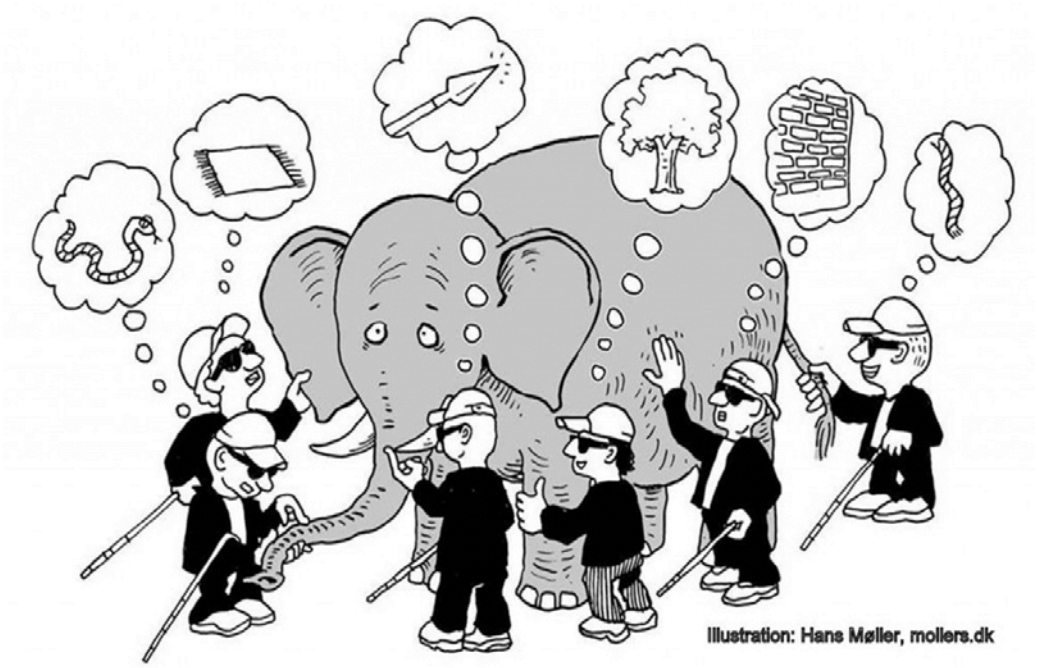
STRENGTHENING ANALYSIS AND USE OF ROUTINE FACILITY DATA FOR MATERNAL, NEWBORN, CHILD AND ADOLESCENT HEALTH

Data triangulation:
Using multiple sources of MNCAH data together

World Health Organization

Objectives of the session

- Understand the basic concepts principles and approaches of data triangulation
- Introduce steps of triangulation process
- Identify how triangulation approaches can be used for maternal, newborn, child and adolescent health (MNCAH) data analysis and making decisions
- Discuss strengths and weaknesses of data triangulation



Introduction to data triangulation

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What do we mean by data triangulation?

Synthesis of existing data from two or more sources to address relevant questions for programme planning and decision-making

- Sometimes the most valid estimate may not be provided by a single data sources but rather by triangulating findings from multiple data sources
  - Analysis of data from multiple sources can increase the validity and reliability of findings
- Reviewing and comparing multiple data sources together can corroborate findings and weakness of any one data source can be compensated for by the strengths of another
  - It is important to identify the key sources of MNCAH data and understand their strengths and limitations
    - For example, analysis of routine health facility or administrative data with data from population surveys can help an MNCAH manager to reflect on the linkage between programme interventions and outcomes/impacts
- As no single data source is perfect, using several sources of health data can help to provide a clearer picture to strengthen evidence for decision-making

Using data triangulation for MNCAH programmes

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- Assesses performance of MNCAH services to identify areas for programme improvement
- Evaluates the impact of MNCAH interventions
- Encourages data sharing and multidisciplinary analysis
- Aids deeper understanding of data through synthesis with contextual information and consideration of data limitations
- Identifies areas for MNCAH programme improvement, including data quality, that might not be apparent from use of individual data sources
- Improves confidence in conclusions and quality of recommendations for planning and policy/strategy decision-making
- Strengthens health system by building capacity for critical thinking, data analysis and use within an increasingly data-rich environment

Some examples:

→ Check consistency of data across different sources

→ Use surveys and RHIS data to identify MNCAH data quality problems or unreached target populations

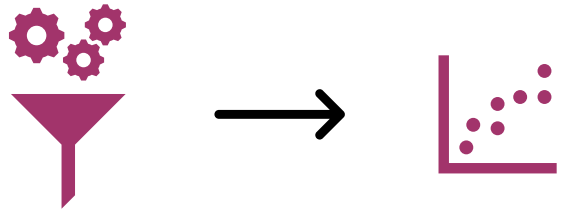
→ Evaluate impact of extreme weather event or health emergency on delivery of MNCAH services

Discussion

In reviewing trends in childhood illnesses treated in health facilities, a manager notes that fewer children are being treated for diarrhoea in facilities in the second half of the year than in the first half.

How could triangulation help to investigate the trend?

Two ways to triangulate data

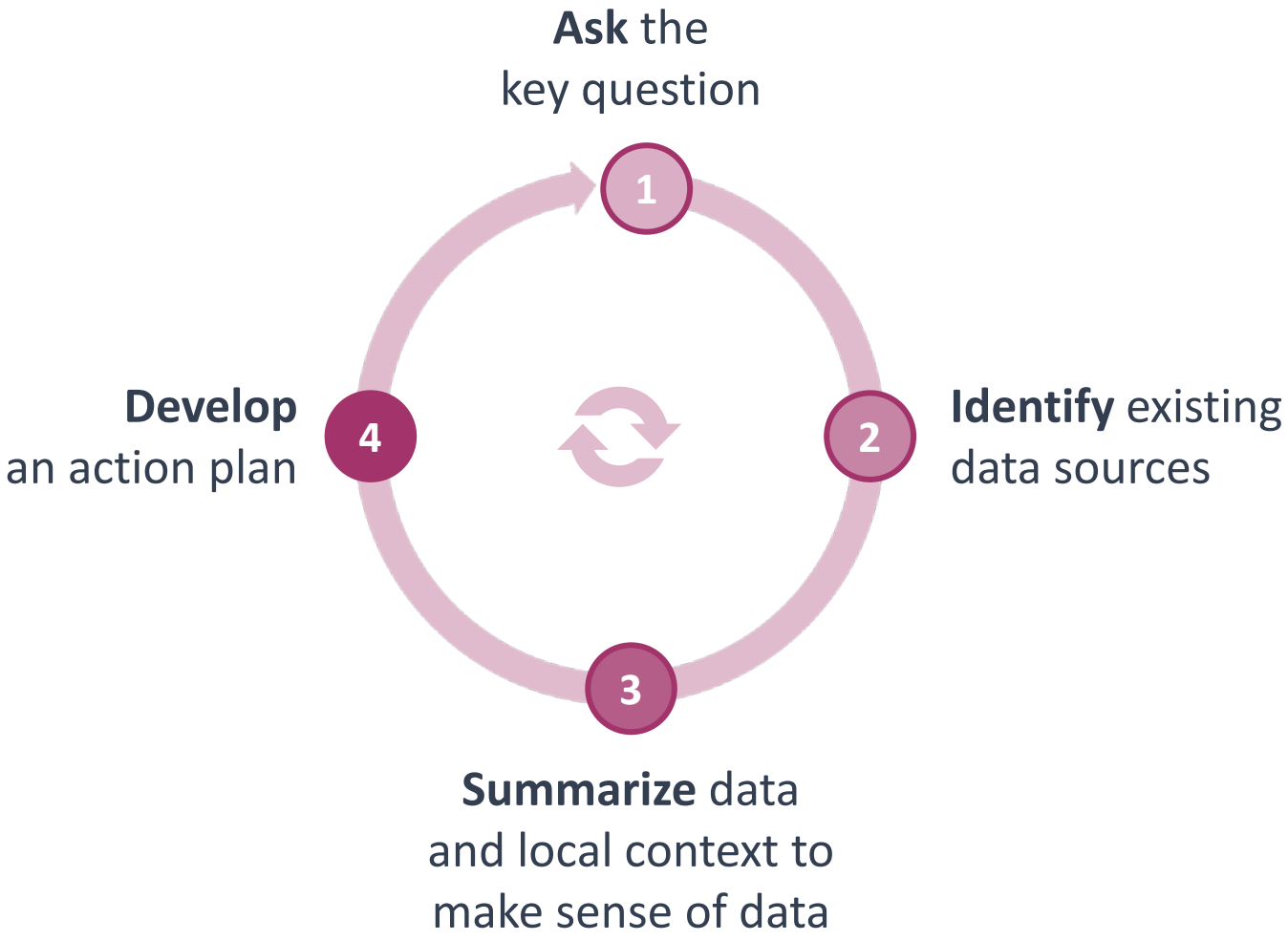


1) Combine data in one analysis (e.g., graph) from start

2) Separate analyses and combine through interpretation at end

Either way: Critical thinking required to turn data into information for action

Triangulation in four steps



STEP 1: Ask they key question

Start by identifying key programme problem and related questions

- Have I defined the scope of the analysis?

Questions must be answerable and actionable

- How do I hope to use data to answer the question?

Action may inform local programme planning or may require policy or legislation to be change

Engage variety of relevant of stakeholders from beginning

- Review examples, brainstorm, facilitate group discussion

What is my initial theory of **why** a problem exists?

Hypothesis — explanation made based on limited evidence as a starting point for investigation

Criteria for identifying a data triangulation question

Criteria	Description
Important	• Important and timely based on national or subnational priorities?
Answerable	• Data available to address question? • Adequate time elapsed for process to lead to measurable outcome?
Actionable	• Answer leads to initiation of public health action? • Issues identified able to be changed through interventions?
Appropriate	• Best addressed by triangulation vs. research or single data set?
Feasible	• Sufficient time and resources to finish task?

(Adapted from Rutherford et al. 2010)

Examples of MNCAH programme issues that could be better understood using data triangulation analyses

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Identified MNCAH programme issue	Key questions
Inaccurate target population estimates	Do the target population estimates for the MNCAH programme align with known demographic trends?
Assess MNCAH programme performance	Why do specific subnational areas or facilities areas have low delivery of MNCAH interventions? Which subnational areas or facilities consistently have data quality issues?
Assess impact of COVID-19 on MNCAH services	What factors can explain the extent of MNCAH service disruptions due to the COVID-19 pandemic?

STEP 2: Identify existing data sources

Identify all relevant data sources, including those not in routine use

- Talk with staff /partners within and outside MNCAH programme

Access and effort required to compile data in usable format

Invaluable – creating list of all data sources and well-organized archive

- Aid more regular use in the future

Consider strengths & limitations of each source

Which data sources to include in triangulation?

- Diverse types and sources of data
  - Gain more complete understanding of programme issue
- Independent in terms of collection method
  - More helpful for assessing and addressing limitations of individual data sources
  - e.g., RHIS & surveys, health facility assessments, etc.
- Useful for describing trends in process and outcome indicators
- Match in terms of geography and/or time period
  - Where feasible, the data sources should overlap in terms of when and where the data were collected

STEP 3: Summarize data and local context

Assess data quality: completeness, internal consistency*

Evaluate trends across data sources (place/time)

Incorporate contextual information and local knowledge *(e.g. in case of COVID-19 disruptions: public health and safety measures, restrictions on domestic movement and transportation, attitudes and behavior of the population)*

Brainstorm multiple hypotheses to explain findings

Be honest about data limitations, e.g., missing data, errors

*Source: World Health Organization.
Handbook on the use, collection and improvement of immunization data (*DRAFT* 2020).

STEP 4: Develop an action plan

Simple key messages tailored to your target

Tell a story with your data

- Visual information processed faster than words
- Logical flow, supported with explanatory details
- Case studies, if relevant

Recommend actions based on triangulation results

Making an action plan

Action may be at your administrative level, or other levels

Obtain input from people tasked with implementing plan

Think creatively about solutions if resources are limited

Prioritize based on what is feasible in short and long-term

Data triangulation: principles and tips

Driven by important programme objectives or questions

- Focus the analysis on the key questions identified

Use existing data from diverse sources (e.g. routine health information system data, population surveys, health facility assessments, etc.)

- Explore patterns and associations through descriptive and visual (i.e. charts, graphs) methods
- Understand different data sources for MNCAH and their strengths and limitations

Analysis should consider local context and multiple factors in interpretation

- Be open-minded and consider alternative explanations
- Engage a multidisciplinary team, if possible

Triangulation is an iterative process

- Findings may result in further investigation
- Results should be used to improve decision-making

Exercise

- Complete exercises under **Data triangulation** in *Companion exercises to strengthen analysis and use of health facility data for MNCAH*.

- Review responses in plenary.