WORLD HEALTH ORGANIZATION

THE MANAGEMENT OF NUTRITIONAL EMERGENCIES IN LARGE POPULATIONS

by

C. DE VILLE DE GOYET, J. SEAMAN & U. GEIJER

CORRIGENDA

Page 16, footnote 1

Delete:

[1] UNICEF tablets specified as containing 0.2 g dried iron sulfate (equivalent to 368 mg of elemental iron) and 250 µg of folate are recommended for routine use—UNIPAC catalogue number 15 500 10 (bottles of 1000 tablets).

Insert:

[1] UNICEF tablets containing 300 mg of ferrous sulfate ($FeSo_4.7H_2O$), or about 60 mg of elemental iron, and 250 µg of folate are recommended for routine use—UNIPAC catalogue number 15 500 10 (bottles of 1000 tablets).

Page 20, Table 2, right-hand column, second entry (Xerophthalmia)

Delete: intramuscular injection of 55 000 µg water-miscible retinol palmitate (100 000 IU of vitamin A) followed the next day by oral administration of 110 000 µg (200 000 IU of vitamin A) ; adequate protein intake is essential

Insert: intramuscular injection of 55 000 µg water-miscible retinol palmitate (100 000 IU of vitamin A) followed the next day by oral administration of 68 000 µg of retinol acetate or 110 000 µg of retinol palmitate (200 000 IU of vitamin A) ; adequate protein intake is essential

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Preface

This guide is intended for use by health personnel responsible for the field management of nutritional emergencies in populations, namely, the medical or allied personnel from national or provincial health services or from relief agencies in the country affected.

It is particularly concerned with severe nutritional emergencies, that is, mass starvation caused by the interruption of food supplies to the population over a long period. Unusual food shortages may be caused by major crop failures, war and civil conflicts, or natural disasters. Relief personnel responsible for short-term food distribution following a major disaster such as an earthquake or cyclone may also find these guidelines useful, although they were specifically prepared for the management of situations in which populations suffer from widespread and severe malnutrition.

No mention is made of social, cultural, or political factors that are critical during famines, nor of rehabilitation. The guide is concerned, as it were, with fire-fighting rather than fire prevention or reconstruction.

No short booklet can provide guidelines applicable to each and every situation. Adaptation and improvisation will be necessary to some extent. All the examples given are based on experience, and it is hoped that they will be helpful in the preparation of local procedures and guides for the on-site training of relief workers in each country.

ACKNOWLEDGEMENTS AND REFERENCES

Acknowledgement is due to many individuals both in and outside WHO for their valuable advice and criticism based upon long experience of field work. The authors are also grateful to the League of Red Cross Societies, the Catholic Relief Services, and Oxfam for their valuable assistance in the preparation of this guide.

Material and ideas have been drawn from many sources, but particularly from the following publications:

Guide to food and health relief operations in disasters. New York, Protein-Calorie Advisory Group (PAG) of the United Nations System, 1977.

BLIX, G., HOFVANDER, Y. & VAHLQUIST, V., ed. *Famine: a symposium dealing with nutrition and relief operations in times of disaster*. Uppsala, Almqvist & Wiksell for Swedish Nutrition Foundation and Swedish International Development Authority, 1971.

KING, M.H. *Nutrition for developing countries*. Nairobi, Oxford University Press, 1972.

Food emergency manual. Rome, World Food Programme (new edition in preparation).

CAMERON, M. & HOFVANDER, Y. *Manual on feeding infants and young children*. 2nd edition, New York, Protein-Calorie Advisory Group of the United Nations System, 1976.

A debt of gratitude is also owed to the Literary Executor of the late Sir Ronald A. Fisher, F.R.S., to Dr Frank Yates, F.R.S., and to Longman Group Ltd, London, for permission to reprint Table A in Annex 6 from their book *Statistical Tables for Biological, Agricultural and Medical Research* (6th edition, 1974).

1. Normal and emergency needs

Basic facts about food and nutrition are given in Annex 1, which should be consulted by readers who are not thoroughly familiar with nutritional concepts. Energy and protein requirements in normal and emergency situations are briefly summarized below.[1]

Normal situations

Recommended intakes

The energy and protein intakes considered as safe by WHO/FAO for each age group and physiological condition[2] are shown in Annex 1

Vulnerable groups

The energy and protein requirements of women are increased during pregnancy—by +1.5 MJ (350 $kcal_{th}$) and +15 g protein per day—and during lactation—by +2.3 MJ (550 $kcal_{th}$) and +20 g protein per day—over and above their normal requirements

Preschool children (0–5 years) require proportionally more energy and protein for each kg of body weight than adults They are more vulnerable to malnutrition.

Emergency situations

The WHO/FAO safe intakes of energy and protein[2] have not yet been attained by the majority of people in developing countries In nutritional emergencies caused by food shortage, relief planning based on these standards is unrealistic. The maintenance of energy intake at a level adequate for survival must be the primary consideration.

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[1] Energy values are expressed in the SI unit, the megajoule (MJ) The equivalents in the superseded unit, the thermochemical kilocalorie ($kcal_{th}$) are given in parentheses 1 MJ = 239 $kcal_{th}$ 1000 $kcal_{th}$ = 4 184 MJ

[2] PASSMORE, R ET AL *Handbook on human nutritional requirements*, Geneva, World Health Organization, 1974 (Monograph Series, No 61)

Table 1 shows the minimum amount of energy required to sustain life

TABLE 1 EMERGENCY ENERGY INTAKE PER PERSON[a]

Group	Height (cm)	Emergency subsistence (for a few weeks) MJ ($kcal_{th}$) per day	Temporary maintenance (for many months) MJ ($kcal_{th}$) per day
0–1 years[b]	under 75	3.4 (800)	3.4 (800)
1–3 years	75– 96	4.6 (1 100)	5.4 (1 300)
4–6 years	96–117	5.4 (1 300)	6.7 (1 600)
7–9 years	117–136	6.3 (1 500)	7.5 (1 800)
10 years or over	over 136		
male		7.1 (1 700)	8.4 (2 000)
female		6.3 (1 500)	7.5 (1 800)
Pregnant or lactating women		8.0 (1 900)	9.2 (2 200)
Average per day per person		about 6.3 MJ (1 500 $kcal_{th}$)	about 7.5 MJ (1 800 $kcal_{th}$)

[a] Adapted from Mayer, J. Famine relief: what kind of organization and what types of trained personnel are needed in the field. In: Blix, G. et al. *Famine, a symposium*. Uppsala 1971.
[b] Levels for infants are similar to those recommended for normal situation.

The emergency subsistence level is the estimated level below which large-scale starvation and death should be expected if the population is of normal body size and is required to perform some work.

A prolonged maintenance diet at the level indicated above is likely to result in some loss of body weight. Supplementary feeding of vulnerable groups is essential to provide extra energy and nutrients.

Even under "normal conditions", without any emergency, the energy intake of some populations is comparable to or less than the temporary maintenance level—7.5 MJ (1800 $kcal_{th}$). When resources are scarce, it may not be justifiable to provide this amount to some segments of the population, and a level as low as 6.3 MJ (1500 $kcal_{th}$) will have to be maintained for extended periods. The decision will depend on local conditions.