Annual Antimicrobial Point Prevalence Survey of Hospital Prescriptions in Ireland 2016

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Introduction

The annual antimicrobial point prevalence survey (PPS) of hospital prescriptions in Ireland is an audit of antimicrobial prescribing practices over a short period of time. Data can be used to determine general trends in prescribing, identify areas of prescribing which may benefit from interventions, and establish the impact of antimicrobial stewardship programmes (ASPs).

Aim & Objectives

- To collate and analyse antimicrobial prescribing data.
- To identify prescribing trends and practices which may warrant intervention or reflect the impact of existing ASPs.

Methods

The annual antimicrobial PPS was carried out over a one-month period from mid September to mid October 2016 via a nationally agreed protocol and data entry form. Data were then analysed by the Health Protection Surveillance Centre (HPSC) and reported to participating hospitals.

Results

1. General

Overall, 41 hospitals participated: 22 public general; four public regional/tertiary; and 15 private acute and single-specialty facilities. The number of participating hospitals since the annual antimicrobial PPS first commenced in 2009 has nearly doubled. All hospitals had antimicrobial guidelines in place (76% in App format) and 90% had a restricted antimicrobial prescribing policy in place of which 30% enforced pre-authorisation rather than retrospective review. Eighty-six percent of hospitals employed antimicrobial pharmacists. The median number of days taken to conduct the PPS was one day (1-14 days) and the median number of auditors involved in data collection was three (1–18 staff members).

2. Prevalence of antimicrobial prescribing

As illustrated in Figure 1, 7526 patients were reviewed and 2726 patients were prescribed antimicrobials, a median prevalence of **37.8%.** The median prevalence of antimicrobial use in medicine was 37.2%, surgery 48.1%, and intensive care 57.1%. The median prevalence of antimicrobial use from 2009 – 2016 has remained stable ranging from 34.3% to 40.6%[1]. This level is higher than the average prevalence among European hospitals in general [2-3].

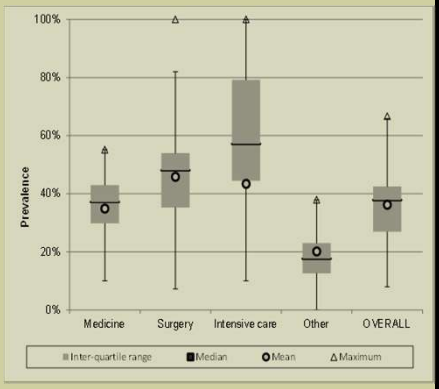

Figure 1: Prevalence of antimicrobial prescribing

3. Antimicrobial agents prescribed

Co-amoxiclav and piperacillin/tazobactam constituted 35.2% of all antimicrobial agents prescribed in Irish hospitals. The overall ranking and proportion of the top four agents has remained consistent since 2009. The ranking of meropenem rose from eleventh in 2009 to eight in 2014, although it has now dropped back to eleventh. Fifteen of the most frequently prescribed antimicrobial agents are illustrated in Figure 2.

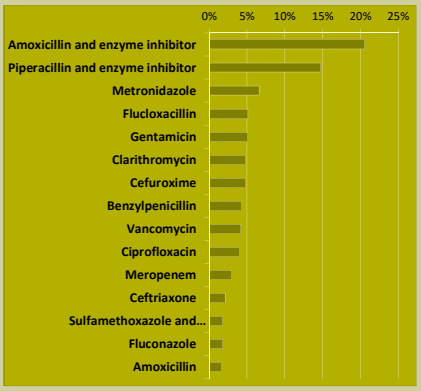

Figure 2: Fifteen of the most commonly prescribed antimicrobial agents

4. Parenteral and Oral Therapy

The median percentage of parenteral therapies over all therapies was 64.3% (Figure 3).
Overall, 33% of parenteral therapies were switched to oral antimicrobials and 11.4% could have been switched to oral equivalents.
Antimicrobials with good bioavailability prescribed parenterally equalled 38.5% (ciprofloxacin, clarithromycin, clindamycin, erythromycin, levofloxacin, linezolid, and metronidazole).

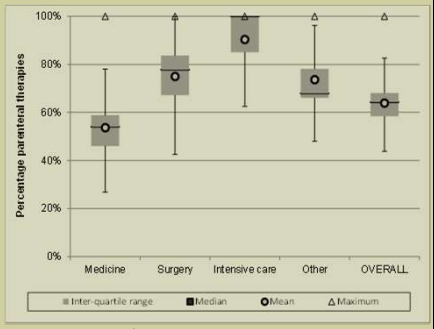

Figure 3: Percentage of parenteral antimicrobials

5. Indication & diagnosis

The majority of indications for antimicrobial use were community-acquired (Figure 4).

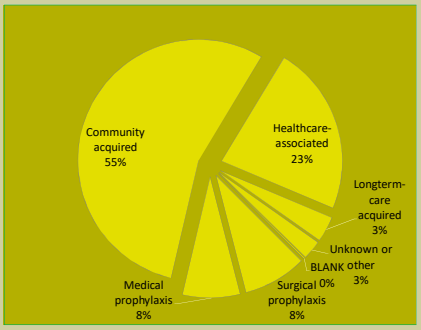

Figure 4: Indication for antimicrobial use

Antimicrobials prescribed for surgical prophylaxis accounted for 8% of all prescriptions. Of these, 66% extended beyond a single dose, however, this proportion has been gradually decreasing since 2009 when it was 89%.
Twenty-three percent of antimicrobials were prescribed for healthcare-associated indications, of which 23% were acquired post-operatively.
The most common anatomical site of infection was respiratory, followed by intra-abdominal and skin & soft tissue.

6. Appropriateness of antimicrobials prescribed

Overall, 74.9% of antimicrobials were compliant with local antimicrobial guidelines or microbiologist/ID physician advice specific to combined: antimicrobial choice; duration; dose; and formulation.

The choice and dose of antimicrobial agents considered compliant were 81.6% and 94.3% respectively. Compliance with restricted agents and meropenem was 85.7% and 73% respectively. The indication for antimicrobial use was documented for 88.3% of antimicrobial prescriptions, 32.7% had a stop/review date documented, 15.2% of therapies were pathogen directed, 20.5% of cases were discussed with a microbiologist/ID physician, and 82.4% of therapies that extended beyond 7 days were deemed appropriate (Figure 5).

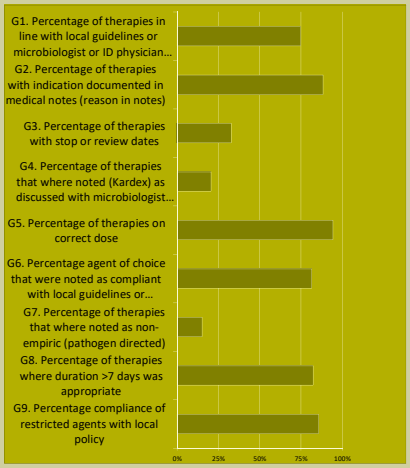

Figure 5: Appropriateness of antimicrobials prescribed

7. Allergy status

The allergy status was documented for 91.1% of patients of which 12.4% had a known antimicrobial allergy.

Summary

Results demonstrate the prevalence of antimicrobial prescribing at 37.8%.
Overall findings were similar to previous PPSs, the most frequent antimicrobials prescribed were broad-spectrum penicillins, the most common anatomical site of infection was respiratory and the majority of indications for antimicrobial use were community-acquired. Compliance specific to combined: antimicrobial choice; duration; dose; and formulation was 74.9%.

Discussion & Conclusion

Targeting of meropenem, which can lead to the development of carbapenem-resistant Enterobacteriaceae when misused, along with a gradual decrease in the proportion of surgical prophylaxis extending beyond a single dose, are all positive findings. Additionally, the increase in the number of hospitals participation reflects its value in monitoring antimicrobial prescribing patterns and identifying targets for ASTs.
The 2016 PPS highlights areas of improvement such as the need for a further reduction in extended duration of surgical prophylaxis and interventions for reducing the widespread use of broad-spectrum penicillins. The level of compliance with antimicrobial guidelines/expert advice at a local level is also a parameter that may benefit from more regular audits and participation with initiatives such as the “Start Smart Quality Improvement Programme”[4].

References & Acknowledgements

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