EXTENDED LECTURE OUTLINE

FND6 122 Nutritional Program Surveillance (1+2)

Theory

I: Nutrition Monitoring and Surveillance – Definition, Introduction, Need and Significance

- Definition of Nutrition Monitoring and Nutrition Surveillance
- Differences between monitoring and surveillance
- Historical development and evolution of nutrition surveillance systems
- Concept and scope of nutrition surveillance
- Need for nutrition surveillance:
    - Early detection of malnutrition trends
    - Identification of vulnerable and at-risk populations
    - Evidence for planning and policy formulation
- Significance:
    - Supports national nutrition programs
    - Facilitates resource allocation and prioritization
    - Helps in crisis/emergency response (famine, disasters)
- Role in public health nutrition and national development

II: Principles of a Food and Nutrition Surveillance System and Implementation Steps

- Principles of food and nutrition surveillance systems:
    - Simplicity, flexibility, acceptability
    - Representativeness and coverage
    - Timeliness and stability
    - Accuracy, reliability and validity
- Guiding principles:
    - Ethical considerations (confidentiality, informed consent)
    - Sustainability of the system
    - Intersectoral coordination and collaboration
- Components of surveillance system:
    - Data collection, analysis, interpretation, dissemination, feedback
- Implementation steps:
    1. Defining objectives and scope
    2. Selection of appropriate indicators
    3. Designing data collection methods and tools
    4. Sampling design
    5. Data management and analysis
    6. Interpretation of findings
    7. Dissemination and utilization of information
    8. Monitoring, supervision and evaluation

III: Nutrition Surveillance in Developed and Underdeveloped Countries

- Overview of nutrition surveillance globally
- Nutrition surveillance in developed countries:
    - Characteristics: advanced data systems, continuous surveys
    - Use of electronic databases and national surveys
    - Examples: USA (NHANES), Canada, Europe, Japan
- Nutrition surveillance in underdeveloped/developing countries:
    - Focus on undernutrition, food insecurity, micronutrient deficiencies
    - Use of periodic surveys and sentinel systems
- Key differences:
    - Infrastructure, funding, technology use
    - Data quality and coverage
- Challenges in developing countries:
    - Limited trained manpower
    - Financial constraints
    - Weak infrastructure
- Scope for strengthening surveillance systems

IV: Setting up Food and Nutrition Surveillance System Activities – Strengthening a Food and Nutrition Surveillance System

- Objectives and scope of setting up a surveillance system
- Activities involved:
    - Establishment of institutional framework
    - Development of data collection tools
    - Capacity building and training of personnel
- Selection of indicators
- Data collection methods:
    - Household surveys
    - Community-based monitoring
    - Facility-based data
- Data analysis and interpretation
- Dissemination and use of information:
    - Reports, dashboards, policy briefs
- Monitoring and evaluation of surveillance system
- Strengthening strategies:
    - Integration with health and nutrition programs
    - Use of ICT and digital platforms
    - Community participation
    - Continuous quality improvement

V: Nutritional Programs – Implementation, Monitoring and Evaluation

- Concept and importance of nutrition programs
- Steps in program implementation:

    - Planning, resource allocation, execution
- Monitoring of nutrition programs:
    - Process monitoring
    - Performance indicators
- Evaluation:
    - Process, outcome and impact evaluation
- Tools and techniques for evaluation
- Use of surveillance data in program improvement
- Examples of national nutrition programs (India):
    - ICDS
    - POSHAN Abhiyaan
    - Mid-Day Meal Programme

VI: Concept of E-Surveillance on the Nutritional Situation in the Country

- Definition and concept of E-surveillance
- Key features:
    - Digital data collection
    - Real-time reporting
    - Online dashboards and analytics
- Components:
    - Mobile-based applications
    - Cloud-based data storage
- Real-time monitoring systems:
    - GIS mapping
    - Automated alerts
- Benefits:
    - Timeliness, accuracy and transparency
    - Improved decision-making
- Challenges:
    - Digital divide
    - Data privacy and security
    - Technical constraints
- Examples in India:
    - POSHAN Tracker
    - HMIS

VII: Elements of the Nutritional Assessment – Individual and Population Assessment – Measuring Malnutrition

- Elements of nutritional assessment:
    - Anthropometric assessment (height, weight, BMI, MUAC)
    - Biochemical assessment (blood and urine tests)
    - Clinical assessment (deficiency signs)
    - Dietary assessment (24-hour recall, FFQ)

- Individual assessment:
    - Clinical diagnosis and dietary evaluation
- Population assessment:
    - Surveys and community-level assessments
- Measurement of malnutrition:
    - Indicators: stunting, wasting, underweight
    - BMI classification
- Interpretation of assessment results

VIII: Sampling of Population

- Definition and importance of sampling
- Sampling methods:
    - Random sampling
    - Stratified sampling
    - Cluster sampling
- Sampling design in nutrition surveys
- Sample size determination
- Ensuring representativeness and minimizing bias

IX: Supervision, Monitoring and Evaluation

- Supervision:
    - Field supervision and quality control
- Monitoring:
    - Continuous tracking of program activities
- Evaluation:
    - Process evaluation
    - Outcome evaluation
    - Impact evaluation
- Role in improving surveillance systems
- Feedback mechanisms

X: Real Time Monitoring System

- Concept and importance of real-time monitoring
- Components:
    - Digital tools and mobile applications
    - Data dashboards
- Applications in nutrition programs
- Advantages:
    - Immediate decision-making
    - Early warning systems
- Limitations and challenges

XI: Malnutrition – Causative Factors

- Definition and types of malnutrition

- Causative factors:
    - Immediate causes: inadequate dietary intake, disease
    - Underlying causes: food insecurity, poor care practices, sanitation
    - Basic causes: socio-economic and political factors
- Interrelationship between causes

XII: Food Security Assessment, Health Assessment and its Significance in Nutrition Surveillance

- Food security:
    - Definition and dimensions (availability, accessibility, utilization, stability)
- Methods of food security assessment
- Health assessment:
    - Morbidity, mortality, disease burden
- Significance:
    - Identifying vulnerable populations
    - Supporting nutrition planning and interventions

XIII: Indicators of Food and Nutrition Security – Types and Characteristics of Indicators

- Definition of indicators
- Types:
    - Input, process, output, outcome, impact indicators
    - Direct and indirect indicators
- Indicators of food and nutrition security:
    - Dietary intake indicators
    - Anthropometric indicators
    - Socio-economic indicators
- Characteristics:
    - Validity, reliability, sensitivity, specificity, feasibility

XIV: Application and Usefulness of Indicators for Different Objectives and Nutritional Problems

- Application of indicators:
    - Monitoring nutritional status
    - Evaluating programs
    - Policy formulation
- Usefulness:
    - Identification of at-risk populations
    - Tracking progress over time
- Application for specific problems:
    - Protein-energy malnutrition
    - Anemia
    - Micronutrient deficiencies

XV: Selection of Indicators and Levels of Assessment

- Criteria for selection of indicators:

    - Relevance to objectives
    - Feasibility and cost-effectiveness
    - Data availability
- Levels of assessment:
    - Individual level
    - Household level
    - Community level
    - National level
- Integration of indicators for comprehensive assessment

References

1. Park K. – *Preventive and Social Medicine*
2. Bamji MS et al. – *Textbook of Human Nutrition*
3. ICMR-NIN – *Dietary Guidelines for Indians*
4. FAO – *Nutrition Education Materials and Methods*
5. WHO – *Nutrition Education and Behavior Change Communication*
6. UNICEF – *Communication for Development*
7. Swaminathan – *Food and Nutrition*
8. NFHS & Government of India program documents