Professional Certificate in Nutrition in Humanitarian Aid

Nutrition Programming in Emergencies

Nutrition programming in emergencies relies on a shared set of concepts and terminology that enable practitioners to assess needs, design interventions, and evaluate outcomes across diverse crisis contexts. Understanding these key terms is essential for coherent planning, coordination, and delivery of nutrition services. The following explanation provides detailed definitions, practical examples, and common challenges associated with each term, forming a comprehensive reference for professionals working in humanitarian nutrition.

Acute malnutrition refers to a rapid loss of body weight and muscle mass that occurs over weeks or months, usually as a result of food shortages, disease, or displacement. It is measured using three primary indicators: weight-for-height Z-score (WHZ), mid-upper-arm circumference (MUAC), and the presence of nutritional oedema. For instance, a child with a WHZ below –2 standard deviations (SD) is classified as moderately acutely malnourished, while a WHZ below –3 SD or a MUAC less than 115 mm identifies severe acute malnutrition (SAM). In practice, rapid screening using MUAC bands enables community health workers to identify children who need therapeutic feeding within minutes, even in remote camp settings. A common challenge is maintaining the quality of MUAC measurements when staff turnover is high; regular refresher training and supervision are required to ensure reliability.

Chronic malnutrition, also known as stunting, reflects long-term nutritional deprivation that impairs linear growth. It is assessed by height-for-age Z-score (HAZ) below –2 SD. Stunted children may appear physically healthy but have reduced cognitive development and increased susceptibility to chronic disease later in life. For example, a school-age child who is 5 cm shorter than the median for his age group likely experienced repeated bouts of infection and inadequate dietary diversity during early childhood. Addressing chronic malnutrition in emergencies often involves supplementary feeding programs that provide nutrient-dense foods for an extended period, coupled with nutrition education to promote diversified diets. One challenge is that stunting is not reversible in the short term, so interventions must be integrated with longer-term development strategies.

Under-nutrition is a broad term encompassing both acute and chronic forms of insufficient intake of energy, protein, and micronutrients. It is the most common nutritional problem in humanitarian crises, especially in populations that have lost access to regular markets or agricultural production. An example of under-nutrition is a displaced family that subsists on a single staple such as rice, resulting in inadequate intake of vitamin A, iron, and zinc. Programmatically, under-nutrition is tackled through food assistance, cash-based transfers, and nutrition-specific interventions like fortified blended foods. A persistent challenge is ensuring that provided food items meet cultural preferences and are stored safely in overcrowded shelters.

Over-nutrition describes excess intake of calories and fats, leading to overweight and obesity. While less visible in acute crises, over-nutrition can emerge in protracted emergencies where food aid includes

high-calorie, low-nutrient items. For instance, a long-term refugee camp may receive bulk wheat flour and oil, contributing to weight gain among adults who have limited opportunities for physical activity. Monitoring body-mass index (BMI) trends among adult populations helps detect emerging over-nutrition risks. Addressing this issue requires modifying food baskets to include more fresh produce and promoting physical activity through safe spaces, which can be difficult in densely populated camps.

Severe acute malnutrition (SAM) is a critical condition that demands immediate therapeutic care to prevent death. SAM is identified by any of the following: MUAC Moderate acute malnutrition (MAM) denotes a less severe but still concerning nutritional deficit, defined by MUAC ≥ 115 mm and Mid-upper-arm circumference (MUAC) is a quick, field-friendly anthropometric measure that assesses muscle and subcutaneous fat. It is taken at the midpoint between the tip of the shoulder and the elbow on the left arm, using a calibrated colour-coded tape. A MUAC Weight-for-height Z-score (WHZ) compares a child's weight to the expected weight for a given height based on WHO growth standards. WHZ is expressed in standard deviations from the median; values below –2 SD indicate acute malnutrition. WHZ is more precise than MUAC for assessing body composition, especially in children with oedema, but it requires reliable height and weight measurements, which can be difficult in field settings. The need for calibrated scales and stadiometers, as well as the time required for measurement, often limit the use of WHZ in emergency screenings.

Therapeutic feeding encompasses the provision of specially formulated foods and medical care to treat SAM. The cornerstone of therapeutic feeding is the use of ready-to-use therapeutic food (RUTF), a peanut-based paste enriched with vitamins and minerals that does not require cooking, water, or refrigeration. In an outpatient setting, caregivers are instructed to give the child a specific amount of RUTF each day, typically two sachets, to achieve a weight gain of 4–5 g/kg/day. In inpatient settings, therapeutic milks such as F-75 and F-100 are used to stabilize the child before transitioning to RUTF. Practical challenges include ensuring that RUTF is accepted by children who may be unfamiliar with its taste, as well as preventing diversion of the product to other household members.

Ready-to-use therapeutic food (RUTF) is a lipid-based nutrient-dense paste designed for the treatment of SAM without the need for water or cooking. It contains peanuts, milk powder, sugar, oil, and a vitamin-mineral premix. RUTF can be stored at ambient temperature for up to two years, making it ideal for remote or conflict-affected areas. For example, in a refugee camp in East Africa, RUTF was distributed daily through community health volunteers to children with SAM, achieving cure rates above 80 %. A recurring challenge is the high cost of imported RUTF, which may be mitigated by supporting local production under quality-assured conditions.

Supplementary feeding programmes (SFP) aim to prevent the progression of MAM to SAM and to address moderate under-nutrition. They typically provide fortified blended foods (e.g., CSB + oil) or lipid-based nutrient supplements (e.g., Plumpy'Sup) to children aged 6–59 months and sometimes to pregnant or lactating women. An SFP may be "targeted" (only children meeting specific anthropometric criteria receive the supplement) or "blanket" (all children in a defined age group receive it). In a flood-affected region, a blanket SFP was implemented to ensure that every child under five received a daily ration of fortified blended food, resulting in a measurable reduction in MAM prevalence after three months. Challenges include logistic constraints in delivering the food to hard-to-reach areas and ensuring that the supplement

is not shared with other family members.

Cash-based interventions (CBI) provide cash or vouchers to households, allowing them to purchase food according to their preferences and local market availability. CBIs can be unconditional cash transfers, conditional cash transfers (tied to health-seeking behaviours), or food vouchers redeemable at designated shops. For example, a humanitarian agency may distribute monthly cash payments to displaced families, enabling them to buy fresh produce and animal-source foods, thereby improving dietary diversity. While CBIs increase beneficiary autonomy, they also rely on functional markets; in contexts where food prices have spiked due to supply disruptions, cash may not translate into adequate nutrition, presenting a significant operational challenge.

Food security denotes a situation in which all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and preferences for an active and healthy life. In emergencies, food security is threatened by loss of livelihoods, market disruptions, and damaged infrastructure. Rapid food security assessments, such as the Food Consumption Score (FCS) or the Integrated Food Security Phase Classification (IPC) scale, help determine the severity of the situation and guide the scale of response. A common challenge is that food security can fluctuate rapidly during a crisis, requiring continuous monitoring and flexible programming.

Food consumption score (FCS) is a composite indicator of dietary diversity, food frequency, and relative nutritional importance of food groups over a seven-day recall period. Households receive a score based on the weighted sum of food groups consumed, with higher scores indicating better food security. In a protracted conflict setting, an FCS below 35 may signal “poor” food consumption, prompting the activation of emergency food assistance. The FCS is simple to administer but may not capture micronutrient adequacy; therefore, it is often complemented with other indicators such as the Household Dietary Diversity Score (HDDS).

Integrated Food Security Phase Classification (IPC) provides a standardized scale ranging from “Minimal” to “Famine” to classify the severity of food insecurity. The IPC framework combines evidence on food availability, access, utilization, and stability to assign a phase. For instance, a region classified as “Crisis” (IPC Phase III) may trigger a multi-sectoral response that includes food assistance, nutrition interventions, and livelihood support. The challenge lies in obtaining reliable data in insecure areas, where access for assessment teams is limited, potentially leading to delayed or inaccurate phase assignments.

Infant and young child feeding (IYCF) refers to recommended practices for feeding children from birth to two years of age, emphasizing exclusive breastfeeding for the first six months, followed by timely introduction of complementary foods while continuing breastfeeding up to two years or beyond. In emergency settings, maintaining IYCF practices is critical because infants are highly vulnerable to infections and malnutrition. For example, a mobile health team may distribute breast-milk substitutes only when a mother’s own milk is insufficient, and provide counselling on proper preparation, storage, and feeding techniques. Challenges include misinformation about breast-milk substitutes, cultural beliefs that discourage breastfeeding, and the lack of privacy for mothers in crowded shelters.

Micronutrient deficiencies occur when the intake of essential vitamins and minerals such as vitamin A, iron,

iodine, and zinc falls below physiological requirements. In emergencies, micronutrient deficiencies can be exacerbated by limited diet diversity and increased disease burden. Interventions include micronutrient powders (MNP), multiple micronutrient tablets, and fortification of staple foods. For instance, distributing 10-gram sachets of MNP to children aged 6–23 months can reduce anaemia prevalence and improve growth outcomes. A key challenge is ensuring correct usage; caregivers may forget to add the powder to the child's food daily, reducing the effectiveness of the intervention.

Multiple micronutrient powders (MNP) are sachets containing a blend of vitamins and minerals that can be mixed into semi-solid foods. They are designed for home fortification of children's meals and are particularly useful in settings where dietary diversity is limited. An example is the "Sprinkles" programme, which provides caregivers with one sachet per day to add to porridge or mashed fruit. The programme's success hinges on behaviour change communication that reinforces the importance of daily use and correct dosage. Common obstacles include caregiver fatigue, taste aversion, and supply chain interruptions.

Vitamin A supplementation (VAS) involves the periodic distribution of high-dose vitamin A capsules (often 200,000 IU for children 12 months and older) to prevent deficiency-related blindness and increase resistance to infections. In emergency contexts, VAS is frequently integrated with measles vaccination campaigns to maximise coverage. For example, a combined VAS-measles campaign in a displaced-person camp achieved 90 % coverage within two weeks. However, logistical challenges such as cold-chain constraints are minimal for VAS, yet ensuring that children receive the correct dose without duplication can be difficult when multiple agencies operate simultaneously.

Therapeutic milks (F-75, F-100) are specially formulated formulas used in inpatient treatment of SAM. F-75 is a "starter" formula providing 75 kcal/100 ml, used during the stabilization phase to prevent re-feeding syndrome. Once the child stabilizes, the higher-energy F-100 (100 kcal/100 ml) is introduced to promote rapid weight gain. In a stabilization centre, a nurse may calculate the daily volume of F-75 based on the child's weight (e.g., 150 ml/kg/day) and monitor for signs of fluid overload. A challenge is the need for reliable electricity and clean water to reconstitute the powders, which may be scarce in remote or conflict-affected facilities.

Stabilization centre (SC) is a health facility equipped to provide inpatient care for severely ill children, including those with SAM, severe acute watery diarrhoea, or severe acute respiratory infections. SCs offer a controlled environment where therapeutic milks, intravenous fluids, and antibiotics can be administered under close supervision. For instance, a SC in a conflict zone may admit children with SAM and concurrent malaria, providing antimalarial treatment alongside nutritional rehabilitation. The major challenge is maintaining a continuous supply of medicines, therapeutic foods, and trained staff, especially when security constraints limit access for humanitarian workers.

Outpatient therapeutic programme (OTP) delivers treatment for uncomplicated SAM in a community-based setting, allowing children to receive RUTF at home while attending regular follow-up visits. OTPs reduce the need for hospitalization, lower costs, and improve coverage. A typical OTP protocol includes weekly weighing, MUAC measurement, and monitoring for medical complications. In a flood-affected district, an OTP was set up in a school building, enabling caregivers to collect RUTF without leaving the camp. Challenges include ensuring that children who develop complications are promptly referred to a

stabilization centre, and maintaining accurate records in settings with limited digital infrastructure.

Community-based management of acute malnutrition (CMAM) is a comprehensive approach that integrates community screening, OTP, and inpatient care, emphasizing early detection and treatment close to the household. CMAM relies on trained community health volunteers (CHVs) to conduct MUAC screenings and refer children to appropriate services. For example, a CHV network in a mountainous region identified 150 children with SAM over a three-month period, achieving a cure rate of 85 % through the combined CMAM system. Challenges include sustaining volunteer motivation, providing adequate incentives, and ensuring supervision in remote areas.

Nutrition cluster is a coordination mechanism led by the United Nations World Food Programme (WFP) or UNICEF, bringing together humanitarian actors to harmonize nutrition activities, share data, and avoid duplication. The cluster mobilises technical expertise, develops joint action plans, and facilitates resource allocation. During a complex emergency, the nutrition cluster may produce a joint nutrition sector plan outlining targets for SAM treatment, supplementary feeding, and micronutrient interventions. A common obstacle is the competition for limited funding among agencies, which can hinder consensus on priority actions and lead to fragmented programming.

Integrated rapid assessment (IRA) is a methodology that quickly gathers data on health, nutrition, water, sanitation, and shelter conditions to inform immediate response decisions. IRA tools often combine household surveys, focus group discussions, and facility assessments. An IRA conducted within 48 hours of a landslide identified a surge in diarrhoeal disease, prompting the rapid deployment of oral rehydration solution (ORS) kits and chlorine tablets. The main difficulty is balancing speed with data quality; rushed assessments may miss nuanced information, leading to suboptimal interventions.

Household dietary diversity score (HDDS) measures the number of food groups consumed by a household over a reference period, typically 24 hours. The score provides a proxy for micronutrient adequacy; higher diversity usually correlates with better nutrient intake. In an emergency setting, an HDDS can be used to monitor changes in diet as market access improves or declines. For instance, after a food-aide distribution, the average HDDS in a camp rose from 3 to 5, indicating increased consumption of vegetables and protein sources. However, HDDS does not capture portion sizes or the quality of foods, limiting its interpretability.

Water, sanitation, and hygiene (WASH) interventions are critical for preventing nutrition-related infections, especially diarrhoea, which exacerbates malnutrition. WASH activities include provision of safe drinking water, latrine construction, hygiene promotion, and distribution of soap. An example is the installation of communal water points and the training of “hygiene promoters” to teach families proper hand-washing techniques after latrine use. The challenge lies in maintaining water quality over time; contamination can occur if storage containers are not cleaned regularly, undermining the health benefits.

Oral rehydration solution (ORS) is a lifesaving mixture of glucose, sodium, potassium, and citrate that restores fluid and electrolyte balance in children with acute diarrhoea. In emergencies, ORS packets are often pre-measured and can be mixed with clean water at home. Distribution of ORS through health posts, pharmacies, and community volunteers has been shown to reduce diarrhoea-related mortality dramatically. A practical difficulty is ensuring that caregivers understand the correct preparation ratio and that clean

water is available; in settings where water is scarce, the use of ORS may be limited.

Therapeutic feeding protocols provide step-by-step guidance on the management of SAM, including dosage calculations, feeding schedules, and monitoring criteria. Protocols such as the WHO 10-step guideline standardise care across different contexts, facilitating training and supervision. For example, a protocol may specify that a child receiving RUTF should consume two 92-gram sachets per day, equivalent to approximately 200 kcal/kg/day. Adherence to protocols can be compromised by staff shortages, high patient loads, and language barriers, necessitating simplified job aids and regular refresher sessions.

Screening tools are devices or questionnaires used to identify individuals at risk of malnutrition. Common tools include MUAC tapes, growth-monitoring charts, and nutrition risk assessment questionnaires that capture factors such as recent illness, loss of appetite, and food insecurity. In a rapid-deployment scenario, volunteers might use a colour-coded MUAC tape that instantly flags children as “green” (normal), “yellow” (moderate risk), or “red” (high risk). A challenge is ensuring that screening tools are culturally appropriate and that staff are trained to interpret results accurately, especially when literacy levels vary.

Referral pathways describe the systematic process by which individuals identified as needing higher-level care are directed to appropriate facilities. Effective referral pathways require clear criteria, communication mechanisms (e.g., referral forms or mobile phone alerts), and transport arrangements. For instance, a child with SAM and a fever may be referred from an OTP to a stabilization centre for antibiotic treatment. Weak referral pathways—such as lack of transport or poor feedback loops—can lead to loss to follow-up and increased mortality.

Case management in nutrition refers to the coordinated series of actions taken to assess, treat, and monitor an individual’s nutritional status. It includes initial assessment, classification of severity, treatment planning, implementation, and follow-up. Case management is often documented using standard forms that capture anthropometry, medical history, treatment received, and outcomes. In practice, a case manager may track a child’s weight gain weekly, adjusting RUTF dosage as needed. The main difficulty is maintaining accurate records in environments where paper can be lost, damaged, or destroyed by weather events.

Monitoring and evaluation (M&E) is the systematic collection and analysis of data to assess the performance of nutrition programmes and inform decision-making. Core M&E indicators include admission and discharge rates for SAM, cure rates, default rates, and mortality. An M&E system may utilise both routine data from health facilities and periodic surveys such as the SMART (Standardised Monitoring and Assessment of Relief and Transitions) methodology. Challenges include data quality assurance, timely reporting, and the capacity of local staff to conduct analyses.

SMART surveys are rigorous, statistically sound assessments that measure nutrition and mortality indicators in humanitarian settings. They involve a two-stage sampling design, typically selecting clusters (e.g., villages or camps) and then households within each cluster. SMART surveys provide prevalence estimates for SAM, MAM, and stunting, as well as mortality rates. For example, a SMART survey conducted six months after a cyclone revealed a reduction in SAM prevalence from 4 % to 2 % following a comprehensive nutrition response. Limitations include the need for trained enumerators, logistical planning, and security clearance to access all areas.

Minimum dietary diversity for women (MDD-W) assesses whether women of reproductive age have consumed at least five out of ten defined food groups in the previous 24 hours, indicating adequate micronutrient intake. In emergencies, MDD-W can be used to monitor the impact of food assistance on women's diets. A programme that provides fortified blended foods may see an increase in MDD-W scores among pregnant women. However, the indicator does not capture portion sizes or the bioavailability of nutrients, requiring complementary assessments.

Growth monitoring and promotion (GMP) involves regular measurement of a child's weight and height to detect growth faltering early, coupled with counselling to improve feeding practices. GMP sessions are often conducted at health posts or community centres, where caregivers receive feedback and nutrition education. In a displaced-person setting, weekly GMP helped identify children at risk of MAM before they progressed to SAM. The main obstacle is maintaining attendance; families may prioritize other survival tasks over routine growth checks, necessitating outreach strategies.

Food fortification is the process of adding essential vitamins and minerals to staple foods to improve population-level micronutrient intake. In emergencies, fortification may be applied to commodities such as wheat flour, oil, or salt (iodized salt). For instance, a humanitarian agency may distribute fortified wheat flour that includes iron and folic acid, helping to prevent anaemia among women of childbearing age. A challenge is ensuring that fortified products are stored properly and that the added nutrients remain stable throughout the distribution chain.

Nutrition-sensitive interventions are actions that address underlying determinants of nutrition, such as livelihoods, agriculture, and education, rather than providing direct nutrition services. Examples include cash-for-work programmes that enable families to purchase diverse foods, school-feeding initiatives that improve child attendance and nutrient intake, and agricultural training that promotes home gardening. In a protracted displacement context, a nutrition-sensitive livelihood project that supplies seeds and tools for vegetable cultivation contributed to improved household dietary diversity. The difficulty lies in measuring the indirect impact on nutrition outcomes, as these interventions often have multiple objectives and longer time horizons.

Nutrition-specific interventions target the immediate causes of malnutrition through direct actions such as therapeutic feeding, supplementation, and supplementary feeding. These interventions are essential in acute emergencies where rapid response is needed to save lives. For example, a nutrition-specific emergency response might combine OTP for SAM, SFP for MAM, and VAS for children 6–59 months. While highly effective at reducing mortality, nutrition-specific programmes can be limited by funding constraints and may not address the root causes of food insecurity, highlighting the need for integrated approaches.

Humanitarian coordination mechanisms include clusters, working groups, and joint assessments that facilitate collaboration among NGOs, UN agencies, and government actors. The nutrition cluster, for instance, convenes regular coordination meetings, shares situation reports, and develops joint action plans. Coordination mechanisms aim to harmonise standards, avoid duplication, and optimise resource allocation. A frequent challenge is the competition for limited donor funding, which can lead to fragmented efforts and reduced efficiency if agencies pursue parallel activities without adequate communication.

Sectoral plans are strategic documents that outline the objectives, activities, and indicators for a specific sector, such as nutrition, within the broader humanitarian response. A nutrition sector plan typically includes targets for SAM treatment coverage, MAM reduction, and micronutrient supplementation, along with timelines and resource requirements. The plan serves as a roadmap for implementing agencies and a benchmark for donors. However, sectoral plans can become outdated if the emergency context evolves quickly, requiring regular revisions and adaptive management.

Donor funding cycles influence the timing and scope of nutrition programmes. Many donors allocate funds on a quarterly or annual basis, often tied to specific outcome indicators. For example, a donor may release a grant conditioned on achieving a 70 % cure rate for SAM within six months. While performance-based funding can drive efficiency, it may also create pressure to meet short-term targets at the expense of longer-term sustainability. Programme managers must balance donor expectations with realistic programme capacities and local realities.

Logistics and supply chain management encompass the procurement, transport, storage, and distribution of nutrition commodities such as RUTF, therapeutic milks, and micronutrient tablets. Effective supply chain management ensures that commodities reach beneficiaries in a timely manner and remain safe from spoilage or contamination. In a remote mountainous region, a logistics team may use a combination of air drops and donkey-carried loads to deliver RUTF to health posts. Common challenges include customs clearance delays, insecurity on transport routes, and limited cold-chain capacity for temperature-sensitive items.

Quality assurance (QA) in nutrition programmes involves systematic processes to ensure that inputs, activities, and outputs meet established standards. QA activities may include product testing for nutrient composition, supervision checklists for field staff, and data verification procedures. For instance, a QA officer might test a batch of locally produced RUTF to confirm that it contains the required 20 % protein and 5 % fat. Failure to meet QA standards can result in product rejection, loss of donor confidence, and compromised beneficiary health.

Standard operating procedures (SOPs) are documented, step-by-step instructions that guide staff on how to perform specific tasks, such as preparing therapeutic milks, conducting MUAC screenings, or handling referrals. SOPs promote consistency, reduce errors, and facilitate training of new personnel. In an emergency field office, SOPs for RUTF distribution may specify the sequence of receiving, storing, issuing, and recording the product. The main difficulty is keeping SOPs up-to-date in rapidly changing contexts, as procedural changes may be required when new evidence emerges or when security constraints alter operational capacities.

Capacity building refers to activities that strengthen the skills, knowledge, and systems of local partners, government staff, and community volunteers. Capacity building can include training workshops on SAM management, mentorship programmes for nutrition officers, and strengthening data management systems. For example, a capacity-building initiative that trained 30 community health volunteers in MUAC measurement resulted in a 40 % increase in early detection of SAM cases in a flood-prone district. Challenges include staff turnover, limited training resources, and ensuring that capacity-building efforts translate into sustained practice after the humanitarian actors depart.

Behaviour change communication (BCC) is a strategic approach that uses targeted messages, media, and interpersonal communication to influence knowledge, attitudes, and practices related to nutrition. BCC campaigns may promote exclusive breastfeeding, appropriate complementary feeding, or safe food handling. In a camp setting, BCC might involve radio spots, posters, and group discussions led by peer educators. The effectiveness of BCC depends on cultural relevance, message clarity, and reinforcement over time. A frequent obstacle is misinformation spreading through informal networks, which can undermine positive messages unless countered promptly.

Gender considerations acknowledge that men, women, and children experience emergencies differently and have distinct nutritional needs and access barriers. Women may be more vulnerable to micronutrient deficiencies due to pregnancy, while men may experience higher rates of occupational injuries that affect food acquisition. Nutrition programmes must incorporate gender-sensitive approaches, such as ensuring that cash transfers reach female household heads or that feeding sites are safe for women and children. Challenges include cultural norms that restrict women's mobility, which can limit their participation in programme activities.

Protection principles guide humanitarian actions to safeguard the dignity, safety, and rights of affected populations. In nutrition programming, protection considerations include ensuring that vulnerable groups (e.g., unaccompanied minors, persons with disabilities) are not excluded from services, that confidential health information is handled securely, and that food assistance does not create dependency or exacerbate tensions. For example, distributing food in a way that avoids favouritism can prevent community disputes. Balancing protection with operational efficiency can be complex, especially when security constraints limit access to certain groups.

Ethical considerations involve respecting autonomy, obtaining informed consent, and ensuring that interventions do no harm. When providing therapeutic feeding, practitioners must explain the purpose and potential side effects of RUTF to caregivers, allowing them to make an informed decision. In research contexts, ethical clearance is required before collecting data from vulnerable populations. A common ethical dilemma arises when resource scarcity forces prioritisation of certain beneficiaries; transparent criteria and community involvement can mitigate perceptions of unfairness.

Data protection and privacy are increasingly important in humanitarian settings where personal health information is collected for programme monitoring. Systems must safeguard data against unauthorized access, loss, or misuse. For instance, electronic health records stored on a cloud platform should be encrypted and accessible only to authorised staff. In emergencies, rapid data collection may lead to shortcuts in security protocols, raising the risk of breaches. Implementing clear data governance policies and training staff on confidentiality helps maintain trust with affected communities.

Operational research seeks to generate evidence that improves programme effectiveness and efficiency. In nutrition emergencies, operational research may examine the impact of different RUTF dosing schedules, the feasibility of community-based screening using mobile phones, or the cost-effectiveness of cash versus food aid. Findings from operational research can inform policy revisions and guide future interventions. Conducting research in crisis zones presents challenges such as limited time, ethical constraints, and the need for rapid dissemination of results.

Evidence-based practice emphasizes the use of the best available scientific evidence to guide programme design and implementation. For nutrition programming, evidence-based guidelines include the WHO recommendations for the treatment of SAM, the UNICEF framework for infant and young child feeding, and the Sphere standards for humanitarian response. Practitioners must stay current with evolving evidence, such as new formulations of lipid-based supplements or updated protocols for managing dehydration in malnourished children. The difficulty lies in translating research findings into field-ready tools, especially when resources are constrained.

Sphere standards provide a set of minimum humanitarian standards, including specific benchmarks for nutrition interventions. For example, the Sphere standards set a target of at least 80 % cure rate for SAM treatment and a maximum default rate of 15 %. Compliance with these standards is often a requirement for donor funding and serves as a quality benchmark for agencies. However, meeting Sphere standards can be challenging in insecure environments where follow-up visits are limited, necessitating innovative strategies such as mobile health (mHealth) reminders.

Humanitarian-development nexus describes the intersection where immediate relief actions transition into longer-term development programmes. Nutrition programming can bridge this nexus by integrating emergency therapeutic feeding with sustainable solutions such as school feeding, agricultural support, and livelihood training. For instance, a programme that initially provides OTP for SAM may later support the establishment of community gardens to improve food diversity. Managing the nexus requires coordination between humanitarian actors focused on short-term relief and development partners planning for resilience, which can be hampered by differing funding cycles and organisational mandates.

Resilience building aims to strengthen the capacity of individuals and communities to withstand future shocks. Nutrition-focused resilience activities may include training households in safe food storage, promoting home-based fortification (e.g., adding micronutrient powders to meals), and establishing early warning systems for nutrition crises. In a drought-prone region, a resilience project that taught families to construct rain-water harvesting systems helped maintain adequate hydration for children, reducing the incidence of diarrhoea and subsequent malnutrition. A challenge is measuring resilience, as outcomes are often qualitative and manifest over extended periods.

Early warning systems (EWS) are mechanisms that detect signals of deteriorating nutrition status, enabling timely response. EWS may incorporate indicators such as rising MUAC prevalence, increased disease incidence, or market price spikes. In practice, a district health office might monitor weekly MUAC data from health posts; a sudden increase in SAM admissions triggers an alert to the nutrition cluster, prompting the activation of emergency supplies. The effectiveness of EWS depends on data timeliness, reliability, and the capacity to act on alerts, which can be constrained by limited resources or bureaucratic delays.

Nutrition surveillance involves continuous collection, analysis, and interpretation of nutrition data to track trends and detect outbreaks. Surveillance systems can be passive (relying on routine health facility reports) or active (conducting periodic community surveys). An active surveillance approach in a conflict zone may involve mobile teams that visit displaced-person settlements monthly to record MUAC and disease prevalence. Limitations include the need for trained personnel, secure access to sites, and the ability to analyse data quickly enough to inform interventions.

Risk assessment identifies potential hazards that could compromise nutrition outcomes, such as supply chain disruptions, security incidents, or disease outbreaks. Conducting a risk assessment enables programme managers to develop mitigation strategies, allocate contingency funds, and plan for alternative delivery methods. For example, a risk assessment may reveal that a key road to a remote health centre is prone to landslides, prompting the pre-positioning of RUTF at a nearby village as a backup. The challenge is that risk assessments must be regularly updated as the context evolves, requiring ongoing monitoring.

Stakeholder analysis maps the interests, influence, and roles of various actors involved in nutrition programming, including government ministries, NGOs, local leaders, and community groups. Understanding stakeholder dynamics helps programme designers engage the right partners, negotiate access, and align objectives. In a multi-agency response, a stakeholder analysis might reveal that a local women's association is pivotal for community mobilisation, leading to their inclusion in BCC activities. A common obstacle is managing competing priorities among stakeholders, which can lead to friction if not addressed through transparent communication.

Programmatic integration refers to the coordination of nutrition activities with other sectors such as health, WASH, shelter, and protection. Integrated programming can enhance efficiency and impact; for example, linking OTP services with immunisation sessions reduces missed opportunities for vaccination. In a camp setting, a one-stop health-nutrition centre may provide deworming, RUTF distribution, and ORS kits in a single visit, simplifying access for caregivers. Integration can be hindered by siloed funding streams, differing reporting requirements, and varying organisational cultures.

Logistical constraints encompass the physical and administrative challenges that impede the movement of goods and personnel. Constraints may include damaged infrastructure, limited transport assets, customs regulations, and security checkpoints. In a coastal disaster, a sudden influx of debris may block ports, delaying the arrival of RUTF shipments. Mitigation strategies include pre-positioning supplies in strategic locations, establishing multiple transport routes, and negotiating humanitarian corridors with authorities.

Security considerations are paramount in conflict-affected emergencies, where threats to staff safety can restrict programme implementation. Security protocols may involve risk assessments, escort arrangements, and contingency plans for evacuation. For example, an