

# Verbal Autopsy: An Alternate Technique for Assigning Cause of Death

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Those responsible for the health of populations, be they public health practitioners, programme managers or policy makers, benefit from knowing cause of death statistics<sup>1</sup>. These data provide the means to measure programme impact, identify priority areas, refine demographic intervention targets and guide research into the levels, trends and determinants of mortality. Unfortunately, many patients dying in developing countries receive little or no clinical attention. Many die at home or in transit to a variety of health care providers. In Pakistan, those who reach basic health units or hospitals may die without a diagnosis due to insufficient staff or laboratory capability. Cost and social custom rule out most post-mortem examinations. Moreover, medical records are commonly incomplete and/or difficult to locate. This lack of information precludes identifying cause of death through document review. The verbal autopsy method is a technique to identify cause of death that may be used in population surveys and surveillance<sup>2</sup> in place of systems of vital registration and death certification which are often weak in developing countries. The technique requires a surviving relative who had some direct contact with the deceased during the final illness, an interviewer with a carefully crafted questionnaire and a reviewer. Trained field workers interview the relative(s), usually into 12 months after the death, to reconstruct the final illness or event with sufficient details to allow a diagnosis to be made, usually by one or more expert reviewers. Verbal autopsy assumes that many important causes of death are distinct from others and recognizable by a lay person who is able to recall the events during an interview<sup>3,4</sup>. Despite the challenge of meeting these conditions, the technique has gained acceptance as the only feasible way to approximate cause of death in areas lacking certification of cause of death. Indeed, verbal autopsies have been widely used in developing countries to describe the distribution of causes of childhood deaths<sup>5-7</sup> as well as to measure the impact of community-based interventions on cause-specific mortality<sup>8-12</sup>. Although the verbal autopsy method has been incompletely validated, recent studies<sup>13,14</sup> suggest that it is useful for ascertaining many common causes of child death. The Department of Community Health Sciences of the Aga Khan University has had considerable experience using verbal autopsy methods<sup>12,15</sup> in surveillance and surveys of children under five, women of child-bearing age and most recently for adults. In addition, we are in the process of testing the accuracy of our paediatric questionnaire in collaboration with the Department of Paediatrics at Civil Hospital, Karachi. The format of the verbal autopsy questionnaire is an area of intense, current scientific interest. Verbatim histories often provide unique clues to the cause of death; however, the time required to train and supervise interviewers and to review each case makes the process expensive. In an effort to focus the history and streamline its analysis, we are experimenting with a grid displaying the sequence and duration of important signs and symptoms. Many case definitions rest on specific details that may not appear in an open-ended history. For example, neonatal tetanus requires that the newborn suck normally for 2 days before falling ill in order to distinguish between other fatal conditions with seizures beginning in day one, such as birth asphyxia. These questions are commonly organized in one or two ways: (1) a lengthy sequence asked in each case or, (2) a “filter and modules” design that employs sensitive screening questions to direct the interviewer to groups of disease-specific questions which help to clarify the cause(s) of death based on pre-determined case definitions. Indeed, most common childhood killers in our setting are sufficiently distinct to take advantage of this latter approach obviating the need to ask every question for each case. The methods are imperfect: the

validity is rarely known; they often yield 10-30% “unknown” diagnoses; they are moderately costly (US\$2.50-4.00 per case in our hands) and they involve reviewing an emotion laden event. On the other hand, careful case definitions framed in culturally appropriate questions may well be valid. Moreover, how else can one approximate the causes of death of the majority who die unattended and/or undocumented in developing countries? Dying due to “cause unknown” is hardly unique to the verbal autopsy method as financial and technical constraints often preclude firm diagnoses even for patients with access to the health System. The cost of verbal autopsies is best weighed in terms of their information value. Health programme managers in the non-governmental organization sector have opted to use the method on the basis of a favourable cost/effectiveness assessment<sup>12</sup>. Regarding the delicate nature of the interview, proper training and timing counters most negative feelings. In our experience, a careful interview can be a positive experience for a family after the loss of a loved one. Cause of death data inform health policy and management. Verbal autopsy methods are acceptably valid, affordable and culturally sensitive tools that should be more widely used to measure causes of death in demographic surveys and among defined populations under surveillance.

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