Data Quality Review (DQR) Toolkit

Overview of the Data Quality Review (DQR) Framework and Methodology
https://www.who.int/healthinfo/tools_data_analysis/en/
Quality of health facility data – why do we care?

• High-quality data provide evidence to providers and managers to optimize healthcare coverage, quality, and services.

• High-quality data help:
  
  — Form an accurate picture of health needs, programs, and services in specific areas
  
  — Inform appropriate planning and decision making at every level of the health system (including district and below)
  
  — Inform effective and efficient allocation of resources
  
  — Support ongoing monitoring, by identifying best practices and areas where support and corrective measures are needed

Overview of DQR
How did we measure quality of data?

Overview of DQR

- Confusion in measurement of DQ
- Lack of country ownership of results
- Little improvement in quality of data
Why do we have poor quality of data?

Overview of DQR

- Lack of adequately trained staff resulting in:
  - Recording errors
  - Compiling errors
  - Reporting errors

- Inadequate tools, supplies, resources
  - Lack of guidelines to fill out main data sources
  - Un-standardized source documents and reporting forms

HR capacity issues

- Inadequate tools, supplies, resources

Overview of DQR
A vicious cycle

- Donors get their own
- Data not trusted
- Poor data quality
- Fragmentation

Weak HIS
- Limited capacity to manage or analyse data

Limited investment in HIS

Weak demand
- Using evidence not perceived as a winning strategy

Decisions not evidence-based
How can we address these issues?

When the **same** health personnel treat different diseases, can HR capacity issues on recording and reporting data be addressed programmatically?

**NO!**
A harmonized approach to:
- measuring data quality
- improving data quality
What does a harmonized approach look like?

**Overview of DQR**

- **Routine** & regular review and feedback
  - (e.g. monthly) of data quality – desk review of data quality and system of supervision and feedback

- **Annual** independent cross-cutting review and feedback
  - examining quality of health facility data for annual health sector planning & program monitoring

- **Periodic** independent in-depth review and feedback
  - focus on single disease/program area; conducted periodically (e.g. every 3 years)
What is the approach called and what does it do?

- Data Quality Review (DQR) is a framework and methodology that builds on the earlier program-specific data quality tools and methods by:
  - Providing a **common language** (standard metrics) for the measurement of data quality;
  - Proposing a harmonized approach to **measuring** and **improving** data quality that addresses the **systemic nature** of data quality problems;
  - Including **tools** that can be adapted by users.
What are the resources included with the harmonized approach?

Overview of DQR

**Approach**

**DQR Framework**

**DQR Implementation guide**

**Desk review**

**Supervisory checklists**

- **Routine and regular reviews**
  - DQR Framework
  - DQR Implementation guide
  - Desk review
  - Supervisory checklists

- **Annual, independent cross-cutting review**
  - DQR Framework
  - DQR Implementation guide
  - Desk review
  - Supervisory checklists

- **Periodic, independent in-depth review**
  - DQR Framework
  - DQR Implementation guide
  - Desk review
  - Supervisory checklists

- **Adapted DQR, or programme-specific tools used (not covered here)**
  - Desk review
  - Supervisory checklists

**Guidance, tools and resources**

- **Approach**
  - Desk review
  - Supervisory checklists

- **Routine and regular reviews**
  - WHO app (dhis2)
  - WHO tool in MS Excel

- **Annual, independent cross-cutting review**
  - WHO app (dhis2)
  - WHO tool in MS Excel

- **Periodic, independent in-depth review**
  - WHO app (dhis2)
  - WHO tool in MS Excel

- **Adapted DQR, or programme-specific tools used (not covered here)**
  - CSPro application

Overview of DQR

DQ tools overview

What is it?

- Analysis of the quality of reported HMIS data from all facilities
- National: HMIS and health program managers
- District: Data and program managers
- Facility: Facility in-charge

What does it measure?

- Completeness
- Consistency
- Outliers

Who should implement?

- National: Monthly, annually in advance of the health sector review
- District: Monthly
- Facility: Monthly

When to implement?

- National: Biannually or annually
- District: Aligned with supervision schedule
- Facility: Monthly

What resources are required?

- National: Biannually or annually
- District: Aligned with supervision schedule
- Facility: Monthly

Technical: Medium; must implement survey, analyze results, and translate findings to improvement plan
Financial: High; requires new data collection
Time: High; field work can take substantial time

Data Verification/ System Assessment

- Independent, holistic health facility and district assessment of data quality
- National: MoH with HMIS TWG oversight

 Supervisor Checklist

- Rapid assessment of data quality during supervisory visits to health facilities
- National: Biannually or annually

Desk Review

- Analysis of the quality of reported HMIS data from all facilities
- National: Monthly, annually in advance of the health sector review
- District: Monthly
- Facility: Monthly

Overview of DQR

DATA QUALITY IMPROVEMENT PROCESS

DQR is a continual process coordinated by a multi-stakeholder technical working group (e.g., HMIS TWG) that uses information gained from the DQA tools to develop, cost, and implement data quality improvement plans.
Overview of DQR

**DQ tools use cases - by levels of health system**

**Resource requirements**

**Technical:** Medium; must conduct desk review, interpret results, and translate findings to improvement plan  
**Financial:** Low  
**Time:** Low/High depending on use of DHIS-2 app or Excel tool

**Health facility level**

**Who:** Facility in-charge reviews facility data in HMIS if access to electronic data is available at facility level

**What:** Analysis of the quality of reported HMIS data from all facilities in the district  
**Why:** Identify data gaps, inconsistencies, and outliers  
**When:** Monthly  
**Who:** Data and program managers

**District level**

**What:** Participate in national DV/ISA and data quality improvement process

**Technical:** Medium; must implement survey, analyze results, and translate findings to improvement plan  
**Financial:** High; requires new data collection  
**Time:** High; field work can take substantial time

**National level**

**What:** Participate in national DV/ISA and data quality improvement process

**What:** Independent, holistic health facility and district assessment of data quality  
**Why:** Assess accuracy of data and readiness to produce quality data  
**When:** Annually/Biannually  
**Who:** MoH with HMIS TWG oversight

**Supervisor Checklist**

**Technical:** Medium; must complete checklist, enter data in excel, interpret results  
**Financial:** Low; should be incorporated into existing supervision activities  
**Time:** Low

**What:** Rapid self-assessment of source document data quality  
**Why:** Ensure completeness and consistency of source document data  
**When:** Monthly  
**Who:** Facility in-charge or data manager

**Data Quality Improvement Process**

DQR is a continual process coordinated by a multi-stakeholder technical working group (e.g. HMIS TWG) that uses information gained from the DQA tools to develop, cost, and implement data quality improvement plans.
• We’ve conducted a DQR … Now what?
  • Results should point to weaknesses in data management
  • A Data Quality Improvement Plan should be developed wherein interventions are outlined to address identified data quality problems.
  • The timing of the assessment and improvement plan should coincide with country health system planning cycles so interventions can be prioritized and funded.
  • A unit within the MOH (e.g. HMIS TWG) should be tasked with monitoring and ensuring implementation.
Link to planning

• The results of the Health Facility Data Verification and System Assessment (DV/SA) should be available for use during the annual health sector planning events.

• Ideally, the DV/SA was scheduled far enough in advance that the results are validated and compiled into a report for use at the planning event. But not too far in advance that the findings are no longer relevant.

• If the report is ready with findings and recommendations highlighted (e.g. executive summary) the issues uncovered during the assessment are more likely to receive consideration (and funding!) and then be addressed in the current budgetary cycle.
Data Quality Improvement Plan

• Based on the results of the data DQR (data verification, system assessment, desk review) the Data Quality (or HMIS) Technical Working Group (TWG) should lead the development of a Data Quality Improvement Plan (DQIP), an action plan for system strengthening, ensuring the involvement of relevant stakeholders.

• The DQIP should map out interventions designed to address problems found during the assessment and improve the quality of data.

• The plan should identify responsible agencies with appropriate staff to implement the plan, the timeline, and resources required to ensure completion.
Data Quality Improvement Plan

• If sufficient funding is not available within the current budget, the TWG should conduct advocacy among the donor community to raise the necessary funding.

• Interventions to improve the quality of data should be prioritized so that those with the highest likelihood of success, and those making the greatest impact on overall data quality, should be implemented first.

• Interventions should have a basis in reality. Budgets should be realistic. Responsible agencies/personnel should be available and willing to take on the interventions (and should buy-in to the strategy).

• Timelines should be doable. The DQIP should not be a wish list!
## DQIP – Example 1

<table>
<thead>
<tr>
<th>Data quality finding</th>
<th>Evidence of finding (interpretation)</th>
<th>Remedial measures</th>
<th>Scope</th>
<th>Timeline</th>
<th>Responsible</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of understanding of indicator compilation techniques at health-facility level for PMTCT/HCT - Pregnant women are not disaggregated from HCT results</td>
<td>Systematic over-counting of HCT indicator values in some districts (as revealed by data verification)</td>
<td>Improved supervision and mentoring in affected districts - Emphasis on indicator compilation during pre-service and in-service training - Ensure that printed copies of indicator definitions and compilation procedures are available in health facilities</td>
<td>Regions 2, 7, 10</td>
<td>One year (2015), then re-evaluate</td>
<td>-District health information officers or their designates (whoever is conducting supervision at the facility)</td>
<td>-District health information budgets -HMIS training budget (2015 allocation) -MOH nurse training (2015 budget)</td>
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## DQIP – Example 2

### Domain: Data maintenance and confidentiality

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<tr>
<td><strong>Source documents are not available for data verification</strong></td>
<td>A significant proportion of service delivery for malaria could not be verified because of the non-availability of source documents</td>
<td>-Districts should work with affected health facilities to develop sound storage areas (closet or cabinet with locking mechanism in a cool, dry place)</td>
<td>Identified health facilities in Region 2 (districts 4 and 6) and Region 9 (districts 27 and 34).</td>
<td>2015, then re-evaluate</td>
<td>District health management teams; facility in charge; Regional Health Authority (facilities management unit)</td>
<td>2015 Facilities Management Budget - Global Fund Round 9 HSS grant</td>
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</tbody>
</table>

- Poor record-keeping/archiving of reported results
- Shelves should be built using locally-available materials

*EXAMPLE*
<table>
<thead>
<tr>
<th>Implementation of DQR – Progress, opportunities and gaps</th>
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<tbody>
<tr>
<td><strong>Progress &amp; opportunities</strong></td>
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<tr>
<td><strong>Routine supervision</strong></td>
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<td><strong>Desk review</strong></td>
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<tr>
<td><strong>Data verification</strong></td>
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<td><strong>DQIP</strong></td>
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• Benefit
  • Efficient use of resources in supporting a harmonized approach rather than uncoordinated single program data quality reviews
  • Will achieve data quality improvement in focus programme areas -- HIV, TB, and malaria – while supporting the RSSH agenda
  • Critical for measuring investment risk

• Risk
  • Need to ensure the results are translated into improvement
  • Need to institutionalize the process of data quality review and improvement – what is the best way?