Greener Models of Healthcare

HSE Antimicrobial Resistance and Infection Control Team (AMRIC)

Meeting Date: November 29th 2023

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AMRIC: Greener Models of Healthcare

- Background and Context
- Primary Care Antimicrobial Consumption Summary Results (2023 Q2)
  - Primary Care Antibiotic Prescribing Guidance
  - iGAS IMT antibiotic supply issues
  - Primary Care - Red to Green Antibiotic Prescribing Initiative (2023 Q2)
  - HSE Older Persons Residential Care Facilities monthly antibiotic use
- Hospital Antimicrobial Consumption Surveillance Data (2023 Q2)

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Background and Context

The HSE 2022-2025 AMRIC Action Plan sets out a range of HSE actions aligned to the five strategic objectives of iNAP2:

- **Strategic Objective 1:** Improving awareness and knowledge of AMR
- **Strategic Objective 2:** Enhancing surveillance of antibiotic resistance and antibiotic use
- **Strategic Objective 3:** Reducing infection and disease spread
- **Strategic Objective 4:** Optimise the use of antibiotics in human and animal health
- **Strategic Objective 5:** Promote research and sustainable investment in new medicines, diagnostic tools, vaccines and other interventions

All of these strategic objectives have specific HSE actions with associated deliverables, that over the period 2022-2025 will work towards the following in relation to antimicrobial resistance and infection control:

- Improved patient outcomes
- Improved patient safety
- Staff education and training
- Improved staff safety
- Awareness and deeper understanding

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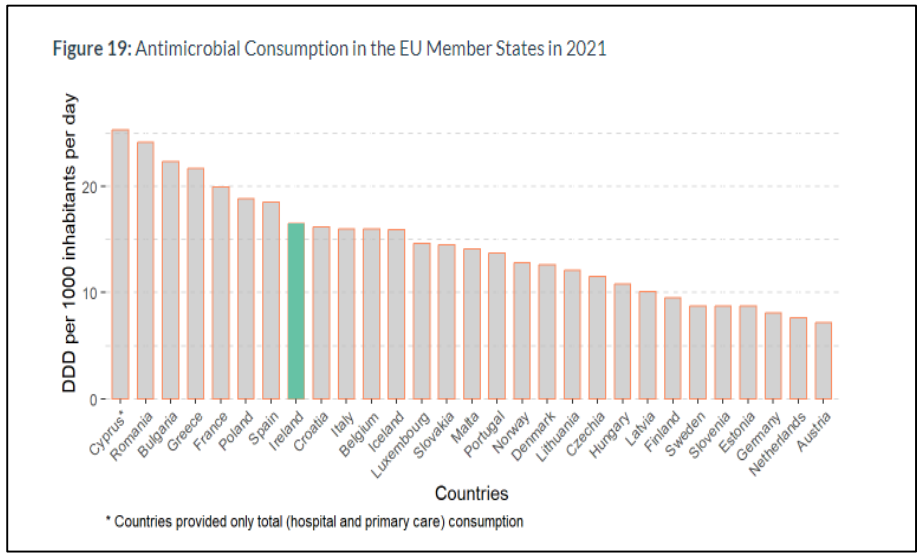
Background and Context



- Antibiotics are essential for modern medicine
- Recognised that antibiotic use causes adaptations in microorganisms to survive in presence of antibiotics = resistance

- Measurable antibiotics and related compounds in wastewater and environment
- Measurable resistant organisms in wastewater and environment

- Known impact of antibiotics on microbial diversity in humans
- Plausible impact on ecological biodiversity

- Efforts to reduce use in humans and animals (and thus food chain) likely to be of benefit to environment as well as to human population

- Reduction of use must allow for appropriate use, as antibiotics are essential medicines for modern medicine – chemotherapy/ routine surgery/ transplant surgery

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iNAP 2 – Irelands National Acton Plan on AMR 2021 -2025
HSE AMRIC Action plan 2022-2025

The HSE AMRIC Action plan contains 143 HSE Actions to address the 69 iNAP actions which relate to health

121 of these have been initiated in 2022/2023, with a further 22 planned in 2024/2025

Connected with discussion today

iNAP Actions
- 69

HSE Actions
- 143

Ventilator Acquired Pneumonia (VAP)	National Clinical Surveillance Project	eLearning Programme	Communication	Surgical Site Surveillance
Governance/ Guidance/Webinars	Estates	Point of Care Testing (Pilot)	Resources	Promote IPC/AMS/AMR (ambassador)
UTI	Red to Green Community	Antibiotic Prescribing.ie	Antibiotic prescribing audit	GP OOH
Competency Framework	IVI Line Teams	NIMS	Red to Green Acutes	Improved Data Reporting
		HSE Other	DOH/HIQA	

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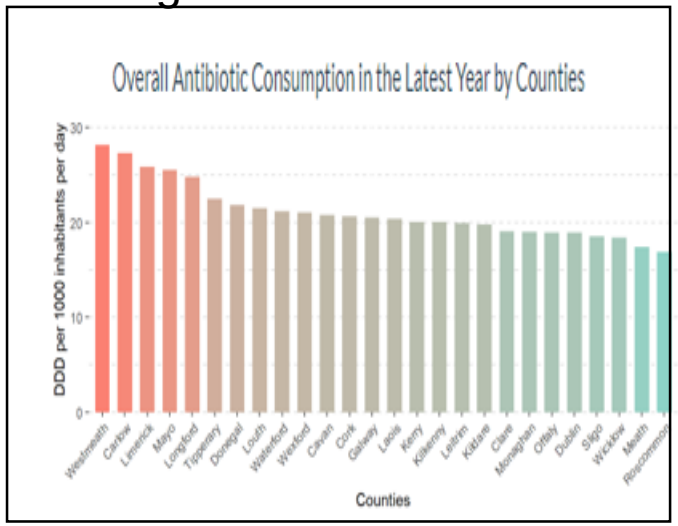
Primary Care Antimicrobial Consumption Summary Results 2023, Q2 Report

Source HPSC

- Overall consumption of antibiotics has decreased this quarter
  - 2023 (Q2) = 19.4 defined daily doses (DDD) per 1000 inhabitants per day (DID)
- ~33 % decrease in the overall consumption between Q4 2022 (29.1 DID) and Q1 2023 (21.6 DID)
- Overall rate in 2023 is 20.5 DID – comparing 2022 and 2023 - consumption is continuing to increase back to pre-pandemic levels



- First half of 2023 data (vs 2022 data) indicates:
  - Consumption of beta-lactam (penicillins), other beta-lactam antibacterials and macrolides and other antibiotic classes decreased ↓
  - Consumption of sulphonamides, trimethoprim and tetracycline antibiotics have increased ↑
  - Consumption of quinolones stable ↔

- Westmeath, Carlow, Limerick and Mayo - highest consumption of antimicrobials in primary care per county (25 - 28 DDD per 1000 inhabitants per day)

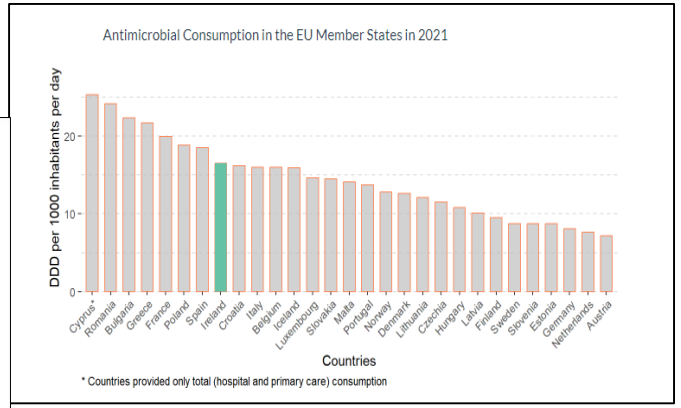


Table 3: Consumption of Tetracyclines (J01A) in the Last 5 Years by Quarters

Year	Q1	Q2	Q3	Q4
2019	2.9	2.9	2.7	3.4
2020	3.9	2.5	2.6	2.9
2021	2.7	2.8	2.6	3.7
2022	3.8	3.8	3.1	4.6
2023	4.1	3.7		

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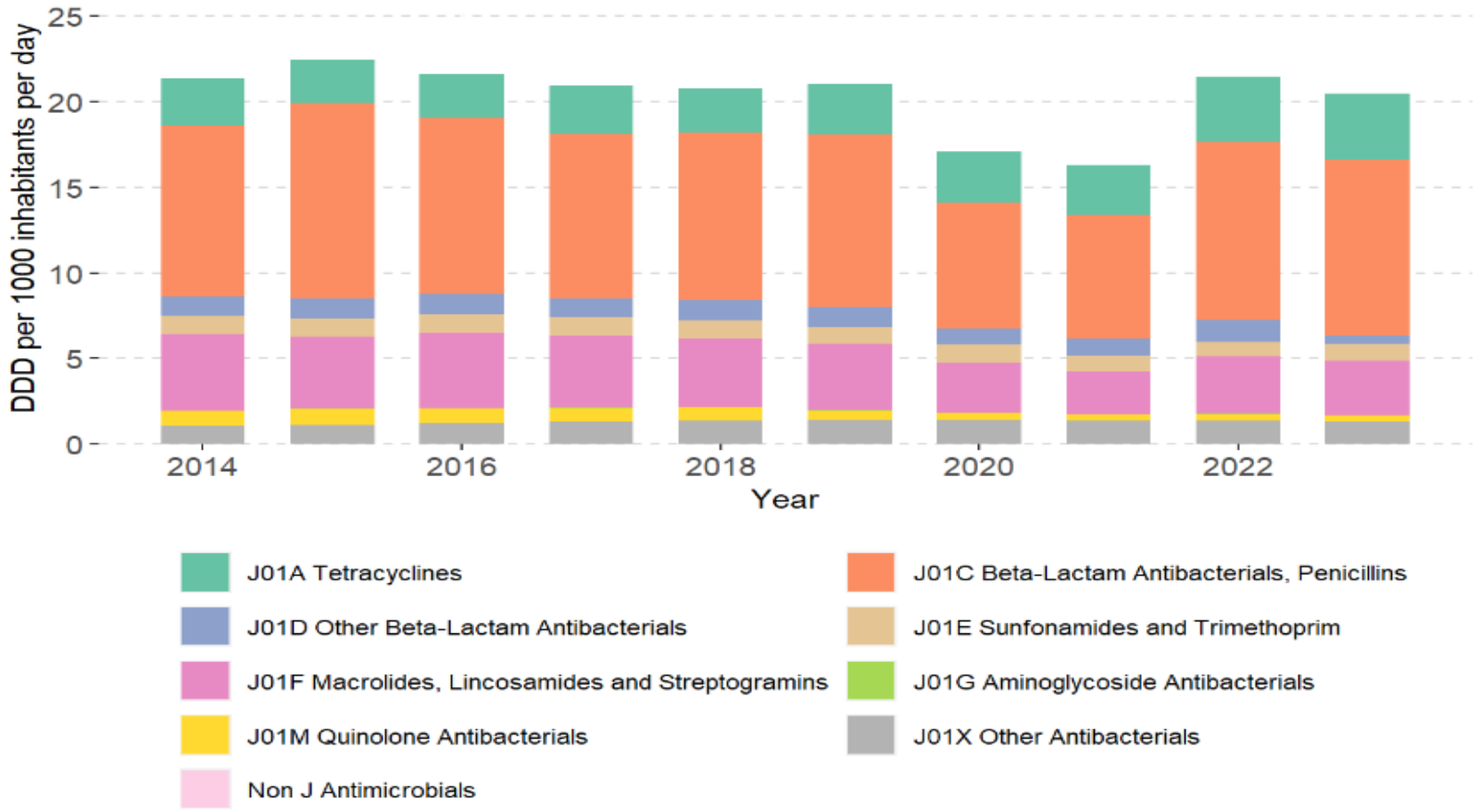
Primary Care Antimicrobial Consumption Summary Results 2023, Q2 Report

Source HPSC

Figure 1: Antimicrobial Consumption in the Last 10 Years by ATC-3 Groups



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Primary Care Antibiotic Prescribing Guidance

www.antibioticprescribing.ie

The number of treatment guidelines and resources developed / updated, and published to www.antibioticprescribing.ie for July 24th 2023 to October 26th 2023

- 20 treatment guidelines
- 4 resources (skip the dip)

Condition/website classification	Name and version number of guidelines/resource approved	Date Published/ Status update
1. Approach to an STI consultation in Primary Care	Shigellosis (V1.0)	July 4th 2023
2. "Skip the dip" HSE Community Residential Care Facilities Resources	Patient information leaflet (V1.0)	August 28th 2023
	Staff information leaflet (V1.0)	
	Skip the dip poster (V1.0)	
	Skip the dip banner (V1.0)	
3. Gastroenterology	Infectious Diarrhoea (V2.0)	August 9th 2023
	Travellers' Diarrhoea Anticipatory Management (V2.0)	August 9th 2023
	Threadworms (V2.0)	August 10th 2023
4. Safe Prescribing / Drug interactions	Fluoroquinolone warnings (V2.0)	July 20th 2023
5. Eye and Ear	Conjunctivitis (V2.1)	July 19th 2023
6. Urinary	Acute Pyelonephritis / Upper Urinary Tract Infection (UTI) (V2.0)	Published September 9th 2023
	Catheter-Associated Urinary Tract Infections (CA-UTI) (V2.0)	
	Urinary Tract Infections (UTI) in Residential Care Facilities / Nursing Homes (V2.0)	
	Uncomplicated UTI in Adult Non-Pregnant Females (V2.0)	
	Uncomplicated UTI in Adult Male i.e. no fever or flank pain (V2.0)	

www.antibioticprescribing.ie

1.9 million page views (30th September 2022 to September 30th 2023) increase of 24%)

The number of users has increased by 2.3% to over 296,000 users

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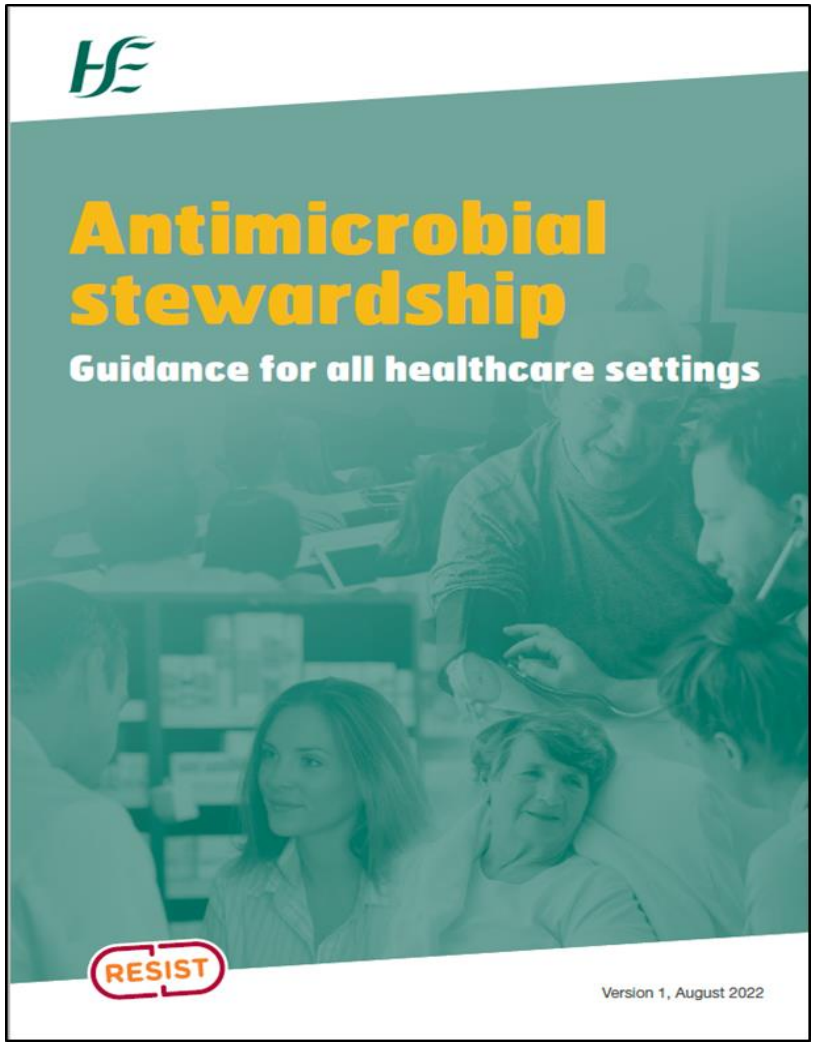
Primary Care Antibiotic Prescribing Guidance



In many cases the Preferred Antibiotic is No Antibiotic

Advise patients/carers to visit the HSE website **www.undertheweather.ie** for self-care advice for viral and self-limiting infections

☑ Preferred Antibiotics In Community

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

Respiratory Infections Duration in general: 5 days	Urinary Tract Infections	Skin and Soft Tissue Infections
Amoxicillin	Nitrofurantoin* (Only for lower UTI)	Flucloxacillin
Doxycycline*	Cefalexin	Cefalexin
Penicillin V (phenoxymethylpenicillin)	Trimethoprim*	Doxycycline* (acne)
	Fosfomycin* (Only for lower UTI)	Lymecycline* (acne)

☒ Antibiotics To Be Avoided First Line In Community

Co-amoxiclav — **Risks: C.diff**

Unless as first line for:
animal or human bite; facial cellulitis; post partum endometritis; caesarean wound infections; perineal wound infection

Other cephalosporins — **Risks: C.diff**

- Cefaclor
- Cefixime
- Cefuroxime

Clindamycin* — **Risks: C.diff**

Quinolones — **Risks: C.diff, drug interactions, tendon/nerve & other toxicities, prolongation of QT interval, lowers seizure threshold**

- Levofloxacin*
- Ciprofloxacin* – Unless as first line for acute prostatitis
- Ofloxacin* – Unless as first line for acute epididymo-orchitis
- Moxifloxacin* – AVOID due to risk of severe liver toxicity

Macrolides — **Risks: C.diff, drug interactions, prolongation of QT interval**

- Clarithromycin* – Unless as first line for helicobacter eradication
- Azithromycin*
- Erythromycin*

* These antibiotics may be safely used in patients with true penicillin allergy (immediate hypersensitivity).
C. diff = ***Clostridioides difficile*** infection

See www.antibioticprescribing.ie for details

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Version 5, February 2023

IRISH PHARMACY UNION · ICGP · Preferred Drugs

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iGAS IMT antibiotic supply issues- winter 2022-2023

- Use of established critical resources:
  - www.antibioticprescribing.ie website and clinical guidance
  - Wide network and engaged stakeholders:
    - Targeted communications
    - Increase engagements
    - Share timely information
- Cross agency collaboration
    - HPRA supply updates provided
    - HSE website platform reconfigured
    - HPRA Antibiotic supply updates and HSE guidance published to www.antibioticprescribing.ie
    - Cascade of communication to stakeholders and signpost to website
- Continue to link with HPRA on current and anticipated antibiotic supply difficulties

Primary Care - Red to Green Antibiotic Prescribing Initiative (2023 Q2)

Source: HSE AMRIC and HSE Primary Care Reimbursement Service

- Issue 17 of GP antibiotic prescribing trend reports circulated September 2023
- % red to end June 2023 = 31%
- Key message accompanying Issue 17

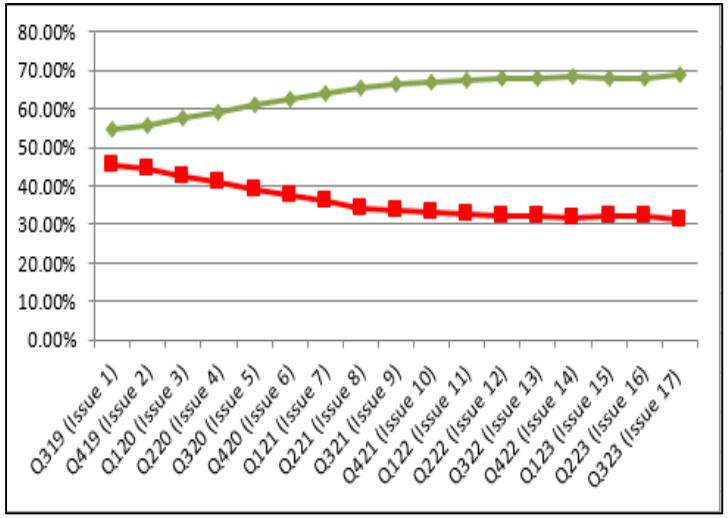
Messaging accompanying issue 17 red green reports

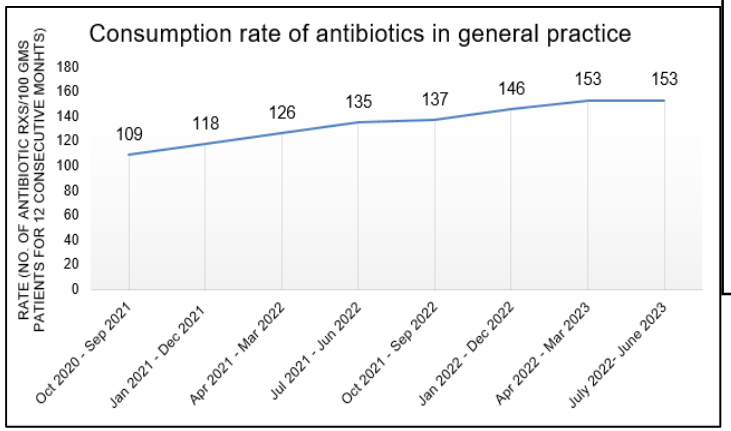
Some tips and useful advice for this autumn-winter

- Advice for parents/carers regarding acute cough in children:
  - Young children can develop 6-12 respiratory tract infections per year, usually accompanied by cough
  - Acute cough in children usually resolves (with or without antibiotics) within 3-4 weeks
  - Two most useful features to rule out pneumonia in a GP setting are:
    - Absence of difficult or laboured breathing
    - Absence of GP's subjective assessment that a child is unwell.
- COVID and flu vaccination (including childhood flu vaccine)
  Protect your patients and colleagues against COVID-19 and flu, and reduce the burden of winter respiratory viruses on your practice by encouraging winter vaccinations in all eligible patients and staff.
- Dipstick urinalysis is useful in the assessment of urinary infection in some limited circumstances, including non-pregnant adult females under 65 years of age. They have limited use in men under 65 years of age. They are not helpful in diagnosing urinary infection in people:
  - Over 65 years old
  - Pregnancy
  - Those with indwelling catheters
  - Those without clinical symptoms of urinary infection.

  Please see the position statement in the urinary section of www.antibioticprescribing.ie for details

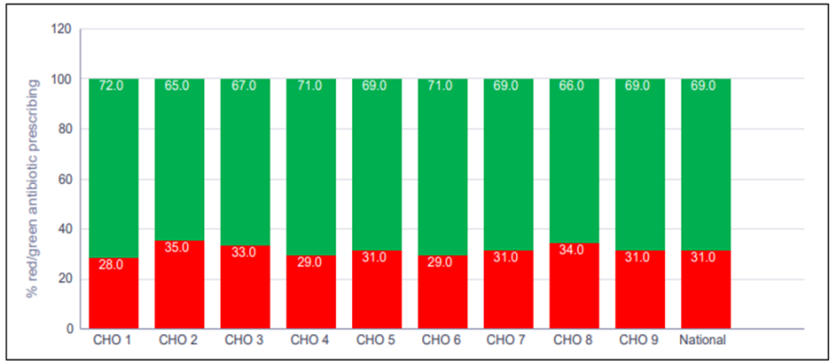
Red to Green Q3, 2023





Comparison of percentage green antibiotic prescribing for GMS patients in each CHO vs. all GMS patients in Ireland for 12 consecutive months up to the end of June 2023

Comparison of percentage green antibiotic prescribing for GMS patients in each CHO vs. all GMS patients in Ireland for 12 consecutive months up to the end of June 2023



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Primary Care Consumption data

Source: HSE Primary Care Reimbursement Service, General Medical Service Claims

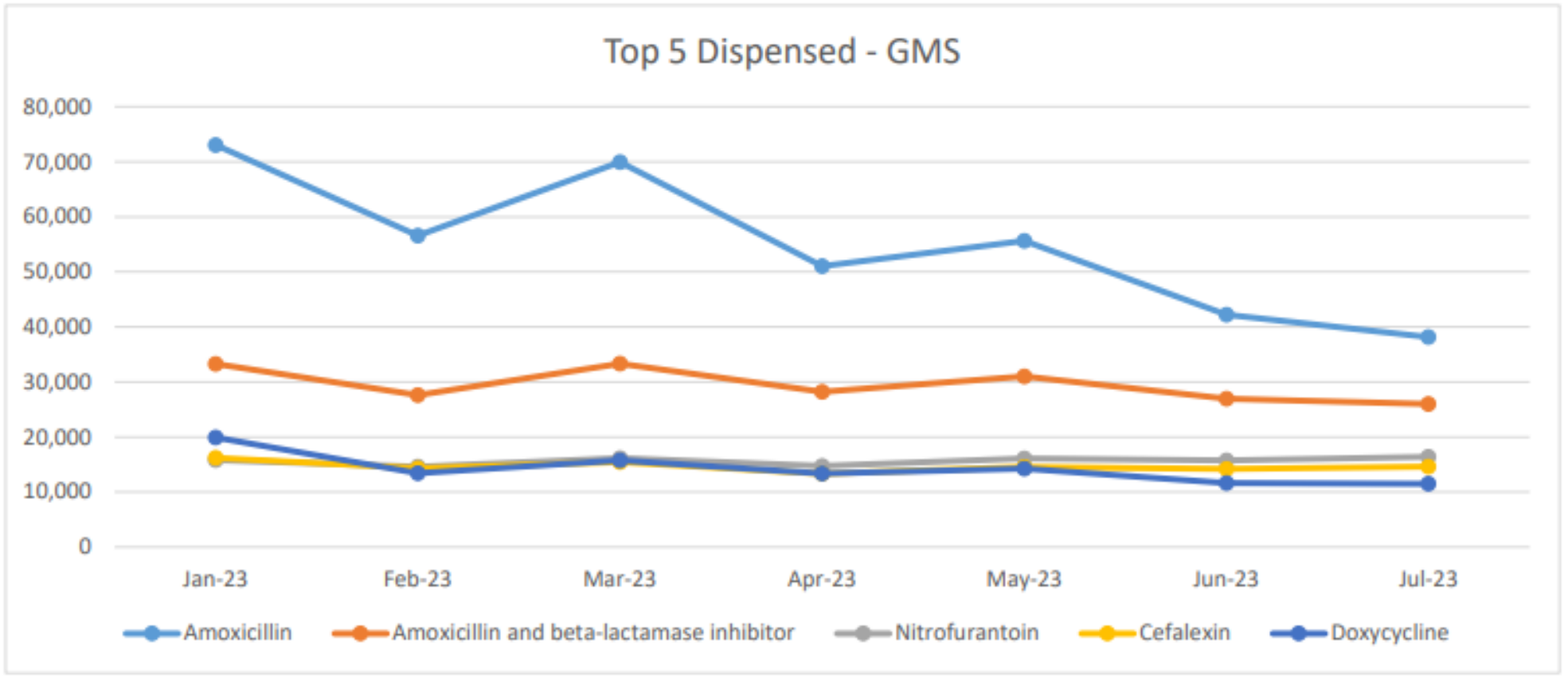

Figure 5. Top 5 dispensed antibacterial agents on the GMS scheme, by month in 2023

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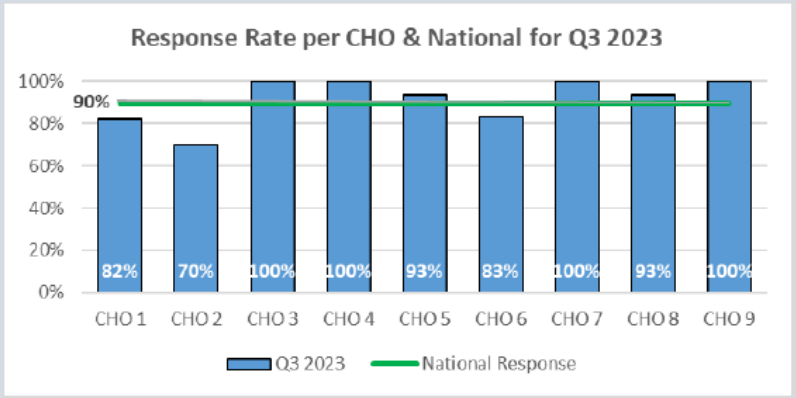
HSE Older Persons Residential Care Facilities monthly antibiotic use National summary monthly monitoring HCAI AMR in HSE Residential Care Facilities for Older Persons (2023 Q3) *Source: HSE AMRIC Community*

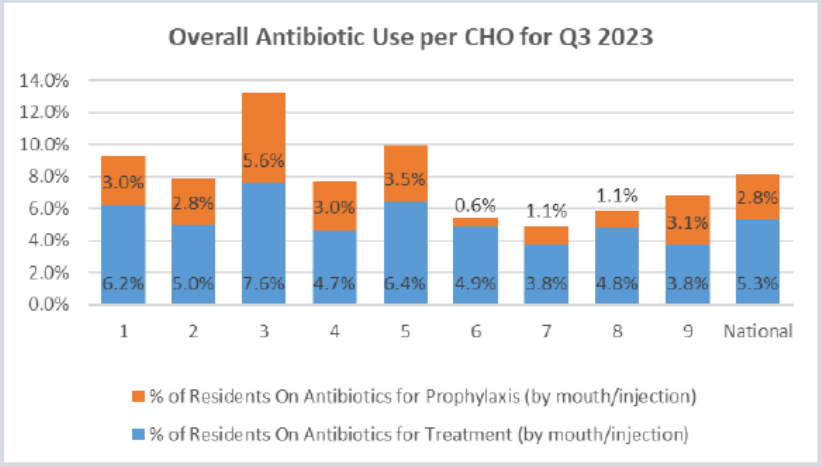
National Summary Report Quarter 3, 2023: Quarterly Monitoring of HCAI/AMR/Antibiotic Consumption in HSE RCFs for Older Persons

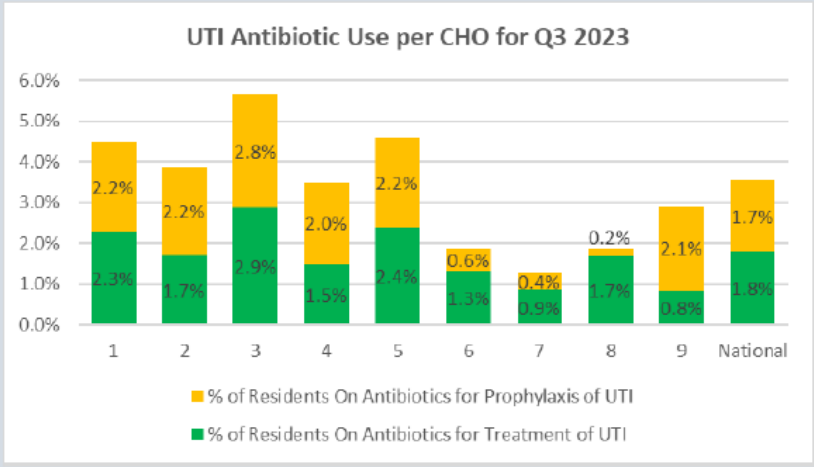
RESPONSE DATA FOR Q3 2023

	Community Healthcare Organisation (CHO)									
	1	2	3	4	5	6	7	8	9	National
Number of RCFs invited to participate this quarter	19	20	9	24	15	4	7	15	5	118
Total number of residents included in this quarter	1714	1343	1182	2875	1846	534	1168	1489	718	12869
Average number of residents included/month	571	448	394	958	615	178	389	496	239	4290
% of Residents who were LTC ≥ 30 days	75%	82%	83%	89%	76%	91%	99%	96%	98%	86%



ANTIBIOTIC USE





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Hospital Antimicrobial Consumption Surveillance 2023, Q2 Report *Source HPSC*

Key Points

- The median rate of antimicrobial consumption in 43 participating acute hospitals in Ireland for the first half of 2023 was 72.1 defined daily doses per 100 bed days used (range = 19.7 – 114.8), a slight increase from 67.9 DDD per 100 BDU in 2022. Similarly, the mean rate of hospital consumption increased slightly from 72.9 DDD per 100 BDU in 2022 to 77.7 DDD per 100 BDU in the first half of 2023.
- There was a slight increase in the consumption of penicillins, other beta lactams, macrolides, tetracyclines, glycopeptides, imidazoles and nitrofurans. A slight decrease was observed in the consumption of aminoglycosides, sulfonamides and trimethoprim and quinolones. The consumption of other beta lactams and tetracyclines reached its highest level to date.
- Penicillins were the most consumed ATC4 group accounting for more than half of antibiotic consumption in the hospital sector. Among penicillins, "combinations of penicillins, including beta-lactamase inhibitors (J01CR)" were the highest consumed group with 24.7 DDD per 100 BDU, an increase from 23.5 DDD per 100 BDU in 2022, followed by "beta-lactamase resistant penicillins (J01CF)". Consumption of beta-lactamase resistant penicillins increased from 8.1 in 2022 to 8.5 DDD per 100 BDU in 2023. Consumption of penicillins with extended spectrum and beta lactamase sensitive penicillins also increased slightly compared to 2022 levels.

Annual rate of hospital consumption of systemic antibacterial drugs in DDD per 100 BDU

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
National median	69.6	66.6	68.6	71.8	74.8	77.6	74.5	73.1	72.6	76.8	77.2	78.6	77.4	77.4	70.1	67.9	72.1
National minimum	14.8	15.4	17.4	21.3	20.2	25.3	27.9	23.6	25.8	23.2	27.7	27.2	28.9	20.0	25.8	22.9	19.7
National maximum	96.5	102.8	115.7	109.5	119.9	111.3	101.2	102.3	100.2	107.2	116.8	117.1	101.5	98.8	111.7	117.7	114.8
Overall national mean	69.5	70.2	70.2	71.9	74.8	75.1	75.2	75.3	73.8	76.9	78.1	78.4	76.9	73.6	72.1	72.9	77.7

Note: *Results provisional to the end of 2023Q2

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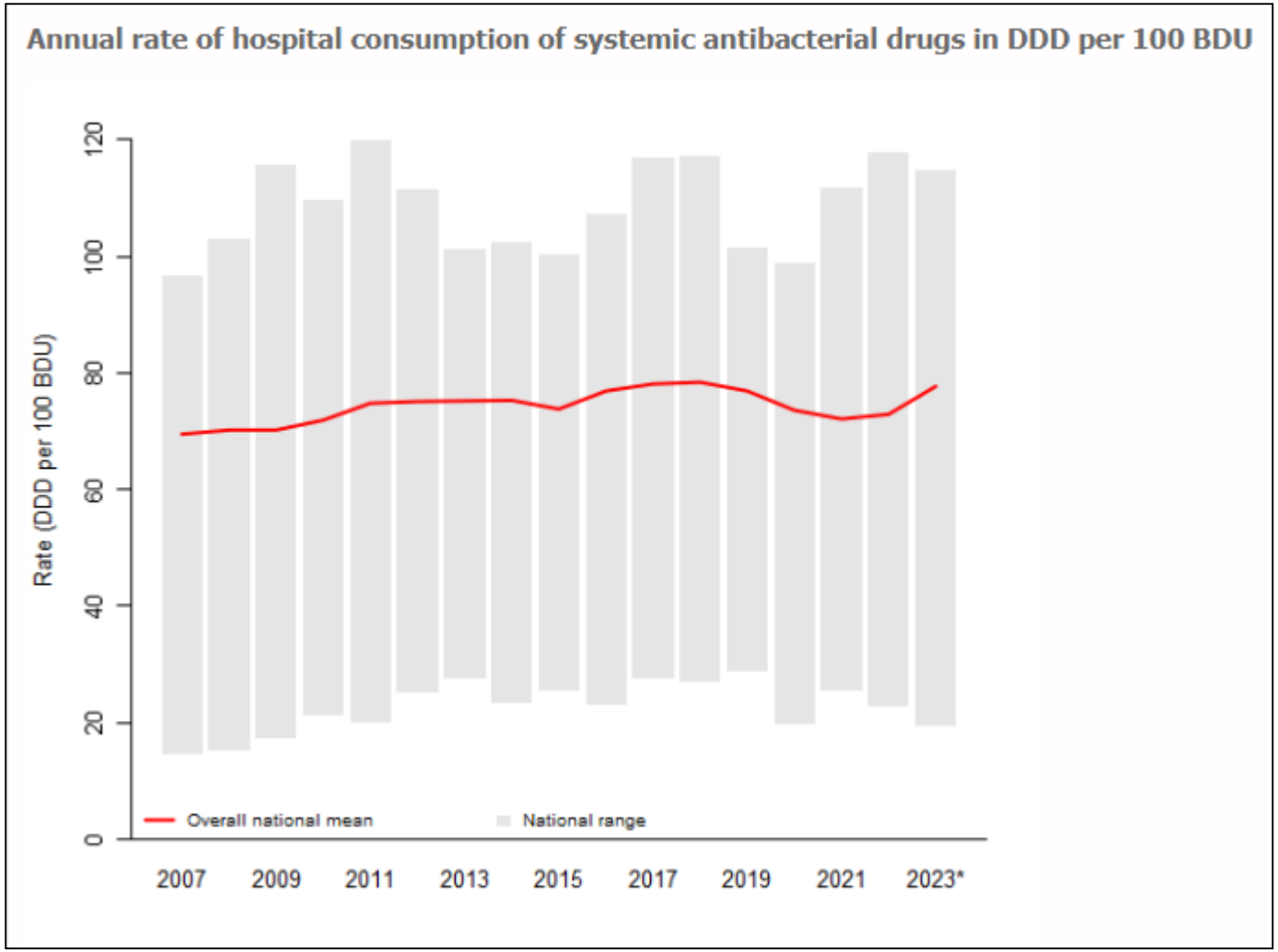
Hospital Antimicrobial Consumption Surveillance 2023, Q2 Report

Source HPSC



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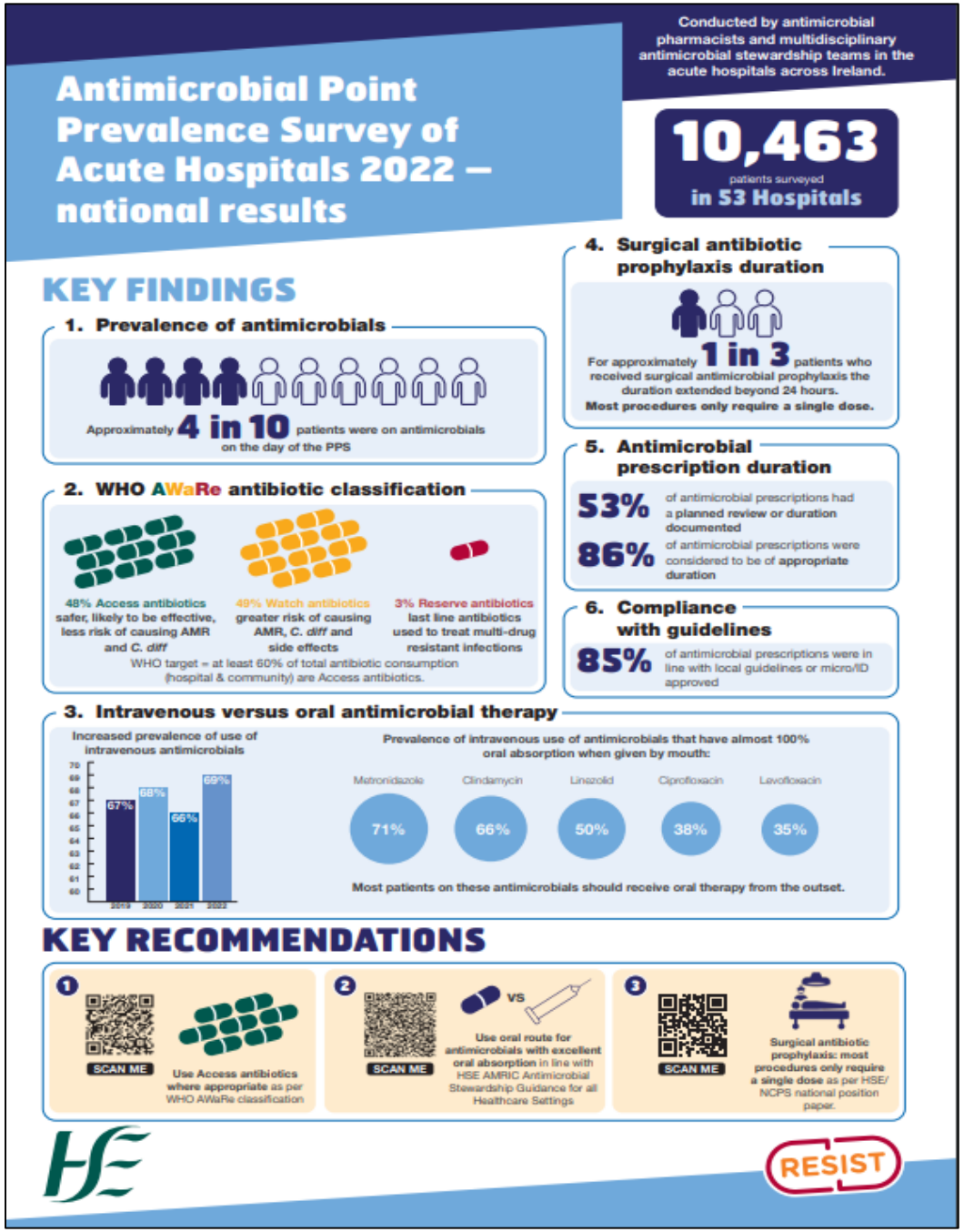
Hospital Point Prevalence Survey

- **Antimicrobial PPS of Acute Hospitals 2022 (AMRIC)**
  - National results →
  - Next published report due 2024

- **2023 ECDC PPS of healthcare associated infection and antimicrobial use in European acute care hospitals (HPSC)**
  Irish data was submitted to ECDC this summer
  Preliminary reports now available for individual hospitals
  HPSC validating hospital level reports before they are issued and are drafting the national report as well as special population reports (critical care etc.)



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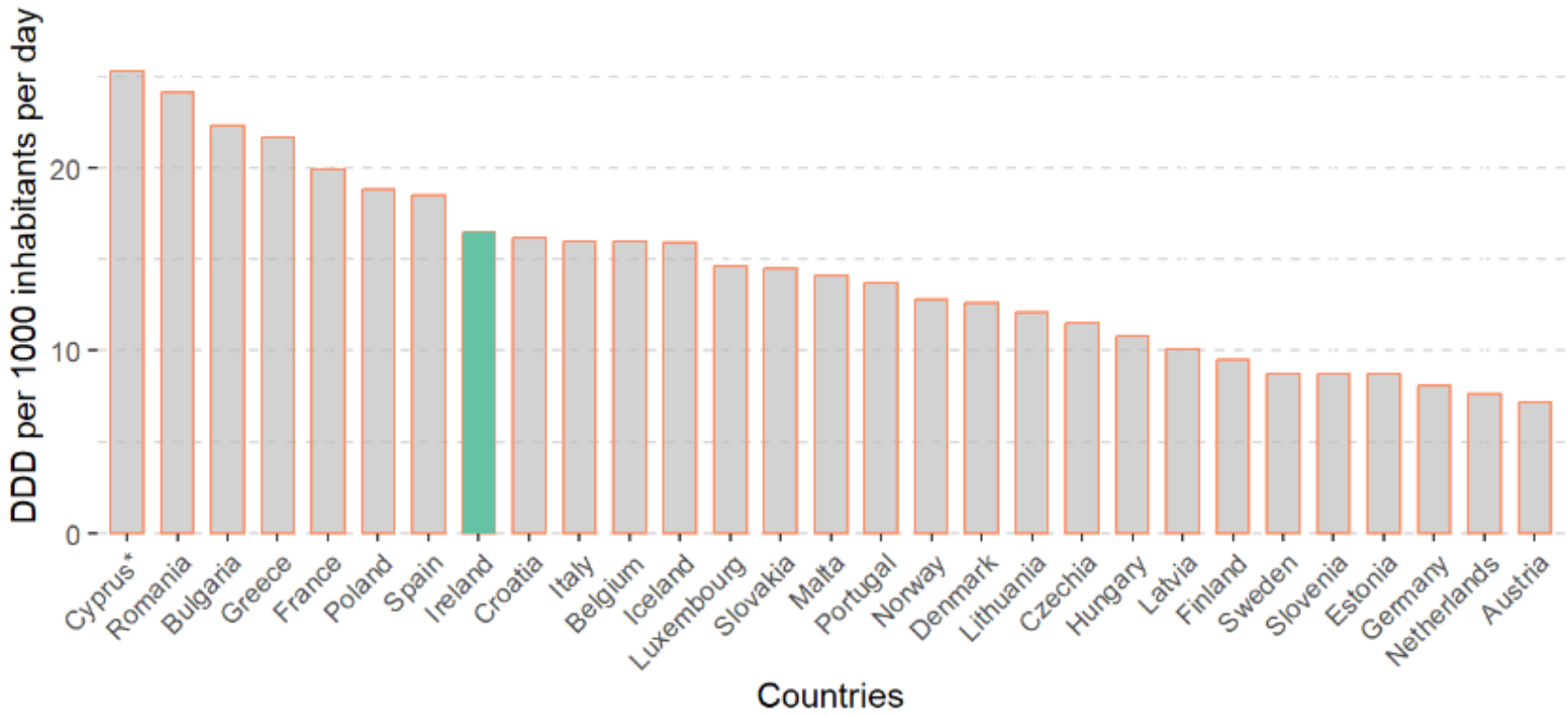
International Comparison

Figure 19: Antimicrobial Consumption in the EU Member States in 2021



* Countries provided only total (hospital and primary care) consumption

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Thank you

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