HDSS and CRVS in rural NE South Africa

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Agincourt HDSS
Introduction

• CRVS is increasingly understood as a core capability needed in LDCs and MDCs to underpin the post-2015 development agenda.

• Initiatives such as “Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics” (APAI-CRVS).

• Visibility of all persons including the vulnerable and isolated.

• Adequate data for planning of public services (coverage and quality)
HDSS role in strengthening CRVS

• Assessing coverage
  – E.g. what % of births, deaths, marriages, ID docs covered in the CRVS system

• Assessing quality of data
  – How accurate is the data in the CRVS system
Some examples from the Agincourt HDSS:
Assessing coverage of CRVS

• Within the HDSS area:
  – Collect data on % coverage of births, deaths, ID documents, marriages
  – Feeding back to official statistics agencies and relevant government departments
Percent of births registered by age 1 year, Agincourt HDSS

- 1992: <0%
- 1993: <0%
- 1994: <0%
- 1995: <0%
- 1996: <0%
- 1997: <0%
- 1998: <0%
- 1999: <0%
- 2000: <0%
- 2001: <0%
- 2002: <0%
- 2003: <0%
- 2004: <0%
- 2005: <0%
- 2006: <0%
- 2007: <0%
- 2008: <0%
- 2009: <0%
- 2010: <0%
- 2011: <0%
- 2012: <0%
- 2013: 100%
Percent of births registered by age 1 year, Agincourt HDSS

Intervention – infrastructure/ training
Percent of births registered by age 1 year, Agincourt HDSS

gap
Determining barriers to coverage

• Analyse socio-economic, cultural, geographic factors associated with non-registration (i.e. who is in the gap?)
Reason for not accessing the grant

- Lack of official identity documents: 71%
- Not eligible due to income: 13%
- Poor access to public service offices: 8%
- No knowledge of the grant: 2%
- Didn't want the grant: 2%

Working with Dept. Home Affairs to improve access to ID documents

% household application for social grant by village

Distance from service office as taxi fare (Rands)
Assessing Data Quality
Cause of Death
Original article

Record-linkage comparison of verbal autopsy and routine civil registration death certification in rural north-east South Africa: 2006–09

Jané Joubert,¹,²* Debbie Bradshaw,¹ Chodziwadziwa Kabudula,³ Chalapati Rao,² Kathleen Kahn,³,⁴,⁵ Paul Mee,³,⁴ Stephen Tollman,³,⁴,⁵ Alan D Lopez⁶ and Theo Vos⁷
Assessing data quality – Cause of Death

- Requires linking records in HDSS and CRVS
- Establishing cause of death categories
- Compare matching results with informant-reported death registration
- Using the VA diagnoses as reference, - misclassification patterns, - sensitivity, - positive predictive values and - cause-specific mortality fractions
Matching Records

Common variables used for matching the death records:

- national identity number
- surname,
- sex,
- day of birth,
- month of birth,
- year of birth,
- day of death,
- month of death,
- year of death,
- village name
- institution/venue where the death took place

Matching achieved:
61% of HDSS deaths
85% reported notification
Cause of Death agreement

• For the 2264 matched cases, cause agreement was 15% for the WHO list, and 23% for the short list.
<table>
<thead>
<tr>
<th>Civil Registration diagnoses</th>
<th>Verbal Autopsy diagnoses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhoea</td>
<td>20 47 163</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>4 124 139</td>
</tr>
<tr>
<td>HIV disease</td>
<td>2 36 73</td>
</tr>
<tr>
<td>Remaining infect. &amp; parasitic disease</td>
<td>4 6 17</td>
</tr>
<tr>
<td>Neoplasms</td>
<td>1 4 10</td>
</tr>
<tr>
<td>Diabetes</td>
<td>3 4 4</td>
</tr>
<tr>
<td>Meningitis</td>
<td>2 4 21</td>
</tr>
<tr>
<td>Hypertensive disease</td>
<td>7 4 7</td>
</tr>
<tr>
<td>Remaining heart disease</td>
<td>4 10 18</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>2 3 10</td>
</tr>
<tr>
<td>Acute lower respiratory infections</td>
<td>10 44 118</td>
</tr>
<tr>
<td>Other respiratory disease</td>
<td>0 6 31</td>
</tr>
<tr>
<td>Symptoms &amp; ill-defined conditions</td>
<td>4 13 15</td>
</tr>
<tr>
<td>External causes</td>
<td>1 2 2</td>
</tr>
<tr>
<td>Remaining natural causes</td>
<td>5 22 44</td>
</tr>
<tr>
<td>VA total</td>
<td>69 329 672</td>
</tr>
</tbody>
</table>

| Sensitivity %               | 29.0 37.7 10.9 8.2 28.6 41.7 17.9 9.3 13.3 34.3 18.4 26.7 5.9 67.1 26.3 |
| 95% CI lower level          | 18.7 32.4 8.6 4.4 19.9 25.5 10.4 2.6 6.6 25.1 11.8 7.8 1.6 58.8 19.1 |
| 95% CI upper level          | 41.2 43.2 13.5 13.6 38.6 59.2 27.7 22.1 23.2 44.6 26.8 55.1 14.4 74.8 34.7 |
Implications

• data linkage between these sources is possible

• extent and diversity of mis-attribution of HIV deaths

• systematic biases in CR cause-of-death data - urgency to improve CR cause-of-death data

• careful interpretation -> to better inform rural health prioritization
In conclusion:
HDSS impacting on CRVS

• Relationship with official agencies
• Comparison of the known (HDSS) and the registered
• Analysis of non-registration
• Intelligence on quality of CRVS information
• Requires matching datasets – ethical concerns
• Poor quality Cause of Death data
• More HDSS centres, more time-points