

The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS): First Results of Antimicrobial prescribing in English hospitals - Quality Indicators

Matthew Laundry¹, Ann Versporten², Balpreet Dhanda¹, Simon Drysdale³, Debbie Lockwood⁴, Emily Marshall⁵, David Sharpe⁶, Priya Khanna⁷, Herman Goossens², Mark Gilchrist⁸
¹St Georges University Hospitals NHS Foundation Trust, London; UK ²Laboratory of Medical Microbiology, Vaccine & Infectious Disease Institute (VAXINFECTIO), Faculty of Medicine and Health Science, University of Antwerp, Belgium; ³Oxford University Hospitals NHS Foundation Trust, Oxford, UK; ⁴South Tees Hospitals NHS Foundation Trust, Middlesbrough, UK; ⁵University Hospitals Bristol NHS Foundation Trust, Bristol, UK; ⁶Alder Hey Children's NHS Foundation Trust, Liverpool, UK; ⁷London Northwest Healthcare NHS Trust, London, UK; ⁸Imperial College Healthcare NHS Trust, London, UK.



INTRODUCTION AND PURPOSE

A uniform and standardized method for surveillance of antimicrobial use in hospitals was used to assess the variation in antimicrobial prescribing in England as part of the Global-PPS project. bioMérieux provided unrestricted funding support for the survey. Quality Indicators collected in this survey form part of Public Health England (PHE) antimicrobial stewardship toolkit. Interorganisational benchmarking of quality indicators are part of the new National Institute of Healthcare and Care Excellence (NICE) antimicrobial stewardship (AMS) guidelines(1). In addition the national UK Commissioning for Quality and Innovation (CQUINs) payments framework for antimicrobial stewardship has just been released providing financial incentives to reduce antimicrobial prescribing in general and carbapenem prescribing in particular (2).

METHODS

A point prevalence survey (PPS) was conducted from February to September 2015 in 16 different hospitals. The survey included all inpatients receiving an antimicrobial on the day of PPS. Data collected included compliance to guidelines, documentation of reasons and stop/review date of prescription, age, gender, weight, antimicrobial agents, doses, reasons and indications for treatment and microbiological data. Denominators included the total number of inpatients. A web-based application is used for data-entry, validation and reporting as designed by the University of Antwerp (www.global-pps.com).

RESULTS

Results from 14 hospitals settings were analysed. Five were community hospitals, 2 were paediatric speciality hospitals, and the remaining 7 large teaching or acute hospitals. 3398 patients were reviewed of which 1144 (34%) were on antibiotics. The total number of antibiotics prescribed were 1992, an average of 1.7 per patient. 87% of anti-infectives across all settings had documented indications in the notes and were compliant with local anti-infective guidelines with the exception of primary care. Stop and review dates had a lower compliance between 78-88%. (see Table 1.) Carbapenem usage occurred in 9 hospitals, 7 of which were secondary tertiary hospitals. Median carbapenem point prevalence in adult patients was 2.22% (range 0.84% – 8.62%). There was a significant difference in carbapenem use between hospitals ($p < 0.0001$). (see Figure 1.) There was no correlation between the hospital carbapenem prevalence and guideline compliance. (See Figure 2.)

Table 1. Quality measures by patient type.

	Overall total	Paediatric Patients [#]	Adult Patients	Community Hospital
Anti-infectives prescribed	1992	44	1532	16
Indications in notes	1838 (92%)	416(94%)	1406 (92%)	16 (100%)
Stop or review date	1438 (72%)	291 (66%)	1133 (74%)	14 (88%)
Guideline compliant	1563 (87%)*	351 (91%)*	1201 (86%)*	11 (73%)*
Guideline non-compliant	233	33	196	4
No guidelines for specific indication	179	55	123	1
No indication to assess compliance	17	5	12	0

*For guideline compliance percentage, anti-infectives where no guideline existed were subtracted from the total number of anti-infectives prescribed before the calculation.
[#] includes paediatric specialty hospitals and paediatric patients in mixed hospitals.

Figure 1. Carbapenem prevalence rates (%) by hospital. Adult - Large Acute & Teaching

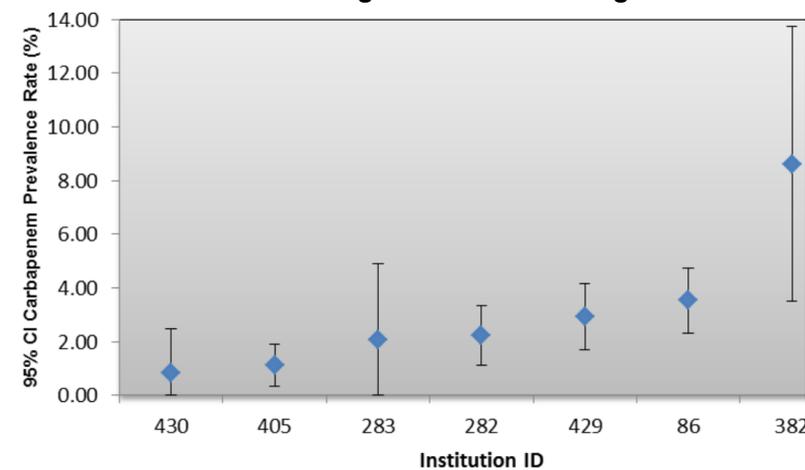
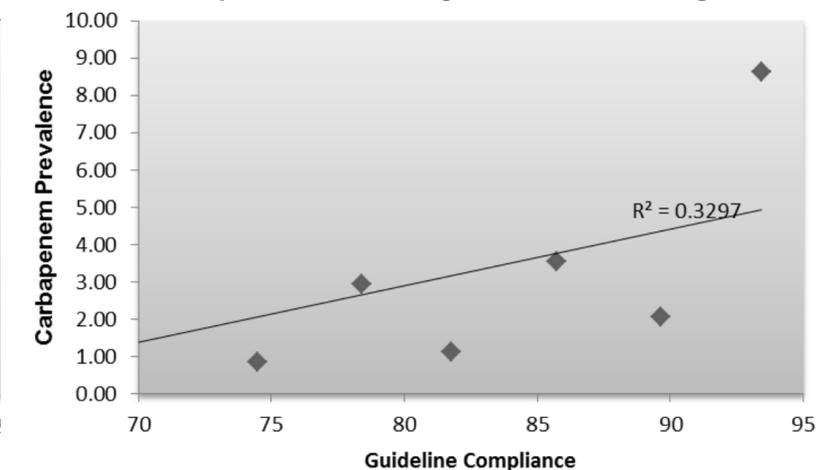


Figure 2. Compliance vs carbapenem prevalence rates (%) by hospital. Adult - Large Acute & Teaching



CONCLUSION

The Global-PPS survey has provided our hospitals with an efficient tool to monitor and benchmark AMS quality indicators as required by the NICE guidelines to improve practice. This previously has been logistically very difficult due to the lack of national tools. Despite some variation, quality indicators in this survey showed high compliance. There is a wide statistically significant variation in carbapenem prevalence from 0.84% to 8.62%. The absence of correlation between guideline compliance and carbapenem prevalence suggests that the local guidelines themselves may be responsible for the variation rather than prescriber compliance. The wide variation in carbapenem use provides evidence of the potential for carbapenem use reduction in line with the UK CQUIN framework for antimicrobial stewardship.

References

- (1) Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use. London: National Institute for Health and Care Excellence (NICE); 2015 [cited 18 March 2016]. Available from: <https://www.nice.org.uk/guidance/ng15>
- (2) Commissioning for Quality and Innovation (CQUIN) Guidance for 2016/17. London: NHS England; 2016 [cited 18 March 2016]. Available from: <https://www.england.nhs.uk/wp-content/uploads/2016/03/cquin-guidance-16-17.pdf>