Enhancing the identification of causes of death through community-based verbal autopsy methods during the COVID-19 outbreak

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Knowledge Gap

- In LMICs, verbal autopsy has become a scalable and affordable way to acquire data on causes of death.
  - Vital registration systems are often weak or nonexistent
  - Lack of resources for cause of death diagnostics
  - Lack of reliable cause-specific mortality data.
Study Summary

Study Type: Observational Surveillance Study

Population: Next of kin or parents of deceased all age group (25% of all fatalities)

Number of Sites: Two peri-urban low-income settlements of Karachi, Pakistan:
• Ali Akbar Shah (Site 1)
• Bhains Colony (Site 2)

Study Duration: 1-year scale up surveillance phase from Oct. 2022 – May 2023
## Objectives

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
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<tbody>
<tr>
<td>To determine the all-cause mortality rates in Karachi, Pakistan</td>
<td>To estimate the burden of all deaths related to COVID-19 and identify the risk factors associated with death in Karachi, Pakistan</td>
<td>To assess the main causes of death &amp; the sociodemographic of affected individuals in Karachi, Pakistan</td>
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The Verbal Autopsy (VA) System: tools and process overview

1. Death Occurrence in the community
2. Interview with family members/relatives
3. Cause of death assignment procedures
4. Population cause of death information

Community-based VA Surveillance

- Receive Death Alert
- Locate Family
- Advocate Family
- Ask for Consent
- Conduct VA Interview

If NO then CASE CLOSED

Share COD consultation with Family

Physician Panel COD assignment

2016-WHO VA Instrument (V1.5.3) Includes COVID-19 questions
Demographic characteristics of the deceased (N=1143)

**Gender**
- Female: 48%
- Male: 52%

**Age Group**
- Under 5: 48%
- 6-18 Years: 4%
- Above 18: 48%

**Marital Status**
- Single: 57%
- Married: 31%
- Widowed: 12%

**Place of Death**
- Hospital: 40%
- Home: 50%
- Others: 10%

**Site**
- Site1: 52%
- Site2: 48%

**Ethnicity**
- Bengali: 31%
- Urdu: 26%
- Sindhhi: 24%
- Punjabi: 6%
- Pathan: 4%
- Baloch: 2%
- Others: 6%
Top 10 COD (Under 5 years: n= 416)
Top 10 COD (6-18 Years: n= 28)

- Accidental Death: 14%
- Pneumonia: 7%
- Heart Disease: 11%
- Liver Failure: 11%
- Tuberculosis: 11%
- Asphyxia: 11%
- Other Unspecific Infectious Disease: 11%
- Gastroenteritis: 11%
- Neoplasm: 11%
- Sepsis: 11%

Male and Female categories for each cause of death.
Top 10 COD (≥18 Years: n= 390)

- Heart Disease: 33%
- Liver Failure: 19%
- Stroke: 10%
- Neoplasm: 9%
- Renal Failure: 6%
- Accidental Death: 6%
- Diabetes: 3%
- Tuberculosis: 3%
- Gastroenteritis: 3%
- Other Unspecified Disease: 3%

Male and Female distribution for each category.
However, with advancements in technology, computer-based algorithms have emerged as potential alternatives for automated COD assignment.

A study to compare the accuracy and reliability of physician analysis with a computer-based algorithm for VA COD diagnosis is planned.
Conclusion

The collaboration between physicians and automated systems can lead to more robust and accurate cause of death diagnoses, ultimately contributing to effective interventions and improved health outcomes.