Verbal Autopsy for Mortality Statistics in Resource Constrained Settings:
Toward an adaptive solution

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What’s the problem?

  - Vital Statistics Systems – particularly mortality and CoD in a pitiful state
  - Little change for going on half a century, but there are some possible next steps
  - VA is part of that picture

- Low-income countries:
  - Bear greatest disease burdens
  - Premature death accounts for 80% of total DALYs lost
  - lack any cost-effective means to reliably and directly measure leading causes of death at the population or community level

- Central question: are there any *practical* alternatives to VA?
But what *kind* of problem is it?

- Is it a purely technical problem?
  - Solvable by structured research and scientific inquiry?

- Is it a “wicked” or adaptive problem?
  - Complex, intractable, raising new problems even as we try to solve it, and requiring more strategic, adaptive, and pragmatic interim solutions?

- After several decades in search of technical solution, it is time to shift to a more adaptive approach?

- Countries and funders will ultimately decide …
Current Situation—2012

All deaths

- Up to 90% at home
- Uncertified and unregistered
- 10%-40% certified and registered (at health facilities)

Information lost

Information available

Weak certification and coding practice

Desired Future State—2112?

All deaths

- Less that 10% deaths
- Uncertified and unregistered
- Universal, functioning CRS and quality COD systems

Less Information lost

Information available

Strong certification and coding practice
An Adaptive Solution Might Look Something Like This

All deaths

- Deaths at home
- Representative sample of deaths at home with VA
- Deaths properly certified and coded

Information lost

Information available
Verbal Autopsy:

One Piece of this Wicked Proplem
What is “Verbal Autopsy” and what is its purpose?

What it is:
- Post-mortem care-giver interview & data collection with lay-informants
- Replicable way to measure proportions and trends of more common causes of death
- The best *practical* alternative to guessing

What it isn’t:
- Permanent alternative to proper death certification & registration
- Means to reliably determine CoD at the *Individual Level*
- Universally accepted as ‘reliable’ or even ‘good enough’ for some policy purposes (especially for rarer causes)
How is it applied in the field?

- VA is platform *independent*
  - Need system to identify or ascertain incident deaths

- Longitudinal Surveillance
  - Non-representative Demographic Surveillance Systems (DSS)
  - Nationally representative SRS in India

- Cross-Sectional Applications
  - Nationally representative ‘rider’ surveys on national census activities (INCAM in Mozambique; Malaria Indicator Surveys)
  - MIS (sample size issues)
What is scientific validity of VA?

- Success criteria are not straightforward
  - CSMFs? Sensitivity/Specificity/PPV?
  - Validation methodologies problematic

- How good is good enough? How bad is useless?
  - Standard of credible evidence required to make a decision?
  - Acceptable measurement error in general trends of leading causes of death?

- VA has many component parts:
  - Questionnaires (age-group, sex-specific)
  - Means of eliciting responses
  - Quality of respondents
  - Means of assigning CoD & handling uncertainty
Implications of VA ... so what?
“Unintended” aspects of VA

Positive
- Face-to-face accountability of the health system
- Behavior change – socialize/normalize reporting, registration, and certification of deaths
- Strong sense of ownership from locally generated data – both by communities & health systems
- Validation studies shine light on poor ‘gold standard’

Negative
- Potential for over-confidence in accuracy of data from a crude tool because it’s the only source of direct measurement
  - Especially for less-common causes
- May present complications for roll-out of ICD
Implications for real-time decision-making or policy debates?

- **Tanzania:**
  - **Finding:** acute febrile illness/malaria leading CoD of children; many children die at home even after being treated at clinic
  - **Policy Change:** Re-prioritizing malaria prevention at district level & support for national policy change in first-line drug

- **IHME Reports on Global Maternal Mortality:**
  - **Finding:** Maternal Mortality falling more rapidly than previously thought
  - **Policy Change:** Evidence of progress bolstered renewed advocacy for global commitments to MNCH & Family Planning
Mozambique: ‘INCAM’

- National VA study contributed evidence to policy changes
  - Finding: Higher than expected HIV mortality in northern provinces led
  - Policy change: accelerated roll-out of ARV country-wide

- Finding: High mortality in young children from road traffic accidents
  - Policy change: education campaigns targeting children and their parents to increase pedestrian safety

- Finding: High malaria mortality in <5s
  - Policy change: MOH accelerated scale-up bed-net distribution to pregnant women and children accompanied by an educational campaign
But controversy continues …

Global malaria mortality between 1980 and 2010: a systematic analysis

Prof Christopher JL Murray MD, Lisa C Rosenfeld AB, Stephen S Lim PhD, Kathryn G Andrews AB, Kyle J Foreman MPH, Diana Haring BSc, Nancy Fullman MPH, Mohsen Naghavi MD, Prof Rafael Lozano MD, Prof Alan D Lopez PhD
Next steps

▪ Keep improving the science and application …
  • Stronger validation methods & evidence for reliable algorithm coding of VA; more sustainable systems applications

▪ While lowering barriers to use …
  – Tablets to capture data & immediately generate probable CoD (coming)

▪ Supporting progress (not perfection) …
  – Fund the growing country-level demand for these tools and systems

▪ And learning.
  – Seek continuous improvement via global community of practice
Further reading

Acknowledgement

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Thank You