

Building Nutrition Data Literacy Intervention Coverage



Project Note

DataDENT (Data for Decisions in Nutrition, www.datadent.org) aims to transform the availability and use of nutrition data by addressing gaps in nutrition measurement and advocating for stronger nutrition data systems.

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Acronyms

- ANC: Antenatal care
- DHIS-2: District Health Information Software 2
- DHS: Demographic and Health Survey
- DVC: Data value chain
- EMR: Electronic medical records
- HH: Household
- IFA: Iron and folic acid
- HMIS: Health Management Information System
- IYCF: Infant and young child feeding
- MICS: Multiple Indicator Cluster Survey
- MMS: Multiple micronutrient supplements
- PNC: Postnatal care
- RUTF: Ready-to-use therapeutic foods
- Y: year

Introduction

Data literacy refers to the knowledge, skills, and mindset required to understand, interpret, and extract meaningful insights from data. Building data literacy is a continuous process that goes beyond learning how to do data analysis or interpret a figure. It includes building skills for critical thinking, problem solving and storytelling. Data literacy cuts across each stage of the nutrition data value chain (DVC)¹ (**Figure 1**).

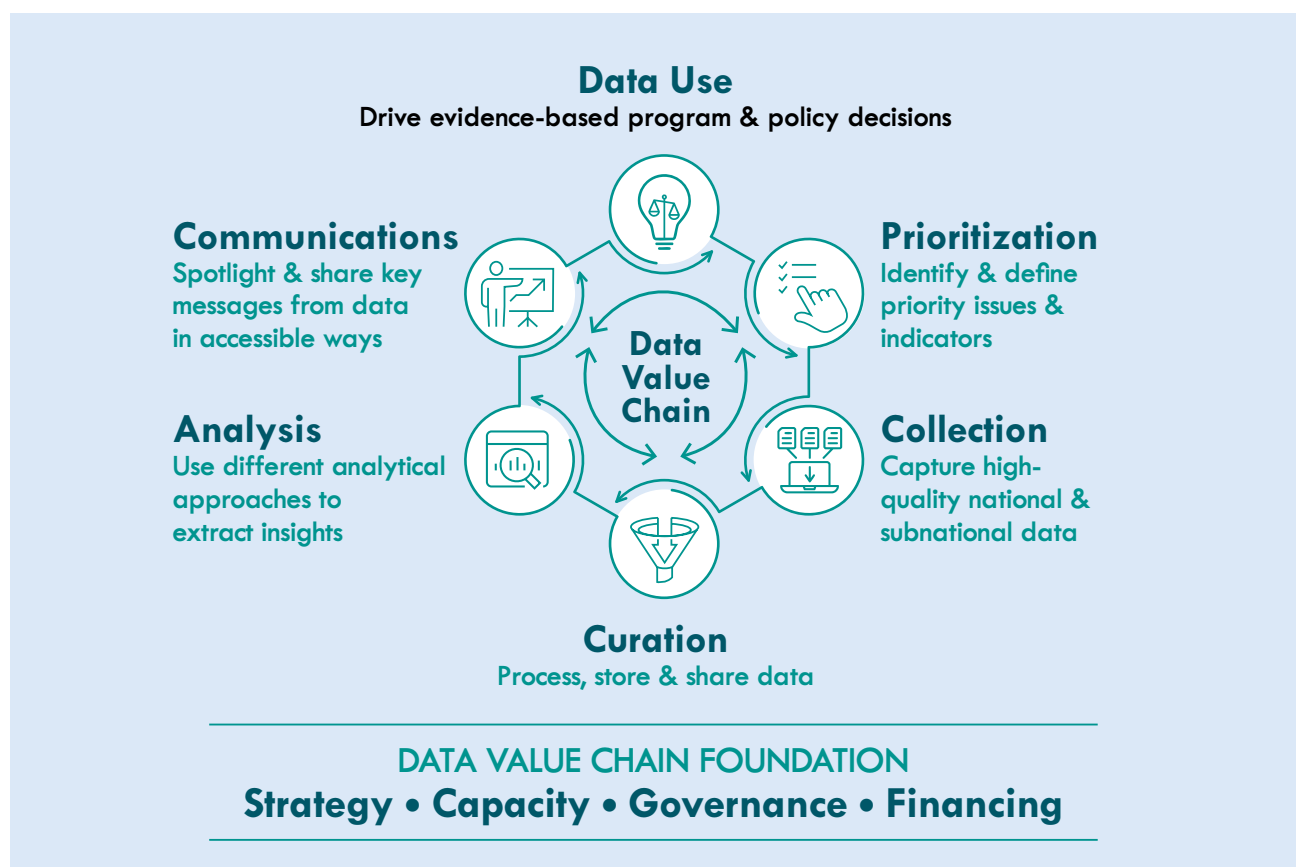
This technical note addresses data literacy specific to nutrition intervention coverage data. Coverage data can answer an essential question: *are nutrition interventions reaching the individuals, households, and communities who should receive them?* Coverage data can be used to identify gaps in service delivery, to inform strategies to improve program reach, equity, and impact, and to track progress toward national and global nutrition targets.

To effectively use nutrition intervention coverage data, the quality and limitations of the data must be critically assessed. Actors at all levels—from frontline workers to national policymakers—benefit from understanding how coverage indicators are defined and collected and how to extract actionable insights from the data.

This technical note describes what coverage means in the context of nutrition services and the characteristics of good coverage indicators, including well-defined numerators and denominators. It explores the main data sources and methods used to generate intervention coverage data and addresses some of the technical and practical challenges of measuring and interpreting nutrition intervention coverage data.

This technical note is structured using the nutrition DVC because the basics of intervention coverage map against key components: prioritization, collection, curation, analysis, communications and data use (**Figure 1**). For example, the importance of prioritizing the construction of a good coverage indicator; collecting and curating data from reliable sources; and understanding analytical opportunities and complexities. Capacity strengthening is part of the DVC foundation.

Figure 1: Nutrition Data Value Chain



Defining intervention coverage

In the context of nutrition, intervention coverage refers to the proportion of individuals, households, or communities eligible for a specific nutrition service or intervention who receive the service or intervention. Coverage should always be expressed as a percentage or a fraction (**Figure 2**).

Figure 2: Basic formula for intervention coverage

$$\text{INTERVENTION COVERAGE \%} = \frac{\text{NUMERATOR}}{\text{DENOMINATOR}}$$

NUMERATOR
received the service or intervention

DENOMINATOR
should have received the service or intervention (# eligible)

A simple example is to consider a community where the policy is to give all children under 5 a high-dose vitamin A supplement every 6 months. All 100 children under 5 in the community are eligible for vitamin A supplementation, but only 60 received it in the previous 6 months. The coverage of single-dose vitamin A supplementation in this community is 60% or expressed as a fraction 3/5. (**Figure 3**).

Figure 3: Simple example: coverage of single-dose Vitamin A for children 6-59 months



Governments and donors invest in delivering interventions to achieve impacts on nutrition outcomes such as stunting or wasting. An intervention cannot achieve population-level impact without adequate coverage across the population. Changes in intervention coverage can be measured and interpreted at shorter intervals and lower cost than changes to nutrition outcomes. Intervention coverage, when disaggregated, can be an indicator of equity because it reflects both who is reached and who is not reached by nutrition interventions. Measuring intervention coverage provides accountability for whether resources are being appropriately allocated.

What coverage data **CAN** say about nutrition programs

- **Identify service gaps.** Coverage data can identify where nutrition interventions are not reaching the intended population.
- **Track trends over time.** Monitoring changes in coverage rates across months and years can help programs assess whether interventions are expanding their reach.
- **Support resource allocation.** High-quality coverage data can guide decision-makers in allocating resources to locations or groups with low coverage and to provide resources to sustain coverage in priority locations or groups with higher coverage.
- **Monitor progress toward targets.** Coverage data allow programs to measure progress towards national and global goals such as increasing exclusive breastfeeding rates or reducing micronutrient deficiencies.
- **Guide program adjustments.** When coverage data are disaggregated by age, sex, wealth, or location, they help identify which sub-groups are not being adequately reached.

What coverage data **CANNOT** say about nutrition program

- **Assess quality of services.** Coverage data typically indicate whether an intervention reached the target population, but not whether it was delivered with sufficient quality or effectiveness.
- **Measure health outcomes.** While coverage is a key input, it does not directly show whether nutrition interventions led to better health outcomes.
- **Capture barriers to or facilitators of access.** Coverage data alone may not identify why certain groups are not reached with services without complementary qualitative or implementation data.

Prioritization: How should an intervention coverage indicator be defined?

A coverage indicator should be carefully constructed to ensure it reflects the context where it will be used. Five features of a good intervention coverage indicator include:

1. The indicator generates actionable information.

Data collection and reporting are resource intensive. It's important to prioritize the minimum set of indicators that will meet essential information needs rather than monitoring every possible intervention. Indicators should capture "in demand" data that reflects policy makers and program implementer priorities. To be actionable, the indicator must identify coverage gaps which can inform program improvements and guide resource allocation.

Approaches to indicator prioritization will depend on the context and use case. For example, one approach is to identify 1-2 sentinel nutrition interventions per delivery platform. A sentinel intervention is a key intervention chosen to stand in for a broader group of related interventions because it helps show whether that delivery platform is working well. For example, if vitamin A, deworming and nutrition counseling are all delivered through outreach campaigns, then it may make sense to prioritize collecting data on one commodity-based intervention (Vitamin A or deworming) and the counseling intervention. However, if there are concerns about stock-outs and campaign-based counseling is less important, it may make sense to prioritize Vitamin A and deworming instead of counseling.

2. The intervention is well-defined

The essential intervention components should be clearly defined in the numerator (**Figure 2**) and clearly understood in the context that the indicator will be used. Intervention components may include types of services, target populations, delivery methods, and frequency/duration.

Which intervention components are essential for the indicator depends on the use case. In many cases, coverage indicators are collected and reported using more general and inclusive intervention definitions to facilitate comparisons across time and contexts. However, there are situations such as a program evaluation where more context-specific definitions may be preferred.

For example, daily iron and folic acid (IFA) tablets during pregnancy can be obtained from the antenatal care (ANC) provider or purchased in the market. Coverage with IFA could be defined broadly as “received any IFA regardless of source” or could be defined more specifically as “consumed X tablets of IFA obtained from a public sector ANC provider in the last 30 days.”

With some interventions such as infant and young child feeding (IYCF) counseling, it can be challenging to define the essential components of the intervention. The content, format, and frequency of counseling can vary widely, and it can be technically difficult to distinguish between “counseling” and “education”. In such cases, it may be possible to identify a core element of the service or its delivery, even if it does not fully measure every ideal element. For instance, a prenatal breastfeeding counseling coverage indicator used in a national survey may need to be defined as whether a healthcare worker talked to a woman about breastfeeding during her pregnancy. This does not reflect important elements of the intervention such as which, where, how, and how often specific messages were delivered. However it still provides an overall indication of the reach of breastfeeding counseling during pregnancy.

3. The indicator has a valid denominator

Intervention coverage is always expressed as a percentage or a fraction. The denominator should include all individuals in the population who are eligible to receive the service or intervention, not just those who are already in contact with the health system or who were reached by a campaign (**Figure 4**). All individuals counted in the numerator should be reflected in the denominator. In other words, the numerator should be a sub-set of the denominator.

Eligibility can be defined by policy/protocol or biological need. For example, all children under 5 are eligible for Vitamin A supplements and all pregnant women are eligible for iron-containing supplements rather than only those with micronutrient deficiencies. For other interventions, such as wasting treatment, eligibility is more clearly connected to biological need. Only children who have been screened and diagnosed as wasted are eligible for treatment with ready-to-use therapeutic foods (RUTF).

4. The time frame is clear

The numerator and denominator should both reference and adhere to a specific time frame, such as “in the last 24 hours”, “in the last three months”, or “in the past year” (**Figure 4**). The timeframe should reflect both how the intervention is being delivered, and when and how the data are being collected and reported. Avoid ambiguous time frames such as “currently” which are subject to interpretation.

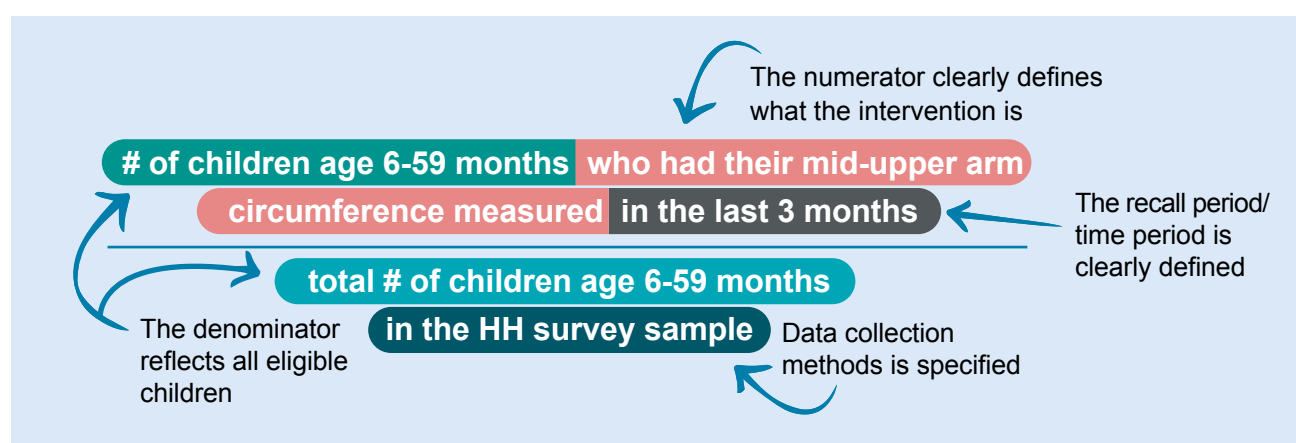
For example, school feeding interventions are delivered during the “academic year”, which is generally a 9–10-month period that does not necessarily line up with a “calendar year”. If a household survey is conducted during a period when school is not in session, it would not be appropriate to ask about “yesterday” or “in the last month”. Also, respondents may not understand the concept of an “academic year”. A recall period of “in the last 12 months” is a more inclusive option that could be compared across contexts.

5. The data collection method is specified and appropriate

No data collection method is perfect, but some are more appropriate for measurement of coverage. It is important to consider how the data will be collected at the time that the indicator is being defined. Population-based sample surveys are a preferred source of nutrition intervention coverage data but in some cases, it is necessary to use administrative data. For example, for coverage of treatment for acute malnutrition; or coverage of nutrition interventions in specific sub-populations (e.g. refugee camps, migrants).

To ensure the collected indicator is valid, accurate and reliable the indicator definition may need to be modified and/or a different data source be used. For example, vitamin A intervention coverage is often defined as either one dose in the last six months or two doses in the last 12 months. The former definition is more feasible for respondent recall in a household survey while the latter definition could be used if medical records such as a vaccine card are consistently available.

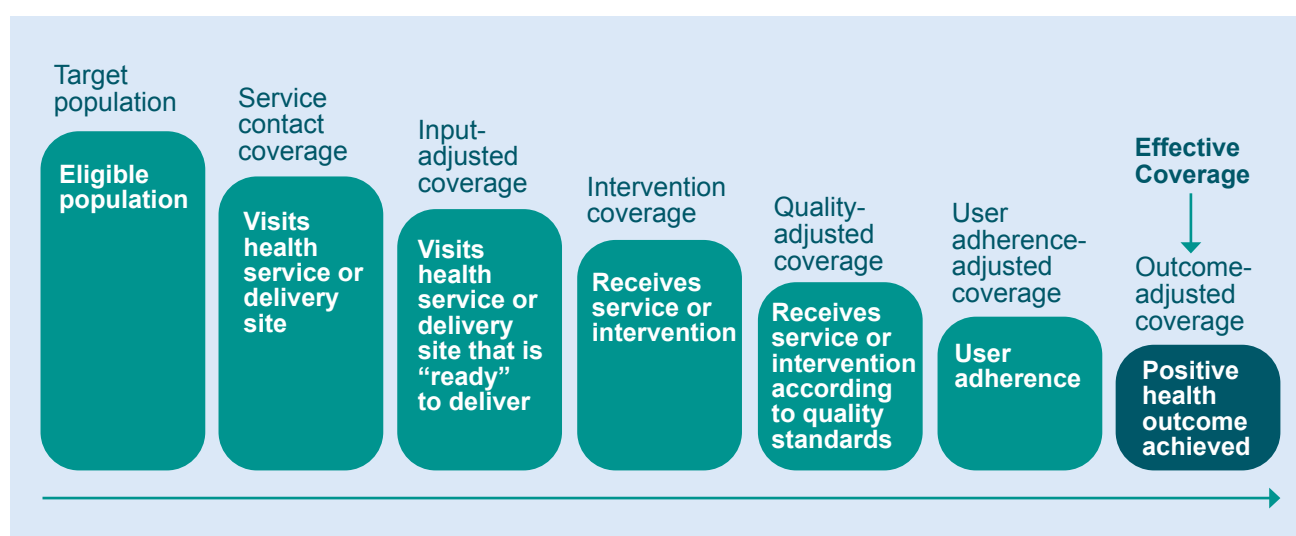
Figure 4: Indicator for coverage of screening for acute malnutrition: does it meet criteria?



Effective coverage & the coverage cascade

Effective coverage is a specific type of intervention coverage measure; people tend to define it in slightly different ways. According to experts convened by WHO-UNICEF, effective coverage is "the proportion of a population in need of a service that resulted in a positive health outcome from that service."² Effective coverage represents the final stage of the coverage cascade where it is referred to as "outcome-adjusted coverage"

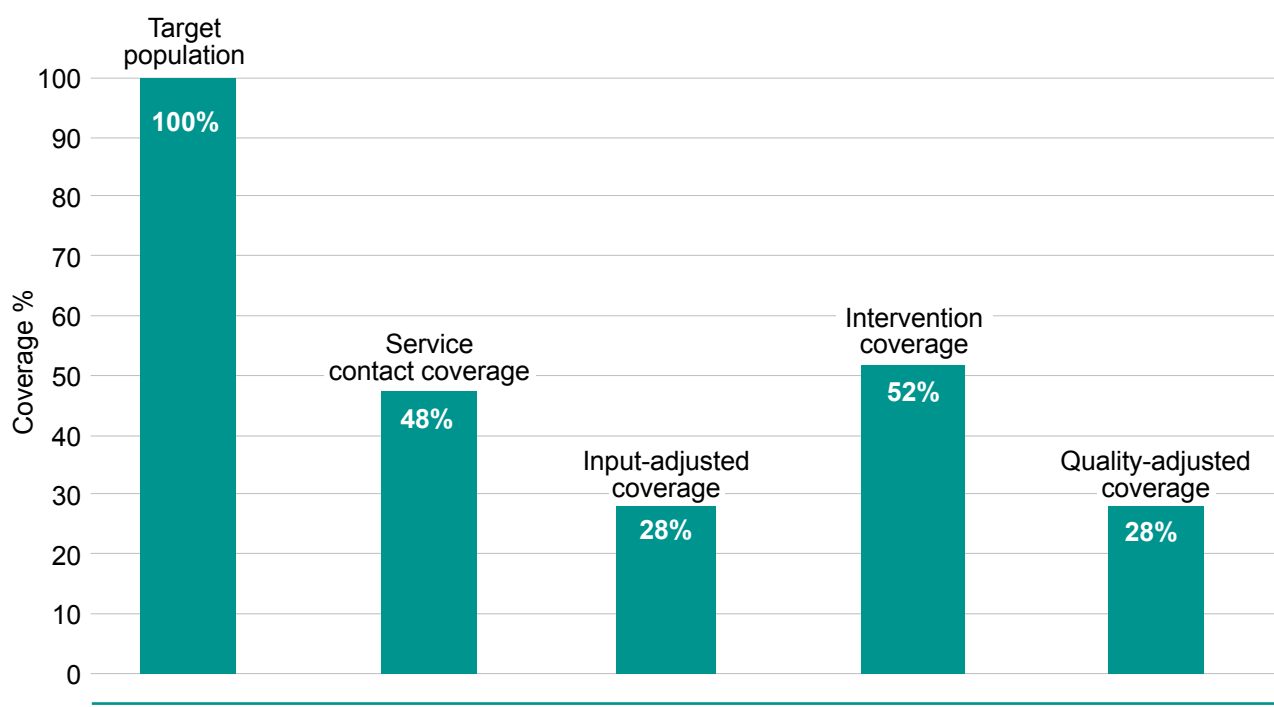
Figure 5: Theoretical Stages in the coverage cascade^{2,3}



The coverage cascade shows service or intervention delivery as sequential tiers—such as contact with care, quality of care provided, and user adherence—with corresponding coverage indicators. By measuring each step of the cascade, it is possible to identify where implementation gaps occur and possibly why nutrition outcomes—such as reductions in stunting or anemia—are not achieved in the population. The coverage cascade can be a powerful visualization tool that shows the progressive drop-off in coverage at each step of service delivery (**Figure 5**).

The full coverage cascade requires data on receipt of the intervention by the individual (e.g. contact, adherence), health outcomes in the individual (e.g. anthropometry, micronutrient status) and quality of care from the provider (e.g. readiness, provision and experience of care). Ideally these are collected at the same time, but there are tested methods for linking data from national household and facility surveys that are not collected concurrently.⁴ For example, the coverage cascade for maternal nutrition interventions provided through ANC in **Figure 6** uses data from the Tanzania DHS 2015-2016 and the Tanzania Service Provision Assessment (SPA) 2014-2015.

Figure 6: Coverage cascade for maternal nutrition interventions in Tanzania using national survey data (TDHS 2015-2016; SPA 2014-2015)⁴



- **Target population:** Women *[15-49y with a live birth in the last 2y]
- **Service contact coverage:** % women* who had at least 4 ANC contact in most recent pregnancy
- **Input-adjusted coverage:** % women* who received ANC from a nutrition “ready” facility, defined by presence of select basic amenities, diagnostics, equipment & supplies, human resources, medications and supplies available in the SPA inventory module
- **Intervention coverage:** % women* who reported receiving key interventions during the most recent pregnancy: IPTp, IFA 90+ days, blood sample, deworming
- **Quality-adjusted coverage:** % women* who received maternal nutrition services according to standard protocols (SPA ANC observation checklist and client satisfaction data)
- **User adherence-adjusted coverage:** Not available
- **Outcome-adjusted coverage:** Not available

Collection & curation: Accessing coverage data from reliable sources

Intervention coverage data are typically drawn from two main data sources: population-based household surveys and routine administrative information systems. Each source has its own strengths and limitations.

Household Surveys that randomly sampled a representative population are the gold standard for measuring coverage. Most coverage indicators in household surveys are measured using respondent recall, but for some interventions more direct methods are used (e.g. rapid test for iodized salt).

A key strength of population-based household surveys (such as the Demographic and Health Survey (DHS) and Multiple Indicator Cluster Survey (MICS)) is that they capture data from the entire population—both users and non-users of health facilities and community programs. They also allow for disaggregated equity analysis by socio-economic variables (e.g. wealthy quintile) or location (e.g. rural/urban, by state). However, national and subnational surveys can be expensive; are often conducted infrequently; and sample sizes are small at lowest administrative levels. They are subject to respondent recall errors, especially for services received months or years in the past (**Box 1**).

Routine administrative information systems such as Health Management Information System (HMIS) / District Health Information Software 2 (DHIS-2) are used by health facilities and community programs to collect and report data on delivery of services or interventions. Monthly or quarterly counts of people served or the quantity of supplies delivered are not measures of coverage (e.g. the number of children screened for acute malnutrition; the number of children receiving vitamin A supplementation). Coverage requires a denominator and routine administrative data often miss people who are eligible for an intervention but do not access care. They also may miss individuals who receive services from facilities that do not report administrative data, such as private sector facilities or pharmacies. However, for interventions or services that are nearly entirely delivered by health facilities reporting administrative data, it is possible to estimate coverage using approximate denominators. For example, census-based population projections are often used as denominators, although they may be inaccurate, especially at lower administrative levels⁵. In settings where ANC is quasi-universal, one approach that has been tried is to use the count of first ANC visits as a denominator for antenatal and delivery interventions, as it will proxy the number of expected births⁶. The same approach is used for child interventions with the first dose of pentavalent vaccine as approximate denominator.

An advantage of administrative systems is that they provide granular information for lower administrative levels. Some use electronic medical records (EMR) and can collect longitudinal data on individuals; these systems may more accurately identify the number of children who, for example, received 2 doses of vitamin A in the last 12 months than a recall-based survey. However, data quality issues are also common with administrative data. To improve accuracy and reliability, data quality checks and adjustments—such as correcting for incomplete reporting or outliers—may be needed before using these data for coverage estimates.

Box 1: Challenges in measuring coverage

The concept of coverage is straightforward but collecting intervention coverage data can present significant technical and practical challenges. However, **data does not need to be perfect to be useful**. Effective use of data requires recognizing its potential limitations including poor quality data.

For any data source data gaps can occur especially in rural and disaster- or conflict-affected areas, where administrative data systems are less robust and populations may be excluded from survey data collection. There are also some source-specific challenges that need to be considered.

Surveys

Respondent recall. Most surveys rely on respondents to report whether they or others in their household received an intervention. There are many reasons why a respondent may not provide an accurate answer. They might not understand the question or response options. They might not correctly remember when or how the intervention was received. They might give a socially desirable answer. As an example, a validation study in Nepal showed that at six months post-partum, women could not accurately recall the total number of IFA supplements they received across their last pregnancy.^{7,8} A follow-up study suggested that they did not comprehend the question and that the recall period was too long.⁹

The validity of respondent recall can vary by intervention and by indicator. For example, women may be able to report whether they received information about a topic like breastfeeding generally, but not about specific messages received or the quality of interaction with the counselor.¹⁰

Ideally, survey questions are developed using formative research and cognitive testing and then validated against a gold standard. For example, formative research and cognitive testing in Ethiopia and Bangladesh suggested women responding to survey questions may not differentiate between IFA and MMS; they refer to both as “iron”.¹¹ If a survey is conducted in a context without clear MMS branding and promotion, it may not be feasible to specifically measure MMS specific coverage using respondent recall.

Sample size and survey timing. In national surveys there may be small samples of eligible individuals for certain interventions (e.g. treatment for recent illness, breastfeeding promotion for 0-5m olds) which can limit the precision and usefulness of coverage estimates. It may not be possible to present data disaggregated to lower administrative units. When the denominator sample size is relatively small, confidence intervals are wider. It can be difficult to statistically detect meaningful differences in coverage across groups or over time. Also, a cross-sectional survey cannot accurately identify the eligible population for most interventions that require screening before treatment. For example, estimating coverage of RUTF treatment for wasting in the previous 6 months would require identifying all children in the population who were wasted six months prior to the survey and whether they got screening or treatment. This is not feasible; respondents cannot recall this accurately.

Training and supervision of data collectors. In some cases, survey enumerators may truncate questionnaires or falsify data. Adequate training and ongoing supervision are essential for preventing such issues. There are methods and tools to identify enumerator errors during the cleaning and analysis phase,¹² but it may not be possible to correct.

Box 1: Challenges in measuring coverage continued

Administrative data

Data quality. Common issues with administrative data quality directly influence the accuracy, reliability and usefulness of coverage indicators estimated from these data. Facility and community records can have incomplete and missing data, inconsistent reporting, and delays or errors in data entry.

Numerators can be inflated by poor record-keeping or double counting in aggregated reports. They can also be inflated when individuals go to more than one location within a health system to receive the same services and/or when individuals receive services from facilities that are not reporting administrative data (e.g. private sector facilities). Denominators (i.e. eligible population) for administrative data can be inaccurate, particularly if census or other catchment area estimates are outdated or do not reflect recent changes in birth, migration, death rates, and/or marginalized groups, where data systems may be weaker and populations more mobile or harder to reach.

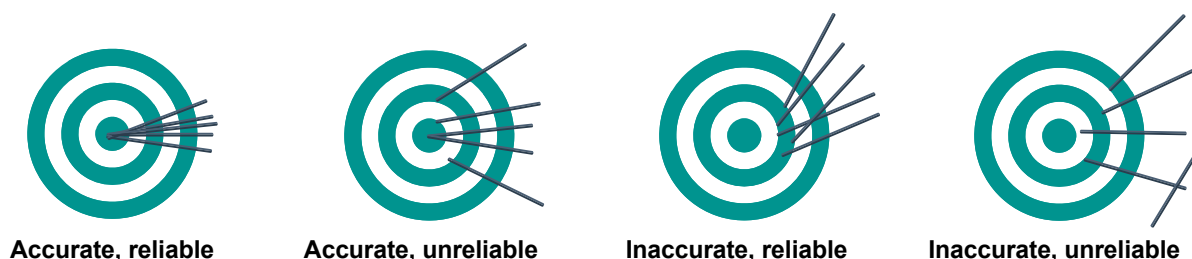
Data quality is supported by user-friendly design of tools and adequate training and supervision of people involved in collecting and reporting data. Other effective data quality assurance activities include regular data audits and cross-checks between administrative and survey data. Tools are available to support data quality assessment.¹³ Instead of auditing every indicator, it is useful to identify “tracer indicators,” high-priority metrics that can be used to understand the quality of all interventions within a service area like ANC.

Why do we need research about measurement?

Three characteristics of measurement relate to how a coverage indicator is defined and how it is collected.

- **Validity (*truthfulness*):** Indicator definition and data collection tool capture what is intended to be measured.
- **Accuracy (*correctness*):** Measurement of the coverage indicator results in the true value.
- **Reliability (*consistency*):** Repeated measurement on same individual results in consistent value

Figure 7: Illustrating the concepts of accuracy vs. reliability in the context of measurement



It is not possible to know whether a measurement is valid, accurate, and reliable without systematic inquiry (research). There are complementary methods for assessing validity that range from expert review to statistical approaches. As mentioned above, survey questions are ideally developed using formative research and cognitive testing to improve validity and then accuracy is assessed against a gold standard.¹⁴ Reliability can be examined using “test-retest” and other approaches. Similarly, administrative data tools including

registers, forms and training materials should be developed using user-centered approaches. The usability of tools by service providers and information officers and the accuracy and reliability of the data they produce should be evaluated before tools are finalized and scaled.¹⁵

In practice, many intervention coverage indicators and data collection tools have not been designed and tested using rigorous research-based approaches. Timelines and budgets are constrained. People may not be aware of the need. Regardless, it is worth looking into whether and how an indicator and/or data collection tool were developed and validated.

Box 2: Unpacking an indicator: example using breastfeeding counseling coverage

Definition

The proportion of women with a live birth in the past two years who report receiving counseling on exclusive breastfeeding during at least one ANC visit.

Rationale

Breastfeeding counseling is a well-established nutrition intervention with benefits for both mother and child. Tracking its coverage helps programs understand whether women are being reached with key information and support at critical points of contact, especially ANC and postnatal care (PNC) visits.

Primary data sources

Household surveys (e.g. DHS, MICS) provide population-level estimates from women's recall. However, they depend on respondents accurately recognizing that counseling took place and recalling its content or timing, which can be challenging. Questions may be misunderstood, and responses can be influenced by social-desirability bias. As a result, survey data may under- or over-estimate coverage and generally do not capture details on what was discussed.

Routine administrative data (e.g. HMIS, DHIS2, nutrition information systems) generate more frequent and geographically detailed reporting, allowing for trend and performance monitoring. However, these systems typically record whether counseling was reported as delivered, not if it occurred or was meaningful to the client. Documentation practices and definitions can differ across facilities, affecting consistency and completeness. In some settings, counseling is recorded as part of a bundled ANC or PNC service, making it difficult to assess breastfeeding counseling specifically.

Strengths and limitations

Each data source provides part of the picture. Household surveys capture reach from the woman's perspective and allow for equity analyses but are less granular and infrequent. Routine data are available at lower levels and more frequently but may overestimate true coverage or miss issues of quality and client understanding. In both cases, the indicator says little about the quality, specificity, or actionability of counseling provided.

Figure 8: Calculating breastfeeding counseling coverage

of women with a live birth in the past 2 years who received counseling on exclusive breastfeeding during at least one ANC visit

Total # of women with a live birth in the past two years



Box 2: Unpacking an indicator: example using breastfeeding counseling coverage, continued**Triangulation and interpretation**

When carefully triangulated, these data sources can complement one another. Surveys help validate coverage from the user's perspective, while routine administrative data reveal trends over shorter time intervals and geographic disparities. Aligning indicator definitions and denominators (e.g. women with a live birth in the last two years) is essential for meaningful comparison. If available, an additional source of data such as exit interviews in a facility survey can provide more information to help understand the quality of services. Triangulation can help identify discrepancies, trace their causes and highlight areas for program improvement. Interpreting differences between sources can also highlight important findings, including over-reporting in registers, inconsistent recording practices, and/or gaps in women's recall.

Improving measurement

Strengthening breastfeeding counseling coverage measurement involves improving both the quantity and quality of data. Key steps include refining survey questions to better capture women's experiences, standardizing how counseling is defined and recorded across health systems, and improving indicators to reflect counseling content and quality. Collectively, these efforts can help programs move from simply counting contacts to understanding how effectively counseling is being delivered and where additional support is needed.

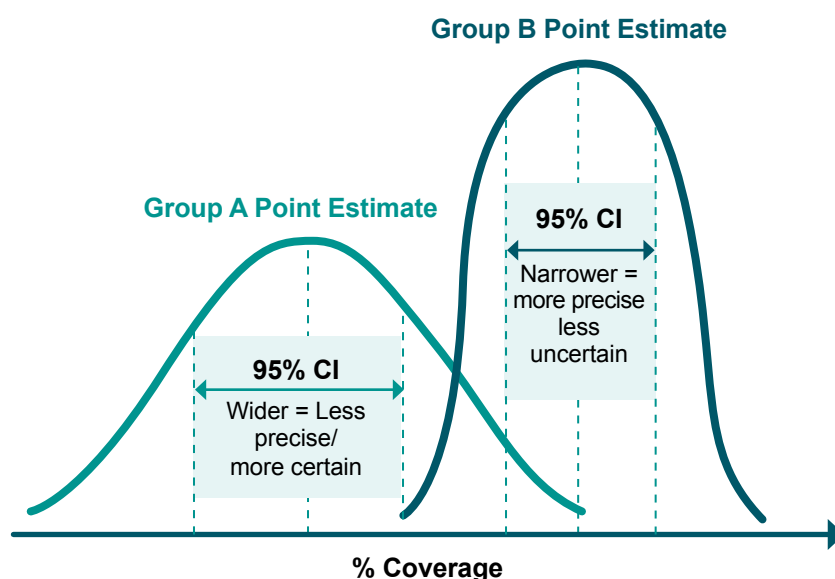
Analysis: Opportunities & complexities

Analysis basics

Indicator definition. When combining data from multiple rounds of data collection or multiple data sources it is important to verify that the indicator definition is consistent across time and sources; do not assume that a matching indicator name or label indicates a consistent definition. Reports from surveys or administrative systems may not provide the complete indicator definitions; if possible, review the original data collection tool to confirm what was collected. For survey data, it may be possible to reanalyse the dataset to harmonize definition across time or data sources.

Data quality and uncertainty. It's also important to assess data quality and other measurement issues specific to each source or indicator. (see Box 1) When coverage is estimated from a representative sample (e.g. survey) the estimate includes two parts: the point estimate, a single value, and the estimate of uncertainty, often expressed as a range, called a confidence interval. A narrow confidence interval means a point estimate is precise and has low uncertainty, while a wide confidence interval means the estimate is imprecise and has high uncertainty. If the confidence intervals around two estimates do not overlap, then it is possible to conclude there is a statistically significant difference between the two point estimates; if the confidence intervals do overlap then additional statistical testing is needed to draw a conclusion.

Figure 9: Theoretical distributions around two intervention coverage points estimates



Data triangulation involves comparing findings from discrete sources to see if and how they align (e.g. qualitative and quantitative, survey and administrative). Even with persistent challenges such as missing data, population movement, and small sample sizes that limit disaggregation, thoughtful triangulation of available data can improve the inferences drawn from the available data.

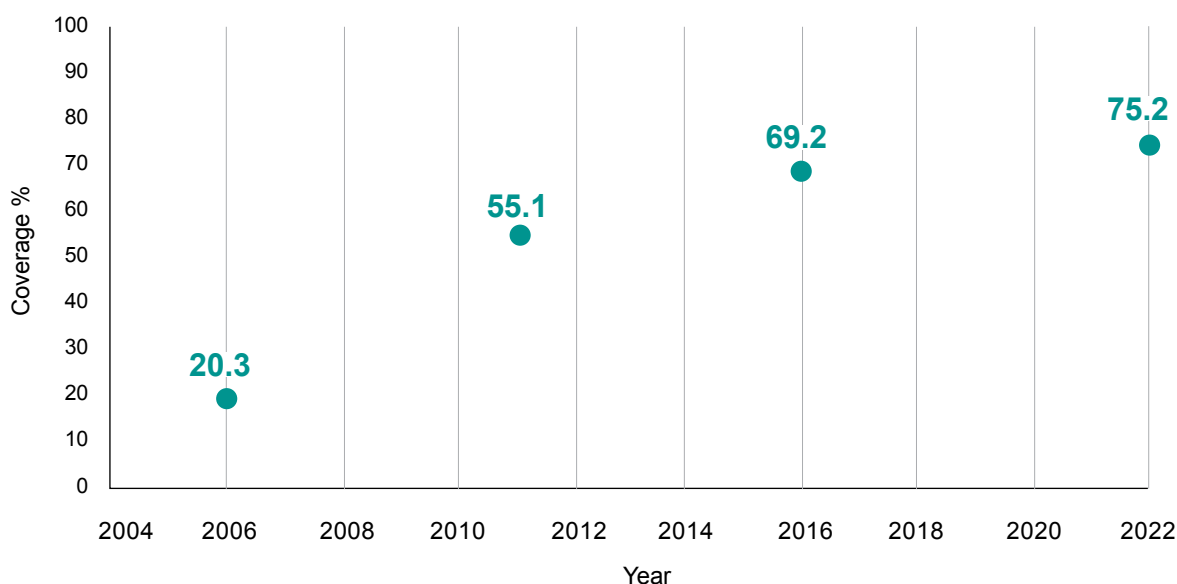
Analyses that support action

There are multiple ways to analyse intervention coverage data that facilitate assessment of the nutrition situation and design of actionable recommendations for policies and programs.

Trends over time

Looking at changes in coverage over time is a simple and effective approach to measuring implementation progress and sustainability.

Figure 10: Coverage of deworming during pregnancy among women in Nepal (Nepal DHS)



Equity analysis

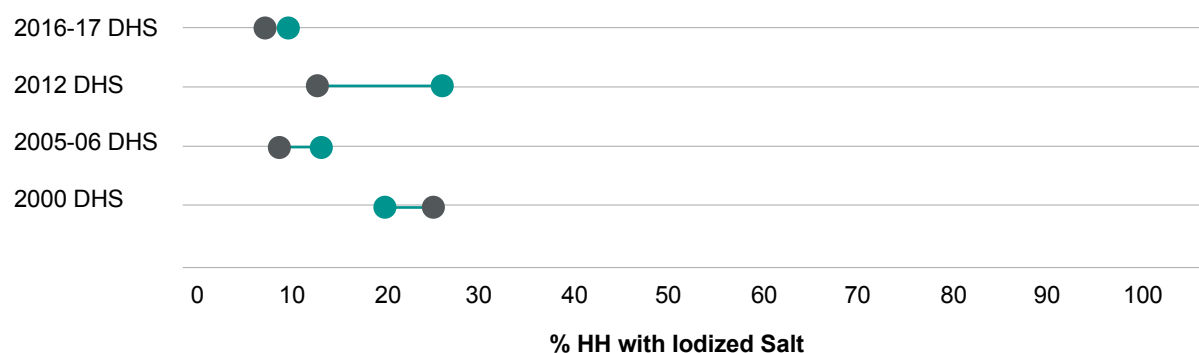
National averages can hide persistent inequalities and so it is important to analyse intervention coverage using relevant stratifiers such as wealth quintile, residence (urban/rural), maternal education, age, sex, religion and geographic subunit.¹⁶ When sample size allows, double stratification by wealth and residence (e.g. rural poor vs urban poor) can be quite meaningful. Equity analyses are typically done using household survey datasets that include stratifiers; administrative data may allow for analysis using a limited set of equity variables such as facility administrative area and urban/rural location.

Equiplots, also called dot plots, are useful for emphasizing gaps in coverage estimates across different sub-groups. Estimates are plotted on a common axis, which helps visualize and interpret the magnitude of the gaps between sub-groups.

There are also other measures of absolute and relative inequities such as the concentration index and slope index of inequality; these more advanced methods may be useful in some contexts.¹⁴ Tools are available to guide analysis.^{17, 18}

Figure 11: Rural-urban inequities in coverage of iodized salt in Haiti

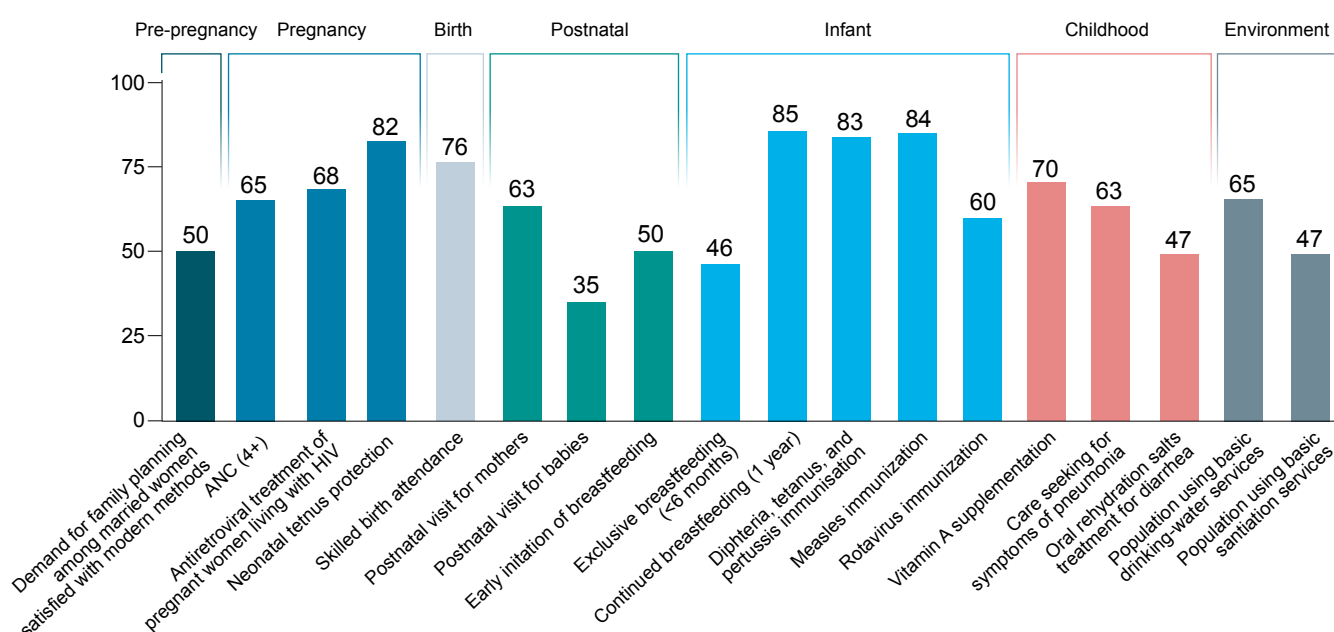
Residence: ● Rural ● Urban



Continuum of care

Examines the proportion of the population who receives successive contacts/interventions across the life course, usually for women and children (e.g. prenatal → ANC → delivery → postnatal → infancy → childhood)

Figure 12: Continuum of Care for RMNCH Services (adapted from Countdown to 2030)¹⁹



Coverage cascade

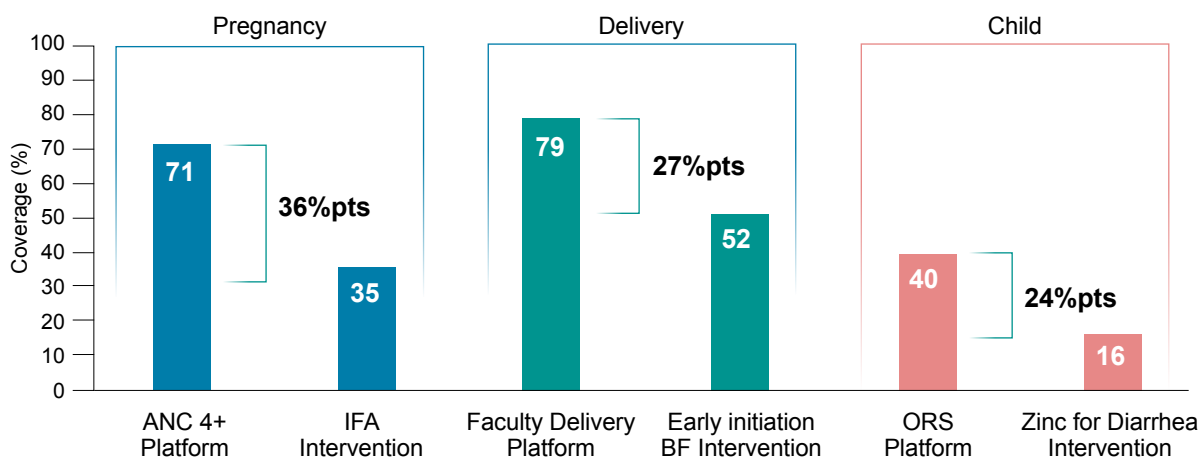
The coverage cascade can be a powerful visualization tool that shows the progressive drop-off in coverage at each step of service delivery. See example above in **Figure 6**.

Missed opportunity

A missed opportunity analysis reflects a situation where a patient visits a provider or delivery platform (e.g. ANC) but fails to receive an intervention delivered through that provider or platform (e.g. iron-containing supplements). It quantifies the difference between coverage of the contact opportunity or platform and the coverage of the specific intervention.

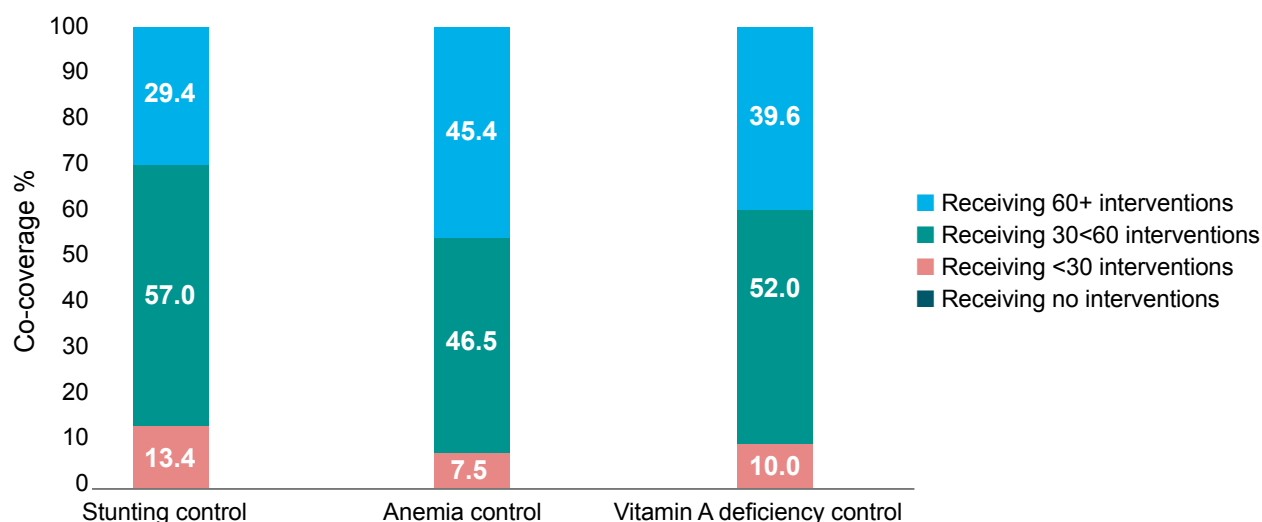
Figure 13. Opportunity gaps between delivery platform and intervention coverage

(Sample data from DHS & MICS surveys adapted from Heidkamp, et al. 2021²⁰)



Co-coverage and composite coverage analysis is another analytical approach to examine the convergence of two or more interventions at individual, household or group level. Co-coverage analysis can be done from the lens of a specific population (e.g. nutrition interventions during pregnancy), a program (e.g. interventions for control of vitamin A deficiency), policy (e.g. sentinel intervention from each sector contributing to the multisector national policy) or continuum of care. Co-coverage methods are used when all data come from a single survey; composite coverage can integrate data from multiple surveys and/or administrative data sources. DataDENT has developed technical guidance specific to design and analysis of co-coverage and composite coverage indicators.²¹

Figure 14: Co-coverage of interventions among households with women and children to address stunting, anemia, and vitamin A deficiency (Bangladesh One Nutrition Coverage Survey 2022²²)



Communicating findings about intervention coverage

Identifying key messages

WHO internal guidance on strategic communications to policy makers and other audiences identifies and explains six criteria for effective communication: accessible, actionable, credible and trusted, relevant, timely, understandable.²³ Identifying the audience and the purpose for the communications output are the essential first steps in identifying key messages about intervention coverage. Individuals can experience information overload when presented with too much information at once, and it's important to focus on key messages that are actionable for the specific audience.

Presenting figures, tables & infographics

Tables and figures are also useful for communicating large amounts of information. However, they can only be impactful when a target audience can clearly interpret their key messages. The purpose of visualizing data for communications is different from visualizing data during analysis. Visualization during analysis is an iterative process that can help the analyst more quickly make sense of data; in communications, data visualization is used to highlight key messages for the target audience. Not every figure or table developed during analysis should be refined and finalized for communications purposes. Depending on the audience, certain elements—such as confidence intervals—may not be presented in the communications outputs; but they must be considered by the analyst as part of interpretation and identification of the key messages.

When selecting visualizations²³:

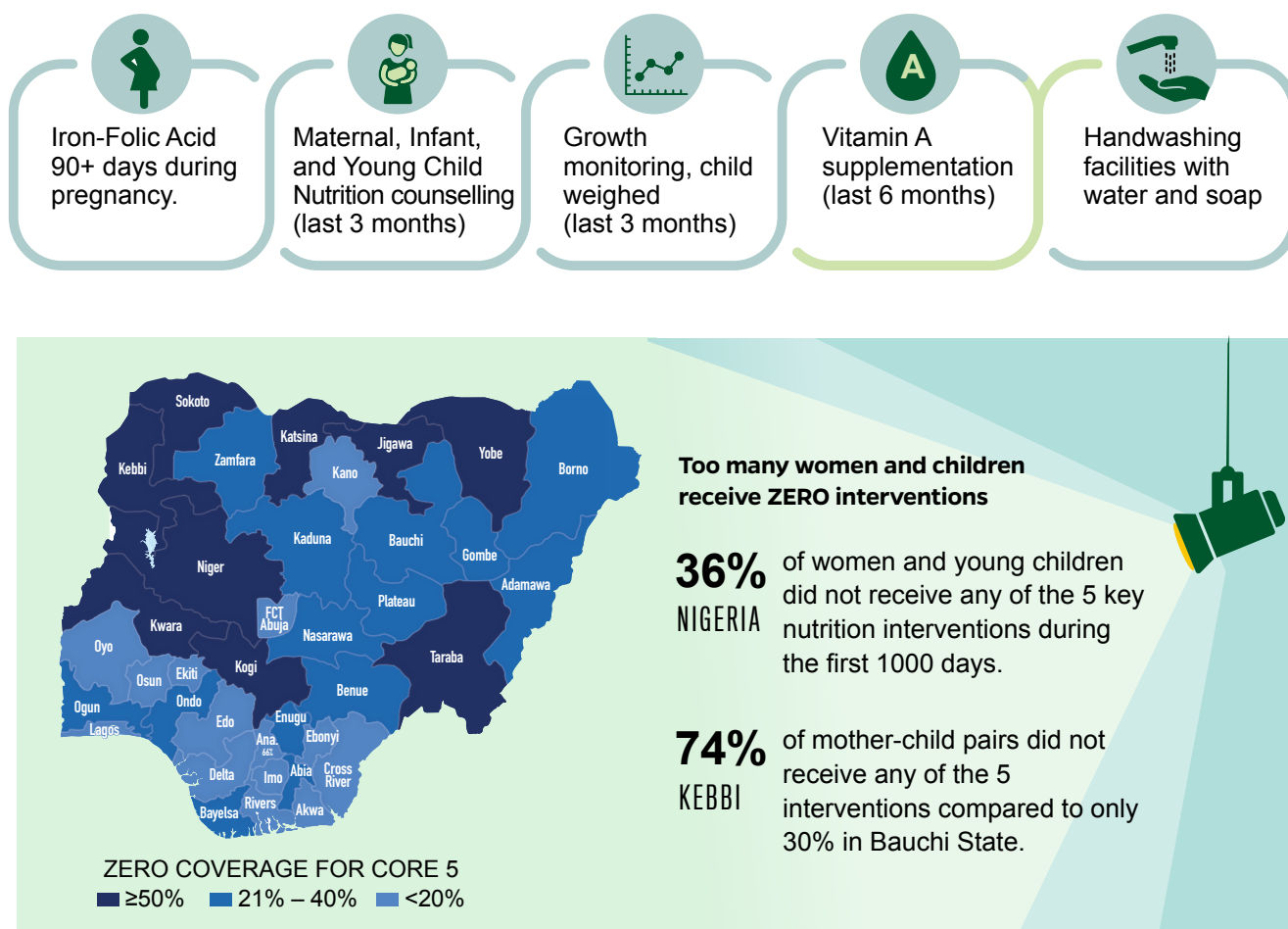
- 1. Consider your audience and communication goals.** Select an approach for communicating your findings based on what information or which visualizations your audience may be familiar with. You can certainly introduce novel visualization and communication approaches, but you may need to factor in additional support, such as interpretation guidance, to help your audience interpret your findings as intended.

2. Prioritize comprehension over aesthetics. Visualizations and communication approaches can look impressive but have little to no value if they aren't understood by your audience. When selecting visualization approaches prioritize visualizations that are easily interpretable by your audience.

3. Involve your key audiences in the design process. Share draft visualizations with individuals from your key audience to “check” that your visualizations communicate the key messages as designed. Even audiences with comparatively high data literacy may have difficulty identifying actionable insights from visualizations.

For example, **Figure 15** is from a brief that targets state-level leaders in Nigeria. The underlying co-coverage analysis showed that a large proportion of mothers and children, particularly in the northern states, had not received any of the five key interventions. Rather than present a stacked bar chart with all co-coverage results, as seen in **Figure 14** above, the team focused on a key message specific to the “zero coverage” finding that resonated with the target audience. They combined the map with state-level zero coverage estimates with text-based results to ensure the key message was clearly communicated.

Figure 15: Zero-coverage of five key nutrition interventions in Nigeria (NDHS 2024-2025)



DataDENT collaborated with WHO and UNICEF to develop technical guidance about designing effective data visualizations.²⁴ It includes comprehensive guidance on how to select the right chart or figure (**Figure 16**) and how to effectively format and annotate the visualization to communicate to diverse audiences (**Figure 17**).

Figure 16. Example of WHO-UNICEF Technical Note guidance on selecting data visualization to fit key messages²⁴

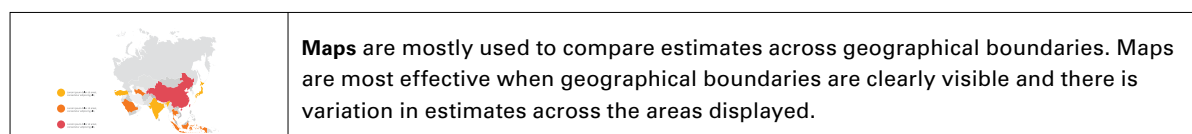
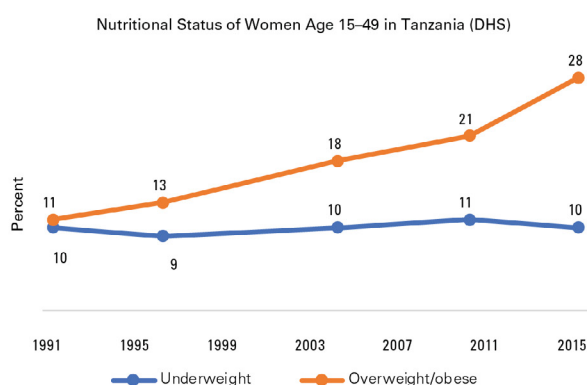
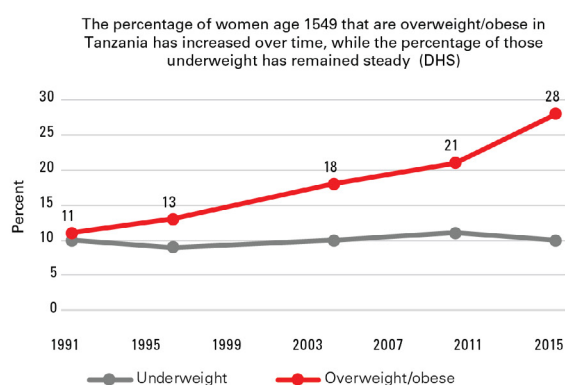


Figure 17. Example of WHO-UNICEF Technical Note guidance on formatting of data visualizations²⁴

Example A (less preferred)



Example B (more preferred)



Use narratives and practical examples to add value to the quantitative data. Narratives, stories or descriptions should be used to link data to practical experiences. For example, if data show low coverage of breastfeeding counseling in a district, qualitative data, such as a brief story from the perspective of a health facility about staff shortages or limited outreach activities, can help stakeholders understand the “why” behind the data and what actions could lead to improvements.

Data use

The start of this technical note addressed how nutrition intervention coverage data can and cannot be used. Improving use of data for policy and programs requires an ongoing commitment to building data literacy in individuals and shifting institutional culture to make demanding and using data a norm.²⁵

Practical suggestions for fostering data culture include:

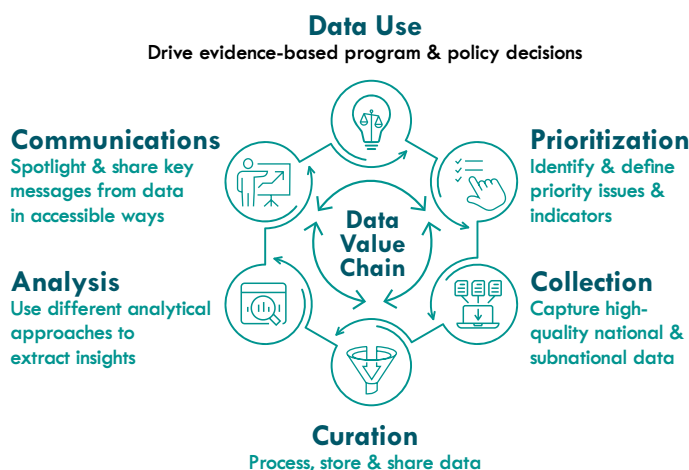
- **Share data widely.** Remove barriers to accessing data; make data repositories publicly accessible so that people can download and analyse data.
- **Start talking about data.** DataDENT’s “six questions approach” tool guides conversations within teams about elements of the nutrition DVC and helps to identify specific areas for capacity strengthening.¹
- **Lead by example.** Leaders should consistently share and discuss data in meetings and ask others to bring available data into discussions.
- **Incentivize use of data.** Publicly praise individuals and teams who solve problems using data; encourage sharing of both favorable and unfavorable data.

Annex 1:

Key approaches for strengthening nutrition data literacy

The approaches below apply to building data literacy across the data value chain (**Figure 1**) and to using all types of nutrition data – not just intervention coverage.

- **Develop a culture of data use that includes asking questions about the data themselves.** Encourage curiosity and critical thinking about data by promoting open dialogue and collaborative problem-solving. Use the “who, what, when, where, why, and how” framework to help teams and individuals break down complex data, question assumptions, and interpret findings in context.¹



- **Strengthen capacity across the nutrition data value chain (DVC).** Support ongoing learning about all aspects of the nutrition DVC, from prioritizing which indicators to collect, to understanding data collection methods, to curating, analysing, and communicating findings. Tailor capacity-building efforts to the needs of different roles, recognizing that not every role needs the same depth of technical knowledge.
- **Engage a broad range of stakeholders across the DVC and administrative levels.** Facilitate regular discussions about data that invite diverse perspectives including data users and people who collect and analyse data. Engage people who work at different administrative levels. Local stakeholders bring essential contextual knowledge and can “ground-truth” data, while regional/provincial and national stakeholders can provide technical and policy perspectives and facilitate sharing of lessons learned across regions. This inclusive approach builds trust, ensures relevance, and surfaces practical insights about what data are saying as well as unmet information needs and data quality issues.
- **Use real and relevant data for training and practice.** Hands-on exercises during training workshops can help build confidence and skills in data analysis, presentation and/or interpretation. Encourage participants to explore trends, outliers, and data gaps, and to ask questions about how indicators are constructed and what they can and cannot say. Have participants make presentations and get feedback as part of training.
- **Prioritize clear narratives, visuals, and practical examples.** Make data relatable by using stories and graphics that illustrate real-world situations. For example, using simple charts or infographics to present quantitative data accompanied by narratives/stories that reflect local realities help stakeholders connect data to community needs and programmatic options/decisions.
- **Emphasize transparency and context.** Openly discuss data limitations, gaps, and potential biases. Be transparent about issues such as data sources, collection frequency, and calculation methods) available and understandable, so users can assess the strengths and weaknesses of the data. Encourage stakeholders to recognize both what the data say and what is missing or uncertain.
- **Promote effective communication and feedback.** Identify key audiences for nutrition data and tailor communication tactics (e.g. scorecards for facility staff, concise presentations for policymakers) to ensure the data are understandable and actionable. Solicit feedback from stakeholders and audiences to continually improve how data are presented.

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