

Using antibiotic point prevalence survey data to estimate healthcare-associated infection (HAI) prevalence in children: analysis of 27 countries data

Simon B Drysdale¹, Yingfen Hsia¹, Eva P Galiza¹, Julia Bielicki^{1,2}, Ann Versporten³, Herman Goossens³, Mike Sharland¹



Contact : simon.drysdale@nhs.net

¹ Paediatric Infectious Disease Research Group, St George's, University of London, London, UK; ² Paediatric Pharmacology, University Children's Hospital Basel, Basel, Switzerland; ³ Laboratory of Medical Microbiology, Vaccine & Infectious Disease Institute (VAXINFECTIO), Faculty of Medicine and Health Science, University of Antwerp, Antwerp, Belgium

INTRODUCTION AND PURPOSE

- A European Centre for Disease Prevention and Control (ECDC) healthcare-associated infection (HAI) point prevalence survey (PPS) of 1149 hospitals in European countries found a prevalence of HAIs of 5.7% (95% confidence interval: 4.5-7.4) (1).
- No global HAI PPS has been conducted including the low and middle income (LMIC) setting.
- The aim of this study was to determine the feasibility of deriving HAI estimates from antibiotic PPS's.

METHODS

- Data were obtained from two global networks which carried out antimicrobial PPS's between 2015-2017:
 - Global Antimicrobial Resistance, Prescribing and Efficacy in Neonates and Children (GARPEC) study
 - Global Point Prevalence Survey on Antimicrobial Consumption and Resistance (www.global-PPS.com)
- Data from participants with HAIs from the two networks were combined and analysed together.
- For the purposes of this study we only included data from the 27 countries where there were data on at least 10 children being treated for the indication of HAI.

RESULTS

- A total of 33,391 children were included from the GARPEC and Global-PPS surveys.
- Of these, there were 1,720 children with at least one HAI from 27 countries.
- 892 (51.9%) were male and 828 (48.1%) were female.
- Children with a wide range of clinical diagnoses were included (Table 1).
- The overall pooled HAI prevalence was 6.3% (95% CI: 5.9-6.5) (Figure 1).
 - Low middle income countries (LMICs): the prevalence of HAI was 8.7% (95% CI: 8.1-9.3)
 - High income countries (HICs): the prevalence of HAI was 5.1% (95% CI: 4.8-5.5)

Table 1: Diagnoses of children in the study.

Diagnosis	Number of patients	%
Proven or probable Bacterial LRTI	418	24.30
Sepsis	379	22.03
Febrile neutropenia/Fever	248	14.42
Urinary Tract Infections	109	6.34
Skin/Soft Tissue Infections	105	6.10
GI tract infections	101	5.87
Probable or Proven Catheter-related bloodstream infection	99	5.76
Treatment for Surgical disease	79	4.59
CNS infections	57	3.31
Other	56	3.26
Upper Respiratory Infections	33	1.92
Proven or probable Viral LRTI	31	1.80
Cardiac Infections	25	1.45
Pyrexia of Unknown Origin	24	1.40
Joint/Bone Infections	19	1.10
Acute Otitis Media	14	0.81
Unknown	13	0.76
Prophylaxis for Surgical disease	6	0.35
Newborn Prophylaxis for Newborn Risk Factors	5	0.29
Prophylaxis for Medical problems	1	0.06
Newborn Prophylaxis for Maternal Risk Factors	1	0.06
Tuberculosis	1	0.06

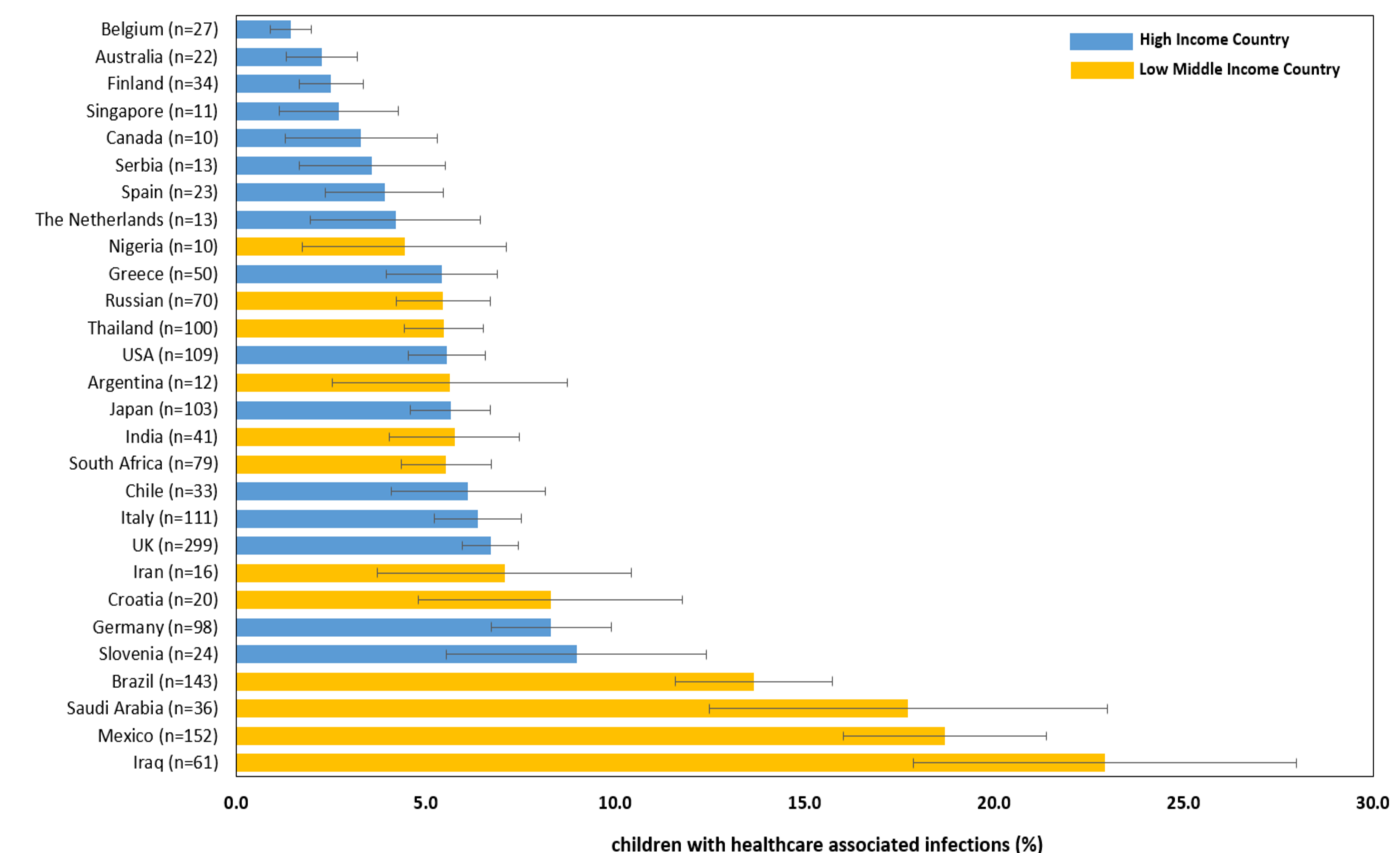


Figure 1: Prevalence of healthcare-associated infections.

CONCLUSION

- Estimates of HAI prevalence can be obtained from antibiotic PPS data.
- This method is considerably less resource intensive than current HAI PPSs.

REFERENCE

(1) ECDC Surveillance report Point prevalence survey of healthcare-associated infections and antimicrobial use in European acute care hospitals 2011–2012. Available at: <https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/healthcare-associated-infections-antimicrobial-use-PPS.pdf>

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