VARIABLES ASSOCIATED WITH BLOOD CULTURE YIELD AS PART OF AN INVASIVE PNEUMOCOCCAL DISEASE SURVEILLANCE PROGRAMME IN KATHMANDU, NEPAL

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INTRODUCTION

- Blood cultures form the cornerstone of pneumococcal disease surveillance programmes.
- To optimise detection of *Streptococcus pneumoniae*, it is important to understand the factors affecting blood culture yield.
- Blood culture volume surveys have been performed periodically as part of an invasive pneumococcal disease surveillance programme at Patan Hospital, Kathmandu, Nepal. These surveys are also intentionally used as an opportunity to educate staff about good blood culture collection technique.
- We hypothesised that increasing specimen volume is associated with increased blood culture yield, and that blood culture contamination rates would be lower during specimen volume survey periods.

METHODS

- Volume of fluid in Bactec bottles were measured before and after inoculation of blood and the difference in volume was calculated.
- Blood culture positivity, excluding contaminant organisms, was calculated in relation to specimen volume during specimen volume surveys from 2012-2017.
- Contamination rates during survey periods and outside survey periods were compared.

RESULTS

- Eight separate blood volume surveys were conducted over a total of 22 months from 2012 to 2017, including 3880 blood cultures from children <15 years.
- Blood culture positivity tended to increase with increasing blood volumes (Figure).
- *S. pneumoniae* was isolated from only 4 samples, during the survey period, with no association with sample volume.
- Blood culture contamination rate was lower during the survey periods compared with outside the survey periods (3.2% vs 4.6%, p=0.006), while blood culture positivity for putative pathogens was similar during both periods(4.5% vs 3.9%, p=0.22).

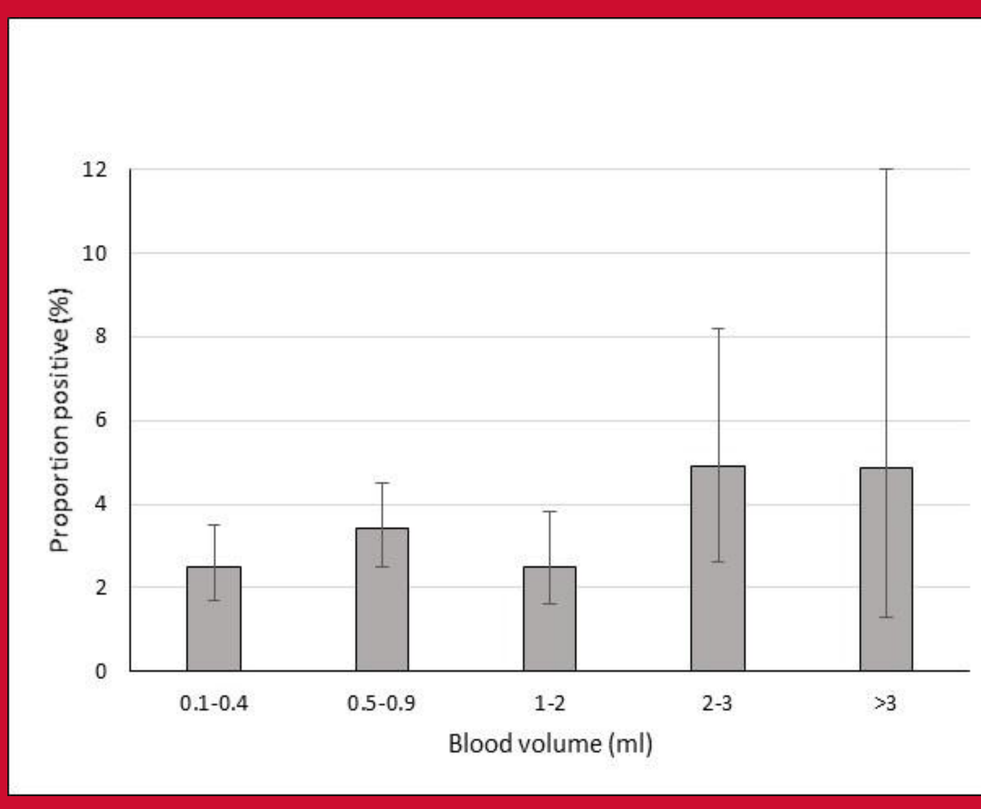

Figure: Blood culture positivity by specimen volume (excluding contaminant organisms), with 95% CI

CONCLUSION

- Increasing blood volume is associated with increased yield from blood cultures.
- Education about blood culture collection techniques is associated with reduced contamination rates.

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