

# Integrating emergency nutrition into UNRWA's humanitarian response in Gaza

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## Abstract

**Background:** The October 2023 war in Gaza triggered a humanitarian crisis. It disrupted access to food and nutrition services, thus worsening food insecurity and increasing malnutrition risks.

**Aim:** To document the experience of United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) in providing emergency nutrition services in Gaza during the conflict.

**Methods:** Through partnership with the United Nations Children's Fund and other partners, UNRWA tracked emergency nutrition interventions in Gaza, including piloting and scaling middle upper arm circumference (MUAC) screening for under-5 children, capacity building for staff providing nutrition services and modifying food parcels to meet nutrition needs within the context of the war.

**Results:** Between January and September 2024, UNRWA distributed food parcels to nearly 1.15 million people in Gaza, conducted 87 551 MUAC screenings for children aged 6–59 months and referred 6398 malnourished cases (MUAC < 12.5 cm) for treatment. UNRWA trained 110 physicians, nurses and midwives to provide nutrition interventions.

**Conclusion:** Coordination with other partners enabled UNRWA to provide emergency nutrition services during the conflict in Gaza despite the infrastructure damage, resource constraints and operational disruptions. Sustained, flexible and well-coordinated nutrition interventions are needed in Gaza and similar conflict zones to prevent severe acute malnutrition, impaired child growth and development, and child mortality.

Keywords: food, nutrition, emergency nutrition, malnutrition, under-5 children, food security, Gaza,

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## Background

For decades refugees in the Gaza Strip have been experiencing impoverishment, depressed economic and social development, recurrent conflicts, and a blockade of movement of people, goods and services imposed since 2007 (1). Prior to the October 2023 conflict, 84% of the refugee families with young children relied on food assistance and 75% of families were food insecure (2). Among the first graders enrolled in the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) schools in Gaza, 69% did not meet the minimum dietary diversity, 30% were diagnosed with anaemia (haemoglobin < 11.5 g/dL) and 4.4% were diagnosed with wasting (< -2 weight-for-height z-score) (2).

Since the onset of the October 2023 conflict in Gaza, more than 45 000 deaths and 100 000 injuries have been reported (1). Over 1.9 million individuals, approximately 90% of the Gaza population, have been reported to be internally displaced (3). In January 2024, 1.7 million displaced individuals were reported to have taken refuge in emergency shelters, including in UNRWA schools and informal camps (4).

The crisis has further exacerbated food insecurity. Between September and October 2024, 1.84 million people were facing severe acute food insecurity (classified as IPC Phase 3 or higher), and malnutrition rates had reached critical levels (IPC AMN Phase 3) (5). More than 90% of Gaza's population is facing acute food insecurity, with many relying on humanitarian aid for survival (6). The conflict, combined with restricted access to humanitarian aid, food, water, and basic needs, has significantly increased the risk of malnutrition in Gaza, especially among young children. As of mid-2024, Gaza's population was approximately 2.13 million and children under the age of 18 years constituted about 47% of this population, totalling approximately 1 million children (7). Of these, around 15% (approximately 341 790 children) were under-5.

Since its establishment in 1948, UNRWA has provided humanitarian relief, including primary education, primary health care services and social and relief programming to about 2 million Palestinian refugees in the Gaza Strip (8,9). UNRWA has operated 22 primary health centres, serving 1.2 million people, 278 schools offering education to 290 000 first to ninth graders, in addition to quarterly food aid distribution to 1.7 million

people in Gaza (10,11). The quarterly food parcels include basic staples, such as fortified flour, sunflower oil, powdered milk, rice, chickpea, lentil, and sugar.

As part of primary health care services, UNRWA offers nutrition services that include routine growth monitoring of children, iron and vitamin A supplementation to under-5 children, iron and folic acid supplementation to women accessing family planning services, antenatal and postnatal care, in addition to nutrition counselling and education to manage noncommunicable diseases (NCDs). Amid the humanitarian catastrophe, UNRWA has made significant efforts to offer screening for acute malnutrition for children aged 6–59 months at UNRWA-operated health centres and shelters, enabling early detection and management of malnutrition among vulnerable groups (12,13).

This report documents the nutrition response implemented by UNRWA in 2023–2024 during the Gaza conflict. It highlights the coordination mechanisms with other UN organizations to address acute malnutrition among vulnerable populations, operational challenges faced during implementation, lessons learned, and recommendations for strengthening future humanitarian nutrition responses during protracted crises.

## Methods

The key programme components, including planning, implementation and monitoring are as follows:

### Coordination

During the October 2023 humanitarian crisis in Gaza, UNRWA regularly participated in the UNICEF-led nutrition cluster for Palestine, including the technical working groups, to coordinate child acute malnutrition screenings using the middle upper arm circumference (MUAC) measurements for children aged 6–59 months (14). The nutrition cluster developed the clinic procedures for MUAC screening, based on UNICEF and WHO guidelines for wasting prevention and treatment (15,16). UNRWA adapted its nutrition services with flexibility, targeting vulnerable groups such as under-5 children.

Collaboration with key partners was instrumental in UNRWA's nutrition activities during the humanitarian crisis. UNICEF provided essential support, including training for nutrition health care providers, supplies of therapeutic ready-to-use therapeutic food (RUTF) and prophylactic supplements such as lipid-based nutrient supplement (LNS) and high energy biscuits (HEB), as well as MUAC measurement tapes. UNICEF supplied 6 high-performance, strong, weather-resistant tents used for safe nutrition activities in emergency settings. World Food Programme (WFP) provided prophylactic nutrition supplements, particularly LNS medium quantity (LNS-MQ) and HEB for children and pregnant or lactating women, and supported food parcel distribution. United Nations Office for the Coordination of Humanitarian Affairs

(UNOCHA) funded additional staffing to strengthen nutrition service delivery, while WHO provided medical supplies, equipment and referral guidelines for severe acute malnutrition stabilization centres. International Medical Corps (IMC) collaborated with UNRWA by referring malnutrition cases to UNRWA medical points for management and follow-up under the Find and Treat Campaign. UNRWA worked with community leaders to guide IMC efforts in remote and underserved areas that were inaccessible to other partners. Effective coordination among partners was pivotal in responding to malnutrition in Gaza, with UNRWA as the primary field implementer, playing a critical role of targeting registered Palestinian refugees while extending support to the entire population.

### Integrating community management of acute malnutrition guidelines within UNRWA

UNRWA follows the guidelines developed by Nutrition Cluster, UNICEF and WHO to offer community management of acute malnutrition (CMAM) services in Gaza. UNRWA identifies wasting using MUAC tapes to measure the left upper arm circumference to the nearest millimetre. The MUAC screenings are considered the practical approach to quickly assess the nutrition status of children in Gaza during the humanitarian crisis, when time and resources are extremely limited. Children are identified as moderate acute malnutrition (MAM) with MUAC measurements of  $11.5 \leq 12.5$  cm, without signs of nutritional oedema. Children with severe acute malnutrition (SAM) are detected by MUAC  $< 11.5$  cm, or presence of bilateral pitting oedema indicating severe nutritional deficiencies (16).

In operationalizing these guidelines, UNRWA adopted a dual approach, incorporating both outpatient and referral to inpatient care based on the severity of malnutrition. Children with SAM and complications were referred to stabilization centres run by WHO for medical and nutritional treatment using therapeutic milk under close monitoring. By the end of September 2024, 4 WHO-supported stabilization centres, including Naser Medical Complex, IMC Field Hospital, Patient Friends Hospital and Kamal Edwan Hospital, were providing specialized care. On average, UNRWA referred 8–10 children with SAM and complications monthly across Gaza.

Uncomplicated cases of SAM and MAM were managed through outpatient programmes at UNRWA health centres and shelters, which provided RUTF and supplementary feeding. Screening and assessment using MUAC measurements and nutritional oedema evaluation were standardized across health centres and shelters. The integration of CMAM guidelines facilitated robust referral pathways and strengthened collaboration with partners, such as UNICEF, WHO and IMC, to ensure comprehensive service delivery. This approach ensured timely detection and treatment of malnutrition and contributed to building a resilient and sustainable emergency nutrition system.

## Training and capacity building

From December 2023 to September 2024, 110 physicians, nurses and midwives were trained on MUAC screening and nutrition interventions. OCHA provided support for the recruitment of additional staff to enable emergency nutrition interventions, and a trainer from UNICEF conducted hybrid training via online and in-person sessions. Training of trainers was conducted for focal points, who subsequently trained the first cohort of staff. These focal points played a critical role in delivering on-site training to staff, to ensure practical understanding and application of MUAC screening techniques.

The escalating conflict posed significant challenges to training delivery. Damage to health infrastructure and restricted access to health centres greatly limited face-to-face training opportunities. Safety concerns for trainers and trainees further made consistent execution of in-person sessions very difficult. The unstable internet connection frequently disrupted online sessions, affecting smooth delivery of training content. Despite these obstacles, follow-up and refresher on-the-job training were conducted as needed, ensuring that all staff retained essential skills and knowledge to sustain nutrition services under the challenging conditions. This robust capacity-building effort underscores the importance of adaptability and innovation in maintaining critical health services during emergencies.

The training covered a comprehensive range of topics to ensure that the staff were equipped to address malnutrition in emergency settings. Key areas included CMAM terminologies, sphere standards for emergencies adapted for CMAM, protocols for admission, and discharge criteria. Participants were trained in the types, definitions and clinical signs of malnutrition, as well as the use of simplified daily and monthly registration records and simplified patient cards for tracking and reporting cases. The training also included a detailed overview of the types of supplementary food used in malnutrition management. The practical component focused on proper use of MUAC tapes, enabling participants to perform accurate measurements for malnutrition screening.

## Piloting and implementation

Pilot phase of the nutrition screening began in January 2024, targeting children aged 6–23 months attending UNRWA health centres for vaccination, using MUAC screening. Initially, 50 staff members, including physicians and nurses, were trained in Rafah area, enabling the launch of screening activities at Rafah and Shaboura Health Centres. In February 2024, 15 more staff members from the Middle Area were trained to expand services to Deir El-Balah Health Centre, followed by training for the Nuseirat Health Centre team. By the end of September 2024, 110 staff members had been trained across Gaza strip.

MUAC screening in health centres primarily targeted children aged 6–23 months visiting vaccination centres. Nurses explained the process to caregivers, measured the

child's left upper arm using MUAC tapes to the nearest millimetre, and proceeded with vaccination. Nurses were trained to document cases identified by physicians and managed these cases until they were referred for treatment. Screenings at the shelters targeted children aged 6–59 months, focusing on internally displaced persons registered for humanitarian assistance; scheduled and passive screenings were conducted.

In August 2024, UNRWA supported the Find and Treat Campaign, which aimed to detect childhood malnutrition with the help of community members. Through this campaign, 143 malnourished children referred to UNRWA health facilities received treatment with RUTF, underscoring the importance of targeted efforts in addressing malnutrition during emergencies.

## Data management

UNRWA implemented a data management framework for MUAC screening by appointing focal points within each governorate to ensure systematic MUAC reporting. Data collected at health centres and shelters were compiled into an Excel data collection form developed by the Nutrition Cluster, which was cleaned and shared with the UNRWA Gaza Field Office weekly. Due to the damage sustained by several health centres, connectivity issues and limited availability of computers, it became challenging to use the robust electronic health record system which had been in use prior to the conflict. To address this challenge, field staff collaborated with remote teams in Cairo for weekly data validation and analysis, which enhanced reporting efficiency and ensured data credibility. To improve data quality, UNRWA collaborated with WHO in piloting the integration of MUAC screening into the WHO Early Warning and Response (EWAR) system at Nuseirat Health Centre in August 2024.

## Review and modification of food parcel

Before the conflict, UNRWA provided quarterly food baskets designed to meet approximately 50% of a person's daily energy needs, focusing on essential staples such as fortified flour, dry pulses, oil, sugar, rice, and powdered milk. However, following the conflict, the situation significantly worsened, with multiple displacements and limited access to cooking facilities in shelters (17). In response, UNRWA reviewed and revised the contents of food parcels to address the increased needs of Palestinian refugees. New food items were incorporated, and food specifications were adjusted to align with UNRWA's quality and safety standards, meeting the nutritional requirements of displaced individuals. The revised food basket was expanded to cover approximately 90% of the daily caloric needs per person, with reference to the Sphere Standard recommending 2100 kcal/day for an individual (18). These quarterly distributions were based on the family size to ensure equitable access. Staple items and fortification remained central to the food basket, in addition to ready-to-eat foods (RTEs) such as canned meat, canned pulses. Hummus, Halawa Tahini and other

items were added to accommodate the limited cooking resources in shelters.

Results

From January to September 2024, UNRWA conducted 87 551 MUAC screenings in 5 governorate areas and detected 6398 cases of malnutrition, who were followed up for treatment (Figure 1).

The number of children reached through acute malnutrition screening activities peaked in September 2024, with 18 240 children aged 6–59 months screened across Gaza Strip. This marks a significant increase compared to the 722 children aged 6–23 months screened during the piloting phase in Rafah in January 2024. This increase reflects UNRWA's expanded coverage of nutrition services during the reported period. UNRWA covered approximately 28.2% of the nutrition cluster target of the 311 000 children aged 6–59 months (19).

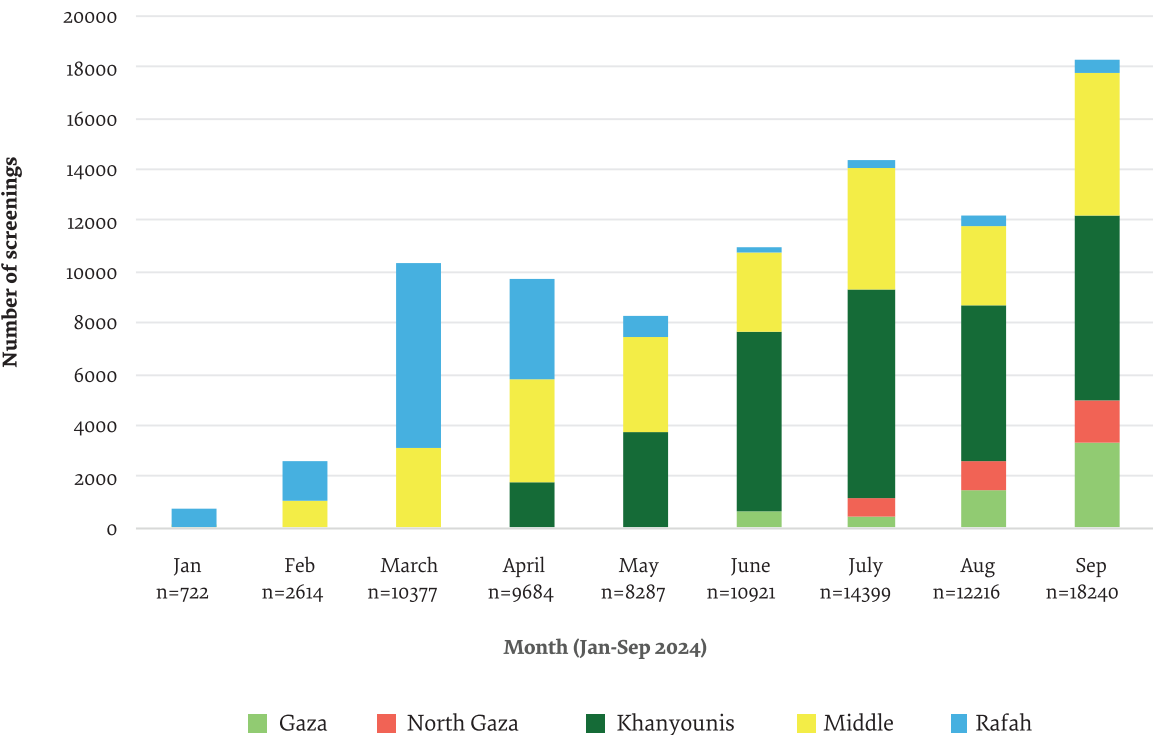
At its peak, MUAC screening was conducted in 12 health centres (4 in the Middle Area, 5 in Khan Younis, 3 in Rafah) and 67 shelters (15 in Khan Younis, 23 in the Middle Area, 3 in Gaza, 1 in North Gaza, 25 in Rafah). Due to the dynamic evacuation orders and access challenges, operations were consolidated by the end of September 2024 into 7 health centres (3 in Khan Younis, 3 in the Middle Area, 1 in Rafah) and 30 shelters (2 in Gaza, 13 in Khan Younis, 15 in the Middle Area).

In addition to screening activities, UNRWA has made significant strides in other nutrition services to address malnutrition and improve health outcomes. Supplementary feeding and nutrition support initiatives focused on distributing items that reduce malnutrition. Some quantities of nutrition supplies were lost during the conflict due to damage sustained at storage facilities and/or impaired safe access to them.

Between January and September 2024, 87 974 children aged 6–59 months received HEB, while 48 643 children in the same age group benefited from LNS. To promote optimal infant and young child feeding in emergencies (IYCF-E) practices, counselling was extended to 158 332 caregivers, including pregnant and breastfeeding women. Breast milk substitutes were provided to 8479 children aged 0–6 months based on the BMS standard operating procedures recommendations shared by the nutrition cluster. Also, 69 750 children aged 6–59 months received micronutrient powders and 6398 children diagnosed with acute malnutrition in the same age group were treated with RUTF to address acute malnutrition.

Following the review of the food parcel to better meet the nutritional and environmental needs, where cooking facilities and needs were limited in Gaza, the population was expanded to all people in Gaza, beyond the registered refugees, with the support of WFP. By October 2024, UNRWA had distributed food parcels to nearly 1.15 million people, with 215 000 individuals benefiting from 2 rounds

Figure 1. Number of middle upper arm circumference screenings conducted for children aged 6–59 months at UNRWA health facilities in 5 governorate areas in the Gaza Strip, January to September 2024 (N = 87 460\*)



\*91 children were excluded due to missing combination of screening date or age.



of distribution (3). This large-scale effort underscores UNRWA's critical role in addressing food insecurity and mitigating the nutritional impact of the conflict.

## Discussion

This report provides an overview of UNRWA's experience in providing emergency nutrition services during the October 2023 conflict in Gaza. The lessons learned include the importance of coordination with other partners, such as WHO, UNICEF, OCHA, WFP, and non-government organizations in planning, preparation, training, and implementation of emergency nutrition services in humanitarian settings. Compared to weight-for-height z-scores, which requires a scale with stadiometer, MUAC screening, which only requires a measurement tape, offered a practical approach to quickly screen young children for malnutrition during humanitarian crisis. Modification of food items included in the food parcel was undertaken to better meet the needs of the population, many of whom lacked access to cooking facilities; items with longer shelf lives and fortified in micro nutrients were prioritized.

Some of the challenges with programme implementation were damage to infrastructure, resource shortages, repeated displacement of the population, and harsh living conditions, which affected the beneficiaries and staff in Gaza. Accurate patient identification was difficult

because of the ad-hoc presentation of available documents. Further developments in the data management system was necessary to continuously monitor the CMAM activities. For example, integration of MUAC screening into an electronic health record, such as WHO's EWAR platform allowed digitalization of screening, follow-up and treatment cases.

## Conclusion

In spite of the severe infrastructure damage, resource constraints and operational disruptions, UNRWA provided emergency nutrition services during the October 2023 humanitarian crisis in Gaza through coordination with other partners, integration of global guidelines, offering of MUAC screening services, and modification of items in food parcels. There is a need for flexibility in operating nutrition services during the humanitarian crisis to adapt global standards to the realities of the field context. Urgent and sustained nutrition interventions are needed in Gaza to prevent further deterioration of food insecurity, severe acute malnutrition, impaired child growth and development which undermines the health and economic productivity of future generations, and child mortality.

**Funding:** None.

**Conflict of interest:** None declared.

## Intégrer la nutrition d'urgence dans l'intervention humanitaire de l'UNRWA à Gaza

### Résumé

**Contexte :** La guerre d'octobre 2023 à Gaza a déclenché une crise humanitaire. Elle a perturbé l'accès à l'alimentation et aux services de nutrition, aggravant ainsi l'insécurité alimentaire et augmentant les risques de malnutrition.

**Objectif :** Documenter l'expérience de l'Office de Secours et de Travaux des Nations Unies pour les Réfugiés de Palestine dans le Proche-Orient (UNRWA) quant à la prestation des services de nutrition d'urgence à Gaza pendant le conflit.

**Méthodes :** Grâce au partenariat avec le Fonds des Nations Unies pour l'enfance et d'autres partenaires, l'UNRWA a suivi les interventions d'urgence dans le domaine de la nutrition à Gaza, notamment en introduisant et en élargissant le dépistage par mesure du périmètre brachial à mi-hauteur (PBMH) chez les enfants de moins de cinq ans, en renforçant les capacités des personnels qui fournissent des services de nutrition et en adaptant les colis alimentaires pour répondre aux besoins nutritionnels dans le contexte de la guerre.

**Résultats :** Entre janvier et septembre 2024, l'UNRWA a distribué des colis alimentaires à près de 1,15 million de personnes à Gaza, réalisé 87 551 dépistages par mesure du PBMH pour les enfants âgés de 6 à 59 mois et a orienté 6398 cas de malnutrition (PBMH < 12,5 cm) vers un traitement. L'UNRWA a formé 110 médecins, personnels infirmiers et obstétricaux pour assurer des interventions nutritionnelles.

**Conclusion :** La coordination avec d'autres partenaires a permis à l'UNRWA de fournir des services de nutrition d'urgence pendant le conflit à Gaza en dépit des dégâts aux infrastructures, des contraintes en termes de ressources et des perturbations opérationnelles. Des interventions nutritionnelles durables, souples et bien coordonnées sont nécessaires à Gaza et dans les zones de conflit similaires pour prévenir la malnutrition aiguë sévère, les troubles de croissance et de développement des enfants, ainsi que la mortalité infanto-juvénile.

## إدماج التغذية في أثناء الطوارئ ضمن الاستجابة الإنسانية في غزة

هيا الخماش، سناء النجار، عمرو طابازا، ماساكو هورينو، جياكسين تشين، ريهام جفال، غادة الجدبة، أكهيرو سيتا

### الخلاصة

**الخلفية:** تسببت حرب أكتوبر / تشرين الأول 2023 في غزة في أزمة إنسانية؛ فلقد عطلت إمكانية الحصول على الأغذية وخدمات التغذية، ما أدى إلى تفاقم انعدام الأمن الغذائي وزيادة مخاطر سوء التغذية.

**الأهداف:** هدفت هذه الدراسة إلى توثيق تجربة وكالة الأمم المتحدة لإغاثة وتشغيل اللاجئين الفلسطينيين في الشرق الأدنى (الأونروا) في تقديم خدمات التغذية الطارئة في غزة أثناء النزاع.

**طرق البحث:** بالشراكة مع صندوق الأمم المتحدة للطفولة (اليونيسف) وشركاء آخرين، تتبع الأونروا تدخلات التغذية في حالات الطوارئ في غزة، ولا سيما تجريب قياس محيط الجزء العلوي من الذراع للأطفال دون سن 5 سنوات، وبناء قدرات الموظفين الذين يقدمون خدمات التغذية، وتعديل الطرود الغذائية لتلبية احتياجات التغذية في سياق الحرب.

**النتائج:** في الفترة ما بين يناير / كانون الثاني وسبتمبر / أيلول 2024، وزعت الأونروا طرودًا غذائية على ما يقرب من 1.15 مليون شخص في غزة، وأجرت 87557 فحصًا لمحيط منتصف الجزء العلوي من الذراع للأطفال الذين تتراوح أعمارهم بين 6 أشهر و59 شهرًا، وأحالت 6398 حالة مصابة بسوء التغذية (محيط منتصف الجزء العلوي من الذراع > 12.5 سم) للعلاج. ودربت الأونروا 110 من الأطباء والممرضات والقابلات على تنفيذ تدخلات تغذية.

**الاستنتاجات:** بالتنسيق مع شركاء آخرين، تمكنت الأونروا من توفير خدمات التغذية في حالات الطوارئ خلال النزاع في غزة على الرغم من الأضرار التي لحقت بالبنية التحتية، والقيود المفروضة على الموارد، وتعطل العمليات. وثمة حاجة إلى تدخلات تغذية مستدامة ومرنة وجيدة التنسيق في غزة ومناطق النزاع المماثلة من أجل الوقاية من سوء التغذية الحاد الوخيم، وضعف نمو الأطفال ونهائهم، ووفيات الأطفال.

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