

Audit-enhanced compliance with national antibiotic guidelines



Introduction and Objective

Background: The Health Service Executive (HSE) in Ireland published guidelines for antibiotic prescribing in primary care in 2016. These guidelines specify recommended antibiotics: drug, doses, and duration. The guidelines are available: <http://www.hse.ie/eng/services/list/2/gp/Antibiotic-Prescribing/>²

Antimicrobial stewardship:

“To provide a simple, best guess approach to the treatment of common infections To promote the safe and effective use of antibiotics²”

- optimise appropriate treatment of infections
- reduce adverse events
- improve quality of patient care and patient safety
- Reduce the expansion of antimicrobial resistant organisms¹

Objective of audit:

- 1. Enhance the quality of antibiotic prescribing in a 6 GP practice.** We hope to support the national antibiotic stewardship policy *“measure and improve...selection of the optimal antimicrobial drug, dose, and duration²”*.
- 2. Enhance appropriate use of amoxicillin in children.**
A report in Ireland in 2014 reported 84% of amoxicillin doses for children were subtherapeutic³. The guidelines for amoxicillin changed in 2014. Some GPs had not fully adjusted to the update.

Methods

- All antibiotics (N=14) prescribed at a 6 GP practice during one week in November 2016 were identified using a search of the practice's records. These 14 antibiotics were audited for all four audit cycles.
- All antibiotics prescribed were benchmarked against national guidelines⁴.
- The antibiotic **Drug** (preferred or justified agent), **Dose**, and **Duration** were analysed for 4 separate weeks over 10 months.
- All prescriptions deemed *“justified”* were validated by Dr Quinlan to ensure clinical validity.
- The individual and group results were shared with each GP after each assessment, providing rapid and personal feedback.
- Our template was based on the *“rapid cycle analysis preferred antibiotics audit tool”* provided by HSE's antimicrobial stewardship policy²:

Antibiotic	Condition	Age	Dose	Duration	Preferred	Justified	Correct	Comment

Results: Antibiotic: preferred or justified

	Nov 2017 (N=72)	Feb 2017 (N=64)	May 2017 (N=42)	Aug 2017 (N=60)
GP 1	85%	100%	80%	90%
GP 2	89%	100%	100%	100%
GP 3	79%	77%	66%	90%
GP 4	58%	66%	100%	100%
GP 5	42%	73%	88%	80%
GP 6	86%	75%	n/a	80%
Total	73%	81%	86%	90%

The principal antibiotic improvements:

- Co-amoxiclav reduced from 9 prescriptions in November 2016 to one prescription in August 2017
- Increased use of amoxicillin and phenoxymethylpenicillin

Antibiotic Dose & duration correct

	Nov-2017 (N=72)	Feb-2017 (N=64)	May-2017 (N=42)	Aug-2017 (N=60)
GP 1	46%	100%	100%	100%
GP 2	89%	100%	100%	100%
GP 3	79%	94%	100%	90%
GP 4	92%	89%	100%	70%
GP 5	58%	100%	94%	90%
GP 6	86%	75%	n/a	90%
Total	74%	95%	98%	90%

The principal improvements:

- Use of Amoxicillin in Children improved from 61% compliance with guidelines, to 100% compliance.
- The dose and duration of antibiotic in chest infection aligned with national guidelines.

Discussion & Conclusion

Prior to the introduction of antibiotic guidelines in June 2016, clinicians lacked guidance on the optimal antibiotic: **Drug, Dose, and Duration**. There was significant and sustained improvement in antibiotic prescribing across the audit cycles.

Amoxicillin prescribing in children.

- Not all GPs were aware of the new guidelines, or that amoxicillin doses in children had substantially changed. This audit resolved the knowledge gap.
- In the first cycle of the audit, **61%** of amoxicillin prescriptions given for children were of an incorrect dose and/or duration.
- Improved guideline awareness and personal audit feedback resulted in **100%** of amoxicillin prescriptions had correct dose and duration during the 4th cycle of the audit.

This audit clearly demonstrated scope for improvement in antibiotic prescribing in general practice. This simple audit tool can rapidly lead to better compliance with national guidelines in primary care.

Clearly the correct use of antibiotics is a challenge for society, supported by public awareness campaigns. These same principles apply to all clinicians prescribing antibiotics (e.g. GPs, hospital doctors, veterinarians). Antimicrobial stewardship and effective use of antibiotic will maximize patient safety and ensure help ensure antibiotic maintain their efficacy for future generations.

References:

1. Center for disease control and prevention (CDC), *Core elements of hospital antibiotic stewardship programs*. <https://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html>
2. HSE Antibiotic Prescribing, *Antimicrobial stewardship policy for your practice* <http://www.hse.ie/eng/services/list/2/gp/Antibiotic-Prescribing/Antimicrobial-stewardship-audit-tools/Antimicrobial-Stewardship-AMS-Policy-for-Your-Practice.html>
3. “An audit of paediatric prescribing of amoxicillin.” *Irish medical journal* 2014. <http://imj.ie/2081-2/>
4. HSE Antibiotic Prescribing, *Guidelines: Conditions and treatments*. <http://www.hse.ie/eng/services/list/2/gp/Antibiotic-Prescribing/Conditions-and-Treatments/List-of-Conditions-and-Treatments.html>