

UNICEF internal technical note

Interim recommendations on nutrition and Mpox case management

November 2024, Version 3

Introduction

Mpox, previously known as monkeypox, presents significant nutrition challenges, including the risk of acute malnutrition, especially among vulnerable groups such as infants and young children. Addressing these nutritional needs and supporting breastfeeding mothers are crucial components of effective Mpox prevention and case management.

The objective of this technical note is to provide guidance on Nutrition-Mpox response for UNICEF and partner staff. This note outlines the recommended approach for preparing for and responding to maternal and child nutrition needs during an Mpox outbreak. It includes guidance on nutrition assessment, nutrition considerations for case management, nutritional care for pregnant women and adolescent girls, breastfeeding and complementary feeding support, early childhood development support, Mpox vaccination, and response coordination and monitoring.

Key messages

1. Populations at risk of severe Mpox include children under 5 years old, pregnant women, people with eczema and immunosuppressed patients. Mpox infection can be severe among infants and young children, with a higher case fatality rate compared to older age groups.
2. Children with acute malnutrition are at an increased risk of disease. Efforts should be taken to ensure the early detection and treatment of acutely malnourished infants and young children in Mpox centers in addition to enhanced access to essential nutrition services.
3. Implementation of Mpox IPC measures is recommended in all Nutrition service delivery platforms and necessary adaptations to ensure continuous delivery of services should be undertaken in accordance with national guidelines.
4. There is currently no evidence that the Mpox virus is present in breastmilk, nor that it can be transmitted to infants and young children through breastmilk if the mother has Mpox.
5. While the risk of transmitting Mpox through breastmilk is unknown, the contact between mother and child that occurs during breastfeeding could increase the risk of Mpox transmission if either of the two is infected. Necessary Infection Prevention and Control (IPC) measures should be taken by the mother to minimize cross-infection, such as washing hands before and after each feed, and wearing a mask (mother only; masks are not recommended for young children ¹) and covering any lesions that have direct contact with the infant.
6. WHO guidance on optimal infant and young child feeding, including exclusive breastfeeding for infants under 6 months and continued breastfeeding for infants over 6 months up to 2 years or beyond alongside appropriate complementary feeding, remain recommended during an outbreak of Mpox, while closely monitoring for signs and symptoms of Mpox.
7. Given the potential risk of more severe disease in children with acute malnutrition and Mpox, malnutrition prevention efforts must be undertaken, particularly among vulnerable populations. This includes ensuring that vulnerable households with pregnant women and young children have access to social protection (e.g. cash and/or food transfers), and enhanced access to maternal, infant, and young child feeding (MIYCN) counselling and the full package of preventive nutrition services.
8. Mental health and psychosocial support services should be integrated within nutrition services at Mpox centers to ensure comprehensive care for both children and their caregivers and to enhance caregivers' capacity to provide nurturing care, foster positive interactions, and meet children's developmental needs.

1 [Should children wear a mask? | UNICEF North Macedonia](#)

Basic Principles

The following are five basic principles for providing nutritional care and support in the context of an Mpox outbreak:

1. All Mpox patients should receive appropriate nutritional support as part of their diagnosis, treatment, and care according to WHO guidelines and international standards. Locally available nutritious food should be provided to all Mpox patients, tailored to their needs (e.g., consistency, flavor, amount), and very ill patients who cannot feed themselves should receive feeding assistance.
2. Specific nutrition risks for infants and young children must be managed, including disruptions to breastfeeding, risk of contamination through alternative feeding methods, and inappropriate feeding practices. These risks must be managed as a core part of case management and efforts towards early exclusive breastfeeding for infants up to 6 months and continued breastfeeding for infants and young children up to 2 years and beyond according to WHO recommendations should be prioritized.
3. Use of specialized nutrition products for infants and young children should be minimized and only used when indicated by national protocols, such as therapeutic foods and milks for confirmed cases of acute malnutrition.
4. Screening for acute malnutrition should be systematic in Mpox patients. When acute malnutrition is identified, nutritional care should be initiated according to national protocols as soon as possible. All nutrition services should be provided in the Mpox treatment center; referral should be considered only when the child is declared cured and non-infectious for Mpox.
5. Nutrition preparedness and response should address broader issues affecting nutritional status of the population, such as food security, social protection, and care practices.

Key nutrition considerations

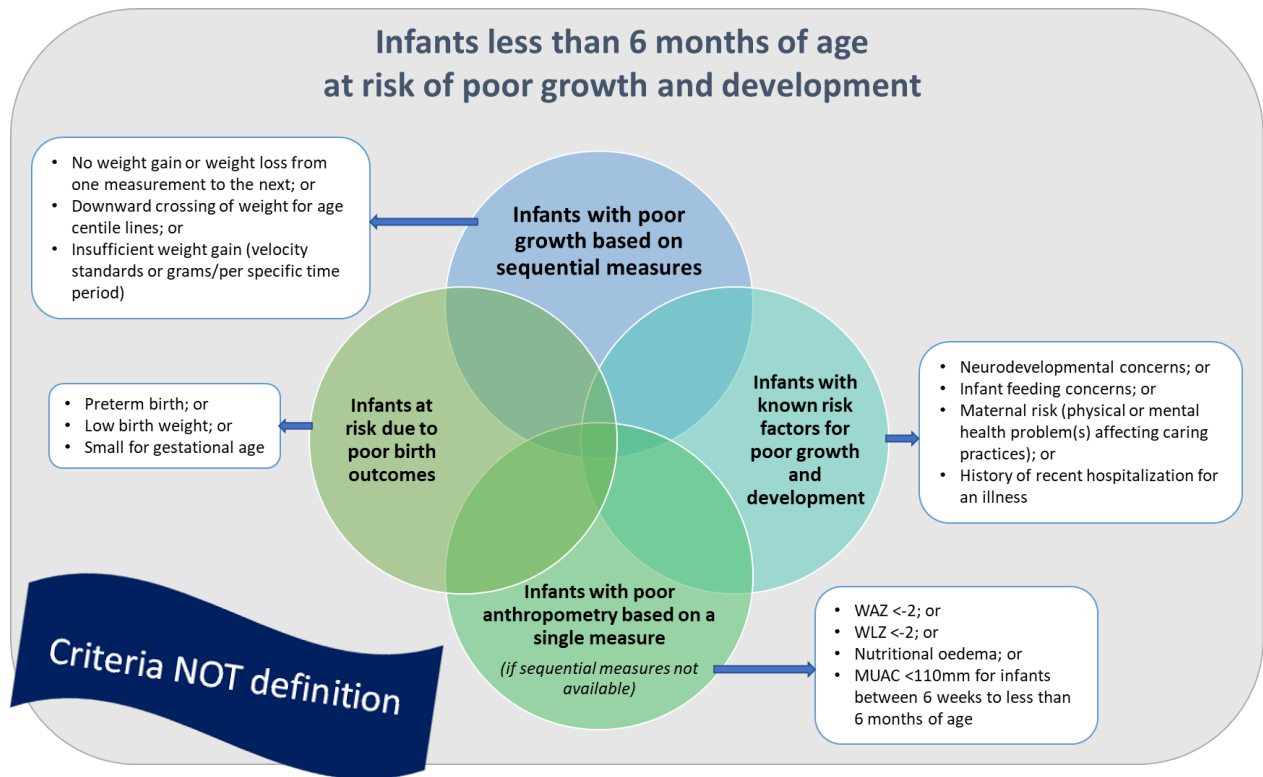
1. Nutrition assessment

The first step in the nutritional management of individuals with Mpox involves a thorough assessment of the patient's nutrition status. This includes measuring anthropometric indicators such as weight, height, and mid-upper arm circumference (MUAC), alongside an evaluation of their dietary intake and clinical signs of malnutrition in line with the national guidelines for the management of acute malnutrition. Regular monitoring is essential throughout the course of the illness to adjust nutritional interventions as required. Implementation of IPC measures are crucial when carrying out nutrition assessments.

A) NUTRITION ASSESSMENT PROTOCOLS FOR DIFFERENT GROUPS

1. **For children**, reduced appetite or weight loss during the period of illness should be assessed with the caregiver. Measurements should be taken including body weight, height, and MUAC. It is essential that a nutrition specialist or trained clinician evaluates the child. Children identified with severe acute malnutrition should be receiving appropriate treatment and children with moderate acute malnutrition should be supplemented with Specialized Formulated Foods (SFF's) according to national protocols.
2. **All infants and young children** should receive a feeding assessment that includes breastfeeding observations. Caregivers of children with feeding difficulties should receive breastfeeding counselling from a trained counsellor.
3. **Infants under 6 months** require special attention. Nutrition assessments for infants at risk of poor growth and development should involve evaluating weight and length to calculate weight-for-length z-scores and weight-for-age z-scores, and/or MUAC measurements (with a threshold of <110mm for infants aged 6 weeks to 6 months of age to prompt referral for support). A clinical feeding assessment should also be conducted to identify those who need referral for specific support. ²
4. For adults, reduced appetite or weight loss during the period of illness should be assessed. Measurements should then be taken including body weight, height, and the calculation of Body Mass Index (BMI) for adults (including non-pregnant/non-breastfeeding women) or the use of Mid-Upper Arm Circumference (MUAC) for pregnant or breastfeeding women. Clinicians should also look for signs of malnutrition, such as muscle wasting or nutritional edema.

2 [WHO guideline on the prevention and management of wasting and nutritional oedema \(acute malnutrition\) in infants and children under 5 years](#)



Where malnutrition is identified, individuals should be referred for appropriate nutrition support according to national protocols³. Regular monitoring is crucial to adjust nutrition interventions as the illness progresses.

B) MPOX IPC MEASURES DURING ANTHROPOMETRIC ASSESSMENTS

The following measures should be taken by health workers when carrying out nutrition assessments:

- Disinfect all measurement tools (scales, height boards, MUAC tapes) and surfaces before and after each use.
- Utilize single-use items like MUAC tapes and disposable sheets, replacing them after each patient if possible.
- Health workers should wear gowns and masks, as well as gloves whenever possible, and change between contacts with patients.
- Health workers should use hand sanitizers or change gloves before and after measurements.
- Regularly disinfect accessible-touch surfaces, ensure good ventilation, and use biohazard bins for waste disposal.
- Train staff on IPC protocols and monitor adherence to ensure consistent application.

2. Nutrition management of individuals with MpoX

A) NUTRITION CONSIDERATION FOR ALL MPOX PATIENTS

1. Assess if the patient can handle oral intake and if they are willing to eat or drink.
2. Encourage daily oral nutrition and provide nutrient-dense foods, especially for children and those at risk of malnutrition.
3. If food intake is not tolerated, determine the cause, and treat it; nasogastric feeding may be needed, especially if there are MpoX lesions around and in the mouth and throat.
4. Collaboration with clinical teams is vital to integrate nutritional care with MpoX treatment plans. This includes ensuring that patients maintain adequate hydration and electrolyte balance, particularly if they experience symptoms such as diarrhea or vomiting.

B) NUTRITION MANAGEMENT OF INFANTS AND YOUNG CHILDREN WHEN MOTHER AND/OR CHILD ARE INFECTED OR EXPOSED TO MPOX.

1. Caregivers should be informed about the risk of transmission and advised on measures to mitigate this risk. It is important to provide emotional support and reassurance to parents or caregivers as they navigate this difficult context.

³ If national protocols are not available, please refer to the guidance on nutritional care for patients with Ebola Virus Disease: <https://www.nutritioncluster.net/resources/frequently-asked-questions-nutrition-and-ebola-virus-disease>

2. General protective IPC measures should be taken by caregivers with Mpox when handling and feeding their infants, e.g. washing hands before and after each feeding, wearing a mask (if possible) and covering any lesions on areas which have direct contact with the infant.⁴
3. Promote immediate initiation of breastfeeding within the first hour of birth and support exclusive breastfeeding for the first 6 months and continued breastfeeding up to 2 years or beyond accompanied by adequate complementary feeding, in line with the WHO guideline. This includes supporting mothers who were mixed feeding before the emergency and would like to transition to exclusive breastfeeding.
4. Exclusive breastfeeding for infants under 6 months and continued breastfeeding for infants over 6 months and up to two years or beyond alongside appropriate complementary feeding, remain recommended during an outbreak of Mpox, while closely monitoring for signs and symptoms of Mpox. However, in the event of severe illness or a higher risk of Mpox infection in the infant, child or breastfeeding woman, a case-by-case assessment should be undertaken. This should weigh the individual benefits of breastfeeding against the risks of cross-infection, and alternative feeding strategies may be considered.
5. With proper IPC measures, wet nursing by an uninfected mother, and use of human-donor milk are recommended as the first alternative feeding methods. A potential wet nurse should be screened for any prevalent infectious diseases (e.g HIV) that have a proven high risk of severe illness and death in infants and/or there is evidence of transmission through close contact and/or breastmilk. Contextual factors such as feasibility and cultural acceptability should be considered when using these alternatives.
6. Breast Milk Substitutes (BMS) can be used as an alternative feeding method for infants under 6 months. The safest option is Ready-to-Use Infant Formula (RUIF). Powdered Infant Formula (PIF) may also be used, but only when it can be reconstituted with clean, boiled water (cooled to approximately 70°C) or bottled water, to minimize contamination risks. Once reconstituted, the formula should be fed immediately, using cups and spoons, with any leftovers discarded. Skilled infant feeding counseling should also be provided.
7. For infants aged 6 months to 1 year, animal milk or infant formula can be used as a BMS alongside complementary family foods.
8. Forecast 750 ml of RUIF per infant under six months per day. Since RUIF is typically packaged in 200 ml units, plan for 800 ml (4 units) per day per infant, considering that unused RUIF must be discarded after two hours. Adjust the calculation if smaller units are available to minimize wastage. The average PIF needed is 3.5 kg per child per month, available in 400 g, 800 g, or 900 g canisters.⁵
9. Therapeutic milks like F75 and F100 are not suitable as BMS and should only be used according to national protocols for the treatment of severely acutely malnourished infants.
10. Provide relactation support to infected mothers who are delaying breastfeeding, so to facilitate breastfeeding upon recovery.
11. In contexts where unfortified foods cannot meet nutrient needs, children aged 6–23 months may benefit from nutrient supplements or fortified food products. Multiple micronutrient powders (MNPs) provide additional vitamins and minerals without displacing other foods, fortified cereal grains can improve micronutrient intake, and small-quantity lipid-based nutrient supplements (SQ-LNS) may be useful in food-insecure populations with significant nutritional deficiencies.
12. Provide vitamin A supplements according to national protocols to aid wound healing, particularly for children who haven't received a recent dose (the minimum interval between doses should be at least one month).
13. Ensure early detection and treatment of acutely malnourished infants and young children in Mpox centers, with improved access to essential nutrition services and regular screening for children under five.
14. For children with severe acute malnutrition (SAM) without complications, provide Ready-to-Use Therapeutic Food (RUTF) alongside appropriate medical care, including antibiotics if infections are present, as per national protocols for the management of acute malnutrition.
15. For children with SAM with complications, provide specialized treatment according to national protocols using F-75/ F-100.
16. For children with moderate acute malnutrition (MAM), ensure access to a nutrient-dense diet using supplementary feeding with Specialized Formulated Foods (SFFs) if indicated.

4 [Clinical management of mpox \(monkeypox\) \(who.int\)](https://www.who.int/publications/m/item/clinical-management-of-mpox)

5 <https://www.unicef.org/media/100911/file/BMS-Procurement-Guidance-Final-June-2021.pdf>

17. Ensure infants receive adequate nutrition by tracking their growth and health, while also assessing the health and nutritional status of breastfeeding mothers, accounting for any health or Mpox-related challenges.
18. Support monitoring of the International Code of Marketing of Breast-milk Substitutes violation to ensure adherence to nutrition program guidelines and standards.
19. Consider various breastfeeding scenarios to address specific needs. (See table 1 below)
20. Risk Communication and Community Engagement (RCCE), integrating SBC and Infant and Young Child Feeding in Emergencies (IYCF-E) strategies into the Mpox response is essential. Promoting breastfeeding practices and addressing common misconceptions through community engagement helps ensure that families adopt appropriate feeding practices.

Table 1: Breastfeeding recommendations for mother and infant/young child based on Mpox status.

Scenarios <i>(based on Mpox status)</i>	Recommendations
Mother -ve (mpox negative). Infant/child +ve (mpox positive)	<ul style="list-style-type: none"> • Breastfeeding can continue while using IPC measures to minimize transmission to the mother. • For pregnant or immunosuppressed mothers, case-by-case advice should be provided regarding breastfeeding weighing up the risks and benefits of continuing breastfeeding. • The use of milk expression and cup feeding (with IPC measures) could be considered as the mother is negative.
Mother +ve Infant/child -ve	<ul style="list-style-type: none"> • Breastfeeding can continue while using IPC measures to minimize risk of transmission to the child. • Breastfeeding might need to be interrupted due to the mother's willingness and severity of disease (medically interrupted breastfeeding could resume once lesions have healed, scabs have fallen off, and a new layer of skin has formed, which typically takes 2 to 4 weeks⁶). Preferred alternatives are: <ol style="list-style-type: none"> a. Wet-nursing from an uninfected wetnurse (-ve / asymptomatic) b. Human donor breastmilk from a human milk bank (with appropriate hygiene and IPC measures in place) • If maternal breastfeeding and options a & b above are not possible: <ul style="list-style-type: none"> + For infants <6 months: Use RUIF if available; if not, use PIF ensuring a safe water source is available (boiled water-cooled to around 70°C) and use of clean utensils (cups and spoons) + For infants >6 months: Use PIF or animal milk if RUIF is not available, along with complementary foods, and implement strong IPC measures. • Lactation support to infected mothers who have interrupted breastfeeding to maintain milk supply. This includes regularly expressing and discarding breastmilk and support for relactation after recovery.
Mother +ve Infant/child +ve	<ul style="list-style-type: none"> • Breastfeeding can continue while using IPC measures.⁷ • Evaluate on a case-by-case basis, considering factors such as the child's age and disease severity, and mother's wellness. • Provide lactation support to infected mothers who have interrupted breastfeeding to maintain milk supply.
For all scenarios	<ul style="list-style-type: none"> • Quality counselling should be provided. • Provide mental health and psychosocial support. • Support stimulation and responsive caregiving.

6 Mpox (monkeypox) | WHO | Regional Office for Africa

7 There is insufficient evidence on the presence of Mpox in breastmilk, so the risk of "viral boosting" remains unknown

C) NUTRITION MANAGEMENT OF PREGNANT WOMEN AND ADOLESCENT GIRLS WITH MPOX

Pregnant women have a higher susceptibility to severe Mpox infections, due to the physiological and immunological changes induced by pregnancy. The frequency and risk factors for severity and adverse pregnancy outcomes are not yet fully known. However, available data suggest that Mpox can cause adverse pregnancy outcomes including miscarriage, stillbirth, preterm delivery, neonatal Mpox, and fetal death before delivery.

1. Ensure nutrition screening of the pregnant women and adolescent girls, considering IPC measures.
2. Ensure that the pregnant women and adolescent girls have access to a package of interventions that includes at a minimum: nutrition education and counseling, weight gain monitoring, multiple micronutrient supplementation, deworming prophylaxis, access to nutrient dense diets and targeted balanced energy protein supplementation for pregnant women including adolescent girls with MUAC <23 cm. In addition, strengthen linkages to social protection, cash, and food initiatives.
3. Ensure that pregnant women and adolescent girls are targeted with relevant messages on how to protect themselves from getting infected and to seek care early.

3. Supporting early childhood development in nutrition management

Rapid brain development of young children is highly sensitive to disruptions from stress, which can impair essential neural connections and lead to long-term negative impacts on learning, mental health, and behavior. To mitigate these effects, it is crucial to integrate nutrition support with play, mental health, and psychosocial support, ensuring that both children and their caregivers receive comprehensive care. This holistic approach supports caregiver well-being and fosters nurturing interactions, essential for healthy child development and thriving communities.

1. Integrate play and stimulation as key support for child development and psychosocial well-being, while also enhancing caregivers and frontline worker's well-being using the playful parenting and caregiver wellbeing tools in nutrition programming⁸.

2. Enhance the knowledge and capacity of parents, caregivers, and frontline workers by using early childhood development kits in emergency and other available tools to support responsive feeding and improve skills. In promoting autonomous eating and nurturing interactions.⁹
3. Ensure that all children, including those with disabilities, are reached, with active participation from caregivers.

4. Nutrition-Mpox coordination

Effective management of Mpox requires close coordination with government and national authorities, various partners, including healthcare providers, nutritionists, and non-governmental organizations (NGOs). Key considerations related to coordination include:

1. As the cluster lead agency for nutrition, UNICEF will support with the development of national guidance on nutrition considerations in the context of Mpox in collaboration with governments and nutrition sector/ cluster partners.
2. Ensure nutrition is represented in national coordination mechanisms for Mpox.
3. Advocate for the inclusion of nutrition in the national Mpox preparedness and response plan.
4. Ensure that nutrition is integrated into all pillars of the national preparedness and response plan, including case management, Risk Communication and Community Engagement (RCCE), and continuity of essential services.
5. Collaborate with national and local partners, as well as other UN agencies, to provide a unified approach, deliver a comprehensive and complementary package of nutrition interventions, and ensure efficient resource distribution across all delivery platforms. Engage with different sectors/clusters, and community-based organizations to enhance support and care.
6. Coordinate with healthcare providers, nutritionists, academia and NGOs for effective Mpox management.
7. Train healthcare and community health workers on nutrition management for Mpox.

⁸ Please refer to the following tools: [Caring for the Caregiver](#) | UNICEF and [Care for Child Development](#)

⁹ <https://www.corecommitments.unicef.org/kbc/early-childhood-development-kit-in-emergencies>

Table 2: The proposed list of indicators should be used for monitoring purposes.

	Proposed indicators
Outcome indicators	<ul style="list-style-type: none"> a. Performance indicators for acute malnutrition treatment, including recovery and mortality rates for severe and moderate acute malnutrition. (Mpox affected areas)
Output indicators	<ul style="list-style-type: none"> a. Number of health facilities/Mpox treatment centers providing adequate nutritional support for Mpox patients b. Nutrition screening coverage for children, pregnant women, and other vulnerable groups c. Number of breastfeeding mothers receiving counseling on Mpox and nutrition d. Number of under 6 months receiving alternative breastfeeding support (specifying what alternative: Donor Human Milk, Wet nursing, BMS) e. Number of non-breastfed infants on BMS (RUIF or PIF) support
Input indicators	<ul style="list-style-type: none"> a. Number of healthcare and community health workers trained in emergency nutrition management and IYCF practices. b. Stock levels of essential nutritional supplies such as Ready-to-Use Therapeutic Food (RUTF), therapeutic milk and Powdered Infant Formula (PIF).

5. Monitoring and learning

To ensure the effectiveness of these interventions, ongoing monitoring and evaluation are crucial. This involves collecting and analyzing data related to nutrition and breastfeeding practices, as well as obtaining feedback from patients and caregivers.

In addition, there is a need to collect qualitative information around the key practices, barriers, and

challenges affecting infant and young child feeding practices in the context of Mpox, and document lessons learned of the nutrition response in the context of Mpox. Documentation of learning will allow to inform or adapt the response and improve feeding practices for infants and young children in this specific context.

6. Key nutrition Supplies

Table 3: Essential supplies to be included for nutrition response to Mpox:

Description	Material number	Indication
Retinol 200,000IU soft gel.caps/PAC-100	S1583010	Vitamin A supplementation
Retinol 100,000IU soft gel.caps/PAC-500	S1583015	Vitamin A supplementation
Retinol 100,000IU soft gel.caps/PAC-100	S1583020	Vitamin A supplementation
RUTF biscuit, packs,510g./CAR-24	S0000242	Treatment of acute malnutrition
Supplementary spread,sachet 100g/CAR-150	S0000248	Supplementation for moderate acute malnutrition
F-75 therapeutic diet, CAN 400g/CAR-24	S0000236	Treatment of acute malnutrition
F-100 Therap.milk CAN 400g/CAR-24	S0000237	Treatment of acute malnutrition
Multiple micronutrient pdr,sach./PAC-30	S1580201	Micronutrient supplementation - children
Micronutrient tabs, pregnancy/BOT-100	S1580101	Micronutrient supplementation – pregnant/ breastfeeding women
Micronutrient tabs, pregnancy/BLIS-30	S1580102	Micronutrient supplementation – pregnant/ breastfeeding women
LNS-SQ Lipid Nut. Suppl. Sml 20g/CAR-600	S0000323	Supplement to fortify the diet for children 6–23 months at risk of wasting
Ready to Use Infant Formula (RUIF)*	S0000832	Safe replacement feeding for non-breastfed infants
MUAC,Child 11.5 Red,PAC-50	S0145620	Acute malnutrition screening
MUAC,Adult,w/o color code,PAC-50,English	S0145630	Pregnant / breastfeeding women screening

*Important note: Before ordering BMS, a request is to be submitted to PG Nutrition in line with the [UNICEF programming guidance on the procurement and use of breastmilk substitutes in humanitarian contexts](#).

Note:

This is a first version of this technical note, containing interim recommendations. Regular reviews of the technical note will be done based on emerging evidence and field experiences, to refine and improve the response. Therefore, country/field offices are invited to document and share their experiences on the implementation of these interim recommendations.

For more information, please contact the nutrition team in your regional office.

Annex 1: Schematic diagram (health facility)

Patient Arrival and Initial Assessment	<ul style="list-style-type: none"> • Collect basic information (age, weight, height, medical history). • Conduct initial screening for Mpox symptoms and nutritional status.
Nutritional Assessment	<ul style="list-style-type: none"> • Measure anthropometric indicators (weight, height, MUAC) • Assess dietary intake and clinical signs of malnutrition. • Identify acute malnutrition (wasting) and chronic malnutrition (stunting) <ul style="list-style-type: none"> ✦ Acute Malnutrition Identified – Severe Acute Malnutrition (SAM): Initiate therapeutic feeding (RUTF), Moderate Acute Malnutrition (MAM): Provide supplementary feeding. ✦ Chronic Malnutrition Identified – Monitor growth and provide appropriate nutrition support.
Infant and Young Child Feeding (IYCF)	<ul style="list-style-type: none"> • Assess breastfeeding practices. • Support breastfeeding mothers with counseling to breastfeed safely or relactate if necessary. • If breastfeeding is interrupted for a medical reason, provide recommended safe alternatives (Wet nursing if a wet nurse is asymptotic/negative, donor human milk and last option BMS.) • For infants >6 months, provide support for age-appropriate feeding and complementary foods alongside continued breastfeeding until at least 2 years of age.
Micronutrient Supplementation	<ul style="list-style-type: none"> • Provide vitamin A supplementation as per guidelines. • Assess need for other micronutrients based on screening. • Nutrient supplements and fortified food products provision when nutrient requirements cannot be met with unfortified foods alone (MNP, SQ-LNS, cereal fortification).
Monitoring and Follow-Up	<ul style="list-style-type: none"> • Regularly monitor nutritional status (weight, MUAC). • Adjust feeding interventions based on progress. • Follow up on recovery and nutritional outcomes.
Reporting	<ul style="list-style-type: none"> • Report on nutritional status, interventions, and outcomes. • Update protocols based on feedback and data.