Child Health Analytics and Dashboards in HMIS

September 20, 2017
Commonality

#DontCrackUnderPressure
The WHO Health App provides reference data standards for routine facility reporting systems.

STANDARDS FOR MEASUREMENT
- Core indicators and metadata
- Data quality metrics

META DATA REPOSITORY

DATA QUALITY REVIEW (DQR)

HEALTH SYSTEMS AND DISEASE-SPECIFIC MODULES
- Programme specific indicators and data elements
- Best practice dashboards, analyses
- Aggregate and case-based

MORTALITY

MORBIDITY

HIV

IMMUNIZATION

TB

EARLY WARNING

MALARIA

RMNCH
Analysis of facility data: Guidance outline

Module 1: GENERAL
- Core indicators
  - Aggregate
  - Case based
- Data quality
- Population estimates/denominators
- Analysis
- Presentation and communication

Module 2: MORTALITY & MORBIDITY
- Mortality and causes of death
- Outpatient morbidity & routine surveillance of priority diseases

Module 3: HEALTH SYSTEMS
- Health infrastructure
- Human resources
- Drugs and supplies
- General service delivery

Module 4: PROGRAMME SPECIFIC
- HIV/AIDS
- Tuberculosis
- Malaria
- RMNCAH
- Immunization
- NTDs
- NCDs
- Surveillance
- STRUCTURE
  - Introduction to data
  - Indicators
  - Data quality
  - Analysis
  - Data limitations
  - Practical assignments

STRUCTURE - Introduction
- Indicators
- Data quality
- Analysis
- Data limitations
- Practical assignments
Structure

• **Introduction to data:** context for analysis
• **Indicators:** definitions, numerator, denominator
• **Data quality:** process for assessing data quality metrics (5 domains)
• **Core analysis:** recommended visualizations and interpretations
• **Data limitations:** common pitfalls of interpretation and use
• **Practical assignments:** exercises to practice new skills

**Guiding Principles:** **SIMPLICITY** and **CONSISTENCY** of analytic processes across modules (i.e. programs) reduces overall burden and resource allocation for capacity building.
## Data Quality

<table>
<thead>
<tr>
<th>Domain</th>
<th>Data quality metric</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Completeness and timeliness</strong></td>
<td>Completeness and timeliness of reporting (reporting form/data set completeness)</td>
<td>Monthly, annually</td>
</tr>
<tr>
<td></td>
<td>Completeness of indicator data (data element completeness)</td>
<td>Monthly, annually</td>
</tr>
<tr>
<td><strong>Internal consistency</strong></td>
<td>Presence of outliers.</td>
<td>Monthly, annually</td>
</tr>
<tr>
<td></td>
<td>Consistency over time, i.e. plausibility of reported values compared to previous reporting.</td>
<td>Monthly, annually</td>
</tr>
<tr>
<td></td>
<td>Consistency between indicators, i.e. negative dropout rates.</td>
<td>Annually</td>
</tr>
<tr>
<td><strong>External consistency with other data sources</strong></td>
<td>Consistency between routinely reported data and population-based surveys.</td>
<td>Annually</td>
</tr>
<tr>
<td><strong>External comparison of population data</strong></td>
<td>Consistency between the population data used for calculating immunisation coverages and other sources of population estimates.</td>
<td>Annually</td>
</tr>
</tbody>
</table>
Outliers become more apparent by “drilling down” in data.

Vaccination doses by month of 2015 and by district.
Visualizations: Facility-level

Cascade / Sequence

- Emphasizes that a sequence of services is needed to achieve desired impacts.
  - Preventive,
  - Curative,
  - Operational
- (2+ indicators, 1 location, 1+ time period)

Curative: Children presenting with Diarrhea

Preventive: Routine Care for Children

- Postnatal Visit
- BF Counseling
- Nutritional Assessment
- DPT3
- Full Vaccination

Curative:

- Received Nutritional Assessment
- Received ORS (if not referred)
- Received Zinc (if not referred)
- Referred reaching higher level care
Visualizations: Facility-level

Trend analysis

• View indicator(s) over time in a specific facility.
• Potential use: Deeper dive into indicators identified in Cascade
• (1+ indicators, 1 location, 2+ time period)
Visualizations: District- or National-level

In addition to Cascade and Trend use

➤ **Geographic** distribution: (1 indicator (?), 2+ locations, 1 time)

*e.g. Referred children reaching higher level care*

**MAP**

**LIST / BAR CHART**
Visualizations: Combine on Screen
Visualizations: District- or National-level

In addition to Cascade, Trend, and Geographic: use

- **Scorecards**: (2+ indicators, 2+ locations, 1 time period)
## Visualizations: Summary

<table>
<thead>
<tr>
<th>Type</th>
<th>Facility</th>
<th>District / National</th>
<th>Locations (disaggregated)</th>
<th>Indicators</th>
<th>Time Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cascade</td>
<td>✓</td>
<td>✓</td>
<td>1</td>
<td>+++</td>
<td>1(+)</td>
</tr>
<tr>
<td>Trend</td>
<td>✓</td>
<td>✓</td>
<td>1</td>
<td>1(+)</td>
<td>+++</td>
</tr>
<tr>
<td>Geographic</td>
<td>✓</td>
<td>✓</td>
<td>+++</td>
<td>1(+)</td>
<td>1</td>
</tr>
<tr>
<td>Scorecard</td>
<td>✓</td>
<td>✓</td>
<td>+++</td>
<td>+++</td>
<td>1</td>
</tr>
</tbody>
</table>
Outstanding Questions

- **Indicators**: What Child Health indicators should be tracked in routine HMIS?

- **Input**: Who can reflect / input on indicator development?

- **Individual-level**: Indicators for aggregate versus individual-level data collection?

- **Nutrition**: Should Nutrition be a separate module?

- **Overlap**: Linkages with other modules - Mortality, HIV, Malaria, Immunization, etc.
Through **Learning** and **Adaptation**, we can reach our goals.