

BACTERAEemia IN CHILDREN AT PATAN HOSPITAL, NEPAL, 2005–2015: AGE DISTRIBUTION AND TIME SERIES ANALYSIS

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INTRODUCTION

Invasive bacterial diseases (IBD) are important causes of hospitalization in Nepali children^{1,2}. In Nepal, *Haemophilus influenzae* type b vaccination was introduced in 2009, and the 10-valent Pneumococcal conjugate vaccine (PCV10) in 2015. Childhood invasive bacterial disease (IBD) surveillance at Patan Hospital, Nepal has occurred since 2005.

METHODS

- All children aged <14 years, admitted to the Department of Paediatrics with suspected IBD (pneumonia, meningitis, sepsis, other) between March 2005 to December 2015 were enrolled into the surveillance.
- Blood for culture was drawn from all enrolled children into BACTEC® Peds Plus bottles.
- Blood cultures were processed manually until 2009, and thereafter using BACTEC® automated processor.
- Clinical data on admission, and microbiology data of enrolled children were collected prospectively.

RESULTS

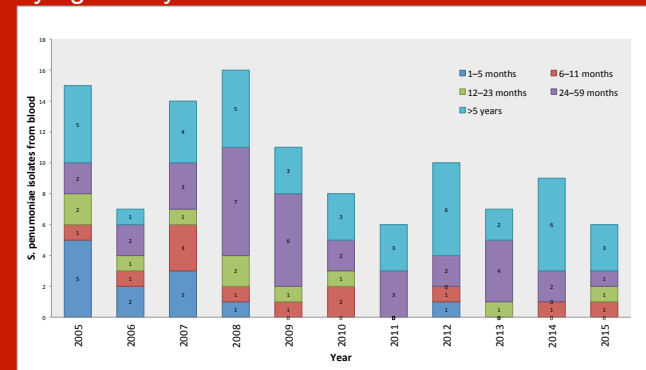
- Between March 2005 and December 2015, 11,864 children were enrolled and 10 928 (92.1%) children had blood culture data available for analysis.
- 804 (7.4%) blood cultures were positive for organisms considered pathogens (Table 1)
- Streptococcus pneumoniae* was the second most common pathogen isolated after *Salmonella enterica* var Typhi/Paratyphi A, among children beyond neonatal period.
- H. influenzae* has not been isolated from blood after 2009

Table 1
Organisms isolated in blood from children with suspected IBD (2005–2015)

Organisms Isolated	Number	% out of the total +ve blood cultures
<i>Salmonella enterica</i> Typhi or Paratyphi	215	15.55%
<i>Streptococcus pneumoniae</i>	109	7.86%
Coag -ve staphylococcus (in neonates)	138	9.95%
<i>Enterobacter</i> spp.	64	4.6%
<i>Streptococcus viridans</i>	63	4.54%
<i>Staphylococcus aureus</i>	42	3%
Beta haemolytic Streptococci	17	1.23%
<i>Haemophilus influenzae</i>	10	0.72%
Other Gram -ve bacteria	132	9.52%
Other Gram +ve bacteria	8	0.57%
Yeast	6	0.43%
Contaminant	355	25.6%
Unknown (probable contaminant)	227	16.37%
Total positive blood culture	1386	100%

FIGURE 1

Distribution of pneumococcal isolates from blood by age and year of admission



- Streptococcus pneumoniae* grew in 1% of all the blood cultures (109/10,928) and 13.6% (109/804) of the cultures positive for organisms considered pathogens.
- From 2013–2015 *S. pneumoniae* was not isolated in blood from children <6 months of age.
- Of the 109 samples growing *S. pneumoniae*,
 - 11.3% were from infants below 6 months
 - 13% were from infants between 6–11 months
 - 10% were from children between 12–24 months
 - 30.6% were from children between 2–5 years
 - 35% were from children >5 years of age

CONCLUSION

- Typhoidal salmonellae and pneumococci were the most common causes of bacteraemia in Nepalese children with suspected IBD.
- Three-quarters of pneumococcal bacteraemia was identified in children >12 months of age.
- Continuing IBD surveillance will help PCV impact assessment in the country.

REFERENCES

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