

Title: Verbal autopsies to determine causes of death in young infants from Uganda

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Background: About 4 million neonates die each year, mainly in developing countries where diagnostic information is often extremely limited. More than half of these deaths occur after discharge from hospitals. Ascertaining causes of deaths is important to guide strategic health planning.

Objective: To investigate possible causes of post-hospital discharge mortality among infants less than 3 months of age admitted with suspected sepsis, using verbal autopsy (VA) reports.

Methods: Secondary analysis of a 6-site observational study in Uganda which enrolled 2707 children under 6 months of age (2517 discharged alive; 7.9% post-discharge mortality) between May 2017 and March 2020. A total of 2456 had successful follow-up. Here, only children under 3 months of age were included, for a maximum follow-up period of 6 months post-discharge. We used World health organization (WHO) VA process to assign/determine the cause of post discharge neonatal deaths with initial suspected or proven sepsis. All cases were reviewed independently by 2 neonatologists and cause of death (COD) was assigned using WHO Startup Mortality List (ICD-10-SMoL) codes. Discordance was resolved through discussion. During the VA, health information and a description of events prior to death were acquired from conversations or interviews with a person or persons familiar with the deceased and analyzed by health professionals or computer algorithms to assign likely cause(s) of death.

Results: In total, 78 infants (≤ 3 months of age) were included and VA autopsy data was analyzed for 42 of those cases for the current abstract. Median age on admission was 0.9 months (IQR=1.4) and median time of death was 2.2 months (IQR=1.3). Four (9.1%) infants were born premature. The frequency of assigned cause of death is shown in table. Reviewers were confident, somewhat confident and not confident about assigned cause of death, in 27.4%, 53.6% and 19.0 % of cases, respectively. In about 4.5% cases, not specific diagnosis could be assigned.

Conclusion: These data support that severe recurrent infection may be a main cause of mortality after discharged from hospital in young infants with suspected sepsis. However, the diagnosis was uncertain in a high number of cases due to limited point-of-care confirmatory testing in this real-life community setting.

ICD-10 SMoL Diagnostic code	Disease/condition	N (%)
5-67	Pneumonia	8 (18.2)
5-11	Septicemia	7 (15.9)
5-55	Meningitis	6 (13.6)
5-201	Sepsis and other infectious conditions of the newborn	4 (9.1)
5-3	Other and unspecified diarrheal diseases	4(9.1)

5-21	Malaria	2 (4.5)
5-18	Measles	2 (4.5)
5-70	Other and unspecified diseases of the respiratory system	2 (4.5)
5-94	Other and unspecified congenital malformations	2 (4.5)
5-95	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	2 (4.5)
5-87.1	Prematurity	1 (2.3)
5-50	Protein energy malnutrition	1 (2.3)
5-47	Anemias	1 (2.3)
Total		42 (100)

Phase I under 6m Cohort Flowchart

