Hypoxia and mortality outcomes in children presenting with pneumonia to a tertiary Hospital: A Retrospective review of records

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Background
Childhood pneumonia is a leading cause of hospitalisation and death in Low- and Middle-Income Countries (LMIC). Despite remarkable achievements in global mortality trends in children under 5 nearly 700,000 children die annually from pneumonia. In Ghana, an estimated 4,700 children under 5 died from pneumonia in 2017. Hypoxia is a known predictor of death among children hospitalised with pneumonia. Few studies in Ghana have described the predictors of mortality among children with pneumonia. This study aimed to determine the factors associated with mortality among children hospitalized for pneumonia to the Paediatric Emergency Unit (PEU) of Komfo Anokye Teaching Hospital (KATH).

Methods
Medical records of children admitted to the PEU of KATH from January 2016 to December 2020 were reviewed. Data was cleaned and exported to STATA version 16 for analysis. Outcomes measures of interest were survival and mortality.

Results
Records for 482 children hospitalised with pneumonia to the unit were available of which 55 per cent (n=265) were males, 94 per cent (n=455) were less than five years and 51 per cent (n=265) were younger than 12 months old. In all, 77 per cent (n=301), had received three doses of the pneumococcal conjugate vaccine. Twenty-one percent (n=89), presented with hypoxia and 15% (n=77), died from pneumonia. There was a significant association between death as an outcome and hypoxia at presentation [χ² (1) = 13.29, p < .001 (OR 2.6, 95% CI 1.42 to 4.75)], axillary temperature of 38°C or more at presentation [χ² (1) = 5.03, p = .025 (OR 2.09 [95% CI 1.08 to 4.02]), fast breathing at presentation [χ² (1) = 5.45, p = .020 (OR 2.12 [95% CI 1.11 to 4.01]) and having received all 3 doses of pneumococcal vaccine [χ² (1) = 9.78, p = .002 (OR 0.45 [95% CI 0.27 – 0.75]).

Conclusion
Hypoxia at presentation, axillary temperature of 38°C or greater, fast breathing, are likely predictors of mortality in children under 5 hospitalised for pneumonia. Pneumococcal conjugate vaccine uptake is high among children with pneumonia, receiving all 3 doses likely protects children with pneumonia from death.