Mortality and cause of death data: current situation

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Measurement of healthy life expectancy and wellbeing
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# Sources of mortality and COD data

<table>
<thead>
<tr>
<th>AGE</th>
<th>SEX</th>
<th>CAUSE OF DEATH</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>If deaths medically certified or verbal autopsy</td>
</tr>
<tr>
<td>Civil &amp; sample registration</td>
<td>✗</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>Census – deaths in household in last x months</td>
<td>✗</td>
<td>✗</td>
<td>Only if add on verbal autopsy module for reported deaths Standard demographic techniques needed to assess completeness of birth and death reporting</td>
</tr>
<tr>
<td>Health care facilities (HMIS)</td>
<td>✗</td>
<td>✗</td>
<td>Only reflect deaths in population using facilities – quality issues</td>
</tr>
<tr>
<td>Household surveys – Deaths in last x months or Sibling survival or Orphanhood</td>
<td>✗</td>
<td>✗</td>
<td>Only if add on verbal autopsy module for reported deaths Problem of assessing completeness of reporting, assigning cause of death from VA</td>
</tr>
</tbody>
</table>
Death registration: making deaths count

Of the reporting countries, half are developed providing 75% of the deaths included, but only 33% of estimated global deaths.

<table>
<thead>
<tr>
<th>WHO region</th>
<th>Number of Member States</th>
<th>Data reported for at least one of the years 2004-2008</th>
<th>Percentage of Member States reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR</td>
<td>46</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>AMR</td>
<td>35</td>
<td>30</td>
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<td>EMR</td>
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<td>EUR</td>
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<td>46</td>
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<td>SEAR</td>
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<td>2</td>
<td>18</td>
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<td>WPR</td>
<td>27</td>
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<td>44</td>
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<tr>
<td><strong>Global</strong></td>
<td><strong>193</strong></td>
<td><strong>103</strong></td>
<td><strong>53</strong></td>
</tr>
</tbody>
</table>
Highlight story on coverage and quality of death registration

Detailed assessment of coverage, recency and ✓ coding for WHO Member States in Table 10.

Vital registration data with high level of coverage ✓ (85%+) are available for 78 countries in the world

Vital registration data with coverage < 85% available ✓ for 34 countries

Increasing focus on quality of coding

Available online in the WHO Global Health Observatory

http://www.who.int/gho
Ill-defined and garbage codes

% CVD, Ca and injury garbage

% symptoms, signs and ill-defined

Thailand

Cuba

Mexico

Canada

Italy

Croatia

Egypt

Poland

Sri Lanka

Moldova
Male Adult Mortality: 3 methods
Afghanistan Mortality Survey

Figure 12. Estimates of Male Adult Mortality Between Ages 15 and 59 from the Various Sources in the Survey, Afghanistan 2010
Regional evolution of 45q15 vs 5q0, 1985-2012

Provisional estimates: WHO 2013
Regional trends in life expectancy at birth 1985-2012

Provisional estimates: WHO 2013
Frontier life expectancy at birth 1600 - 2010

Updated from 1840 - 2010:
2.5 years per decade
0.25 years per year
6 hours per day

*Updated from* Oeppen & Vaupel, *Science* 2002
Age decomposition of gains in e15 - 1980 to 2008
(aggregated regional populations with available death registration data for both periods)
Australian life expectancy at age 65, 1875-2010

Sources: Cumpston (1989), ABS, AIHW, WHO
Cause decomposition of gains in e60 - 1980 to 2008
(aggregated regional populations with available death registration data for both periods)

Gains (or losses) in years

- High income - males
- High income - females
- Americas - Males
- Americas - Females
- Europe - Males
- Europe - Females

Injuries
Other NCD
Chronic respiratory diseases
CVD and diabetes
Cancers
Communicable diseases
Tobacco-attributable deaths
Cause decomposition of gains in e15 - 1980 to 2008
(aggregated regional populations with available death registration data for both periods)
Trends in mortality inequality (Kannisto C50)
C50 = smallest age range including 50% of deaths
Avoidable deaths

- Avertable/amenable: deaths that can be avoided by reducing case fatality after a condition has occurred, through available health care technologies: "Disease, disability or death" should not occur if appropriate care was provided – the "airplane crashes of the health care system" (Rutstein, 1976)

- Preventable: causes whose incidence could be substantially reduced given currently available individual and population-level prevention interventions

- Avoidable: amenable + preventable.


- An age range (typically under 75) assigned to each cause
A benchmarking approach: avoidable deaths over age 60

- Avoidable deaths can also be measured by comparison to the best-achieved mortality rate in each year, by age and sex, following the tradition of data envelopment analysis, as applied by Tang et al, 2008
- Comparison is made by six broad cause groups: Cardiovascular + diabetes, Lung cancer, Other cancers, Chronic respiratory, Injuries, Communicable
- Frontier defined using the 10th percentile mortality rate for each sex, year, and age from 1980 – present
- Tobacco-attributable deaths are removed prior to setting the frontier, as tobacco harms were known by 1980 and CVD harms are rapidly reversed
- All countries are compared to the same best-performer, regardless of income level
Avoidable mortality rates over age 60 in 45 selected countries by cause, sex, year, and region
Trends in avoidable mortality at ages 60+
Selected countries
Africa: Evidence generation projects

- General assessment
- Case study System building & IT innovation
- Community reporting & IT
- Lessons learnt SAVVY and district SRS
- Analysis of existing data, with focus on causes of death, and maternal mortality & HIV

PLUS
> 10 DSS sites in 10 countries

Analysis existing data

Hospital reporting

2/18/2013
Assigning cause for non-medically certified deaths

- "Verbal Autopsy Standards" – contains 3 standard questionnaires for interviewing with family members of the deceased.
  - Under 4 weeks
  - 4 weeks – 14 years
  - 15 years and above

The 2012 WHO VA instrument has been simplified and comprises a total of 221 CoD-related indicators to certify 62 CoD mapped onto ICD-10

http://www.who.int/healthinfo/statistics/verbalautopsystandards
Monitoring mortality levels and causes

- Globalization and economic development, health system strengthening, universal health coverage, targeted international interventions..... gains in health are likely to continue, possibly accelerate.
- Many low and middle income countries will pass through the epidemiological transition.
- Unfinished agendas for HIV, TB, malaria, NTDs, maternal and child health etc.....
- Goals and targets for NCD control: 25 x 25
- Can the mortality gaps be narrowed? Equity across countries? Within countries?
- Increasing emphasis on monitoring, evaluation, holding governments accountable, etc
- Global priority: to implement and strengthen vital registration and health information systems – increasing interest and capacity in middle income countries.
- The collection, collation, analysis and dissemination of evidence on health trends and determinants remains a core priority for WHO.