September 2019 over 3,000 GPs receive an individualised quarterly report on their antibiotic prescribing over a rolling 12 month period



Since initiation - substantial positive change in antibiotic prescribing in the community setting has been observed

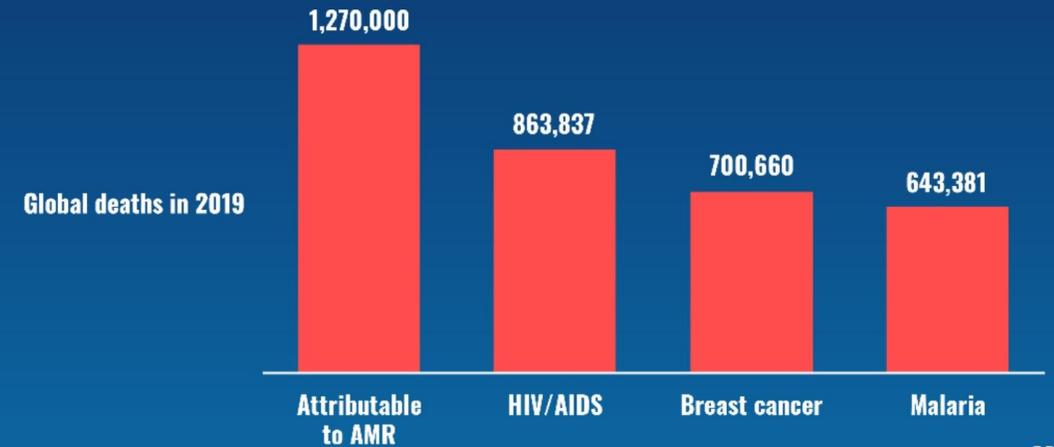




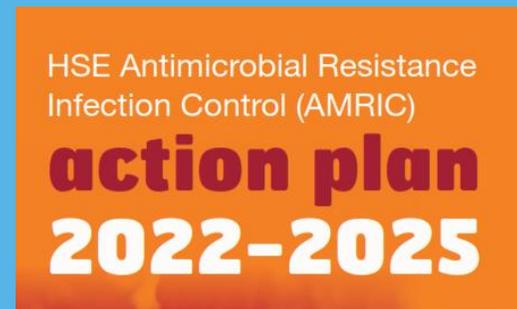
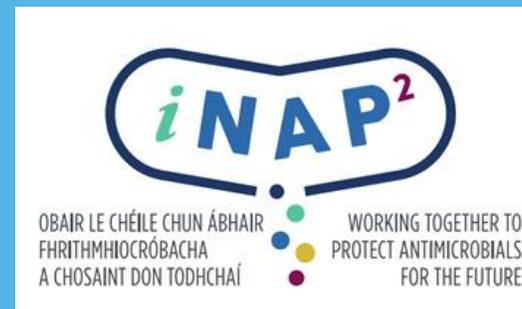
Background

- HSE's drive to reduce antimicrobial resistance
- Global public health threat
- Antimicrobial resistance (AMR) occurs when an antimicrobial that was previously effective, is no longer effective to treat an infection or disease caused by a microorganism
- Overuse and misuse of antibiotics is driving AMR
- 80-90% of antimicrobial use (in human health) is in community
- ECDC 2020 report: Ireland is 7th highest consumer of antibiotics in the community in EU/EEA
- Provision of peer comparison audit and feedback has been shown to impact antibiotic prescribing
- A “green/red” list of antibiotics assists community prescribers in choosing an antibiotic that is effective, has fewer side effects and less likely to lead to resistant infections

AMR requires urgent action from policymakers and the healthcare community to **avoid further preventable deaths**



Source: Global burden of bacterial antimicrobial resistance in 2019: a systematic review, The Lancet Jan 2022.



- Support the use of preferred antibiotics
- Improve patient safety
- Improve quality of antibiotic prescribing in the community

High percentage of green antibiotics and a rate of prescribing that is as low as is practical while ensuring that those most likely to benefit from antibiotics receive that benefit

In many cases the Preferred Antibiotic is No Antibiotic

Preferred Antibiotics in Community

See www.antibioticprescribing.ie. If antibiotic therapy is indicated the preferred first line choices below are effective, have fewer side effects, and are less likely to lead to resistant infections.

Respiratory Infections (upper and lower)	Urinary Tract Infections	Soft tissue infections - cellulitis, acne
Penicillin V (phenoxymethylpenicillin)	Nitrofurantoin*	Flucloxacillin
Amoxicillin	Cefalexin	Cefalexin
Doxycycline*	Trimethoprim*	Doxycycline*
	Fosfomycin*	Lymecycline*

Antibiotics to be avoided first line in community

Co-amoxiclav Unless as first line for: animal or human bite; facial cellulitis; post partum endometritis; caesarean wound infections; perineal wound infection	Risks: C.diff	Quinolones • Levofloxacin* – unless consultant advice or known resistance to preferred AB in COPD acute exacerbation • Ciprofloxacin* only in proven resistant UTI or acute prostatitis/epididymo-orchitis • Ofloxacin* – only on consultant advice or if treating genital infxn • Moxifloxacin* – AVOID risk of severe liver toxicity	Risks: C.diff Drug Intx, Tendon/Nerve, AA+D, QT, Seizure
Other cephalosporins • Cefaclor • Cefixime • Cefuroxime	Risks: C.diff	Macrolides Unless TRUE PENICILLIN ALLERGY or specific indication e.g. mycoplasma, helicobacter eradication • Clarithromycin* • Azithromycin* – only on advice of consultant or if treating STI • Erythromycin* – best avoided as other macrolides better tolerated	Risks: C.diff, Drug Intx, QT
Clindamycin*	Risks: C.diff		

AA+D – risk of aortic aneurysm and dissection, Seizure – lowers seizure threshold, QT – prolongation of QT interval.
 Antibiotics marked * may be safely used in patients with true penicillin allergy (immediate hypersensitivity).

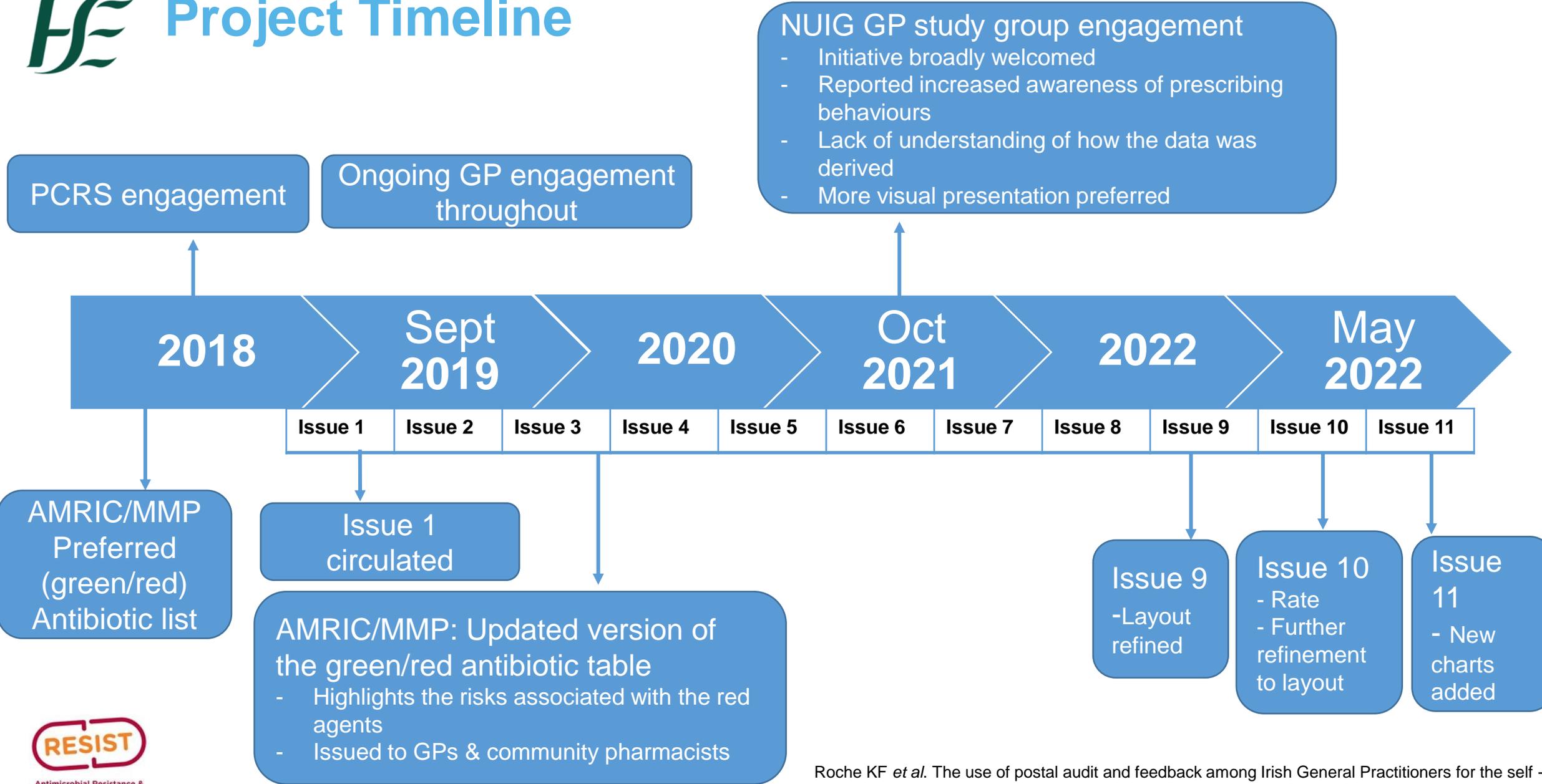
See www.antibioticprescribing.ie for details



Version 4, October 2020



HE Project Timeline



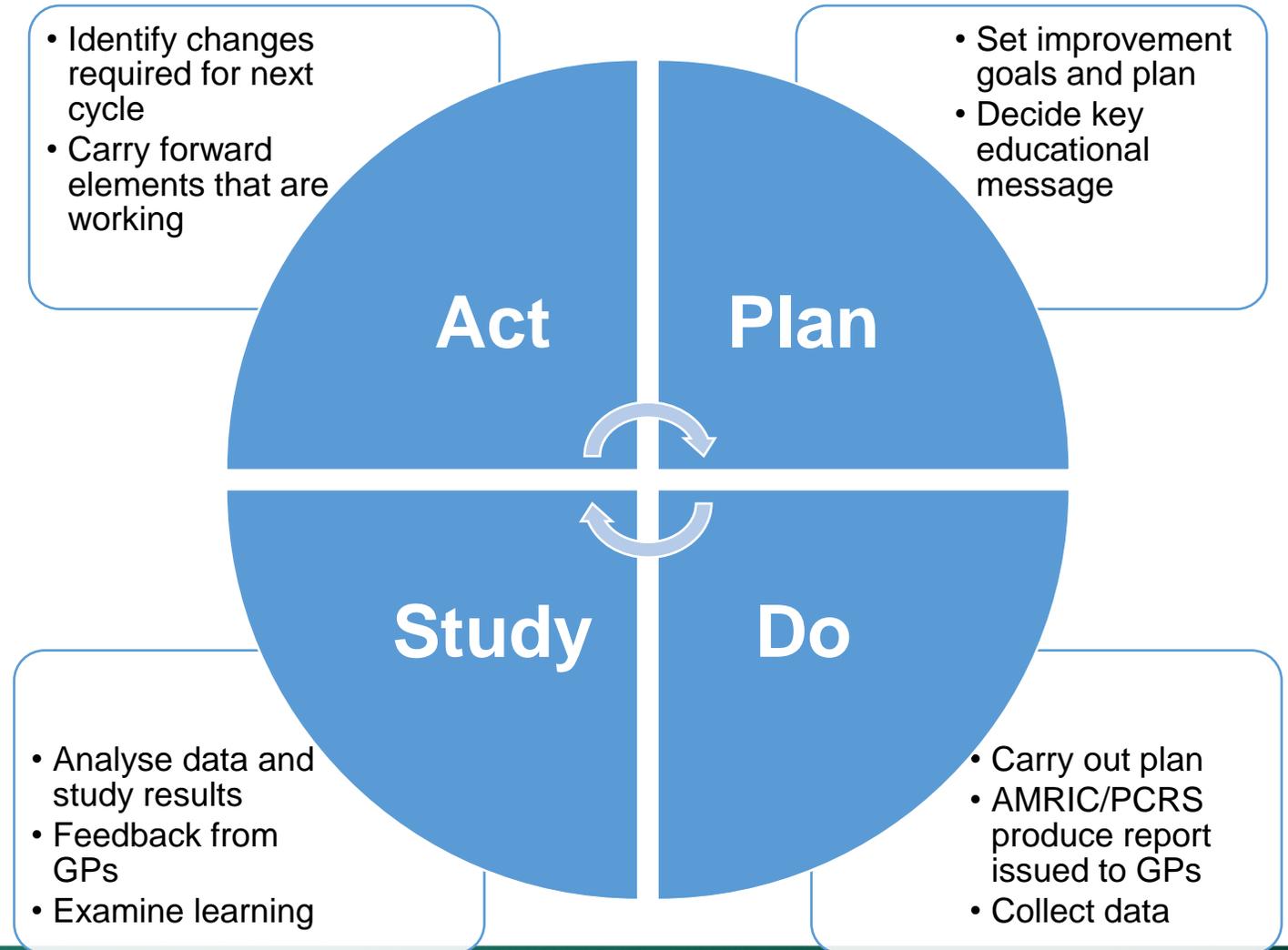


Quality Cycle and Stakeholder Engagement

Each quarterly report is produced using a continuous feedback loop to target the needs of the health service and community prescribers

Key stakeholders:

- AMRIC governance structures
- AMRIC core team
- Primary Care Reimbursement Service (PCRS)
- Medicines Management Programme (MMP)
- General Practitioners (GPs)
- NUIG GP study group
- Antimicrobial Consumption subgroup





Quality Cycle and Stakeholder Engagement

Key changes made to date:

- Update to green/red mouse mat
- Additional explanatory notes for GPs on interpreting the green/red report
- Layout/design refined, more visual
- Simplification of report, reduced number of pages
- Individual antibiotic prescribing rate included

Issue	Educational Nudge
1.	Introduction of green/red concept and report interpretation
2.	Tips on safer use of clarithromycin
3.	Tips on prescribing for UTIs
4.	Tips on telemedicine prescribing, COVID-19 guidelines and azithromycin feedback
5.	Moxifloxacin safety reminder, RTI prescribing including COVID-19
6.	Tips on prescribing for respiratory tract infections
7.	Tips on deprescribing UTI prophylaxis
8.	UTI antibiotic prophylaxis audit tool
9.	Positive trends and introduction of rate
10.	Dump the dipstick and recurrent UTIs in females
11.	Tips on safer use of azithromycin

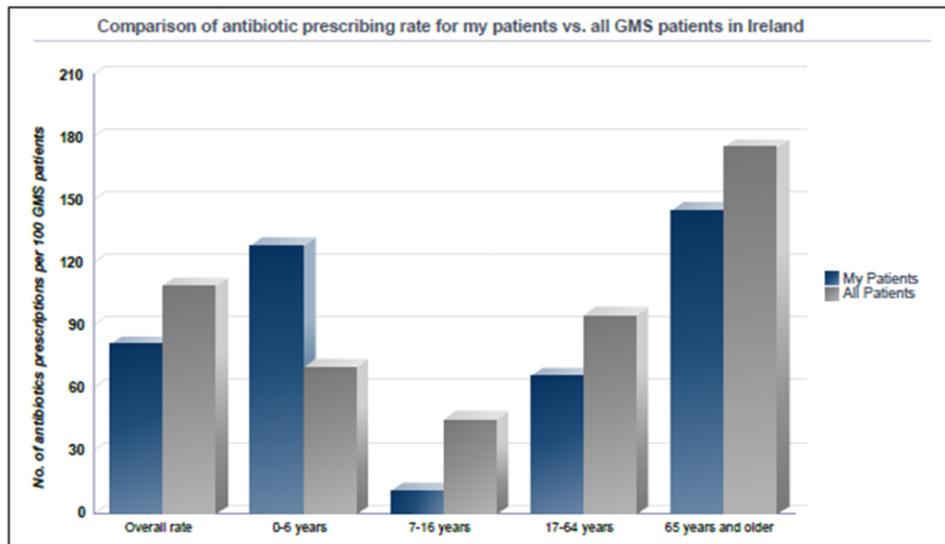




Section 1: Your antibiotic rate data

Rate definition: Number of antibiotic prescriptions per 100 GMS patients for 12 consecutive months.

Chart 1: Comparison of antibiotic prescribing rate for my patients vs. all GMS patients in Ireland for 12 consecutive months up to the end of September 2021

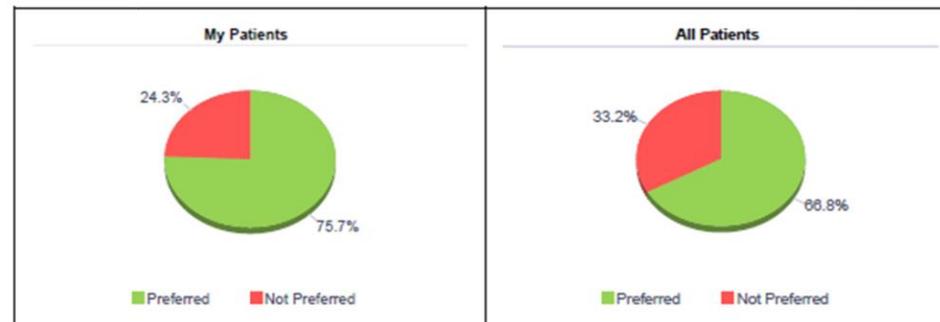


- The first column shows an overall rate and then breakdown is displayed for four age groups: 0-6 years, 7-16 years, 17-64 years, 65 years and older.

The rate of antibiotic prescriptions prescribed for patients on your GMS list is lower than the average. That is to say, the rate of prescriptions is among the lowest for GMS lists on the PCRS database.

Section 2: Your antibiotic green (preferred) & red (not preferred) prescribing data

Chart 2: Comparison of antibiotic green (preferred) & red (not preferred) prescribing for my patients vs. all GMS patients in Ireland for 12 consecutive months up to the end of September 2021

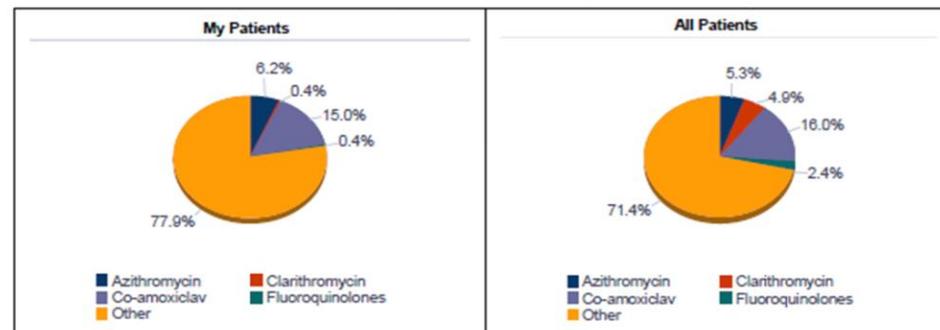


Presenting the no. and % of prescriptions for preferred antibiotics vs. not preferred antibiotics

Age Group	Number & Percentage	My Patients		My CHO Area Patients		All Patients	
		Preferred	Not Preferred	Preferred	Not Preferred	Preferred	Not Preferred
< 16	No.	21	4	14,997	6,158	110,367	46,866
	%	84	16	71	29	70	30
16-64	No.	103	21	70,597	31,250	470,943	232,742
	%	83	17	69	31	67	33
>= 65	No.	47	30	83,372	37,707	516,454	266,504
	%	61	39	69	31	66	34

The proportion of "green" antibiotics prescribed for patients on your GMS list is higher than the average. In fact, the proportion of prescriptions for "green" antibiotics on your GMS list is in the top quartile that is to say it is among the highest for GMS lists on the PCRS database.

Chart 3: Comparison of red (not preferred) antibiotic prescribing for my patients vs. all GMS patients in Ireland for 12 consecutive months up to the end of September 2021



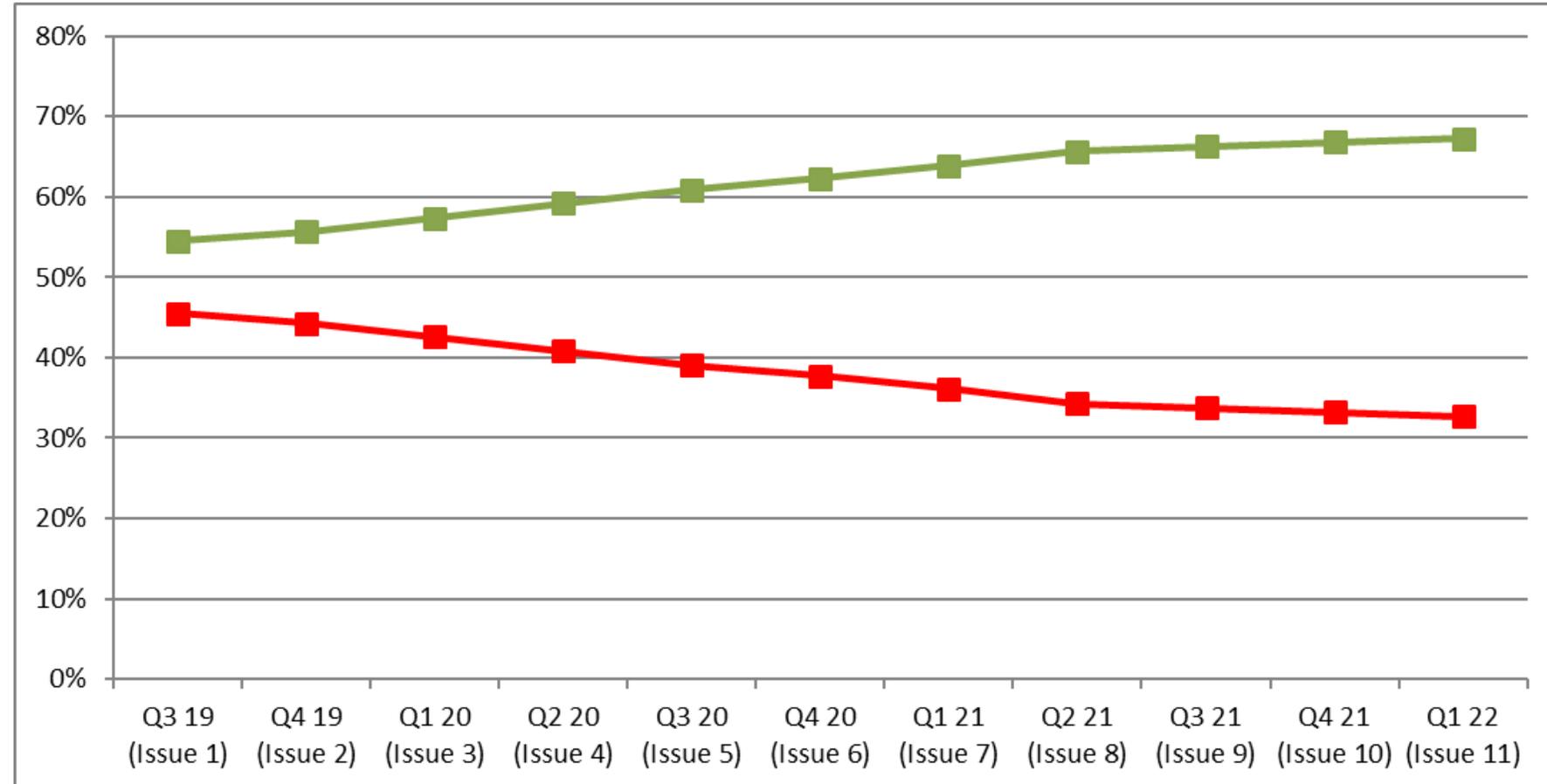
If you require further information on interpreting the report there are explanatory notes available on www.antibioticprescribing.ie on the green/red page or at this direct link: <https://bit.ly/2ZnyDhx>



Measurable Outcomes

HSE-AMRIC Antibiotic Quality Improvement Initiative for Community Prescribers

- Sustained incremental improvement in the quality of antibiotic prescribing in the community setting
- PCRS data: an overall 13% increase in prescribing of green antibiotics (July 2018 to Dec 2021)





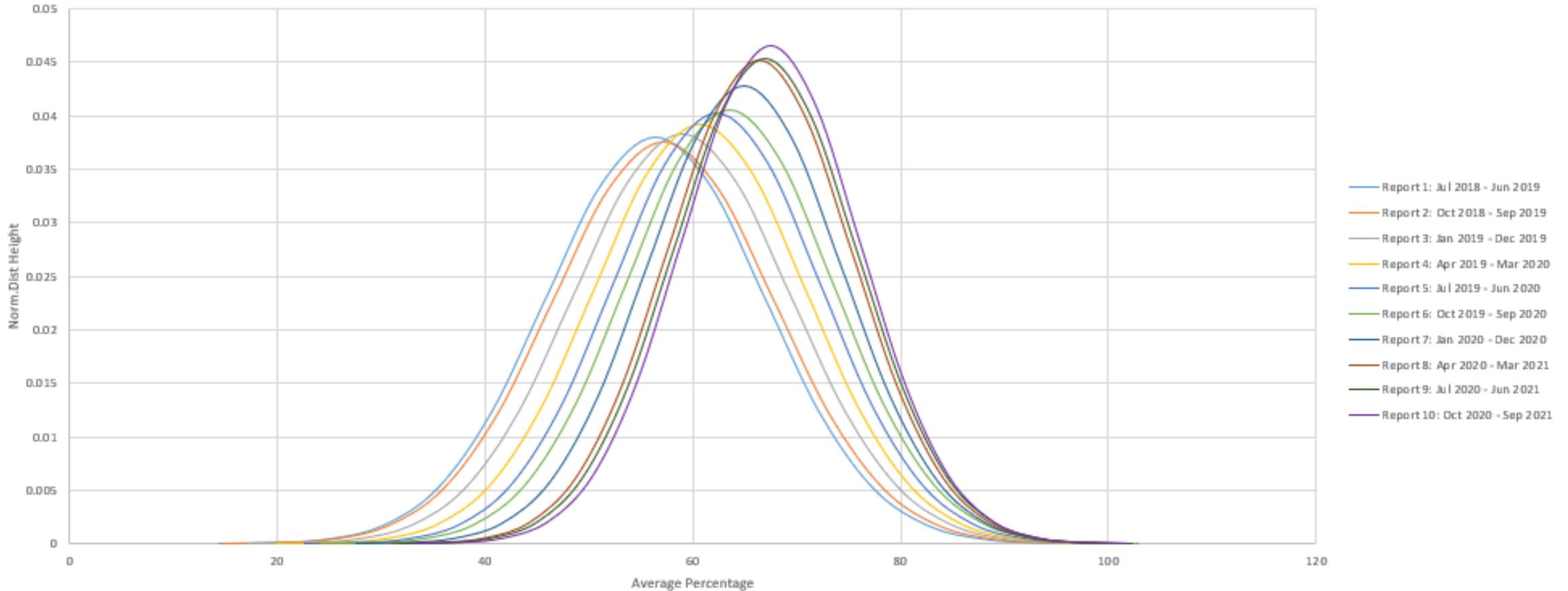
Measurable Outcomes

HSE-AMRIC Antibiotic Quality Improvement Initiative for Community Prescribers

Overall narrowing in standard deviation of average green antibiotic percent

– less variation in the quality of antibiotic prescribing

Progression of Average 'Preferred' Percentage Across All Reports



HSE Measurable Outcomes

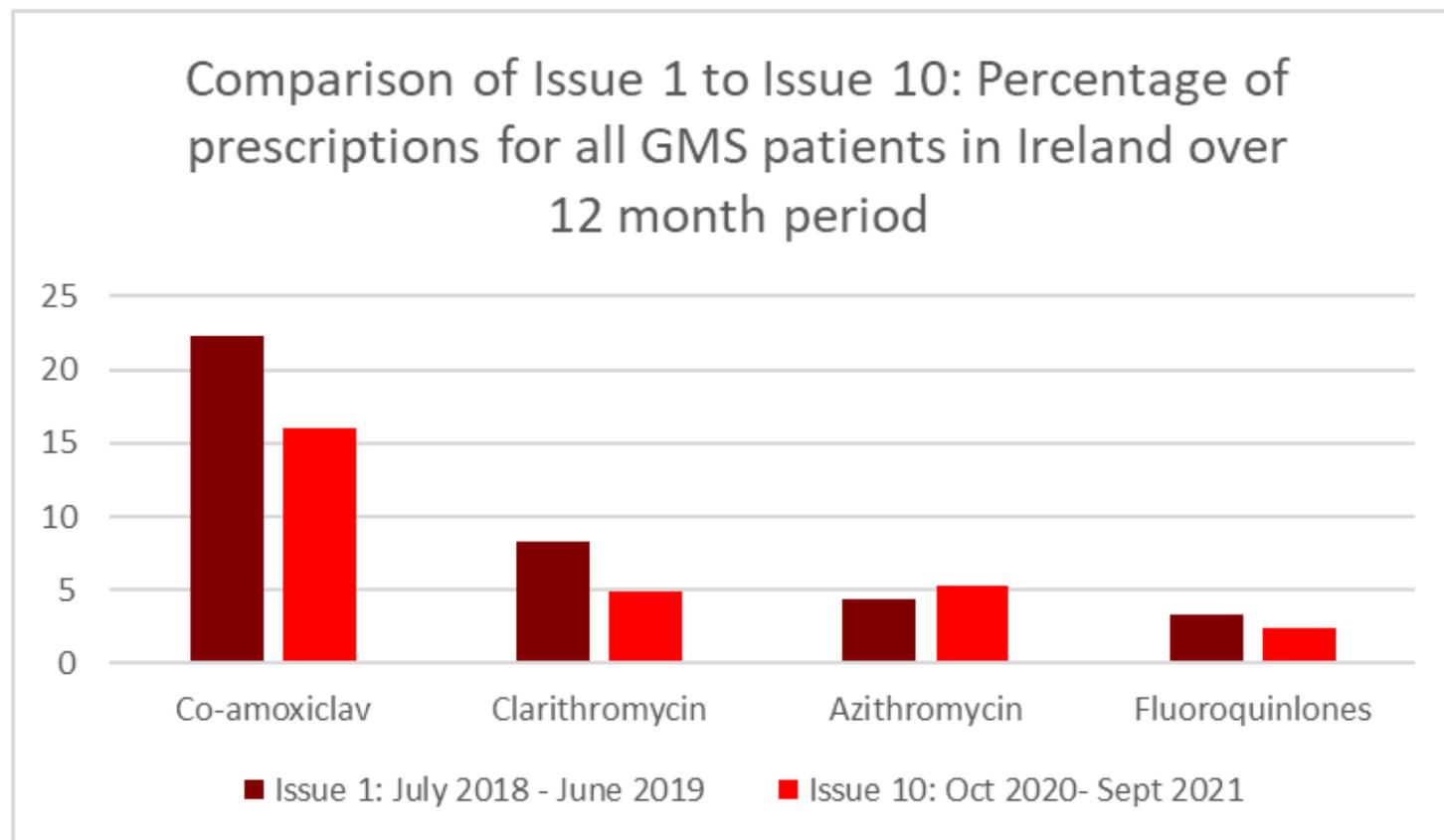
HSE-AMRIC Antibiotic Quality Improvement Initiative for Community Prescribers

Encouraging reduction in use of:

- Co-amoxiclav
- Clarithromycin
- Fluoroquinolones

Azithromycin: exception to this positive trend

- Feedback from GPs: many azithromycin prescriptions initiated in the hospital setting
- AMRIC engaged with HSE national respiratory programme: guideline March 2022 azithromycin prophylaxis guidance
- Patient information and audit tool
- Wide circulation and publication of guidance
- Issue 11 safe prescribing tips for azithromycin





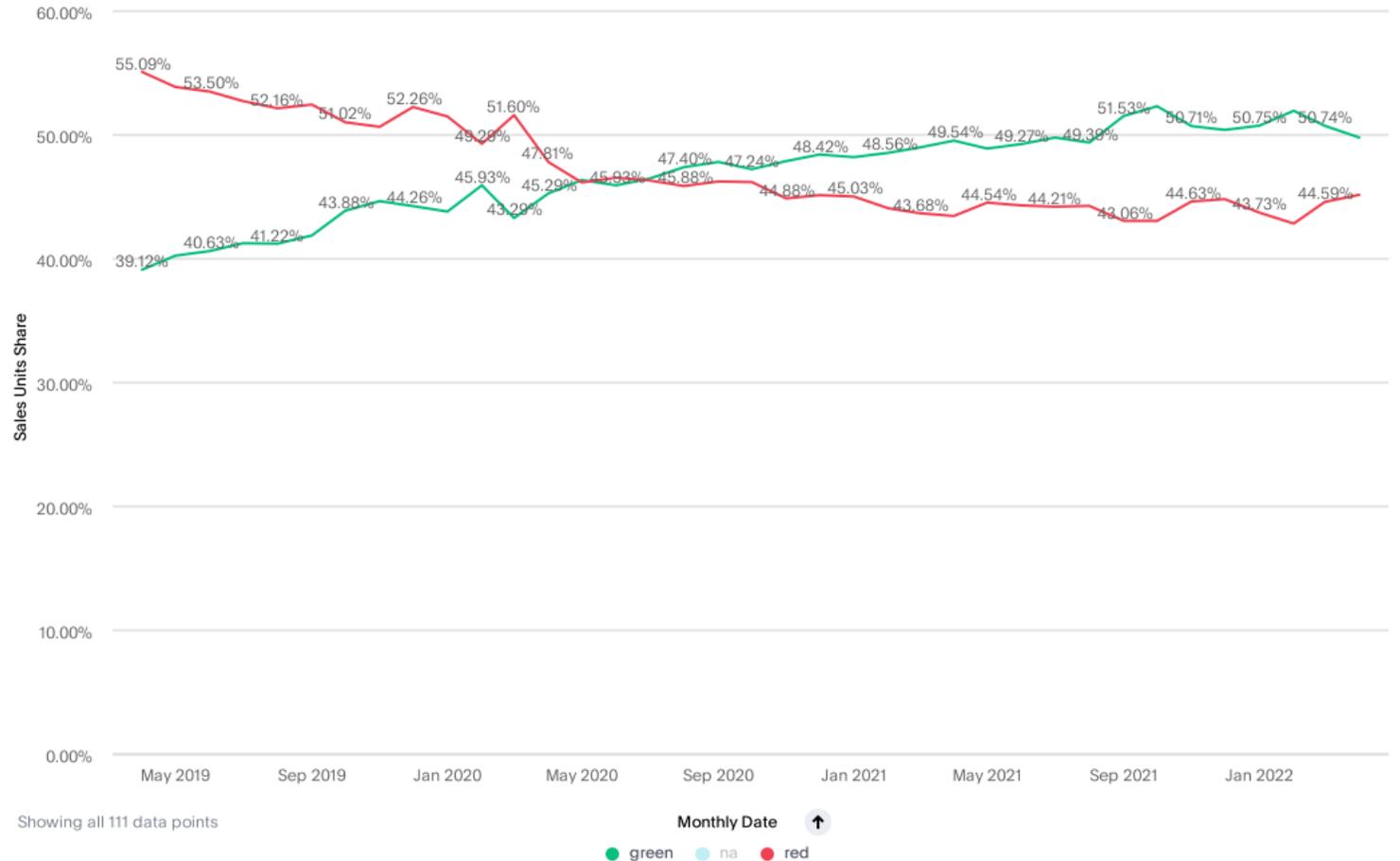
Measurable Outcomes

HSE-AMRIC Antibiotic Quality Improvement Initiative for Community Prescribers

Trends are carrying over to all community antibiotic prescribing

- HMR (Health Market Research) data
- Represents dispensed antibiotics from 70% community pharmacies extrapolated to 100%
- 14% increase in green antibiotics use

% Green Antibiotics SO Units trends over last 3 years





How do we compare internationally?

ECDC: quality indicator for antibiotic consumption in community
 - Ratio of consumption of broad-spectrum agents to narrow-spectrum agents

Ireland was one of 8 countries where a statistically significant decreasing trend was observed

Reflective of positive green/red trend

Table 4. Ratio of consumption of broad-spectrum penicillins, cephalosporins, macrolides (except erythromycin) and fluoroquinolones to consumption of narrow-spectrum penicillins, cephalosporins and erythromycin in the community, by country, EU/EEA and the United Kingdom, 2011–2020 (expressed as DDD per 1 000 inhabitants per day)

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Time series 2011–2020	Trend	Compound annual growth rate (CAGR)
Austria	4.1	4.4	4.4	4.4	4.4	4.2	4.2	3.9	3.7	3.5		↓	-2.0%
Belgium	2.4	2.4	2.0	2.2	2.2	2.2	2.2	2.1	1.9	2.1		↓	-1.6%
Bulgaria	1.9	2.1	2.3	3.0	3.5	4.2	4.0	4.2	4.5	4.9		↑	11.0%
Croatia	2.7	3.5	3.1	3.2	3.4	3.3	3.8	4.3	4.5	5.7		↑	8.7%
Cyprus												N/A	N/A
Czechia	2.4	2.9	2.6	2.9	3.0							N/A	N/A
Denmark	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3		↓	-2.4%
Estonia	2.1	2.2	2.5	2.5	2.7	2.8	2.9	3.0	3.0	3.3		↑	5.2%
Finland	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3		↓	-7.1%
France	1.7	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.9	1.1		↓	-5.0%
Germany	2.1	1.9	1.9	1.9	2.0	1.9	1.8	1.7	1.5	1.6		↓	-3.1%
Greece	5.3	4.5	4.4	7.0	4.8	3.8	4.9	4.9	5.1	4.4		↓	-2.0%
Hungary	5.9	6.0	6.6	9.6	11.3	10.9	11.6	12.7	13.6	15.2		↑	11.2%
Ireland	1.9	1.9	1.7	1.4	1.4	1.6	1.4	1.3	1.2	1.0		↓	-6.6%
Italy	5.4	5.6	6.1	6.6	6.9	6.9	7.1	7.5	7.5	8.1		↑	4.5%
Latvia	1.0	1.1	1.2	1.3	1.3	1.4	1.5	1.7	1.9	2.1		↑	9.2%
Lithuania		0.9	0.9	0.9	0.9	1.0	1.1	1.1	1.1	1.2		↑	4.4%
Luxembourg	4.3	4.5	4.4	4.4	3.9	3.6	3.7	3.5	3.2	3.2		N/A	N/A
Malta	19.2	22.1	23.4	31.4	32.7	19.2	23.2	24.0	20.1	19.1			0.0%
Netherlands	1.6	1.6	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.6			0.2%
Norway	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1		↓	-5.3%
Poland	3.2	2.3	2.4	2.5	2.6	2.6	2.9	3.2	3.0	3.3			0.4%
Portugal	5.2	5.0	5.3	5.2	5.2	5.1	4.1	4.1	5.0	5.8			1.2%
Romania									4.1	4.7		N/A	N/A
Slovakia	5.1	4.9	5.3	5.6	6.6	6.5	6.6	8.0	8.3	9.3		↑	6.9%
Slovenia	1.4	1.3	1.4	1.5	1.5	1.4	1.4	1.4	1.5	2.1		↑	4.8%
Spain	3.2	3.1	3.1	3.0	3.1	2.4	2.4	2.4	2.3	2.5		N/A	N/A
Sweden	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2			2.8%
EU/EEA*	2.8	2.7	2.8	3.0	3.1	3.0	3.1	3.2	3.2	3.5		↑	2.4%
<i>United Kingdom</i>	<i>0.4</i>	<i>0.4</i>	<i>0.5</i>			N/A	N/A						

Source: ECDC. Antimicrobial consumption in the EU/EEA (ESAC-Net) Annual Epidemiological Report for 2020.





This initiative is transferable to other services

- This model of supporting behavioural change through communication of prescriber level data could be replicated
- Building on the success of this initiative, HSE-AMRIC's ambition is to develop and support a similar initiative in other settings including:
 - Dental prescribing
 - Acute hospitals
- Sharing learning with other sectors - the One Health approach
 - Department of agriculture and veterinary prescribers
- Many aspects of this initiative could be supported and improved by the use of ePrescribing and electronic healthcare records
 - Enables enhanced data collection and reporting



OBAIR LE CHÉILE CHUN ÁBHAIR
FHRITHMHÍOCRÓBACHA
A CHOSAINN DON TODHCHAÍ

WORKING TOGETHER TO
PROTECT ANTIMICROBIALS
FOR THE FUTURE



Conclusion – key features and outcomes

HSE-AMRIC Antibiotic Quality Improvement Initiative for Community Prescribers

- National initiative implemented at scale
- Prescriber level feedback to GP comparing their prescribing to their peers
- Nudge-style approach for behavioural change
- Cross sectoral and multidisciplinary collaboration
- Positive stakeholder engagement
- Positive change in the quality of antibiotic prescribing achieved



Antimicrobial Resistance &
Infection Control Programme

This project is recognised as the most effective national antimicrobial stewardship project in terms of success in changing behaviour and patterns of antibiotic prescribing.