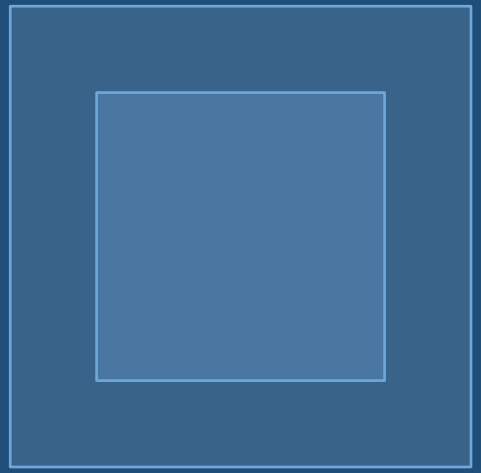
MEAL | CHAPTER 11

DATA QUALITY ASSURANCE

Ensuring valid, reliable, precise, complete, timely and protected programme data

Dr Abenet Yohannes, Ph.D.



Chapter Introduction

MEAL systems depend on data to:

- Track implementation
- Measure results
- Identify performance gaps
- Support management decisions
- Demonstrate accountability
- Report to donors and stakeholders
- Generate learning

> *Poor-quality data can produce incorrect conclusions even when the analysis is technically correct.*

Why Data Quality Matters

Poor-quality data may lead to:

- Incorrect beneficiary numbers
- Misleading performance reports
- Poor resource allocation
- Inappropriate programme decisions
- Loss of stakeholder confidence
- Donor-compliance concerns
- Inability to demonstrate results
- Failure to identify vulnerable groups

Opening Case

A project reports that 1,100 school-aged children received complete learning kits during the quarter.

A verification exercise finds that:

- Some names appear twice.
- Some recipients are outside the eligible age range.
- Some records lack confirmation.
- One site included beneficiaries from a previous quarter.
- Several disaggregation fields are incomplete.

Question: Can the reported figure still be considered reliable?

Central MEAL Question

How can a programme ensure that reported results accurately reflect what actually happened in the field?

Learning Objectives

By the end of this chapter, participants will be able to:

1. Explain the purpose of data-quality assurance.
2. Distinguish assurance from assessment.
3. Apply the six dimensions of data quality.
4. Conduct source-document verification.
5. Apply data-review and validation procedures.
6. Conduct spot checks and back checks.
7. Explain double-entry verification.
8. Conduct supervisory data reviews.
9. Describe the data-quality audit process.
10. Identify common data-quality problems.
11. Develop a corrective action plan.
12. Conduct a simulated Data Quality Assessment.

Chapter Roadmap

1. Foundations of data quality
2. Data-quality assurance and assessment
3. Dimensions of data quality
4. Indicator definitions and data flow
5. Source-document verification
6. Data-quality review procedures
7. Data-validation rules
8. Spot checks and back checks
9. Double-entry checks
10. Supervisory reviews
11. Data-quality audits
12. Corrective action planning
13. Practical DQA exercise

Opening Reflection

A report may be mathematically correct but still be of poor quality. Example: a district correctly adds all reported site totals. However:

- Two sites used different indicator definitions.
- One site counted repeat beneficiaries.
- Several source documents are missing.

Reflection: correct arithmetic does not guarantee valid data.

SECTION 1

Foundations of Data Quality

What Is Data?

Data are recorded facts, observations or measurements used to describe programme activities, outputs, outcomes or conditions.

- Beneficiary registration records
- Attendance figures
- Distribution records
- Survey responses
- Referral records
- Service-delivery data
- Monitoring observations
- Financial and operational records

What Is Data Quality?

Data quality is the degree to which data are suitable for their intended purpose. High-quality data should accurately represent:

- What happened
- Where it happened
- When it happened
- Who was reached
- How results were measured
- Whether the reported evidence can be verified

What Is Data-Quality Assurance?

Data-quality assurance is the continuous system of policies, procedures and controls used to prevent, detect and correct data-quality problems. It includes:

- Clear indicator definitions
- Standardized tools
- Staff training
- Validation rules
- Supervisory review
- Documentation
- Verification
- Corrective action

What Is a Data-Quality Assessment?

A Data Quality Assessment is a structured examination of selected data and the systems that produced them. It determines whether data meet defined quality standards. A DQA may review:

- One indicator
- One reporting site
- One reporting period
- An entire project
- A specific data-management process

Assurance versus Assessment

Data-Quality Assurance	Data-Quality Assessment
Continuous process	Conducted at defined intervals
Prevents problems	Identifies existing problems
Embedded in routine work	Structured review exercise
Implemented by all staff	Led by designated reviewers
Includes daily controls	Includes evidence testing
Focuses on system performance	Focuses on data and system quality

Avoiding Terminology Confusion

The abbreviation DQA may refer to either Data-Quality Assurance or Data-Quality Assessment.

RECOMMENDED PRACTICE — USE CLEAR TERMS

Data-quality assurance system	**DQA assessment**	**DQA exercise**	**Data-quality audit**

> *This prevents misunderstanding about whether the discussion concerns routine controls or a formal assessment.*

Data Quality throughout the Data Life Cycle

Data quality must be managed during:

1. Indicator design
2. Tool development
3. Data collection
4. Data entry
5. Data transmission
6. Data cleaning
7. Data aggregation
8. Data analysis
9. Reporting
10. Archiving and use

Roles and Responsibilities

Data Collectors

- Apply indicator definitions
- Complete tools accurately
- Correct errors promptly

Supervisors

- Review forms
- Verify unusual values
- Approve corrections

MEAL Staff

- Design controls
- Conduct DQAs
- Analyse discrepancies

Programme Managers

- Act on findings
- Allocate corrective resources
- Monitor improvement

Risk-Based Data-Quality Assurance

Not all data require the same level of assurance. High-risk data may include:

- Donor-reporting indicators
- Beneficiary totals
- Payment-related data
- Protection information
- Sensitive personal information
- Results linked to performance targets
- Data used for strategic decisions

More intensive verification should be applied to higher-risk data.

Core Assurance Principles

An effective data-quality system should be:

- Proportionate to risk
- Consistently applied
- Evidence-based
- Documented
- Independent where necessary
- Timely
- Corrective rather than punitive
- Integrated into programme management

Knowledge Check

Which activity is primarily preventive?

A Conducting a year-end DQA

B Correcting a published report

C Training staff on indicator definitions

D Investigating a major discrepancy

Answer: C. Training staff on indicator definitions

SECTION 2

Dimensions of Data Quality

Six Dimensions of Data Quality

The six dimensions covered in this chapter are:

01
Validity

02
Reliability

03
Precision

04
Integrity

05
Timeliness

06
Completeness

A dataset may perform strongly in one dimension but poorly in another.

What Is Validity?

Validity means that data measure what they are intended to measure. Valid data are consistent with:

- Indicator definitions
- Eligibility criteria
- Reporting periods
- Units of measurement
- Inclusion and exclusion rules

Validity Questions

Ask:

- Was the correct indicator definition used?
- Were only eligible participants counted?
- Was each participant counted once?
- Were activities counted in the correct period?
- Does the source document support the reported result?
- Were numerator and denominator rules followed?

Validity Example

INDICATOR

Number of children aged 6–17 who received one complete learning kit.

Invalid counts may include:

- Children younger than six
- Persons older than seventeen
- Children receiving incomplete kits
- Repeat distributions counted twice
- Recipients without supporting records
- Distributions outside the reporting period

Validity Control Measures

- Develop an indicator reference sheet.
- Define inclusion and exclusion criteria.
- Train data collectors.
- Use eligibility checks.
- Apply duplicate detection.
- Verify reporting periods.
- Conduct source-document verification.
- Document indicator changes.

What Is Reliability?

Reliability means that data are collected, processed and reported consistently. Reliable data should produce similar results when:

- The same procedure is repeated.
- Different trained staff apply the same method.
- Data are collected across comparable sites.
- The same definitions are used over time.

Reliability Questions

Ask:

- Are tools standardized?
- Are staff trained consistently?
- Are procedures documented?
- Are methods applied across all sites?
- Have definitions changed?
- Would another trained person obtain a similar result?
- Are calculations performed consistently?

Reliability Example

SITE A

Counts attendance using signed daily registers.

SITE B

Estimates attendance using the number of chairs occupied.

Even when both sites report totals, the methods are not equally reliable.

> *Lesson: the same indicator must be measured using the same approved procedure.*

Reliability Control Measures

- Standardize tools.
- Develop written procedures.
- Train and certify data collectors.
- Conduct inter-observer checks.
- Use consistent reporting schedules.
- Monitor changes in methods.
- Document all procedural updates.
- Conduct refresher training.

What Is Precision?

Precision means that data have sufficient detail and exactness for the intended decision. Precision may concern:

- Measurement units
- Decimal places
- Geographic detail
- Age categories
- Sex and disability disaggregation
- Frequency of measurement
- Sample size

Precision Questions

Ask:

- Are data sufficiently disaggregated?
- Is the measurement unit appropriate?
- Is the sample large enough?
- Are categories clearly defined?
- Is the level of detail useful?
- Are rounding rules consistent?
- Can decision-makers identify important differences?

Precision Example

REPORTING

“1,000 people were reached.”

This may be insufficient when the programme needs to know:

- Number of women and men
- Number of children
- Number of persons with disabilities
- Number by district
- Number receiving each service type

Precision Control Measures

- Define required disaggregation.
- Use appropriate measurement units.
- Establish standard rounding rules.
- Set minimum sample requirements.
- Include required fields in tools.
- Review category definitions.
- Avoid unnecessary aggregation.
- Test whether data support planned decisions.

What Is Integrity?

Integrity means that data are protected from:

- Deliberate manipulation
- Unauthorized changes
- Undocumented corrections
- Bias
- Fabrication
- Accidental alteration
- Loss or destruction

Integrity Questions

Ask:

- Who can enter or edit the data?
- Are changes recorded?
- Are approvals documented?
- Can reported figures be traced to source documents?
- Are files protected?
- Are corrections authorized?
- Are conflicts of interest managed?

Integrity Risks

- Changing totals to meet targets
- Adding unsupported beneficiaries
- Deleting unfavourable results
- Editing spreadsheets without a change log
- Sharing passwords
- Using unapproved correction fluid
- Replacing original forms
- Backdating records

Integrity Control Measures

- Restrict system access.
- Use individual user accounts.
- Maintain audit trails.
- Lock formulas and summary cells.
- Require documented corrections.
- Separate data entry from approval.
- Preserve original records.
- Investigate suspected manipulation.

What Is Timeliness?

Timeliness means that data are:

- Collected at the required time
- Submitted by the reporting deadline
- Processed without unnecessary delay
- Available when decisions must be made
- Current enough for their intended use

Timeliness Measures

Two standard measures are used to monitor reporting timeliness.

ON-TIME REPORTING RATE

$$\text{Reports Submitted on Time} \div \text{Reports Expected} \times 100$$

REPORTING DELAY

$$\text{Actual Submission Date} - \text{Deadline}$$

Timeliness Control Measures

- Establish clear deadlines.
- Use reporting calendars.
- Send advance reminders.
- Monitor late submissions.
- Escalate repeated delays.
- Simplify reporting procedures.
- Provide adequate staffing.
- Use real-time systems where appropriate.

What Is Completeness?

Completeness means that all required data are present. It may refer to:

- Required reports received
- Required fields completed
- All reporting sites included
- All eligible events recorded
- Required supporting documents available
- Required disaggregation completed

Completeness Measures

REPORT COMPLETENESS

$$\text{Reports Received} \div \text{Reports Expected} \times 100$$

FIELD COMPLETENESS

$$\text{Required Fields Completed} \div \text{Required Fields Expected} \times 100$$

Completeness Example

A register contains 500 beneficiary records. The disability-status field is completed for 450 records.

FIELD COMPLETENESS

90%

450 ÷ 500 × 100

MISSING-DATA RATE

10%

100% − 90%

Completeness Control Measures

- Mark required fields clearly.
- Prevent submission of incomplete electronic forms.
- Review forms before leaving the site.
- Monitor missing-value reports.
- Follow up with reporting units.
- Reconcile expected and received reports.
- Maintain document inventories.
- Investigate systematic missingness.

Interdependence of Dimensions

The six dimensions are interconnected. A report may be:

- Complete but invalid
- Timely but unreliable
- Precise but manipulated
- Valid but submitted too late
- Reliable but insufficiently disaggregated

Conclusion: data quality requires a balanced assessment across all dimensions.

SECTION 3

Indicator Standards and Data Flow

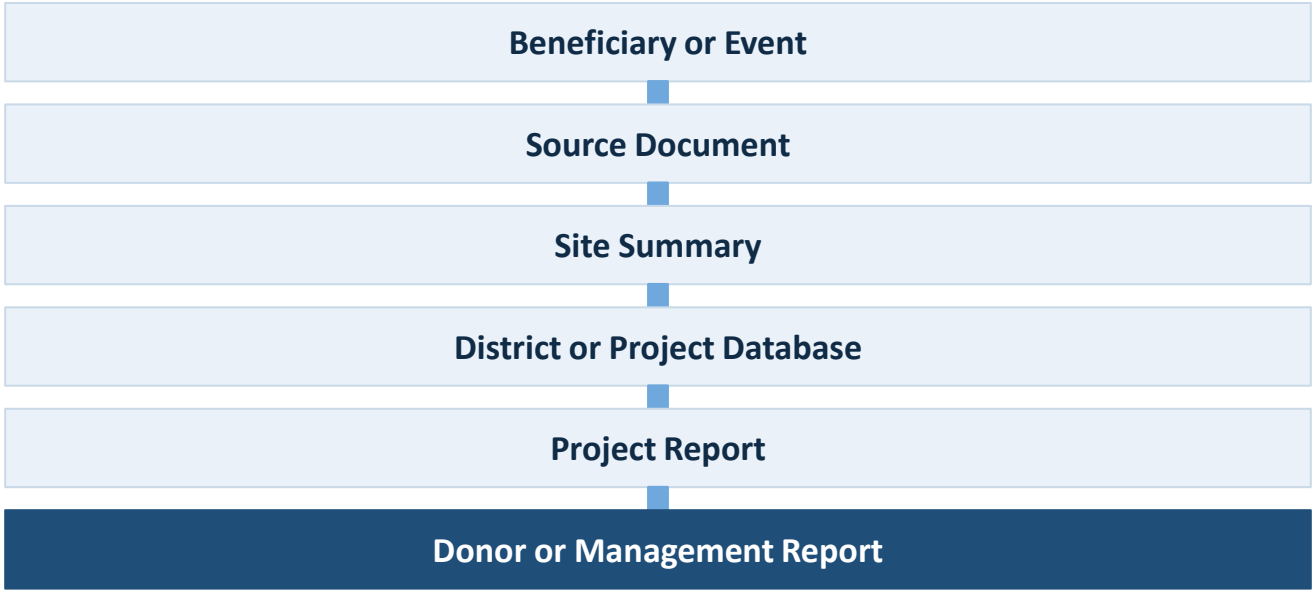
Indicator Reference Sheet

An indicator reference sheet should define:

- Indicator title
- Purpose
- Numerator
- Denominator
- Unit of measure
- Inclusion criteria
- Exclusion criteria
- Disaggregation
- Data source
- Collection frequency
- Reporting responsibility

Data-Flow Mapping

A data-flow map shows how data move from collection to final reporting.



Source Documents

Source documents are the original records from which reported data are derived.

- Attendance registers
- Beneficiary lists
- Distribution sheets
- Referral forms
- Case-management records
- Survey questionnaires
- Clinical registers
- Training records
- Observation checklists

Audit Trail

An audit trail enables a reviewer to trace reported data.

Tracing in both directions

- From the final report back to source documents
- From source documents forward to the final report

A strong audit trail shows

- Who recorded the data
- When the data were recorded
- How totals were calculated
- What changes were made
- Who approved the report

SECTION 4

Source-Document Verification

What Is Source-Document Verification?

Source-document verification is the process of comparing reported data with original supporting records. It determines whether reported results are:

- Supported
- Correctly calculated
- Eligible
- Complete
- Recorded in the correct period
- Free from duplicate counting

Source-Verification Steps

1. Select the indicator and period.
2. Obtain the indicator definition.
3. Identify the reported value.
4. Retrieve the source documents.
5. Recount eligible records.
6. Remove duplicates and invalid records.
7. Recalculate the result.
8. Compare verified and reported values.
9. Document discrepancies.

Forward and Backward Tracing

Both approaches should produce the same verified result.

Forward Tracing

- Start with source documents
- Trace to the site summary
- Trace to the database
- Trace to the final report

Backward Tracing

- Start with the reported total
- Trace back to database records
- Trace back to summary sheets
- Trace back to original source documents

Recalculation Procedures

Reviewers should independently recalculate:

- Subtotals
- Grand totals
- Percentages
- Averages
- Numerators and denominators
- Disaggregated totals
- Cumulative values
- Conversion factors

Do not rely only on the calculations prepared by the reporting team.

Source-Verification Checklist

Verification Question	Yes / No
Source documents are available	
Records cover the correct period	
Indicator eligibility rules were applied	
Duplicate records were excluded	
Totals were recalculated correctly	
Disaggregated totals equal the overall total	
Corrections are documented	
Source documents were approved	

Verification Factor

Reported value 1,000; verified value 950.

FORMULA

$$\text{Verified Value} \div \text{Reported Value} \times 100$$

WORKED EXAMPLE

$$950 \div 1{,}000 \times 100 = 95\%$$

Discrepancy Rate

FORMULA

$$| \text{Reported Value} - \text{Verified Value} | \div \text{Reported Value} \times 100$$

WORKED EXAMPLE

$$| 1{,}000 - 950 | \div 1{,}000 \times 100 = 5\%$$

Acceptable thresholds should be defined by the programme.

Evidence Sufficiency

Evidence should be:

- Relevant
- Authentic
- Complete
- Legible
- Dated
- Approved where required
- Traceable
- Consistent with the reported indicator

A document’s existence does not automatically prove that it is sufficient evidence.

SECTION 5

Data-Quality Review Procedures

Types of Data Review

Data-quality reviews may include:

- Routine form review
- Desk review
- Field verification
- Cross-period comparison
- Cross-source comparison
- Statistical review
- Reconciliation
- Formal DQA assessment

Desk Review

A desk review examines submitted records without visiting the reporting site. It may assess:

- Completeness
- Arithmetic accuracy
- Missing values
- Unusual trends
- Late submissions
- Internal consistency
- Supporting attachments

Field Review

A field review examines:

- Original source documents
- Data-collection practices
- Staff understanding
- Filing systems
- Beneficiary evidence
- Supervisory procedures
- Electronic and paper records
- Physical service-delivery conditions

Plausibility Checks

Plausibility checks determine whether reported values are reasonable. Examples:

- Beneficiaries exceed the target population.
- Attendance exceeds registration.
- Vaccinations exceed available doses.
- Distribution quantities exceed stock issued.
- Daily services exceed facility capacity.
- Reported percentages exceed 100%.

Internal-Consistency Checks

Internal-consistency checks compare related values within the same dataset.

$$\text{Female} + \text{Male} = \text{Total Participants}$$

$$\text{Completed} + \text{Dropped Out} \leq \text{Enrolled}$$

$$\text{Opening Balance} + \text{Receipts} - \text{Issues} = \text{Closing Balance}$$

Cross-Period Review

Compare the current period with earlier periods. Investigate:

- Sudden increases
- Sudden decreases
- Identical repeated values
- Unusual seasonal patterns
- Cumulative totals that decrease
- Large changes without programme explanation

Cross-Source Triangulation

Compare data from different sources.

Reported Data	Comparison Source
Training attendance	Signed participant register
Commodity distribution	Warehouse issue record
Referral completion	Receiving-facility record
School attendance	Class register
Cash transfer	Payment confirmation
Beneficiary total	Registration database

Review Documentation

Every data review should record:

- Indicator reviewed
- Reporting period
- Site
- Documents reviewed
- Tests performed
- Findings
- Discrepancies
- Corrections made
- Reviewer
- Date
- Required follow-up

SECTION 6

Data-Validation Rules

What Are Validation Rules?

Validation rules are predefined checks that prevent or identify invalid data. They may be applied:

- On paper forms
- During electronic data entry
- In spreadsheets
- In databases
- During data cleaning
- Before report approval

Range and Format Rules

RANGE RULE

$6 \leq \text{Age} \leq 17$

FORMAT RULE

Reporting date must follow DD/MM/YYYY

Other examples:

- Percentages between 0 and 100
- Positive quantities only
- Required identification format
- Valid geographic codes

Logic and Skip Rules

Logic rules test relationships among fields. Examples:

- Pregnancy status should not be completed for an ineligible category.
- Date of service cannot be before registration date.
- Completion date cannot be before start date.
- Follow-up questions should appear only when the initial answer is “Yes.”

Uniqueness and Duplicate Rules

Duplicate controls may use:

- Beneficiary identification number
- Name and date of birth
- Telephone number
- Household identifier
- Service date
- Facility and record number

Warning: two people may share a name. Duplicate detection should use more than one field where possible.

Date and Time Rules

Examples:

- Service date must fall within the reporting period.
- Submission date cannot precede data-collection date.
- Follow-up date must occur after the initial visit.
- Birth date cannot be in the future.
- Activity end time must be after start time.

Cross-Field and Aggregation Rules

Cross-field rules test that related totals remain mathematically coherent.

$$\text{Total} = \text{Sum of Disaggregated Categories}$$

$$\text{Number Receiving Service} \leq \text{Number Registered}$$

$$\text{Cumulative Total}(t) \geq \text{Cumulative Total}(t-1)$$

Sample Validation-Rule Table

Field	Rule	Error Message
Age	6–17	“Recipient is outside eligible age range.”
Service Date	Within quarter	“Date is outside reporting period.”
Beneficiary ID	Unique	“Possible duplicate record.”
Sex	Required	“Complete the sex field.”
Total	Equals categories	“Disaggregation does not equal total.”
Confirmation	Required	“Recipient confirmation is missing.”

SECTION 7

Spot Checks

What Is a Spot Check?

A spot check is a focused review conducted at a selected time or location to verify:

- Data-collection practices
- Source documents
- Reported values
- Staff compliance
- Physical evidence
- Control procedures

Spot checks may be planned or unannounced.

Spot-Check Procedure

1. Define the objective.
2. Select the site or indicator.
3. Prepare a checklist.
4. Review source records.
5. Observe the process.
6. Interview responsible staff.
7. Recalculate selected values.
8. Document findings.
9. Agree on corrective action.

Spot-Check Sampling

Spot checks may target:

- High-volume sites
- New reporting sites
- Sites with repeated errors
- Unusual performance results
- High-risk indicators
- Late-reporting sites
- Sites selected randomly

A combination of risk-based and random selection strengthens assurance.

Spot-Check Example

A site reports 200 participants trained. The spot check finds:

190	5	10	2
names in the register	duplicate names	unsigned records	training dates outside the period

Required: the reviewer must determine which records meet the approved indicator definition before accepting the reported value.

SECTION 8

Back Checks

What Is a Back Check?

A back check is an independent re-verification of selected information after the original data collection. It may involve:

- Re-contacting respondents
- Revisiting households
- Repeating selected questions
- Confirming service receipt
- Rechecking observations
- Comparing responses with original records

Back-Check Process

1. Select a sample of completed records.
2. Assign an independent checker.
3. Re-contact the respondent or site.
4. Repeat selected critical questions.
5. Compare original and back-check responses.
6. Investigate differences.
7. Document conclusions.
8. Take corrective action where required.

Sample Back-Check Questions

- Did you receive the reported service?
- On what date was the service received?
- What item or support was provided?
- How many household members participated?
- Was any payment requested?
- Did the enumerator visit you?
- Were the answers recorded correctly?

Back checks should protect confidentiality and avoid causing harm.

SECTION 9

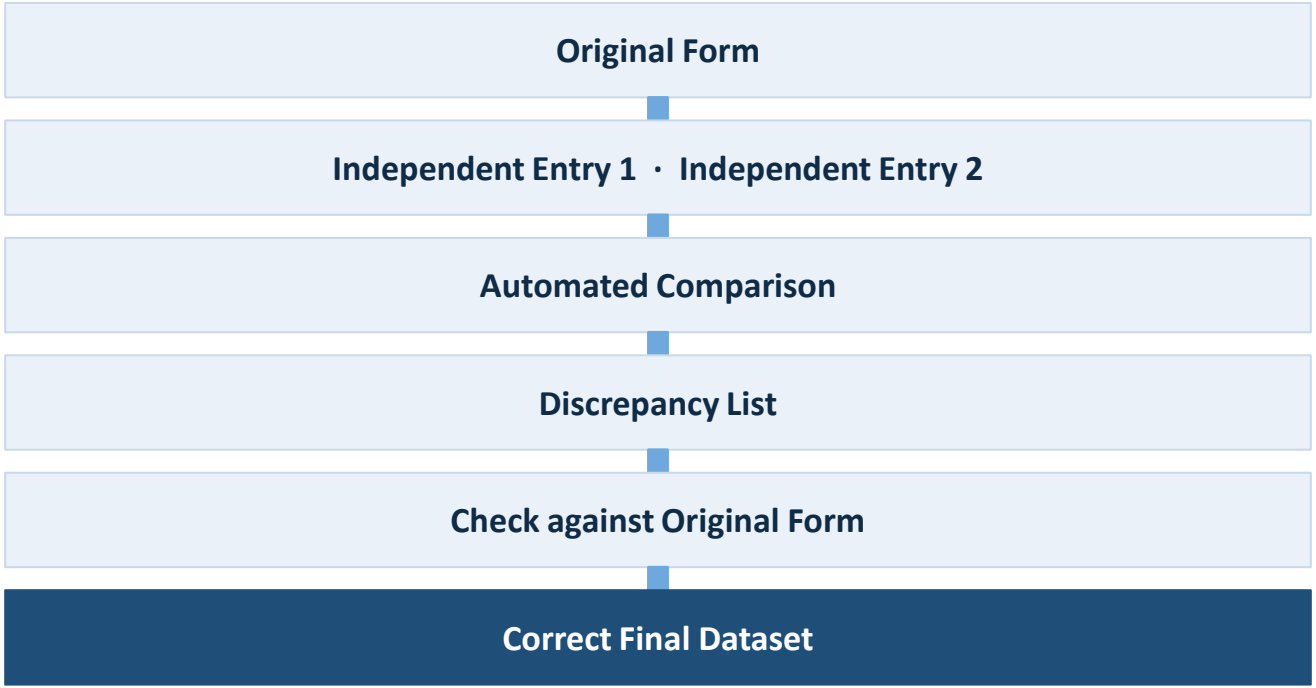
Double-Entry Checks

What Is Double Data Entry?

Double data entry requires the same source data to be entered independently twice. The two datasets are then compared to identify:

- Typing errors
- Transposed numbers
- Missing records
- Incorrect codes
- Decimal errors
- Misclassified responses

Double-Entry Workflow



When Double Entry Is Useful

Double entry is particularly useful when:

- Data are collected on paper.
- The dataset is high risk.
- Numeric accuracy is critical.
- Forms contain many coded fields.
- Errors could affect payments or eligibility.
- Automated validation is limited.

It may be unnecessary when secure electronic tools already apply strong real-time validation.

SECTION 10

Supervisory Reviews

Supervisory Data Review

Supervisory review is the routine examination of data by a responsible manager or team leader. It should occur:

- During data collection
- Before data submission
- Before aggregation
- Before report approval
- After correction of identified errors

Supervisory Review Checklist

Supervisors should verify that:

- Required fields are completed.
- Forms are signed and dated.
- Eligibility criteria are met.
- Skip patterns are followed.
- Totals are recalculated.
- Duplicates are investigated.
- Unusual values are explained.
- Corrections are documented.
- Data are submitted on time.
- Staff receive feedback.

SECTION 11

Data-Quality Audit

What Is a Data-Quality Audit?

A data-quality audit is an independent and systematic examination of:

- Data
- Source documents
- Procedures
- Internal controls
- Staff responsibilities
- Information systems
- Reporting practices

It provides formal conclusions about data quality and system effectiveness.

Data-Quality Audit Scope

An audit may examine:

- Selected indicators
- Multiple reporting periods
- Data-collection tools
- Indicator definitions
- Source-document availability
- Data-entry controls
- Aggregation procedures
- Access controls
- Correction procedures
- Management oversight

Data-Quality Audit Process

1. Plan the audit.
2. Define scope and criteria.
3. Select indicators and sites.
4. Review policies and tools.
5. Test source documents.
6. Interview staff.
7. Test system controls.
8. Analyse discrepancies.
9. Report findings.
10.

DQA Scoring

A programme may use a four-point scale.

Score	Interpretation
4	Strong — requirements consistently met
3	Acceptable — minor improvements required
2	Weak — significant improvement required
1	Critical — major control failure

The scoring scale and thresholds should be defined before the assessment begins.

SECTION 12

Common Problems and Corrective Action

Common Data-Quality Problems

- Missing source documents
- Incomplete fields
- Duplicate beneficiaries
- Incorrect indicator definitions
- Wrong reporting periods
- Calculation errors
- Disaggregation mismatches
- Unsupported corrections
- Late reports
- Manual spreadsheet overrides
- Fabricated or altered records
- Inconsistent methods across sites

Root-Cause Analysis

Do not correct only the visible error. Ask why the problem occurred. Possible root causes:

- Inadequate training
- Complex tools
- Unclear indicator definition
- Excessive workload
- Weak supervision
- Poor system access controls
- Inadequate staffing
- Delayed source documents
- Pressure to meet targets
- Lack of accountability

Corrective Action Plan

A corrective action plan should specify:

Element	Description
Finding	What problem was identified?
Root cause	Why did it occur?
Corrective action	What will be done?
Responsible person	Who will act?
Deadline	When must it be completed?
Evidence	How will completion be verified?
Status	Open, ongoing or completed
Follow-up	When will effectiveness be checked?

SECTION 13

Practical DQA Exercise

Simulated DQA — Indicator and Rules

INDICATOR

Number of unique children aged 6–17 who received one complete learning kit during Quarter 2 of 2026.

INDICATOR RULES — COUNT A CHILD ONLY WHEN:

- The child is aged 6–17.
- One complete kit was received.
- The record falls within the reporting period.
- Recipient or guardian confirmation is available.
- The child has not been counted previously.

Simulated Site Data

Site	Reported	Source Records	Duplicates	Ineligible	Missing Confirmation	Verified
Site A	420	415	5	3	7	400
Site B	380	392	2	4	6	380
Site C	300	295	0	2	3	290
Total	1,100	1,102	7	9	16	1,070

Additional Findings

- Site C submitted its report eight days late.
- Site C manually changed the spreadsheet total from 290 to 300.
- Twenty verified records lack sex disaggregation.
- Eighty-five verified records lack disability-status information.
- Site A’s summary sheet was not independently reviewed.
- Site B maintained complete correction and approval records.

Participant Tasks

1. Calculate the verification factor.
2. Calculate the discrepancy rate.
3. Assess all six data-quality dimensions.
4. Identify the principal root causes.
5. Prepare a corrective action plan.
6. Present a five-minute DQA conclusion.

Solution — Verified Result

The supported indicator result differs from the reported figure.

SUPPORTED RESULT

1,070

400 + 380 + 290 children

OVERREPORTING

30

1,100 − 1,070 children

Solution — Verification Factor and Discrepancy Rate

VERIFICATION FACTOR

97.27%

1,070 ÷ 1,100 × 100

DISCREPANCY RATE

2.73%

| 1,100 − 1,070 | ÷ 1,100 × 100

Solution — Completeness and Timeliness

SEX DISAGGREGATION

98.13%

1,050 ÷ 1,070 × 100

DISABILITY DISAGGREGATION

92.06%

985 ÷ 1,070 × 100

ON-TIME REPORTING

66.67%

2 of 3 sites reported on time

Solution — Assessment by Dimension

Dimension	Assessment	Main Finding
Validity	Weak	Duplicates, ineligible recipients and unsupported records
Reliability	Acceptable	Procedures were not applied consistently across sites
Precision	Acceptable	Some sex and disability disaggregation was missing
Integrity	Weak	Site C manually overrode the verified total
Timeliness	Weak	Only two of three sites reported on time
Completeness	Acceptable	Several required fields and approvals were missing

Solution — Sample Corrective Action Plan (1 of 2)

Finding	Corrective Action	Responsible	Deadline	Verification
Indicator overreported by 30	Revise the quarterly result to 1,070	MEAL Manager	2 days	Corrected report
Duplicate records	Introduce duplicate-detection rules	Data Manager	10 days	Validation report
Ineligible recipients counted	Retrain staff on indicator eligibility	MEAL Officer	14 days	Training record and test
Manual spreadsheet override	Lock formulas and use individual accounts	Data Manager	7 days	Access and audit-log review

Solution — Sample Corrective Action Plan (2 of 2)

Finding	Corrective Action	Responsible	Deadline	Verification
Missing disaggregation	Complete fields where evidence exists	Site Officers	7 days	Updated database
Late site reporting	Introduce reminders and escalation	Project Coordinator	Next cycle	Submission tracker
Weak supervision	Introduce monthly supervisory review	Site Supervisors	Monthly	Signed review checklist

Chapter Summary (1 of 2)

- Data quality determines whether evidence is suitable for decision-making.
- Data-quality assurance is a continuous preventive and corrective system.
- A Data Quality Assessment is a structured examination of data and systems.
- Validity concerns whether the correct result was measured.
- Reliability concerns consistency of methods and results.
- Precision concerns whether data have sufficient detail.
- Integrity concerns protection from unauthorized or deliberate alteration.
- Timeliness concerns availability of data when required.

Chapter Summary (2 of 2)

- Completeness concerns whether all required data and documentation are present.
- Source-document verification compares reported results with original evidence.
- Validation rules prevent and detect invalid values.
- Spot checks verify data and procedures at selected sites.
- Back checks independently confirm selected responses or services.
- Double entry detects data-entry differences.
- Supervisory reviews provide routine quality control.
- Data-quality audits provide independent and systematic assurance.
- Corrective action plans must address root causes, responsibilities and deadlines.

The Data-Quality Assurance Cycle

1. Define the indicator
2. Standardize tools and procedures
3. Train data collectors
4. Validate data during collection
5. Review and verify source records
6. Assess the six quality dimensions
7. Document findings
8. Correct errors and root causes
9. Monitor improvement

Key Message

High-quality data are not produced by final inspection alone. They result from clear definitions, standardized procedures, strong controls, competent supervision, documented verification and timely corrective action throughout the entire data life cycle.

QUESTIONS AND DISCUSSION

THANK YOU

Dr Abenet Yohannes, Ph.D.

MEAL — Monitoring, Evaluation, Accountability and Learning

Ethical MEAL requires accurate, transparent and responsible use of data.

Follow: Dr Abenet Yohannes, Ph.D. for more contents