

# **Tools and Resources for Post-Disaster Relief**

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## INTRODUCTION

The materials in this handout were originally produced by InterWorks for the UNHCR Emergency Management Training Programme.

Although intended primarily for use in refugee relief operations, the materials have a much wider application. There is still some discussion of details amongst technical agencies but in general the standards are agreed by most of the major relief agencies. The materials therefore provide a very useful tool for disaster managers engaged in planning and implementing relief operations for disaster victims.

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## LIFE THREATENING CONDITIONS and EMERGENCY INDICATORS

<b>GROSS MORTALITY RATE (per 10,000 per day)</b>	Rate in many developed countries	0.3
	Rate in many developing countries	0.5
	Relief program under control	<1.0
	Emergency: out of control	>2.0
	Famine, major catastrophe	>5.0
<b>UNDER 5 MORTALITY RATE (per 10,000 per day)</b>	Rate in many developing countries	1.0
	Emergency phase under control	<2.0
	Emergency phase: serious situation	>2.0
	Emergency phase: out of control	>4.0
<b>LACK OF CLEAN WATER (liters/person/day)</b>	Minimum survival allocation	7
	Minimum maintenance allocation	15-20
<b>LACK OF FOOD (kcal/person/day)</b>	Minimum survival allocation	2100
	Maintenance allocations	
	Normal population distribution	2200
	Mainly women and children	2100
	Mainly adult men	2400
* Note that for cold climates these minimums must be increased by 1% per ° C for every degree below 20		
<b>MALNUTRITION</b>	<p>More than 1% of the under five population of children severely malnourished or more than 10% moderately malnourished</p> <p>Presence of scurvy, pellagra, beri-beri and avitaminosis – A outbreaks</p> <p>For children under 5, the indicators for severe malnourishment are,</p> <p style="padding-left: 40px;">MUCA less than 12.5 cm</p> <p style="padding-left: 40px;">WFH or WFL ratios less than 70%</p> <p style="padding-left: 40px;">WFH or WFL Z –score –2 through –3 Standard Deviation</p> <p>For children under 5, the indicators of moderate malnourishment are,</p> <p style="padding-left: 40px;">MUAC between 12.5 and 13.5 cm</p> <p style="padding-left: 40px;">WFH or WFL ratios between 70% and 80%</p> <p style="padding-left: 40px;">WFH or WFL Z-score –2through –3 Standard Deviation</p>	
<b>MEASLES</b>	Any reported cases. Generally the percentage of the population under 5 years of age and unimmunized against measles is regarded as a best indicator, since in many cases once the disease has broken out, immunization campaigns cannot keep pace with the spread. 10% or more unimmunized in the under 5 age group may be taken as an emergency indicator	
<b>RESPIRATORY INFECTIONS</b>	Any pattern of severe reported cases	
<b>DIARRHOEA</b>	Any pattern of severe reported cases	
<b>FORCED REPATRIATION</b>	Systematic “refoulement” of individuals or groups without adequate and monitored determination of refugee status procedures	
<b>ORGANIZED PHYSICAL VIOLENCE</b>	Routine or organized violence from any source including police, military, antagonistic racial, religious, national or social group and violent mobs	
<b>LACK OF APPROPRIATE SHELTER</b>	“Appropriate” shelter is dependant on the immediate environment. However protection from wind, rain, freezing temperatures and direct sunlight are universally acceptable.	
	Minimum shelter area	3.5 sq. m/person
	Minimum total site area	30.0 sq. m/person
<b>LACK OF SANITATION</b>	Poor excreta and waste disposal (latrines either non-existent, foul-smelling or full, swarming with flies) garbage everywhere	

Source: Compiled by Disaster Management Center – UNHCR Emergency Tools Series draft #2, 1992

**The Five Killers (80-90%) of the deaths in emergencies are due to the following five conditions**

<b>SYNONYMS OR RELATED CONDITIONS</b>	<b>DESCRIPTION</b>	<b>PREVENTION</b>	<b>CURE</b>
<b>Malnutrition</b> Protein-Energy Malnutrition (PEM) Marasmus Kwashiorkor	Inadequate quantity of food leads to wasting of body (marasmus) and sometimes to swelling or oedema (kwashiorkor). Malnourished people are more susceptible to all infectious diseases, and are more likely to die from them if contracted	Adequate: Food ration Logistics Distribution Cooking utensils Cooking fuel	Higher food ration Selective feeding program
<b>Measles</b> Rougeole (Fr) Sarampion (Sp)	Fever, sore eyes and mouth, cough, diarrhea. Fine rash over whole body. Rapidly fatal in malnourished children. Kills usually by secondary infections such as pneumonia. Often precipitates vitamin A deficiency causing blindness	Immunization of all children aged 6 months to 14 years. Vitamin A prophylaxis for all children from birth to 14 years.	NO CURE Treatment of secondary infections
<b>Respiratory Infections</b> Pneumonia Bronchopneumonia Acute Respiratory Infections (ARI) Chest Infections	Caused by a variety of viruses and bacteria. Cough, fever, and shortness of breath. May be mild or may progress rapidly to death, especially among malnourished children. Spread is favored by cold, rain, inadequate blankets and clothing, poor ventilation and crowding	Adequate: Space Shelter Clothing Blankets Ventilation	Treatment of severe cases with antibiotics
<b>Diarrhoea</b> Dysentery Cholera Gastroenteritis	Causes death by Dehydration, spread favored by unsafe water, too little water, poor sanitation, poor personal and household hygiene, and crowding	Adequate: Water quality Water quantity Sanitation Health Education	Oral rehydration at community level
<b>Malaria</b> Vivax Falciparum Paludisme	High fever, chills, headache and bodyache	Bed netting with or without impregnation with insecticide. Chemoprophylaxis of vulnerable groups – seek specialist advice Spraying with insecticide (often impracticable in emergencies) – see specialist advice	NO CURE Treatment of symptoms

80% to 90% of deaths in emergencies are due to the five conditions presented above.

SOURCE: Based on Revised Handbook for Emergencies/UNHCR – draft – 1992

UNHCR Emergency Tools Series draft #2, 1992

**PREVENTIVE PROTECTION MANAGEMENT GUIDELINES**

<b>PROBLEM</b>	<b>PREDICTIVE INDICATORS</b>	<b>PREVENTION STRATEGY</b>
Armed attack on refugees from country of origin	<ul style="list-style-type: none"> <li>• Refugees located near hostile border</li> <li>• Refugees located near host country military base</li> <li>• Conflict zone near or approaching refugee site</li> <li>• Combatants live in or near camp</li> </ul>	<ul style="list-style-type: none"> <li>• Move refugees to safer site</li> <li>• Increase the UN/ICRC or other international presence</li> <li>• Increase security through host country military</li> </ul>
Involuntary repatriation <i>Refoulement</i>	<ul style="list-style-type: none"> <li>• Refugees restricted to immediate border areas, even though better, safer alternate facilities or sites exist</li> <li>• International presence kept out of sight</li> <li>• Refugees confined to site</li> <li>• Refugees discussed or described as “illegal aliens” or “economic migrants”</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate protests by UNHCR, ICRC, and the international community</li> <li>• Obtain assurances of resettlement or legal monitored repatriation process</li> <li>• Increase UNCHR/ICRC presence</li> </ul>
Violence against refugee group	<ul style="list-style-type: none"> <li>• Historic or known conflict between refugees and host country nationals</li> <li>• Religious, racial, cultural differences between refugees and host country nationals</li> <li>• Enforced confinement to site by military or free admission to confined population by military or police</li> <li>• Refugees accused of “subversive” activities</li> <li>• No mail or other communication allowed</li> <li>• No international presence allowed</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate protests by UNHCR, ICRC, and the international community</li> <li>• Increase UNCHR/ICRC presence</li> </ul>
Forced conscription	<ul style="list-style-type: none"> <li>• Combatants living in or near site</li> <li>• Local military forces operating inside site</li> <li>• Registration not allowed by host government</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate protests by UNHCR, ICRC, and the international community</li> <li>• Increase UNCHR/ICRC presence</li> </ul>

\* Adapted from “Assessment Manual for Refugee Emergencies: Bureau for Refugee Programs/US State department UNHCR Emergency Tools Series draft # 2, 1992

### CORRECTIVE SITE AND SHELTER RESPONSE

PROBLEM	INDICATORS	RESPONSE
Overcrowding	<ul style="list-style-type: none"> <li>• High rate of influx into confined area</li> </ul>	<ul style="list-style-type: none"> <li>• Acquire additional land for expansion of site</li> <li>• Relocate or thin out existing structures by relocation to new area</li> <li>• Build or set-up additional shelters</li> </ul>
Exposure (Hypothermia)	<ul style="list-style-type: none"> <li>• Symptoms accompanied by severe cold weather in healthy populations</li> <li>• Symptoms in moderately cold or wet weather conditions in malnourished populations</li> </ul>	<ul style="list-style-type: none"> <li>• Keep victims warm, treat for shock</li> </ul>
Domestic Violence/ Social Disturbances	<ul style="list-style-type: none"> <li>• wounded from violence</li> <li>• Reports from refugees community</li> </ul>	<ul style="list-style-type: none"> <li>• Counseling by trained social workers</li> <li>• Medical treatment of wounds</li> </ul>
Fire	<ul style="list-style-type: none"> <li>• Loss of shelters or sectors of camp by spread of fire</li> </ul>	
Mud/Standing Water	<ul style="list-style-type: none"> <li>• Pattern of rainy weather</li> <li>• Flat, low lying site</li> <li>• Flood plain location</li> <li>• No other existing structures or fixed assets in the area</li> </ul>	<ul style="list-style-type: none"> <li>• Select site with slight slope (2%) if possible</li> <li>• Use culverts for drainage if roads are improved by raising the road surface</li> <li>• Include drainage plan and ditching in initial site layout</li> </ul>

Source: Compiled by DMC, 1992  
 UNHCR Emergency Tools Series draft # 2, 1992

### CORRECTIVE PROTECTION RESPONSE

PROBLEM	INDICATORS	RESPONSE
Armed attack on refugees from country of origin	<ul style="list-style-type: none"> <li>• Dead or wounded from fighting</li> <li>• Reports from refugees or local population</li> <li>• Local or international media</li> </ul>	<ul style="list-style-type: none"> <li>• Move refugees to safer site</li> <li>• Increase the UN/ICRC or other international presence</li> <li>• Increase security through host country military</li> <li>• Medical treatment of wounded</li> </ul>
Involuntary repatriation <i>Refoulement</i>	<ul style="list-style-type: none"> <li>• Refusal of host government to allow registration of refugees</li> <li>• Reports from refugees in host country or from country of origin</li> <li>• Local or international media</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate protests by UNCHR, ICRC, and the international community</li> <li>• Obtain assurances of resettlement or legal monitored repatriation process</li> <li>• Increase UNCHR/ICRC presence</li> </ul>
Violence against refugee group	<ul style="list-style-type: none"> <li>• Dead or wounded from fighting</li> <li>• Presence of local military or police in the camp for the protection of the refugees</li> <li>• Reports from refugees or local population</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate protests by UNCHR, ICRC, and the international community</li> <li>• Increase UNCHR/ICRC presence</li> <li>• Treatment of wounded</li> <li>• Political efforts to reduce antagonism between groups</li> </ul>
Forced conscription	<ul style="list-style-type: none"> <li>• Unexplained absence especially of young adult males from site</li> <li>• Reports from refugees or local community</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate protests by UNCHR, ICRC, and the international community</li> <li>• Increase UNCHR/ICRC presence</li> </ul>

\* Adapted from "Assessment Manual for Refugee Emergencies" Bureau for Refugee Programs / US State Department UNCHR Emergency Tools Series draft #2, 1992

### PREVENTIVE SITE AND SHELTER MANAGEMENT GUIDELINES

PROBLEM	PREDICTIVE INDICATORS	PREVENTION STRATEGY
Overcrowding	<ul style="list-style-type: none"> <li>High rate of influx into confined area</li> </ul>	<ul style="list-style-type: none"> <li>For contingency planning, negotiate suitable site(s) with Government before influx occurs or at early stage of refugee situation. If possible sites should have potential for expansion in order to avoid relocation or increased population density</li> </ul>
Exposure	<ul style="list-style-type: none"> <li>Historic or standard weather patterns of rainy or cold periods</li> <li>Lightweight tents or other uninsulated structures in areas with seasonal cold periods</li> <li>Insufficient heaters / stoves or fuel</li> </ul>	<ul style="list-style-type: none"> <li>Provision of suitable shelter, e.g. insulated and heatable tents or other structures. Also distribute stoves, mattresses, warm clothing, blankets or sleeping bags (in heated tent, if indoor temperature is +10C provide at least three blankets per person; for lower temperatures, provide PES - wadding or feather/down sleeping bags</li> <li>Stockpile additional blankets</li> <li>Purchase additional heaters/stoves</li> <li>Fuel distribution system</li> <li>Fuel stockpile and or consider alternative fuel sources to bridge gap</li> <li>Relocation of population to better sheltered or warmer area</li> </ul>
Domestic Violence / Social Disturbances	<ul style="list-style-type: none"> <li>Overcrowding</li> <li>Lack of privacy</li> </ul>	<ul style="list-style-type: none"> <li>Meet minimum space standards for site area and shelter space requirements</li> <li>Provide at least visual privacy especially for populations sheltered in communal buildings</li> </ul>
Fire	<ul style="list-style-type: none"> <li>Overcrowding</li> <li>Site area too small for number of tents / structures, shelters are very close together or are touching</li> <li>Dry windy weather conditions</li> <li>Dry combustible shelter materials and individual open flame heating or cooking stoves or areas</li> </ul>	<ul style="list-style-type: none"> <li>Provide adequate fire breaks between structures</li> <li>Provide fire extinguishers in strategic locations, i.e. stores/warehouses, admin. Buildings, etc.</li> <li>Space structures apart to reduce risk of spread of fire</li> <li>Public awareness campaign</li> <li>Establish fire brigade</li> <li>If possible, stoves/cooking areas should be protected from the wind (windshields). This will also reduce amount of fuel required</li> <li>Indoor cooking/heating only with suitable heaters, open fires are to be avoided</li> <li>Organize and promote planting of trees and hedges to reduce windspeed (also helps reduce dust and upper respiratory diseases)</li> </ul>
Mud / Standing Water	<ul style="list-style-type: none"> <li>Pattern of rainy weather</li> <li>Flat, low lying site</li> <li>Flood plain location</li> <li>No other existing structures or fixed assets in the area</li> </ul>	<ul style="list-style-type: none"> <li>Select site with slight slope (2%) if possible regardless of climate (rainy or arid)</li> <li>Use culverts for drainage if roads are improved by raising the road surface</li> <li>Include drainage plan and ditching in initial site layout</li> <li>Special attention must be paid to drainage around water points</li> </ul>

Source: compiled by DMC, 1992  
 UNHCR Emergency Tools Series draft #2, 1992

## PREVENTIVE WATER AND SANITATION GUIDELINES

PROBLEM	PREDICTIVE INDICATORS	PREVENTION STRATEGY
Uncontrolled pollution of site	<ul style="list-style-type: none"> <li>• Lack of toilets, privies, trenches, pits, delineated defecation areas, or other functioning sanitation system</li> <li>• Sanitation system is new or different from refugees' traditional system</li> <li>• Overcrowding</li> <li>• Distance to toilets, privies, etc. are greater than 50m from dwellings</li> </ul>	<ul style="list-style-type: none"> <li>• Plan for and provide adequate sanitary system for the site before providing shelter</li> <li>• Find out traditional sanitation system of refugees and provide similar if possible</li> <li>• Establish sanitation means</li> <li>• Plan for garbage storage, collection and disposal</li> <li>• Provide appropriate handtools to community members</li> </ul>
Pollution of water source	<ul style="list-style-type: none"> <li>• Drinking water taken from surface sources, lakes, rivers or shallow wells</li> <li>• Pit type toilets located too close to wells</li> <li>• Slope of site directs runoff from latrine area or defecation fields to river or stream</li> </ul>	<ul style="list-style-type: none"> <li>• Plan for adequate distance between wells and privies</li> <li>• Always plan for privies to be sited below (downhill) from wells</li> </ul>
Poor personal and food hygiene	<ul style="list-style-type: none"> <li>• Lack of water</li> <li>• Foods, water carrying or distribution systems different from the refugees' traditional systems</li> </ul>	<ul style="list-style-type: none"> <li>• Public hygiene awareness/education program</li> <li>• Adequate supply of clean water</li> <li>• Distribution of appropriate containers for food and water cooking, carrying and storage</li> <li>• Provision of firewood or fuel for sufficient boiling of water and cooking of meals</li> </ul>
flies	<ul style="list-style-type: none"> <li>• Poor garbage management</li> <li>• Poor latrine design</li> </ul>	<ul style="list-style-type: none"> <li>• Stockpile adequate quantity of lime to cover fecal matter on a regular basis</li> <li>• Provide screen for privy vent pipes</li> <li>• Provide tools and equipment for garbage disposal (e.g. wheelbarrows, tip trucks as appropriate)</li> </ul>

Source: Compiled by DMC, 1992  
 UNCHR Emergency Tools Series draft #2, 1992

### CORRECTIVE WATER AND SANITATION RESPONSE

PROBLEM	INDICATORS	PREVENTION STRATEGY
Uncontrolled pollution of site	<ul style="list-style-type: none"> <li>• Feces everywhere</li> <li>• Garbage neither properly contained nor regularly disposed of</li> <li>• Standing stagnant water, especially around tap stands</li> <li>• Entire site stinks</li> </ul>	<ul style="list-style-type: none"> <li>• Sanitation team must be formed to clean up the site</li> <li>• Improve or install working sanitary system, controlled area for defecation field, pit or trench latrines, toilets or other</li> <li>• Clean existing latrines, even in cases where adequate numbers of latrines are installed, they will not be used if they are dirty or foul smelling</li> <li>• Improve garbage cleanup/management system, provide sufficient waste bins and adequate equipment e.g. wheelbarrows, rakes, etc.</li> <li>• Encourage community participation through education</li> <li>• Test water sources, esp. surface water for unsafe levels of fecal bacteria such as E.Coli, chlorination or other treatment of the water may be necessary</li> </ul>
Pollution of water source	<ul style="list-style-type: none"> <li>• Increased cases of diarrhoea</li> <li>• Foul smelling or turbid water</li> <li>• Tested levels of E. Coli exceed 10 fecal coliforms/100ml water</li> </ul>	<ul style="list-style-type: none"> <li>• Eliminate sources of pollution (especially near shallow wells) or protect wells from sources</li> <li>• If water is polluted with organisms such as E. Coli then chlorination or other treatment is necessary</li> <li>• If pollution is chemical seek expert advice and identify alternate sources of water</li> </ul>
Poor personal and food hygiene	<ul style="list-style-type: none"> <li>• Diarrhea</li> <li>• Scabies</li> </ul>	<ul style="list-style-type: none"> <li>• Public hygiene awareness / education program</li> <li>• Increase supply of clean water and soap</li> <li>• Distribute appropriate containers for food and water cooking, carrying, and storage</li> </ul>
Flies	<ul style="list-style-type: none"> <li>• Flies</li> </ul>	<ul style="list-style-type: none"> <li>• Improve the management of garbage as a first priority, organize regular clean-up campaigns including clearing of drains and trenches. Insecticide spraying is not recommended for fly control in refugee situations.</li> </ul>

Source: Compiled by DMC, 1992  
 UNCHR Emergency Tools Series draft #2, 1992

## PREVENTIVE MEDICAL MANAGEMENT GUIDELINES

PROBLEM	PREDICTIVE INDICATORS	PREVENTION STRATEGY
<b>Diarrhoeal Diseases</b>	<ul style="list-style-type: none"> <li>• Overcrowding</li> <li>• Contamination of food and water</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate living space, public health education, adequate personal and food hygiene, clean water supply, functioning sanitation system</li> </ul>
<b>Measles</b>	<ul style="list-style-type: none"> <li>• Overcrowding</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate living space, immunization of children aged 6 months to 12 years or MOH policies</li> </ul>
<b>Respiratory Infections</b>	<ul style="list-style-type: none"> <li>• Overcrowding, inadequate shelter</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate living space (for particular environment and climate), adequate clothing and blankets</li> </ul>
<b>Malaria</b>	<ul style="list-style-type: none"> <li>• Known strain of malaria for which refugees have no immunity esp. falciparum malaria</li> <li>• Stagnant, standing water</li> </ul>	<ul style="list-style-type: none"> <li>• Destroy mosquito breeding areas, larvae, and adult mosquitos through environmental measures (fill small ) depressions in terrain, proper garbage management, clearing of bushes, etc. Use insecticide spraying as a last resort (specialist advice required)</li> <li>• Ensure adequate drainage of site to eliminate breeding areas</li> <li>• Distribute mosquito netting with or without impregnated insecticide</li> <li>• Chemoprophylaxis of vulnerable groups (specialist advice required)</li> <li>• Adequate treatment of malaria cases</li> </ul>
<b>Meningo-coccal Meningitis</b>	<ul style="list-style-type: none"> <li>• Overcrowding in endemic area (may have local seasonal pattern)</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate living space</li> <li>• Immunization only after expert recommendation at site</li> </ul>
<b>Tuberculosis</b>	<ul style="list-style-type: none"> <li>• Overcrowding</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate living space</li> <li>• Adequate treatment and control of active cases</li> </ul>
<b>Worms esp. Hookworms</b>	<ul style="list-style-type: none"> <li>• Overcrowding</li> <li>• Poor sanitation</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate living space</li> <li>• Functioning sanitation system</li> <li>• Personal hygiene</li> <li>• Shoes</li> </ul>
<b>Typhoid and Cholera</b>	<ul style="list-style-type: none"> <li>• Overcrowding</li> <li>• Poor personal hygiene</li> <li>• Contaminated water supply</li> <li>• Poor sanitation</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate living space</li> <li>• Clean and sufficient water supply and soap</li> <li>• Functioning sanitation system</li> <li>• Public health education</li> <li>• Prepositioning of drugs and supplies (cholera)</li> </ul>
<b>Scabies</b>	<ul style="list-style-type: none"> <li>• Overcrowding</li> <li>• Poor personal hygiene</li> <li>• Insufficient amount of water</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate living space</li> <li>• Enough water and soap for washing</li> </ul>
<b>Xerophthal-mia (child blindness)</b>	<ul style="list-style-type: none"> <li>• Vitamin A deficiency, sometimes precipitated by measles or other serious infections</li> </ul>	<ul style="list-style-type: none"> <li>• Diet with Vitamin A through vitamin A fortified foods or vitamin A capsules</li> </ul>
<b>Relapsing Fever</b>	<ul style="list-style-type: none"> <li>• Presence of body lice</li> <li>• Endemic areas</li> <li>• Poor hygiene</li> <li>• Overcrowding</li> </ul>	<ul style="list-style-type: none"> <li>• Delousing treatment</li> <li>• Soap and water</li> <li>• Adequate living space</li> <li>• Adequate clothing</li> </ul>

\*adapted from UNHCR Handbook for Emergencies – 1982

UNCHR Emergency Tools Series draft #2, 1992

### CORRECTIVE MEDICAL RESPONSE

PROBLEM	INDICATORS	PREVENTION STRATEGY
Diarrhoeal Diseases	<ul style="list-style-type: none"> <li>10% OR MORE OF POPULATION EXHIBITING SIGNS OF DIARRHOEA</li> </ul>	<ul style="list-style-type: none"> <li>ORAL REHYDRATION THERAPY (ORT) for all cases (mainly children 5)</li> <li>Encourage breast feeding of infants until at least one year old</li> </ul>
Measles	<ul style="list-style-type: none"> <li>Any confirmed case</li> </ul>	<ul style="list-style-type: none"> <li>Vaccination for surrounding population. The spread of the disease is fast, especially in malnourished or stressed populations. It has been established that in large populations it is more effective to vaccinate those in immediate areas to the reported outbreak rather than the outbreak population itself as the intent is to stop the spread of the disease rather than to cure it. There is no cure for measles.</li> <li>Treatment of secondary infections for affected population.</li> </ul>
Respiratory Infections	<ul style="list-style-type: none"> <li>Any severe case</li> </ul>	<ul style="list-style-type: none"> <li>Treatment with antibiotics</li> <li>Improve shelter/blankets/clothing deficiencies</li> </ul>
Malaria	<ul style="list-style-type: none"> <li>Confirmed cases of malaria</li> <li>Mosquitos</li> </ul>	<ul style="list-style-type: none"> <li>Treatment of those exhibiting fever with chloroquine, or Fansidar or other drugs if strain is chloroquine resistant</li> </ul>
Meningo-coccal Meningitis	<ul style="list-style-type: none"> <li>Overcrowding in endemic area (may have local seasonal pattern)</li> </ul>	
Tuberculosis	<ul style="list-style-type: none"> <li>Overcrowding</li> </ul>	
Worms esp. Hookworms	<ul style="list-style-type: none"> <li>Overcrowding</li> <li>Poor sanitation</li> </ul>	<ul style="list-style-type: none"> <li>Medical treatment through drugs as recommended by medical expert on site</li> </ul>
Typhoid and Cholera	<ul style="list-style-type: none"> <li>Overcrowding</li> <li>Poor personal hygiene</li> <li>Contaminated water supply</li> <li>Poor sanitation</li> </ul>	<ul style="list-style-type: none"> <li>ORAL REHYDRATION THERAPY (ORT) for all cases exhibiting dehydration because of diarrhoea</li> </ul>
Scabies	<ul style="list-style-type: none"> <li>Overcrowding</li> <li>Poor personal hygiene</li> <li>Insufficient amount of water</li> </ul>	<ul style="list-style-type: none"> <li>Enough water and soap for washing</li> </ul>
Xerophthal-mia (child blindness)	<ul style="list-style-type: none"> <li>Blindness</li> </ul>	<ul style="list-style-type: none"> <li>No cure</li> </ul>

\*adapted from UNHCR Handbook for Emergencies - 1982  
UNCHR Emergency Tools Series draft #2, 1992

### PREVENTIVE FOOD AND NUTRITION GUIDELINES

PROBLEM	PREDICTIVE INDICATORS	PREVENTION STRATEGY
Lack of food	<ul style="list-style-type: none"> <li>• Rapid refugee influx</li> <li>• Poor host country or population with endemic malnutrition</li> </ul>	<ul style="list-style-type: none"> <li>• Early warning system of refugee movements combined with local stockpiling ability</li> <li>• Proper assessment of nutritional requirements for the refugee population</li> <li>• Pre-arranged transportation and distribution system</li> <li>• Standing contracts</li> <li>• Fast accurate registration system of all refugees as they arrive at site</li> </ul>
Food not accepted or eaten by refugees	<ul style="list-style-type: none"> <li>• Foods delivered are not traditionally eaten or are not socially or religiously allowed by refugee population</li> </ul>	<ul style="list-style-type: none"> <li>• Research traditionally acceptable foods of refugee population and provide same</li> </ul>
Food spoilage	<ul style="list-style-type: none"> <li>• Food already ordered or on hand is greater than can be consumed before spoilage</li> <li>• Refugees spontaneously move to new areas or repatriate</li> <li>• Lack of appropriate warehouse space</li> <li>• Lack of adequate/appropriate storage containers for individual families</li> <li>• Prepared or cooked foods distributed in larger quantities than can be eaten in 1 day</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate storage space for all items in appropriate warehouse space</li> <li>• Ordering, delivering food stocks in a timely manner in manageable amounts</li> <li>• Customs clearance for food stocks sent from abroad</li> <li>• Provision of appropriate food storage containers to refugee population</li> <li>• Distribution of spoilable foods in small amounts only</li> </ul>

Source: compiled by DMC, 1992  
 UNCHR Emergency Tools Series draft #2, 1992

### CORRECTIVE FOOD AND NUTRITION RESPONSE

PROBLEM	PREDICTIVE INDICATORS	PREVENTION STRATEGY
Lack of food	<ul style="list-style-type: none"> <li>Malnutrition symptoms</li> </ul>	<ul style="list-style-type: none"> <li>Increase ration</li> <li>Correct problems in distribution system</li> </ul>
Food not accepted or eaten by refugees	<ul style="list-style-type: none"> <li>Wastage of foods</li> </ul>	<ul style="list-style-type: none"> <li>Research traditionally acceptable foods of refugee population and provide same</li> </ul>
Food spoilage	<ul style="list-style-type: none"> <li>Discarded spoiled foods</li> <li>Intestinal illnesses, food poisoning</li> </ul>	<ul style="list-style-type: none"> <li>Destroy spoiled foods</li> <li>Provision of appropriate food storage containers to refugee population</li> <li>Distribution of spoilable foods in small amounts only</li> </ul>

Source: compiled by DMC, 1992  
UNCHR Emergency Tools Series draft #2, 1992

### HEALTH SCREENING OF NEW ARRIVALS - RECEPTION ACTIVITIES

<b>Nutritional Screening</b>	<ul style="list-style-type: none"> <li><b>CHILDREN 1 to 4 YEARS</b> Take survey of mid-upper arm circumference (MUAC). Any with MUAC below 12.5 cm should be immediately referred to health or nutrition services</li> </ul>
<b>Measles Immunization</b>	<ul style="list-style-type: none"> <li><b>CHILDREN 6 months to 14 YEARS</b> Immunize entire group and issue "Road to Health" or other immunization record card</li> </ul>
<b>Vitamin A Prophylaxis</b>	<ul style="list-style-type: none"> <li><b>CHILDREN 0 to 14 YEARS</b> Give preventive dose of vitamin A to entire group, can be given at time of measles immunization: Ages 0 - 11 months need 100,000 international units Ages 12 months and older need 200,000 international units Repeat dosage every 3-6 months</li> </ul>
<b>Basic Curative Care</b>	<ul style="list-style-type: none"> <li><b>AS REQUIRED:</b> On-site first line care for dehydration, respiratory infections, presumed malaria, trauma, and other life threatening conditions.</li> <li>Referral to existing health care facilities</li> </ul>
<b>Demographic Screening</b>	<ul style="list-style-type: none"> <li><b>EVERYONE</b> Estimate total population and numbers of vulnerable persons/groups such as children 0-4 years old, pregnant/lactating women, handicapped, female heads of households, single women, and un-accompanied minors</li> </ul>

Source: compiled from draft of new UNCHR Handbook 1991  
UNCHR Emergency Tools Series draft #2, 1992

**GROSS PHYSICAL PLANNING FIGURES**  
For development of a new site for an emergency refugee camp

<b>RESOURCE</b>	<b>HOW MUCH YOU WILL NEED</b>
<b>Land</b>	<ul style="list-style-type: none"> <li>• 30 m2 per person</li> </ul>
<b>Sheltered Space (tents or other structures)</b>	<ul style="list-style-type: none"> <li>• 3.5 m2 per person</li> </ul>
<b>Fire Break Space</b>	<ul style="list-style-type: none"> <li>• A clear area between shelters 50m wide should be provided for every 300m of built-up area A minimum of 1-1.5m should be provided between guy-ropes of neighboring tents on all sides</li> </ul>
<b>Warehouse Space</b>	<ul style="list-style-type: none"> <li>• For bagged food grains stacked 6m high, 1.2m2/ton</li> </ul>
<b>Roads and Walkways</b>	<ul style="list-style-type: none"> <li>• 20-25% of entire site</li> </ul>
<b>Open Space and Public Facilities</b>	<ul style="list-style-type: none"> <li>• 15-20% of entire site</li> </ul>
<b>Environmental Sanitation</b>	<ul style="list-style-type: none"> <li>• 1 latrine seat per 20 people or ideally 1 per family sited not farther than 50m from user accommodation and not nearer than 6m</li> <li>• 1 100 liter refuse bin per 50 people</li> <li>• 1 wheelbarrow per 500 people</li> <li>• 1 tip truck (1-2 ton capacity per 5,000 people</li> <li>• 1 communal refuse pit (2m x 5m x 2m) per 500 people</li> </ul>
<b>Water</b>	<ul style="list-style-type: none"> <li>• 15-20 liters per person per day of clean water</li> </ul>
<b>Tap Stands</b>	<ul style="list-style-type: none"> <li>• 1 per 200 persons sited not farther than 100m from user accommodations</li> </ul>
<b>Water Storage Tanks, ponds, bladders, or other containers</b>	<ul style="list-style-type: none"> <li>• If sedimentation tanks are needed then storage capacity should equal at least one day's reserve supply of water</li> <li>• If rainwater is to be collected for storage consult local experts for rainfall amounts (1mm of rainfall over 1m2 of roof area yields .8 liters of water after allowing for evaporation)</li> </ul>
<b>Food</b>	<ul style="list-style-type: none"> <li>• 2,200 kcal/person/day</li> <li>• Approximately 36 metric tons/10,000 people/week assuming the following typical ration: 350-400 g of staple cereal 20-40 g of an energy rich food (oil/fat) 50 g of a protein rich food (legumes)</li> </ul>

Source: compiled by DMC  
UNCHR Emergency Tools Series draft #2, 1992

### THE SIZE OF THINGS

COMMODITY	APPROXIMATE VOLUME PER TON (m <sup>3</sup> /1,000kg)	STANDARD PACKAGE	TYPICAL MAXIMUM STACKING HEIGHT
Water	1	None	N/a
Food grains/beans	2	50 kg bag	20-40 bags
Flour and blended foods	2	25 kg bag	20-30 bags
DSM in bags	2.4	25 kg bag	20-30 bags
DSM in tins inside cartons	4	20 kg/carton 4 tins/carton	8 individual cartons or 20 if palletized
Edible oil in tins inside cartons	2	25 kg/carton 6 tins/carton	8 individual cartons or 20 if palletized
Oil in drums	1.4	200 liter drum	2 drums upright with wood between the rims or 3 drums on their sides
ORS	2.4	35 kg carton	3-4 m
Other mixed drugs	3.5	45 kg carton	3-4 m
Clinic equipment and teaching aid	4.5	35-50 kg carton	3-4 m
Kitchen utensils	5	35-40 kg carton	3-4 m
Family tents	4.5	35-60 kg/unit	4.5 m *
Compressed blankets	4.5	70 units/bale 85 kg/bale	4.5 m *
Loose blankets	9	unit	3-4 m

\* where equipment for stacking allows

### COLD CHAIN REQUIRED CAPACITIES

In liters / 1,000 doses

VACCINE	PACKED VOLUME	FREEZERS AND COLD BOXES	REFRIGERATOR	COLD ROOMS
Measles	3.0	3.6	6	12
DPT	2.5	3.0	5	10
BCG	1.0	1.2	2	4
Polio	1.5	1.8	3	6
Tetanus	2.5	3.0	5	10

Source: both tables adapted from "Assisting in Emergencies/UNICEF" 1986  
UNCHR Emergency Tools Series draft #2, 1992

### CAPACITIES AND CHARACTERISTICS OF VARIOUS AIRCRAFT

AIRCRAFT MAKE OR TYPE	VOLUME CAPACITY in m3	WEIGHT CAPACITY in kg	REQUIRED RUNWAY in m	SPECIAL ASPECTS
Pilatus Porter	3	950	120	Small door
Twin Otter	12.4	1,800	220	Small door
Skyvan	22	2,100	500	Ramp; can take Land Rover
DC-3	21	3,000	1,200	
Fokker F.27	65	5,000	1,200	
DC-6	80	11,000	1,500	
Transall	140	17,000	1,000	Ramp for trucks
Hercules L.100-30	170	21,000	1,400	Ramp for trucks, can land on earth/grass airstrips
B.707/320C	255	36,000	2,100	
DC.8/63F	302	44,000	2,300	"Stretch" version
DC.10/30F	412	66,000	2,500	
B.747	460	100,000	3,000	

\* Note that the minimum length of runway required and the maximum load capacity both depend on the altitude of the airport and the temperature.  
Capacity is reduced for long distances as more fuel must be carried.  
Source: Assisting in Emergencies / UNICEF 1986

### CAPACITIES OF VARIOUS SURFACE TRANSPORT MEANS

CARRIER TYPE	VOLUME CAPACITY in m3	WEIGHT CAPACITY in kg
Standard railway car	52	30,000
Standard sea/land container – 20 ft/6.1 m	30	18,000
Standard sea/land container – 40 ft/12.2 m	65	26,000
Large lorry and trailer		22,000
Large articulated lorry		30,000
Medium lorry		6 – 8,000
Long wheel base Land Rover or pickup		1,000
Typical water tanker	8*	8,000
Hand drawn cart		300
Camel		250
Donkey		100
Bicycle		100

\*From "Assisting in Emergencies/UNICEF" 1986  
 Source: UNCHR Handbook for Emergencies, 1982  
 UNCHR Emergency Tools Series draft #2, 1992

### STAFFING REQUIREMENTS

#### APPROXIMATE STAFFING LEVELS FOR REFUGEE HEALTH SERVICES FOR A POPULATION OF 10 – 20,000

Community Health Worker	10-20
Traditional Birth Attendant	10-20
Public Health Nurse	1
Clinic Nurses Midwives	3-4
Doctors/Medical Assistants	1-2
Pharmacy Attendant	1
Laboratory Technician	1
Dressers Assistant	10

Source: draft of UNCHR Emergency Handbook, 1991

**SUGGESTED MINIMUM STAFF FOR REFUGEE CAMP  
(10-20,000 Population) ADMINISTRATION DURING AN EMERGENCY**

<b>Camp Administrator</b>	1 per camp
<b>Assistant Administrator</b>	1 per camp
<b>Storekeeper</b>	1 per camp
<b>Storekeeper's Assistant for Distribution</b>	1 per 5,000 people
<b>Warehouse Guards</b>	4-6 / warehouse
<b>Senior Health Officer</b>	1 per camp
<b>Sanitation Officer</b>	1 per camp
<b>Sanitation Worker</b>	1 per 500 people
<b>Water Maintenance Officer</b>	1 per camp
<b>Housing / Shelter Officer</b>	1 per camp
<b>Shelter Construction Teams</b>	As needed
<b>Registration Officer</b>	1 per camp
<b>Registration and Screening Team Workers</b>	1/100 daily arrivals

Note: Minimum Staffing requirements and skills profile of staff for shelter sector should be established only after site assessment and programmatic approach has been defined.

Source: adapted from Assessment Manual for Refugee Emergencies, U.S. Dept. of State 1985  
UNCHR Emergency Tools Series draft #2, 1992

### DOSAGE AND STORAGE OF VACCINES

Vaccine	Dose (a)	Number and Timing of Doses	Diluent	Storage (b)	When Ready to Use
<b>Measles</b>	0.5 ml (10, 50)	<ul style="list-style-type: none"> <li>• 1<sup>st</sup> dose between 6 to 8 months, booster after 9 months</li> <li>• 1 single dose after 9 months</li> </ul>	Special diluent. Must be cool. (Distilled water may be used in an emergency).	2 years at 4C to 8C	Destroyed by sunlight. Must be stored below +8C. Will last for 3 hours after mixing, a full session if kept cold and well shaded.
<b>Polio (oral)</b>	2 or 3 drops, depending on manufacturer (c) (20)	3 doses at 4-week intervals starting at 6 weeks. Add one extra dose at birth if feasible, especially in polio-endemic areas	None (droppers needed).	6 - 12 months at 4C to +8C / 1-2 years at -20C	Keep cool and shaded.
<b>DPT</b>	0.5 ml (20)	3 doses at 4-week intervals starting at not less than 6 weeks	None	18 - 24 months at +4C to + 8C. Do not freeze.	Keep cool and shaded.
<b>BCG</b>	0.1 ml (50)	1 dose from birth	Normal saline. Must be cool.	12 months at +4C to +8C	Destroyed by sunlight. Must be stored below +8C. As above for measles.
<b>Tetanus</b>	0.5 ml (20)	2 doses at 4 week intervals beginning at first contact for pregnant women	None	2-3 years at +4C to +8C. Do not freeze.	

- a) Figures in brackets indicate normal number of doses per vial
- b) General indications of storage lives: check specification leaflets for manufacturers' recommendations for each individual lot of medicine.
- c) Polio vaccines supplied by UNIPAC always require only 2 drops. Vaccines from other sources may require 3: check the manufacturer's specifications.
- N.B. Technical opinion has changed over the years. The indicators given above for the timing of doses and the storage life of vaccines correspond to the latest (1985) WHO recommendations.

**APPROXIMATE NUTRITIONAL VALUES OF COMMODITIES PER 100 GRAM EDIBLE PORTION**

<b>Commodity</b>	<b>Energy (kcal)</b>	<b>Protein (g)</b>	<b>Fat (g)</b>
<b>CEREALS</b>			
Wheat	330	12.3	1.5
Wheat Flour	350	11.5	1.5
Bulgur Wheat	350	11.0	1.5
Maize	350	8.5	4.0
Maize Meal	360	9.0	3.8
Sorghum	335	11.0	3.8
Rice	360	7.0	0.5
Rolled Oats	380	14.5	6.2
<b>BLENDED FOODS</b>			
Instant corn soya blend	365	12.2	4.0
Corn soya blend	380	18.0	6.0
Wheat soya blend	370	20.0	6.0
Soy fortified bulgur wheat	350	17.0	1.5
Soy fortified corn meal	360	13.0	1.5
Soy fortified rolled oats	375	21.0	6.0
Soy fortified wheat flour	360	16.0	1.3
Soy fortified sorghum grits	360	16.0	1.0
<b>MILK, CHEESE and EGGS</b>			
Dried skimmed milk	360	36.0	0
Dried whole milk	490	23.5	24.0
Cheese	355	22.5	28.0
Dried eggs	575	45.5	43.5
<b>MEAT and FISH</b>			
Canned meat	220	21.0	15.0
Dried salted fish	270	47.0	7.5
Canned fish in oil	305	22.0	24.0
Fish protein concentrate	390	75.0	10.0
<b>OILS and FATS</b>			
Vegetable Oil	885	0	100
Butter Oil	860	0	98.0
Margarine	735	0	82.0

Edible fat	900	0	100
FRUIT and BEVERAGES			
Dried fruit	270	4.0	0.5
Dates	245	2.0	0.5
Jam	265	0	0
Tea	0	0	0
Coffee	0	0	0
MISCELLANEOUS			
Pulses/beans/lentils	335	22.0	1.5
Groundnuts	579	27.0	45
Sugar	400	0	0
Iodized salt	0	0	0
Pasta	365	12.5	1.2
Freeze-dried meat	480	65.0	25.0
Minestrone	500	22.5	27.0
Protein enriched ration	452	16.7	15.5
Milk Biscuits (whole milk)	468	23.4	10.4
Milk Biscuits (skimmed milk)	375	24.0	1.5
High-Protein biscuits	448	50.0	20.0

**ENHANCED RATION FOR POPULATIONS RECENTLY  
SUBJECTED TO NUTRITIONAL STRESS  
(PER CAPITA PER DAY)**

<b>Item</b>	<b>Qty (g)</b>	<b>Energy (kcal)</b>	<b>Protein (g)</b>	<b>Fat (g)</b>	<b>Comment</b>
<b>Maize Meal / Wheat Flour</b>	450 (450)	1575 (1620)	55.3 (36)	6.7 (17.1)	Main source of energy and protein.
<b>Pulses</b>	50	167	11	0.7	Needed to improve protein and add B vitamins
<b>Oils / Fats</b>	25	221	0	25	Needed for concentrated source of energy for children and for absorption of vitamin A, and essential fatty acid requirement
<b>Fortified Cereal Blend *</b>	50	190	9	3	Needed for essential vitamins, minerals (A, B1, B2, niacin, calcium, iron and for child weaning food)
<b>Canned Fish Canned Meat</b>	30 (30)	92 (66)	6 (6)	7.2 (4.4)	Needed for iron absorption and adequate protein quantity
<b>Salt</b>	5	0	0	0	Needed for sodium requirements
<b>Sugar</b>	20	80	0	0	Needed for cultural habits, home oral rehydration, and concentrated energy source for children
<b>Total **</b>		2325	81.3	42.6	

\* Such as CSB, WSM, likuni phala, falfa and so forth.

\*\* With wheat, flour and canned fish

Source : revised Handbook for Emergencies - UNCHR 1991 Draft

**LONG TERM MAINTENANCE RATION TOTAL DEPENDENCY ON  
OUTSIDE FOOD PROVISION (PER CAPITA PER DAY)**

<b>Item</b>	<b>Qty (g)</b>	<b>Energy (kcal)</b>	<b>Protein (g)</b>	<b>Fat (g)</b>
Maize Meal /	400	1440	36	15.2
Wheat Flour	400	1400	46	6
Pulses	40	134	8.8	0.6
Oils / Fats	25	221	0	25
Canned Fish	60	183	13.2	14.4
Dried Fish	40	108	18.8	3
Fortified Cereal Blend *	30	114	5.4	1.8
Salt	5	0	0	0
Sugar	20	80	0	0
Vegetables / Fruit	150	75	1.5	0.3
Condiments		0	0	0
<b>Total **</b>		2244	64.9	57.3

\* Such as CSB, WSM, likuni phala, faffa and so forth.

\*\* With maize meal and canned fish, nutritional content of vegetables/fruit

**LONG TERM MAINTENANCE RATION TOTAL DEPENDENCY ON  
OUTSIDE FOOD PROVISION (PER CAPITA PER DAY)**

<b>Item</b>	<b>Distribution Interval</b>	<b>Comments</b>
<b>Cereal</b>	10 days	Always distribute cereal and beans at the same time to maximize their nutritional value
<b>Beans</b>	10 days	
<b>Oil</b>	Monthly	If adequate storage containers are available
<b>Sugar</b>	Monthly	
<b>Salt</b>	Monthly	
<b>Vegetables / Fruits</b>	1-10 days	Depending on variety
<b>Canned Meat / Fish</b>	Monthly	If containers are small (less than 120g)
<b>Cereal Blend</b>	10 days	To avoid loss of nutrient in storage

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