

European Surveillance of Antimicrobial Consumption (ESAC) Point-Prevalence Study (PPS) 2009 Results from Irish Hospitals

Lambert, D. (on behalf of the IAPG); Oza, A. (on behalf of HPSC); ESAC Hospital Care Management Team; Philbin, M. (ESAC representative for Ireland).

Introduction

ESAC is a project funded by the European Centre for Disease Control (ECDC) and coordinated by the University of Antwerp, Belgium, with 34 participating countries across Europe.¹ The overall aim of the ESAC project is to gather data on the amount and type of antimicrobials used in various countries. One method used is a one-day PPS of antimicrobial prescriptions. A PPS is usually carried out over a designated time period (usually one or two days) and involves reviewing the medication charts of all in-patients and compiling information on all inpatients receiving systemic antimicrobial therapy. In 2009, ESAC co-ordinated a European-wide PPS with data collected through a specially designed web application called WebPPS. Twenty three acute Irish hospitals participated as part of this study in 2009 which collected data from 119 hospitals (over 60,000 patients).² Only 21 Irish hospitals were included in this analysis due to technical difficulty with data from two hospitals. Participants were also surveyed to gather feedback on involvement in this project.

Aims & Objectives

The aims of this study were:

- To collate and analyse the data collected by antimicrobial pharmacists in Irish hospitals as part of the ESAC PPS
- To gather and collate feedback on participation
- Allow comparisons between Irish and European results and between Irish hospitals.

Methodology

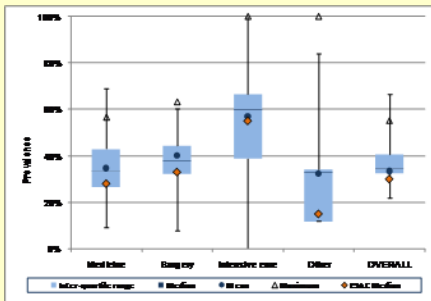
A PPS of antimicrobial prescribing was carried out between June & July 2009. Data collected included: age & sex of patient, details of systemic antimicrobial therapy, diagnoses and indication, compliance with local guidelines & documentation of reason for therapy. Data collection was carried out either using palm-pilot or using a paper-based method and the data was either electronically or manually transferred onto WebPPS. Data were submitted to ESAC using their WebPPS software and to the HPSC in excel format. The HPSC analysed the valid data from 21 of the Irish participants. Participants were also asked to complete a questionnaire to gather feedback on participation in the study.

Results

1. Prevalence of antimicrobial prescribing

In all 5824 Irish patients' records were examined, of which 2000 received systemic antimicrobial therapy. The median prevalence in Irish hospitals was 34.3% (range 21.4 – 55.3%) compared with the European median of 30% (range 8 - 97%).

Figure 1. Prevalence of antimicrobial prescriptions

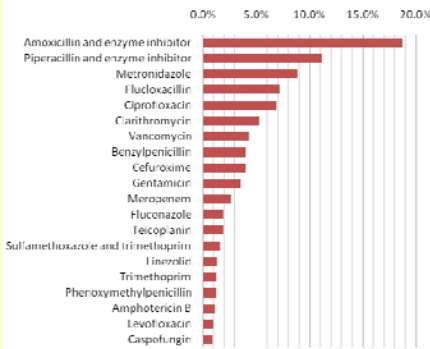


The average number of antimicrobial drugs per patient was 1.58, but this showed considerable variation across specialties with Intensive Care patients receiving more on average.

2. Antimicrobial Agents Used

Co-amoxiclav and piperacillin/tazobactam constituted 29.9% of all antimicrobial agents prescribed in Irish hospitals (26% Europe-wide). (see figure 2)

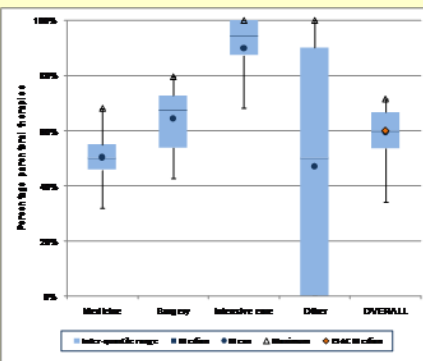
Figure 2. Irish Hospitals Twenty-most frequently prescribed antimicrobial agents



3. Parenteral vs oral therapies

Figure 3 below shows percentage of antimicrobial agents charted as being for parenteral administration.

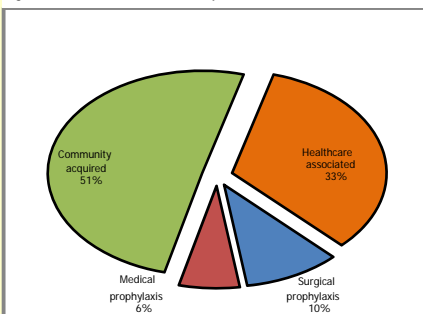
Figure 3. Percentage IV antimicrobial therapies



4. Indication & diagnosis

Indications were classified by ESAC into four main categories: community acquired, healthcare-associated, medical prophylaxis and surgical prophylaxis. Figure 4 below shows the breakdown of indications for Irish hospitals – these figures closely reflected overall European figures (which were community acquired 52%, healthcare-associated 31%, surgical prophylaxis 12% and medical prophylaxis 5%).

Figure 4. Main Indications in Irish Hospitals



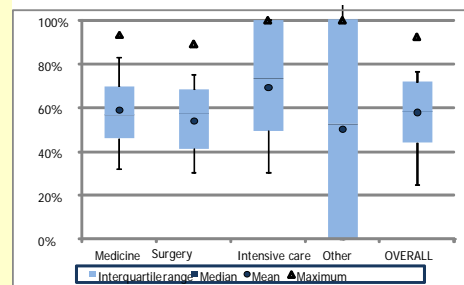
Diagnosis by anatomical site of infection treated or prevented was also recorded – the top five diagnoses were: Respiratory 29% Gastro-intestinal 19% Skin, soft tissue, bone and joint 19% Undefined 16% Urology 9%

Duration of surgical prophylaxis was considerably longer in Irish hospitals with 66% receiving >1 day. The European median was 36% receiving >1 day.

5. Appropriateness of Prescribing

Each prescription was also assessed as compliant or non-compliant with local prescribing guidelines (see figure 5) – please note that in some cases no prescribing guidelines are in place and also this could be considered a subjective judgement with inter-individual variation.

Figure 5. Percentage of prescriptions compliant/appropriate



Participant Feedback

The participant feedback questionnaire was returned by twenty-two participating hospitals.

Data Collection

- In 32% of cases the study was carried out over one day, 45% over two days.
- Palm pilots were used by 32%, 68% used a paper-based method.
- The number of staff involved in data collection ranged from 1 to 12 (median 3) – 45% had only 1 staff member involved, 77% had 4 or less.
- The total number of staff hours spent on data collection ranged from 3 to 64hrs (median 21.59 hrs). Of these 54.5% were in range between 10 to 30 hrs. *

Data Entry

- Time taken for data entry varied greatly with an overall range of 0 to 50 hrs (median 10.14 hrs).
- For those hospitals using palm pilots this range reduced dramatically to 0-4 hrs (median 1.7hrs).
- For those using paper-based data collection the range was much wider i.e. 4 to 50 hours (median 15.07 hrs).*

* Figures are estimated retrospectively

Previous point prevalence studies

- A previous PPS had been carried out by fourteen (64%) respondents.
- Of these 86% reported a decrease in the prevalence of antimicrobial therapy in this study compared to previous.
- Nine of the fourteen felt that seasonal variation and/or other external factors may have affected results when comparing with their previous PPS

Feedback of PPS results:

Various methods were used to provide feedback with the most popular being formal and informal presentation & e-mail.

Additional Comments:

- Ten of the twenty-two respondents (45%) commented on difficulties encountered with data entry and/or WebPPS.
- Six commented on difficulties encountered in assigning diagnoses according to the ESAC criteria.
- Five respondents felt that the feedback of results from ESAC could be improved.

Implementing change as a result of participation:

Thirty-six percent said that changes had been made to antimicrobial prescribing based on the results of this PPS.

Discussion & Conclusions

Overall the results show that the prevalence of antimicrobial prescribing in Irish hospitals is only slightly higher than the European median and in most other respects was broadly in line with our European counterparts.

Feedback from participants highlighted difficulties encountered in data entry and the large time commitment involved in data collection. However that 36% implemented change as a result of participation shows the value of this method of antimicrobial consumption surveillance.

References

- (1) European Surveillance of Antimicrobial Consumption (ESAC). *ESAC Newsletter December 2009, Volume 3(3)*. 2009 [Accessed 19/2/2010]. Available from: <http://www.esac.uu.ac.be/>.
- (2) European Surveillance of Antimicrobial Consumption (ESAC). *What is ESAC? 2010* [Accessed 19/2/2010]. Available from: <http://www.esac.uu.ac.be/>.