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# UNIT 9 NUTRITION MONITORING AND NUTRITION SURVEILLANCE

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## 9.1 INTRODUCTION

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In the previous Units 7 and 8, we learnt about different methods of assessment of nutritional status of communities. Now we would like to know whether the nutritional status of community is improving or not and, if not, then what actions could be taken to improve the nutritional status. For this purpose, we use the processes of *nutrition monitoring* and *nutritional surveillance*.

We have learnt in the previous units that, in direct assessment of nutritional status, nutrition surveys are used to collect information on population. Most often, the nutrition surveys are conducted not only at one point of time to understand the current status of a given community, but also are repeated periodically to find out the changes that may occur over time. The Union and State Governments in India have been investing large sums of money on several direct and indirect interventions to improve the overall health and nutrition of vulnerable groups of population. We will learn about these interventions later in Unit 10. It is essential to know whether there has been any change in the nutritional status as a result of these interventions or not; if not, then appropriate corrective steps could be introduced, where necessary. *Nutrition monitoring is one of the tools adopted for the purpose.*

During our day-to-day life, we hear regularly about the disease surveillance (cholera, encephalitis etc.) by the health authorities. The health administration maintains a constant vigil on occurrence of certain notifiable diseases so that they can initiate prompt control measures to prevent the spread of these infectious diseases. This process is called *disease surveillance*. In the case of nutrition, early diagnosis of malnutrition in "at risk" population groups is crucial to institute immediate corrective action to prevent **undernutrition**. More importantly, this would also help in the promotion of optimal nutrition. *Hence, effective nutrition surveillance system is required to achieve this.*

In this unit, you will now learn about nutrition monitoring and surveillance and the various mechanisms in place in the country. What is nutrition monitoring and surveillance? What is the aim of nutrition monitoring? How is nutrition monitoring and surveillance carried out at the community level? These are a few issues discussed in this unit.

## Objectives

After studying this unit, you will be able to:

- describe the concept of nutrition monitoring and nutrition surveillance,
- enumerate the **aim** of nutrition monitoring and surveillance and the basic principles,
- explain the various programmes through which these activities are being carried out in India, and
- organize activities related to nutrition monitoring and surveillance at community level.

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## 9.2 NUTRITION MONITORING

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The terms 'monitoring' and 'surveillance' are often used as synonyms in nutrition assessment. However, it is important to understand the difference between these two terms. Let us begin by understanding *what we mean by monitoring*. Monitoring literally means 'to supervise' or 'to keep an eye on' or 'to scrutinize'. *Monitoring refers to the collection, analysis and feedback quantitatively precise measures from a relatively large representative sample of a population – at the National and State levels – essentially for the purposes of tracking time trends and understanding population sub-group differences in diet, nutritional status and nutrition-related health and disease risks.*

You may be aware that the governments provide for built-in monitoring systems in most of the programmes that are implemented by them particularly with respect to the inputs either in terms of money or material. On the other hand, the aim of any monitoring should be to assess whether the goals (with respect to the outcomes), set at the beginning of launching such interventions have been met. Therefore, nutrition monitoring is a *tool to keep a watch on the nutritional status of communities to assess the changes in nutritional status of communities over a period of time*. WHO defines nutrition monitoring as the *"measurement of changes over time in the nutritional status of a population or a specific group of individuals"*. Thus, nutrition monitoring involves repeated measurements on a representative population.

You would also realize that quite often, the terms of monitoring and evaluation are used together. Evaluation is, in fact, *a detailed appraisal of an intervention programme by examining the processes of implementation (pertaining to delivery inputs like outreach of the programme etc.) and the outcome variables (e.g. nutritional status) to determine as to how far the programme goals have been achieved and if not, then reasons for non achievement of goals.*

Let us now learn about the objectives and components of nutrition monitoring,

### 9.2.1 Objectives and Components of Nutrition Monitoring

In the section above, we learnt that nutrition monitoring is a means to keep a watch on the nutritional status of communities. In fact, the objectives of nutrition monitoring are two fold. These are enumerated herewith:

*Objectives of nutrition monitoring*

The objectives include:

- 1) to assess the nutritional status of representative groups of communities on a continuous basis in order to study the changes in the nutritional status, if any, and
- 2) to evaluate the various nutrition intervention programmes in operation to determine the achievement or otherwise of the goals,

In **fact**, a well-planned and integrated national nutrition monitoring system should cover the **following** content areas:

- **food** and nutrient consumption at household and individual levels,
- **nutritional** status by anthropometry and clinical nutritional deficiency conditions,
- **nutrition-related** risks of selected chronic diseases,
- **food** security, particularly at the household level,
- **t h e** above information focused on selected high risk sub-population groups like Below Poverty Line (BPL) population, population in chronically drought prone **area** and tribal populations,
- **i d e n t i f i c a t i o n** of vulnerable sub-groups of the population at higher risk of nutrition-**r e l a t e d** health problems,
- **food** supply- agricultural and horticultural, and
- **food** safety.

You **s h o u l d** know that it requires at least a year to demonstrate changes in nutritional **s t a t u s** at the community level, so the periodicity of nutrition monitoring is usually once a **year**. In India, five year monitoring is also suggested to coincide with the Five Year Plans.

The **o b j e c t i v e s** of nutrition monitoring, the target groups to be monitored and the **a v a i l a b i l i t y** of resources determine the components of nutrition monitoring. In countries like **I n d i a**, where clinical malnutrition is still widely prevalent, monitoring of **both** clinical (for **e x a m p l e**, assessment of clinical signs in case of kwashiorkor/marasmus, xerophthalmia and goitre etc.) and of sub-clinical nutritional status (anthropometric and **b i o c h e m i c a l** indicators) would be required. However, with improvement in the nutritional status **o f** communities, the emphasis can be shifted to sub-clinical forms. The nutritional **m o n i t o r i n g** data could also be used in the revision of the Dietary Guidelines for Indians at **r e g u l a r** intervals of about 10 years.

Next, what are the components of nutritional monitoring? Let's find out.

### *Components of nutritional monitoring*

Let **us** look at the two main components of nutrition monitoring. These are:

- 1) **p o p u l a t i o n** groups, and
- 2) **k e y** indicators used in monitoring.

We **s h a l l** start with the population groups.

#### 1) *Population for Monitoring*

For **n u t r i t i o n** monitoring, it is necessary to decide the groups of population, especially **those**, at risk of developing malnutrition. Considering the current status of nutrition of **d i f f e r e n t** groups, monitoring of nutritional status of mothers and children should receive **u t m o s t** priority. Since the nutritional status of preschool children is accepted to reflect the **n u t r i t i o n** of a community, under conditions of resource constraints, it may be **a d e q u a t e** to collect data on this age group only. However, the aim should be to monitor the **w h o l e** population.

Next, **l e t** us look at the second component i.e. key indicators.

#### 2) *Key Indicators*

An **e f f e c t i v e** nutrition monitoring system should be able to provide **i n f o r m a t i o n** on **p r e v a l e n c e** of nutrition disorders either by direct measurement and observation or by

self-reported disease prevalence in different groups, personal attributes, nutrition behaviours and information on utilization of health and nutrition services. It is recommended that as far as possible, information which indicates various aspects of nutritional status e.g. underweight, wasting and stunting in addition to clinical assessment should be included. Since anaemia is a major problem among all the groups of population, particularly among pregnant women and young children, laboratory supported haemoglobin estimations at least once in five years may also be included. Dietary consumption by all the individuals would provide also information on the intra-family distribution of intakes within a family. In addition, data on various aspects of implementation of intervention programme participation of the beneficiaries would help in linking the nutritional status and the intervention programmes. Such data would help in assessing the current status of the programmes and in introducing appropriate changes required. The data so collected should be accurate and be representative of the communities.

Having studied about the indicators of nutrition monitoring, it is also important for us to know that only standard methods should be used to conduct nutrition monitoring. Emphasis should be placed on obtaining accurate data using sensitive indices by trained investigators. They should use standardized equipments to indicate the nutritional status of communities, with reasonable certainty.

Let us now learn about the current monitoring programmes in India.

### 9.2.2 Current Programmes of Nutrition Monitoring in India

The assessment of nutritional status of different segments of the population, particularly in relation to dietary intakes, has been one of the important activities of nutrition research in India for more than six decades. These have been mostly isolated studies, either of specific groups or in specific regions of the country and they rarely assumed an all-India character. However, with an increasing emphasis on planned development through five-year plans, a number of organizations and departments have geared their activities to meet the stringent needs of the planning process at national and regional levels. These organizations provide a more systematic approach in collection and compilation of data. The major agencies and the type of information they are collecting are shown in Table 9.1.

**Table 9.1: Major agencies and type of information collected**

S.No.	Agency	Type of information
1.	National Nutrition Monitoring Bureau (NNMB)	Diet and nutrition surveys Evaluation of ongoing nutrition programmes
2.	National Sample Survey Organization (NSSO)	Consumer expenditure surveys Socio-economic survey Employment position
3.	National Family Health Survey (NFHS)	Nutritional status, infant and child mortality and fertility
4.	District Level Household Survey (RCH-2)	Database on reproductive and child health at district level
5.	Food and Nutrition Board	Diet and nutrition surveys
6.	Registrar General of India	Census data Population statistics and trends
7.	DES	Food production, distribution, procurement and storage Consumer price index Food availability
8.	CBHT	Vital statistics Public health and medical statistics Community health surveys

Thus, you can see in Table 9.1 that organizations like National Nutrition Monitoring Bureau conducts diet and nutrition survey and evaluation of nutrition programmes. Out of the organizations listed in Table 9.1, we would discuss the most notable four organizations. These are:

- 1) *National Nutrition Monitoring Bureau*
- 2) *National Sample Survey Organization*
- 3) *National Family Health Survey*
- 4) *District Level household Survey (RCH-2)*

Let us start with National Nutrition Monitoring Bureau

#### 1) *National Nutrition Monitoring Bureau*

The National Nutrition Monitoring Bureau (NNMB) is the only organization involved in nutrition monitoring for the past 32 years. The Indian Council Medical Research (Medical Research Council under the Ministry of Health and Family Welfare, Government of India) established NNMB in 10 states, in 1972, to periodically collect information on the diet and nutritional status of communities and to evaluate various national nutrition intervention programmes in operation. NNMB is located at the National Institute of Nutrition, Hyderabad, India. Though it is in operation only in 10 states (Andhra Pradesh, Tamil Nadu, Uttar Pradesh, West Bengal, Kerala, Gujarat, Maharashtra, Karnataka, Orissa) NNMB has been the only large-scale dynamic database on diet and nutrition in the country providing information on nutritional status of different age groups and dietary pattern at individual level. NNMB has two main objectives. These are given as follows:

#### *Objectives of NNMB*

The objectives of NNMB are:

- To collect, on a continual basis, on representative segments of population in each of the states, data on dietary pattern and nutritional status adopting standardized and uniform procedures and techniques, and
- To periodically monitor and evaluate the ongoing national nutrition programmes, to identify their strengths and weakness and to recommend mid-course appropriate corrective measures to improve their effectiveness.

In pursuance of the first objective, the NNMB conducted surveys and has published 21 scientific reports between 1975 and 2003. From 1974 to 1981, in annual surveys on a probability sample, a total of about 500 households each year (rural and urban) were carried out in each State. In 1983, NNMB decided to link its sampling plan to that of the National Sample Survey Organization (NSSO) of the Government of India. The survey with the NSSO linked sampling plan was carried out in only four States due to resource limitations. Individual dietary intakes were assessed using a single 24-hour recall for estimating the intra-familial distribution of food. In the urban sample of 250 households, a three-day weighing method was adopted for assessing the dietary intake. Anthropometric data – height, weight, mid upper arm circumference and fat fold at triceps – and data on clinical signs of nutritional deficiencies were collected on all individuals in the selected households.

In 1985-87, a survey was conducted exclusively in the integrated Tribal Development Project (ITDP) areas in the States of Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, Orissa and West Bengal. This survey had the same objectives as all the previous surveys. This survey was repeated in 1998-99 among the tribal populations living in the same ITDP areas. Household dietary intake, anthropometry and clinical signs of nutritional deficiency signs were assessed from all the households

in the sample. In 25 percent of the households, individual dietary intakes by a single 24-hour recall was done.

In 1988-90 and in 1996-97, two repeat surveys were carried out of the rural areas surveyed in 1975-79 to generate longitudinal data on dietary intake, anthropometry and clinical nutritional deficiency conditions in the rural population.

In 2000, using data from the surveys above, a separate report was produced on the diet and nutritional status of adolescents (10 to 17 years of age). In 2001, the NNMB took a decision to carry out diet and nutritional status surveys quinquennially (once every five years) instead of annually. Intervening years between the quinquennial surveys were to be utilized for carrying out surveys of special interest. Accordingly, in 2001-2003 a survey of the prevalence of micronutrient deficiencies - Bitot Spots in children 1-4 years, Iodine Deficiency Disorders in children 6-11 years and haemoglobin level in pre-school children, adolescent girls and pregnant and lactating women- was carried out. Iodine content of salt samples from a sub-sample of households was studied.

Currently, the first quinquennial survey of diet, nutritional intake and anthropometry in the rural areas of the 10 States is being carried out. For the first time, this survey is also estimating the prevalence of obesity (using BMI, waist circumference and waist-hip ratio) and hypertension among adult men and women. Haemoglobin levels among adult males and non-pregnant, non-lactating women are also being estimated.

NNMB is not a routine data collecting organization. It has several unique features. These are given as follows:

*Unique features of NNMB:*

1. Organization of repeat surveys in 1988-90 and 1996-97, in the same villages in all the states that were surveyed during 1975-79, to assess time trends in diet and nutrition surveys.
2. Periodic generation of data on diet and nutritional status of 'socially vulnerable groups of population like the tribals living in integrated tribal development project areas, and the population physiologically at risk like elderly and adolescents.
3. Continuous collection of data on actual dietary intakes of families and individuals belonging to different physiological and age groups, in different states. NNMB is the only organization generating this type of data.
4. Assessment of intra-family distribution of foods and nutrients.

Regular generation of data by NNMB on various aspects as discussed above has been very useful for the Planning Commission, Union and State governments and International organizations. The changes in the nutritional status over a period time could be ascertained with the help of NNMB surveys and the results so far indicate that over the last 25 years there has been gradual and significant reduction in the prevalence of both moderate and severe forms of undernutrition as measured by anthropometry and clinical assessment.

Let us discuss the second organization i.e. National Sample Survey Organization.

2) *National Sample Survey Organization (NSSO)*

NSSO, a permanent survey organization, was set up in the Department of Statistics of the Government of India in 1950 to assist in socio-economic planning and policy making, by collecting data on various facets of the Indian economy through nationwide large-scale sample surveys. The NSSO has been carrying out Consumer Expenditure Surveys quinquennially since 1972-73. As a part of these quinquennial surveys data on dietary intake at National and State levels, and monthly per capita expenditure on food are collected.

The data on food consumption per head is calculated from the data, which provide information on *per capita* energy consumption for different states. In fact, the calculation of the proportion of population below poverty line (indicator of poverty) is calculated based on this information. It should be recognized that these data do not provide individual dietary intakes of different age groups but indicate the availability at consumer level. These data have been used to monitor the consumption expenditure over years. This survey provides calorie, protein, and total fat intake per capita and per consumption unit, using the two reference periods of 7 and 30 day immediately preceding the day of the survey.

The NSSO data on nutritional intake gives data by rural and urban areas of States and India on:

- Average quantity of consumption of different cereals per 30 days,
- Average value of these in rupees,
- Food security at the household level,
- Per capita and per consumption unit intake of calories, protein and fat per day,
- Percentage of total intake of protein and calorie from different groups of food item,
- Distribution of households and individuals by calories intake level, and
- Cross-tabulations of the above by monthly consumption expenditure classes.

Let us next discuss the third organization i.e. National Family Health Survey.

### 3) *National Family Health Surveys (NFHS)*

The Ministry of Health and Family Welfare, Government of India, initiated the first National Family Health Surveys (NFHS-1) in 1991. A second National Family Health Survey (NFHS-II) was carried in 1998-99.

The main objective of the first survey was to provide State and National level estimates of fertility, infant and child mortality, contraception prevalence, maternal and child health care and the utilization of services provided by the government health system for mothers and children. As part of this survey, data on infant feeding, child nutrition were also collected. Anthropometric data were collected on children under 4 years of age. In addition to data on infant feeding and anthropometry and prevalence of anaemia in children below 4 years, in the NFHS-2, haemoglobin estimations in pregnant women, preschool children and non-pregnant and non-lactating women were also collected. The survey also collected data on food consumption.

Government and International agencies have extensively used these data to assess the changes in nutritional status.

From NFHS we move on to the fourth monitoring system i.e. district level household survey.

### 4) *District Level Household Survey (DLHS-2)*

The International Institute for Population Sciences, Mumbai, at the request of the Government of India, carried out a district level household survey (DLHS-RCH) covering 300 districts in 2002-2003. The main focus of the DLHS was to create a database on the reproductive and child health at the District level. In the subjects covered in this survey was a component on the nutritional status (**weight/age**) of children below 72 months. Haemoglobin levels were estimated in preschool children, adolescent girls (10-14 years) and pregnant women of 15 to 44 years of age. Consumption of iodized salt (at concentration of 7 ppm and 15 ppm) at the household levels were also assessed.

From our discussion above it must be clear that we have few organizations in our country, which provide a more systematic approach in collection and compilation of health and nutrition data. Before we proceed to the next topic, let us check what we have learnt so far by answering the check your progress exercise given herewith.

<p><b>Check Your Progress Exercise 1</b></p> <p>1. What is nutrition monitoring?</p> <p>.....</p> <p>.....</p> <p>2. List the main objectives of nutrition monitoring.</p> <p>.....</p> <p>.....</p> <p>3. List the four notable organizations/systems involved with nutrition monitoring in our country.</p> <p>.....</p> <p>.....</p> <p>4. List the objectives and unique features of National Nutrition Monitoring Bureau.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
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Now, we move on to the next topic i.e. nutrition surveillance system.

### 9.3 NUTRITION SURVEILLANCE SYSTEM (NSS)

Earlier in this unit we studied about nutrition monitoring. Nutrition monitoring you would realize is usually an integral part of nutrition surveillance. Quite often, the terms "nutrition surveillance" and "nutrition monitoring" as mentioned earlier too are used synonymously. What then is nutrition surveillance? *Nutrition surveillance means watching over nutrition in order to make decisions, which will lead to improvement of nutritional status of population.*

*Nutrition surveillance is a continuous and systematic process of collection, analysis, interpretation of information to assess nutritional status and initiate appropriate early action to promote optimal nutrition.*

Nutrition monitoring is usually an integral part of nutrition surveillance and you already know, it refers to "repeated measurements of the nutritional status, at regular intervals of population or a specific group of individuals over a period of time. 'Surveillance', on the contrary, is concerned with data on the current status/ activities at local levels for initiating action in response to events occurring during specific programme implementation in the population. Nutrition surveillance, therefore, encompasses analysis and action to promote better health and nutrition.

While studying about nutrition surveillance it is important for us to familiarize ourselves with a term "Triple A Cycle". What is Triple A? Let's find out. Triple A means Assessment, Analysis and Action. Nutrition Surveillance is carried out adapting triple A Cycle as indicated in Figure 9.1 herewith

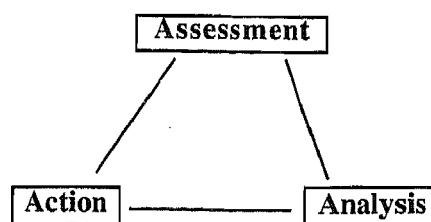


Figure 9.1: The Triple A cycle

The first step in the cycle is *assessment* of the nutritional status of an individual, which is followed by *analysis* of the causes for deterioration in nutritional status. For example, the reasons could be delayed complementary feeding, inadequate dietary intake, frequent attacks of morbidity and non-utilization of services provided by the government etc. The health and nutrition workers should carefully enquire the reasons at the household level and initiate suitable *action*, which is the next step in nutrition surveillance. The action may be education of the mother about initiation of complementary feeding by the age of 6 months or frequent feeding of energy rich foods or controlling morbidity. The triple A cycle is not one time activity but a continuous process.

Having understood the concept of nutrition surveillance, let us now look at the objectives and uses of nutrition surveillance. We will also discuss what infrastructure could be used to establish NSS in the country. At the end, we would discuss the key indicators and the importance of computerization in carrying out effective nutrition surveillance.

Let us now begin with the objectives of nutrition surveillance.

### 9.3.1 Objectives of Nutrition Surveillance

The main aim of nutrition surveillance is *early identification of at risk groups of population like children and mothers so as to institute appropriate interventions/actions to prevent undernutrition*. Thus, objectives of effective nutrition surveillance are:

1. It should identify the prevalent nutrition-related problems and the high-risk groups.
2. The information collected in NSS should prompt initiation of appropriate intervention programmes to prevent the occurrence of nutritional disorders. Surveillance should never exist in isolation from action.
3. It also should provide information on nutrition and health of communities to help in the preparation of action plans at different levels.
4. It should assist in the management and evaluation of health and nutrition related programmes.
5. The nutrition surveillance should also be able to provide timely warning about impending nutrition disasters.

Next, let us look at the uses of nutrition surveillance.

### 9.3.2 Uses of Nutrition Surveillance System

Nutrition surveillance system can have various uses. Some of the important uses include:

1. The most important contribution of NSS is to help in early diagnosis, initiating of prompt and immediate remedial measures to control undernutrition and thus promote the nutritional status.
2. The NSS provides information on the current nutritional status, the geographic distribution of nutrition problems (identification of geographic areas), causes and changes in the prevalence/incidence over time, the actions initiated and their effects.

3. The NSS can help to identify the seasons of nutritional stress.
4. The NSS can also be used for performance evaluation of the ongoing intervention programmes and assessment of contributory factors.
5. It can help the administration in prioritizing actions, so as to modify policies and programmes from time to time.
6. The NSS can provide information on nutritional trends over a period of time and help in establishing a database on nutrition and related indicators to enable assessment, constantly, of the extent of achievement of the national nutritional goals.

We learnt about the objectives and uses of nutrition surveillance system. Let us now study how we can institutionalize NSS i.e. what kind of infrastructure do we need for NSS.

### 9.3.3 Infrastructure for Nutrition Surveillance System

The important step in the establishment of national NSS is identification of suitable infrastructure. It would be preferred that we use an existing infrastructure rather than establishing a new set up. In India, Integrated Child Development Services (ICDS) is one of the largest nation-wide child development programmes. What is ICDS? You will learn about it in detail in Unit 10. We will discuss here how it could be used to develop NSS.

ICDS is best suited for developing NSS at the national level for the following reasons:

1. It is currently in operation in most of the community development blocks in the country and, as per the National Nutrition Policy (NNP) it will be expanded to the entire rural and 50% of the urban areas of the country.
2. It has the necessary infrastructure and trained manpower with a built-in management information system from the village level up to the national level.
3. Growth monitoring, an important requisite to find out the nutritional status of children is an integral part of ICDS. All the nutrition goals set by the NNP are covered by the ICDS activities.
4. More importantly, ICDS has a built in monthly progress reporting (MPR) system, which could be an important tool for NSS.

What is Monthly Progress Reporting (MPR) system? Let us find out more about it.

#### *Monthly Progress Reporting (MPR) system*

At present, Anganwadi Workers (AWW) at the anganwadi centre (village) level monitor the ICDS scheme through a system of monthly progress reports (MPR). The Supervisors and the Child Development Project Officers (CDPOs) consolidate these MPRs. These contain mostly quantitative information on the coverage under different components of ICDS (Process variables). For effective NSS, there should be a provision to identify, at different levels, "children at-risk" or "problem areas" so that corrective action could be immediately initiated. Information should be collected about the reasons for low coverage for various nutrition programmes like supplementary feeding programme, semi-annual distribution of massive dose of vitamin A, nutritional anaemia control programme, universal immunization programme etc. The information so collected should help the workers in taking immediate action. Critical review of the MPRs is essential at various levels i.e. village to the level of State, to improve the performance of the programmes.

In addition to ICDS, the Department of Health, which has extensive infrastructure in the rural areas, can also be considered as the delivery mechanism for nutrition

surveillance. In fact, the nutrition surveillance should be a combined approach both by the Health and ICDS departments.

Thus, we saw how we could use the existing infrastructure for establishing NSS. Now let us review the key indicators, which would be critical for a successful nutrition surveillance programme.

### **9.3.4 Key Indicators of Successful Nutrition Surveillance Programme**

ICDS and Health department do collect information on several health and nutrition indicators. However, we would mention here some key indicators which are critical for a successful nutrition surveillance programme. These are:

- Enrolment and attendance of different beneficiaries for supplementary nutrition and preschool education,
- Nutritional status of children and its trends,  
Growth faltering among children,
- Prevalence of nutritional deficiency signs like oedema (kwashiorkor), wasting (marasmus), Bitot spots, night blindness and visible goitre.
- Coverage under national programmes namely:
  - a. Immunization of children and expectant women,
  - b. Vitamin 'A' distribution to children,
  - c. Distribution of IFA tablets to children, pregnant woman and lactating women.
- Prevalence of low birth weight,
- Vital rates in different age and physiological groups, and
- Prevalence of common morbidity in children and causes for deaths.

Thus, the indicators given above could provide necessary information on nutritional status **and** coverage of target population in nutrition and health intervention programmes. You probably know that computerization, like in any other programme, could help in efficient delivery of NSS. Let us now study how could computerization help in efficient delivery of NSS.

### **9.3.5 Computerization for Monitoring and Surveillance**

The success of any surveillance programme depends on the regularity of submission of the reports, assessment of their completeness and correctness and reviewing the reports for further action. Manual compilation and consolidation of the data from different AWCs/Sectors/Projects on a continuous basis is often time consuming, and is liable to errors. Hence, a simple, user-friendly, computer software can be developed to enable the concerned personnel at each project level to enter the surveillance data on Personal Computers (PC) and obtain the necessary reports for assessing the actual status and initiating appropriate action at every level. If the existing NICNET services are utilized, the surveillance reports can be made available for decision making to all the developmental agencies and the office of the District Collector. The district authorities can also utilize the information for preparation of action plan for nutrition, and for targeting and reviewing the developmental programmes. The software programme will also help in the performance appraisal and remedial administrative measures. It also helps to present the data in a graphic form for easy comprehension. A feedback mechanism would motivate the ICDS functionaries at different levels and facilitate initiation of appropriate action without any time delay. There is another important thing you have to remember is that the quality of the data collected by different workers should be ensured. Therefore, all the workers involved should be adequately trained in filling and interpretation of the MPRs and health-related information. While all the fresh recruits could be trained at the induction

level, those already in service should receive appropriate training. Training modules may be necessary to ensure uniformity.

You will be happy to note that the National Nutrition Policy of the Government of India and the National Plan of Action on Nutrition recommended establishment of National Nutrition Surveillance System. The Tenth Five Year Plan also recommended an integrated nutrition monitoring and surveillance programme through the existing resources and the agencies.

Thus, in this unit we learnt about various aspects of nutrition monitoring and nutrition surveillance. In the next unit, we will study about Nutrition Policy and Programmes implemented by our government to eliminate malnutrition from the country.

**Check Your Progress Exercise 2**

1. What is Nutrition Surveillance?

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2. Name two main infrastructure/systems in India that could provide a useful delivery mechanism for NSS.

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3. Mention key indicators that could be critical for successful nutrition surveillance programme.

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**9.4 LET US SUM UP**

We learnt in this unit that Nutrition monitoring is a tool to keep a watch on the nutritional status of communities to assess the changes in nutritional status of communities over a period of time. There are several organizations/programmes which collect systematic information on nutrition, health and demography in our country. Most notable among these are National Nutrition Monitoring Bureau, National Sample Survey Organization and National Family Health Survey. This unit discusses in detail about these three organizations and their activities related to nutrition monitoring. Nutrition surveillance is a continuous and systematic process of collection, analysis, interpretation of information to assess nutritional status and initiate appropriate early action to promote optimal nutrition. Nutrition monitoring is an integral part of nutrition surveillance.

**9.5 GLOSSARY**

- Encephalitis** : general term used to describe a diffuse inflammation of the brain and spinal cord, usually of viral origin, often transmitted by mosquitoes.
- Process variable** : variables which measure certain activities or processes in a programme.
- Supplementary feeding** : supplementary feeding means extra food which makes up for a deficiency in the normally consumed diets of individuals.

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## 9.6 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

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### Check Your Progress Exercise 1

1. Nutrition Monitoring is a tool to keep a watch on the nutritional status of communities to assess the changes in nutritional status of communities over a period of time.
2. The two main objectives of nutrition monitoring are:
  - To assess the nutritional status of representative groups of communities on a continuous basis in order to study the changes in the nutritional status, if any; and
  - To evaluate the various nutrition intervention programmes in operation to determine the achievement or otherwise of the goals.
3. The four organizations include National Nutrition Monitoring Bureau (NNMB), National Sample Survey Organization (NSSO), National Family Health Survey (NFHS) and District Level Household Survey (RCH-2).
4. The objectives of NNMB include;
  - To collect, on a continual basis, on representative segments of population in each of the states data on dietary pattern and nutritional status adopting standardized and uniform procedures and techniques, and
  - To periodically evaluate the ongoing national nutrition programmes, to identify their strengths and weakness and to recommend appropriate corrective measures.

The Unique features of NNMB are;

1. Organization of repeat surveys in 1988-90 and 1996-97, in the same village in all the states that were surveyed during 1975-79, to assess time trends in diet and nutrition surveys.
2. Periodic generation of data on diet and nutritional status of socially vulnerable groups of population like the tribals living in integrated tribal development project areas, and the population physiologically at risk like elderly and adolescents.
3. Continuous collection of data on actual dietary intakes of families and individuals belonging to different physiological and age groups, in different states. NNMB is the only organization generating this type of data.
4. Assessment of intra-family distribution of foods and nutrients.

### Check Your Progress Exercise 2

1. Nutrition surveillance is a continuous and systematic process of collection, analysis, interpretation of information to assess nutritional status and initiate appropriate early action to promote optimal nutrition,
2. In India, we have two infrastructures/systems that could be used to establish NSS. These are Integrated Child Development Services (ICDS) and Health Department.
3. Key indicators which are critical for a successful nutrition surveillance programme are:
  - Enrolment and attendance of different beneficiaries for supplementary nutrition and preschool education.

## Public Nutrition

- Nutritional status of children and its trends,
- Growth faltering among children;
- Prevalence of nutritional deficiency signs like oedema (kwashiorkor), wasting (marasmus), Bitot spots, night blindness and visible goitre.
- Coverage under national programmes namely,
  - a. Immunization of children and expectant women,
  - b. Vitamin 'A' distribution to children,
  - c. Distribution of IFA tablets to children, pregnant woman and lactating women.
- Prevalence of low birth weight,
- Vital rates in different age and physiological groups, and
- Prevalence of common morbidity in children and causes for deaths.