

NATIONAL NUTRITION INFORMATION SYSTEM

The
Fundamentals
Series

Module 05

**What are the
main types of
data used in a
National Nutrition
Information
System?**

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The Fundamentals Series includes five modules:

Module 1. What is a national nutrition information system?

Module 2. How does an NNIS support a country's nutrition programmes?

Module 3. What is needed to build a useful National Nutrition Information System?

Module 4. What are the main attributes of a National Nutrition Information System?

Module 5. What are the main types of data used in a National Nutrition Information System?

PDF versions of these modules can be downloaded from the following website:
<https://data.unicef.org/resources/nutrition-nnis-guides/>

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Module 05

What are the main types of data used in an NNIS?

The various attributes of an NNIS come together to create a data value chain for nutrition (see Module 4). While each of the attributes is an integral part of the value chain, the information system only works because of the data at its core. Without good data, there cannot be a functional NNIS.

Nutrition-related data come from many different sources. They are collected in various ways and come in many different forms and formats. However, a high percentage of the data fall into one of five general categories:



Routine data



Contextual data



Survey data



Financial data



Surveillance data



ROUTINE DATA

Routine data are collected on a regular or recurrent basis. The primary sources of routine data for an NNIS are health facilities and nutrition-related programmes and projects. Most routine data are individual-level data on clients or patients who are being reached with services (*e.g., individual demographic data, service provided and diagnosis*). Routine data can also include data on how and how often clients or patients access services (*e.g., facility versus community outreach, number and frequency of visits*) as well as data on client or patient reactions to the experience (*e.g., feedback on outcomes or quality*).

Depending on the country, data from health facilities are collected and reported in various ways, including via paper-based systems (*e.g., patient cards and registers*), with direct data entry into an electronic health management information system (HMIS) such as the District Health Information Software 2 (DHIS2). Routine data are also collected by nutrition-related programmes and projects from their clients with different paper-based and electronic methods, including the use of DHIS2 to capture health-related data collected by community outreach workers.

Routine data can align directly with the country's priority indicators and be

easily factored into monitoring national performance. Routine data can also be used for triangulation with core data in the NNIS; for example, data on the coverage of growth monitoring interventions can be useful in assessing the accuracy and representativeness of data on stunting, wasting and overweight in children under 5 years of age.

Examples of routine data collected at health facilities or by programmes and projects:

- Child screened using weight-for-height or mid-upper arm circumference (MUAC)
- Low birthweight
- Exclusive breastfeeding for the first six months
- Counselling on infant and young child feeding
- Children or women enrolled in supplementary feeding programmes
- Quantity of ready-to-use therapeutic food distributed
- Children released from acute malnutrition treatment programmes
- Women provided with iron and folic acid supplements

- Quantity of iron and folic acid supplements distributed
- Weight and height of children, adolescents and adult women
- Raised blood glucose/diabetes among persons aged 18+ years
- Raised blood pressure among persons aged 18+ years
- Number and coverage of facilities and/or programmes providing different types of nutrition services (*e.g., community-based management of acute malnutrition treatment sites, food distribution points, mass screening sites*)
- Number and distribution of nutrition-related human resources (*e.g., nutritionists, counsellors, outreach workers or extension workers*)
- Staff time spent delivering nutrition services

Routine data can and should be a reliable and robust source of information for monitoring the status of a situation and the scope and effectiveness of activities and interventions at all levels (*i.e., individual to national*). These data are so valuable that supporting new and/or ongoing efforts to improve their quality, collection and analysis should be an important part of an NNIS.



SURVEY DATA

There are many different types of surveys that can be used to collect data on vital nutrition and nutrition-related issues, including nutrition status, diet, risk factors, programme performance and policy implications. Survey types range from large-scale, periodic, population-based surveys designed to collect nutrition data, to targeted one-off surveys designed to collect information about a specific population at a specific time. Surveys can be used to collect data about nutrition-related issues in multiple sectors, including agriculture and the food industry (*e.g., agricultural censuses, farm business surveys or food processing surveys*), education (*e.g., school nutrition surveys, farm-to-school censuses*), health (*e.g., facility surveys, patient surveys*) and social welfare (*e.g., standard of living surveys*).

Two large-scale survey instruments are used in many countries to collect nutrition data as part of a broader mandate: the Demographic and Health Survey (DHS) and the Multiple Indicator Cluster Surveys (MICS). DHS is a periodic, population-based survey that collects data on nutrition as one part of a larger survey on various health-related issues. MICS also collect household-level data on multiple issues, including nutrition. The DHS and MICS are both designed to be nationally representative, with sample sizes ranging between 5,000 to 30,000 households. These surveys are typically conducted every three to five years.

Many countries also use the SMART methodology (Standardized Monitoring and Assessment of Relief and Transitions) for national and subnational nutrition surveys.¹ Unlike large-scale surveys such as DHS and MICS, which cover a wide range of topics, SMART surveys are focused on nutrition indicators, particularly anthropometry (*e.g., infant/child weight, height/length, MUAC*).

SMART incorporates key elements from different survey approaches in a way that balances simplicity with technical proficiency. The methodology has been effective because it is a straightforward and adaptable approach to implementing cross-sectional field surveys that collect timely, high-quality data in development and emergency/humanitarian contexts. SMART surveys are also scalable; with careful planning and preparation, they can be implemented at all levels, from national to district and even sub-district levels.

As mentioned above, there are many different types of surveys that can be developed and implemented to collect data using many different parameters. Other examples include:

- National food consumption and dietary intake surveys collect data on issues such as food consumption, nutrient intake and nutrition status.
- National micronutrient surveys collect biomarker data to measure the status of select micronutrients in key populations.

¹ SMART methodology: <https://smartmethodology.org>

- The Fortification Assessment Coverage Toolkit uses surveys to assess national food fortification programmes.
- Link NAC (Nutrition Causal Analysis) surveys use a participatory, quantitative and qualitative method to identify the causes of undernourishment.
- Knowledge, Attitudes and Practices surveys can be designed to capture various data on nutrition (e.g., infant and young child feeding practices).
- Comprehensive Food Security & Vulnerability Analysis uses a survey to collect data on food security and the vulnerability conditions of population groups and communities.
- Living Standards Measurement Study Integrated Surveys on Agriculture collect data on the links between agriculture, socioeconomic status and non-farm income activities.

Surveys of all types — from one-time special surveys to periodic population-based surveys — can be rich sources of data for understanding and improving a national nutrition programme. However, it is important that the investment in nutrition surveys is aligned with national priorities and available resources.



SURVEILLANCE DATA

Surveillance data depend on the consistent collection of data from designated locations to monitor trends and identify signs of current and/or potential changes in nutrition-related issues and factors. There are various ways to structure and conduct nutrition surveillance. Common methods include: 1) repeated cross-sectional or representative surveys; and 2) recurrent monitoring at selected locations (*e.g., health facilities, schools or refugee camps*).

No single way is appropriate for all situations or settings. Some surveillance programmes are national in scale, while others are designed for subnational implementation; some are designed to be a permanent part of the public health infrastructure, while others are designed to respond to specific issues or circumstances, such as an emergency situation. Regardless of the approach, nutrition surveillance should be built around a set of relevant indicators that can be collected with reasonable frequency. The repeated or recurrent nature of the collection of surveillance data can provide a useful time-course perspective on the relevant indicators.

Typically, a surveillance system is either **active** or **passive**. An active system is built around a close collaboration between the surveillance oversight organization and selected facilities to periodically collect and directly report quality data on specific conditions (*e.g., stunting, severe acute malnutrition, moderate acute malnutrition*). Passive surveillance relies on facilities to generate data on the selected conditions using their regular reporting mechanisms.

Active surveillance yields the most accurate and timely information; however, it can be labour-intensive and may be expensive. Passive surveillance is a lower-cost approach, but its dependence on multiple facilities for data can pose challenges, including issues with data quality and reporting delays.

A structured **sentinel surveillance system** is a variation of active surveillance, which leverages long-term relationships between the oversight organization and specific facilities and/or community sites (*e.g., sentinel sites*) to ensure the consistent collection and reporting of high-quality data. When properly implemented, a well-designed sentinel surveillance system for nutrition can be an effective way to generate timely, high-quality data on priority issues. A potential shortcoming of a sentinel system is that collected data may not be representative of the overall population.

Ultimately, the size and scope of nutrition surveillance should be aligned with national needs and available resources. For example, it should focus on issues and indicators that require or benefit from close monitoring; collect data with reasonable frequency; use a manageable number of data sources; and focus on geographic areas or specific populations facing nutrition risks or challenges.



CONTEXTUAL DATA

Contextual data, including both quantitative and qualitative data, are the various facts and conditions that have an effect on — or are affected by — the nutrition situation in the country. Including these data in the NNIS can yield a broader perspective and a deeper insight on both the challenges and opportunities facing nutrition programmes.

The range of contextual data are vast, as are the sources of these data (*e.g., national strategies, policies and plans; implementation guidelines; programme and project reports; special studies; operational research; and evaluations*). It is important that any contextual data included in an NNIS reflect the country's specific priorities and circumstances. These are data that can help explain how and why different factors influence nutrition status, programmes, projects and outcomes.

Examples of contextual data points include:

- Availability of nutrition-related commodities (*e.g., vitamin A supplements, micronutrient powders, deworming medication*)
- Prevalence of moderate and severe food insecurity in the population

- Psychosocial barriers to food assistance
- Psychosocial barriers to healthy eating
- Availability of fruits and vegetables
- Availability of fortified foods
- Food labelling requirements
- Nutrition knowledge
- Proportion of population using safely managed drinking water services
- Number and coverage of community and/or household gardens
- Proportion of the population covered by social protection systems
- Historic weather patterns and long-range weather predictions (*e.g., drought, flooding*)

Data on the existence and implementation of regulations on key nutrition issues can also provide important context in an NNIS. For example, regulations on breastmilk substitutes, food marketing to children, salt/sodium content and the use of trans-fatty acids in processed foods can be useful correlates with other data in the information system.



FINANCIAL DATA

Understanding the financial implications of nutrition priorities, programmes and projects is a critical component of decision-making. It can be particularly useful when looking at trends over time; for example, how increases or decreases in funding affect programme performance and nutrition outcomes. As is the case with other data in the NNIS, when determining what financial data to include, it is important to focus on data relevant to priority issues.

Ministries of finance or their equivalent will be a primary source of financial data – specifically, data from the government's national budget, including detailed budgets for individual ministries. Supplemental data on cost estimates used in the development of budgets are also useful. In countries with decentralized governments, valuable data may come from local finance departments (*e.g., state or county level*). In addition, financial data on activities funded and/or implemented by multilateral

organizations, bilateral donors and philanthropic organizations can be important to include in an NNIS.

Financial data can be more complicated to collect than other types of data. For example, extracting relevant data from a national budget may require going through individual line items to identify expenditures linked to nutrition programmes. Another complication is that nutrition activities are often integrated into broader programmes (*such as reproductive, maternal, newborn and child health*), making it difficult to determine how much of the budget was spent on nutrition. And in many cases, different funders use inconsistent taxonomies or terminologies in their financial systems, which can make it difficult to track the flow of funds. However, the importance of understanding financial context makes the effort worthwhile.

Understanding the connection between cost estimates, budgeting and expenditures can be particularly useful when assessing and planning when, where and how nutrition funds are spent. For example, comparing the cost estimate for a given activity with the budget allocated for that activity and then comparing the budget allocation with the actual expenditure can

give critical insights into the implementation, coverage, outcomes and effectiveness of the activity. This type of analysis can also highlight issues related to how and why financial decisions are made and the impact of those decisions on nutrition status, programmes and projects.

KEY TERMINOLOGY

Data	Facts and/or figures; pieces of quantitative or qualitative information
Database	An organized collection of data stored electronically for rapid search and retrieval
Data provider	An organization that produces data; may be referred to as a data generator; see also data source
Data source	Type of data and/or modality of data collection (e.g., routine data, survey data); can also be synonymous with data provider
Data value chain	A framework used to guide the transformation of raw data into a valuable resource to better understand situations and improve decision-making
Disaggregated data	Data that have been broken down into detailed sub-categories (e.g., by age, gender)
Indicator	Indicators make collected data understandable and useful for monitoring performance, assessing achievement and determining accountability. They can be used to determine a proportion (e.g., prevalence) and are often designed to track inputs, outputs, outcomes and impact.
National data	Data that are common to or characteristic of a whole nation; see also subnational data
Qualitative data	Data collected using qualitative methods, such as interviews, focus groups, observation and key informant interviews; generally expressed in narrative form, pictures or objects (i.e., not numerically)
Quantitative data	Data that are measured on a numerical scale, can be analysed using statistical methods and can be displayed using tables, charts, histograms and graphs
Routine data	Data continuously collected as part of a regular activity/procedure
Sentinel site	A dedicated location (e.g., facility, community) where surveillance data are collected
Subnational data	Data disaggregated by administrative units below the national level (e.g., provinces, districts, counties); may also include other breakdowns below the national level (e.g., urban, peri-urban, rural)
Surveillance data	Data collected on a recurring basis from designated locations (see sentinel sites) to provide insights on trends into a broader area and/or larger population

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