Measurement of Indicators in Humanitarian Emergencies

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Overall Goal

• To document the impact of interventions in humanitarian settings
  – Routinely
  – Measure appropriate indicators
  – Measure them well
Barriers (1): Data Quality

Specifics of emergency settings:
• Low technical capacity
• Limited access to resources (equipment, communications, transport, IT, etc.)
• Lack of standardized methods
• Problems with access to population
• Lack of accurate population data
• Fluid situation, health events evolve rapidly
• Etc. etc.
Barriers (2): Which Indicators?

Lack of agreement on which indicators should be measured to document what

- Sets of “core indicators” produced by various bodies (e.g., Sphere, Health Cluster, HNTS)
- Multitude of proposed indicators
- Many are non-quantifiable
- Many are difficult to measure well in emergency settings
- Program versus outcome indicators (morbidity, mortality, malnutrition)
SPHERE Indicators Review

By Les Roberts and Trina Helderman (2009), commissioned by HNTS, based on Sphere (2004):

- circa 346 indicators total listed
- 224 (65%) non-quantifiable
- 55 (13%) have “documented link to health benefit”

Conclusions:
- too many indicators
- most non-quantifiable
- few have evidence basis
- among quantifiable indicators, no “hierarchy” to indicate relative importance

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### Core Indicators – Health Cluster

<table>
<thead>
<tr>
<th>Category</th>
<th>#</th>
<th>Name of indicator</th>
<th>Type</th>
<th>Data Collection Method</th>
<th>Benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health resources availability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.1</td>
<td></td>
<td>Average population covered by functioning Health Facility (HF), by type of HF and by administrative unit</td>
<td>Input, proxy</td>
<td>HeRAMS</td>
<td>SPHERE standards: 10 000 for 1 Health Unit, 50 000 for 1 Health Centre, 250 000 for 1 Districts/Rural Hospital</td>
</tr>
<tr>
<td>A.2</td>
<td></td>
<td># HF with Basic Emergency Obstetric Care / 500 000 population, by administrative unit</td>
<td>Input</td>
<td>HeRAMS</td>
<td>&gt;= 4 BEmOC /500 000</td>
</tr>
<tr>
<td>A.3</td>
<td></td>
<td># HF with Comprehensive Emergency Obstetric Care / 500 000 population, by administrative unit</td>
<td>Input</td>
<td>HeRAMS</td>
<td>&gt;= 1 CEmOC /500 000</td>
</tr>
<tr>
<td>A.4</td>
<td></td>
<td>% of HF without stock out of a selected essential drug in 4 group of drugs, by administrative unit</td>
<td>Input</td>
<td>IRA</td>
<td>100 %</td>
</tr>
<tr>
<td>A.5</td>
<td></td>
<td># of hospital beds per 10 000 population (inpatients &amp; maternity), by administrative unit</td>
<td>Input</td>
<td>HeRAMS</td>
<td>&gt;10</td>
</tr>
<tr>
<td>A.6</td>
<td></td>
<td>% of HF with availability of clinical management of rape survivors + emergency contraception + PEP available</td>
<td>Input</td>
<td>HeRAMS</td>
<td>100%</td>
</tr>
<tr>
<td>A.7</td>
<td></td>
<td># of health workforce (MD+nurse+midwife) per 10 000 population, by administrative unit (%/%)</td>
<td>Input</td>
<td>HeRAMS</td>
<td>&gt;22</td>
</tr>
<tr>
<td>A.8</td>
<td></td>
<td># of CHWs per 10 000, by administrative unit</td>
<td>Input</td>
<td>HeRAMS</td>
<td>&gt;= 10</td>
</tr>
<tr>
<td><strong>Health services’ coverage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.1</td>
<td></td>
<td># of outpatient consultations per person per year, by administrative unit</td>
<td>Output, proxy</td>
<td>HIS / EWARS</td>
<td>&gt; 1 new visit/person per year</td>
</tr>
<tr>
<td>C.2</td>
<td></td>
<td># of consultations per clinician per day, by administrative unit</td>
<td>Output, proxy</td>
<td>HIS</td>
<td>Less than 50/ day per clinician</td>
</tr>
<tr>
<td>C.3</td>
<td></td>
<td>Coverage of measles vaccination (6 months-15 years)</td>
<td>Output, proxy</td>
<td>HIS, survey</td>
<td>&gt; 95% in camps or urban areas</td>
</tr>
<tr>
<td>C.4</td>
<td></td>
<td>Coverage of DPT3 in &lt; 1 year, by administrative unit</td>
<td>Output, proxy</td>
<td>HIS, survey</td>
<td>&gt; 95%</td>
</tr>
<tr>
<td>C.5</td>
<td></td>
<td>% births assisted by skilled attendant</td>
<td>Output, proxy</td>
<td>HIS</td>
<td>&gt; 90%</td>
</tr>
<tr>
<td>C.6</td>
<td></td>
<td>% expected deliveries by Caesarean section, by administrative unit</td>
<td>Output, proxy</td>
<td>HIS</td>
<td>&gt;= 5% and &lt;= 15%</td>
</tr>
<tr>
<td><strong>Risks factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R.1</td>
<td></td>
<td># of cases or incidence rates for selected diseases relevant to the local context (cholera, measles, acute meningitis, others)</td>
<td>Outcome</td>
<td>EWARS, IRA, prospective HF based surveillance, surveys</td>
<td>Measure trends</td>
</tr>
<tr>
<td>R.2</td>
<td></td>
<td># of cases or incidence of sexual violence</td>
<td>Outcome</td>
<td>EWARS, IRA, prospective HF based surveillance, surveys</td>
<td>Measure trends</td>
</tr>
<tr>
<td>R.3</td>
<td></td>
<td>CFR for most common diseases</td>
<td>Outcome</td>
<td>EWARS, IRA, prospective HF based surveillance, surveys</td>
<td>Measure trends</td>
</tr>
<tr>
<td>R.4</td>
<td></td>
<td>Proportional mortality</td>
<td>Outcome</td>
<td>EWARS, IRA, prospective HF based surveillance, surveys</td>
<td>Measure trends</td>
</tr>
<tr>
<td>R.5</td>
<td></td>
<td># of admissions to SFT and TFC</td>
<td>Outcome</td>
<td>EWARS, IRA, prospective HF based surveillance, surveys</td>
<td>Measure trends</td>
</tr>
<tr>
<td>R.6</td>
<td></td>
<td>Proportion/number of US GAM and SAM cases detected at OPD/IPD</td>
<td>Outcome, proxy</td>
<td>EWARS, IRA, prospective HF based surveillance, surveys</td>
<td>Measure trends</td>
</tr>
<tr>
<td>R.7</td>
<td></td>
<td>Proportion of people with &lt;15L of water/day</td>
<td>Outcome</td>
<td>EWARS, IRA, prospective HF based surveillance, surveys</td>
<td>Measure trends</td>
</tr>
<tr>
<td><strong>Health outcomes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O.1</td>
<td></td>
<td>CMR</td>
<td>Outcome</td>
<td>HH survey</td>
<td>&gt;1/10 000 per day</td>
</tr>
<tr>
<td>O.2</td>
<td></td>
<td>USMR</td>
<td>Outcome</td>
<td>HH survey</td>
<td>&gt;2/10 000 per day</td>
</tr>
<tr>
<td>O.3</td>
<td></td>
<td>% of the population in worst quintile of functioning including those with severe or extreme difficulties in functioning</td>
<td>Outcome</td>
<td>HH survey</td>
<td>Measure trends</td>
</tr>
<tr>
<td>O.4</td>
<td></td>
<td>Prevalence of SAM</td>
<td>Outcome</td>
<td>HH survey</td>
<td>Measure trends</td>
</tr>
<tr>
<td>O.5</td>
<td></td>
<td>Prevalence of GAM</td>
<td>Outcome</td>
<td>HH survey</td>
<td>Measure trends</td>
</tr>
</tbody>
</table>
Barriers (3): Evidence Base

Lack of evidence of effectiveness of emergency interventions
- Low quality of data
- Inappropriate indicators measured
- Lack of published effectiveness studies
- Most of the “evidence” in “grey” literature
- Difficult to design and implement appropriate studies (sample size, comparison group, randomization, follow-up, etc.)
What we often see in the field

• Measuring indicators that are convenient to measure rather than those most relevant
• Often measure poorly, in a non-standardized way
• Indicators measured do not provide sufficient detail about quality of the program
• Outcome indicators are not always measured

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Example: Essential Drugs

What are we interested in?
Drugs reach beneficiaries, are prescribed correctly, and ultimately reduce morbidity and mortality

Some of the things that can be measured:
• Quantity delivered in country, timeliness
• Availability at the health facility level
• Access of beneficiaries to health facilities (physical access, cost, etc.)
• Prescription practices, staff qualifications
• Beneficiaries in need that receive appropriate drugs
• Changes in morbidity and mortality

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Outcome Indicators: pros and cons

Mortality, malnutrition, morbidity

Pros:
• Ultimate goal and measure of intervention success
• Widely recognized as benchmarks for emergency and measures of severity (GAM, CMR)

Cons:
• Often multi-causal, difficult to attribute to specific interventions
• Often not easy to measure properly, especially when trying to document statistical change
• Better suited to evaluate “overall quality” of response rather than success of individual interventions

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Link program to outcome

- Do we always need to measure outcome?
- Not if there is a clear evidence linking program indicator to health outcome
  - e.g., measles immunization coverage
- Document both:
  - Coverage or (better) utilization
  - Quality of implementation

Need to:
- Identify interventions for which such evidence exists
- Build this evidence link for more interventions

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From Efficacy to Effectiveness

• Be clear what evidence is there and what is not
• Expect lower effect than in efficacy trials

Ex: micronutrient powders to prevent anemia
• Efficacy proven for children 6-24 mo with moderate and severe anemia
• In the field usually blanket distribution to all (incl. mild and no anemia) children 6-59 mo
• Effect even in 6-24 mo with moderate anemia is lower that that seen in efficacy trials

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Good Indicators

So, what are criteria of “good” indicators?

• Quantifiable
• Feasible to measure in emergency setting
• Standardized method of measurement available
• Relevant to intervention being evaluated
• Presents an outcome measure, or linked by evidence to outcome
Ultimate Goal

- Know what indicators are necessary and sufficient to measure to evaluate
  - specific program
  - response as a whole

- Have valid, feasible and standardized methods to measure these indicators in emergencies — to assure data quality and comparability across time and settings

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