WHO/NMH/NHD/EPG/14.8

Interim guideline:

Nutritional care of children and adults with EBOLA virus disease in treatment centres

Key Recommendations[1]

19 November 2014

Signs and symptoms that affect nutritional care in Ebola virus disease (EVD) patients include a lack of appetite, nausea, sore throat, difficulty swallowing and breathing difficulties. Vomiting also interferes with nutritional care and along with diarrhoea, causes additional nutritional stress through rapid loss of electrolytes, protein, other essential nutrients and fluid.

The nutritional needs and approach to nutritional care in any individual will be determined by the patient's preceding nutritional status, severity of illness and age; and is assessed by severity of dehydration, presence of appetite and physical ability to eat.

Currently, field experience with EVD patients in treatment centres shows differences in their capacity to eat and drink. This interim guideline recognizes three feeding phases for EVD patients; maintenance feeding, transition feeding and boost feeding, in addition to an initial rehydration phase, where necessary; (see Fig. 1). **For patients requiring nutritional support, the foremost considerations in the selection of food commodities includes the low osmolarity and renal solute load of the diet; along with the texture of food commodities.** Table 1 lists feeding protocols for adults and children 6 months and older.

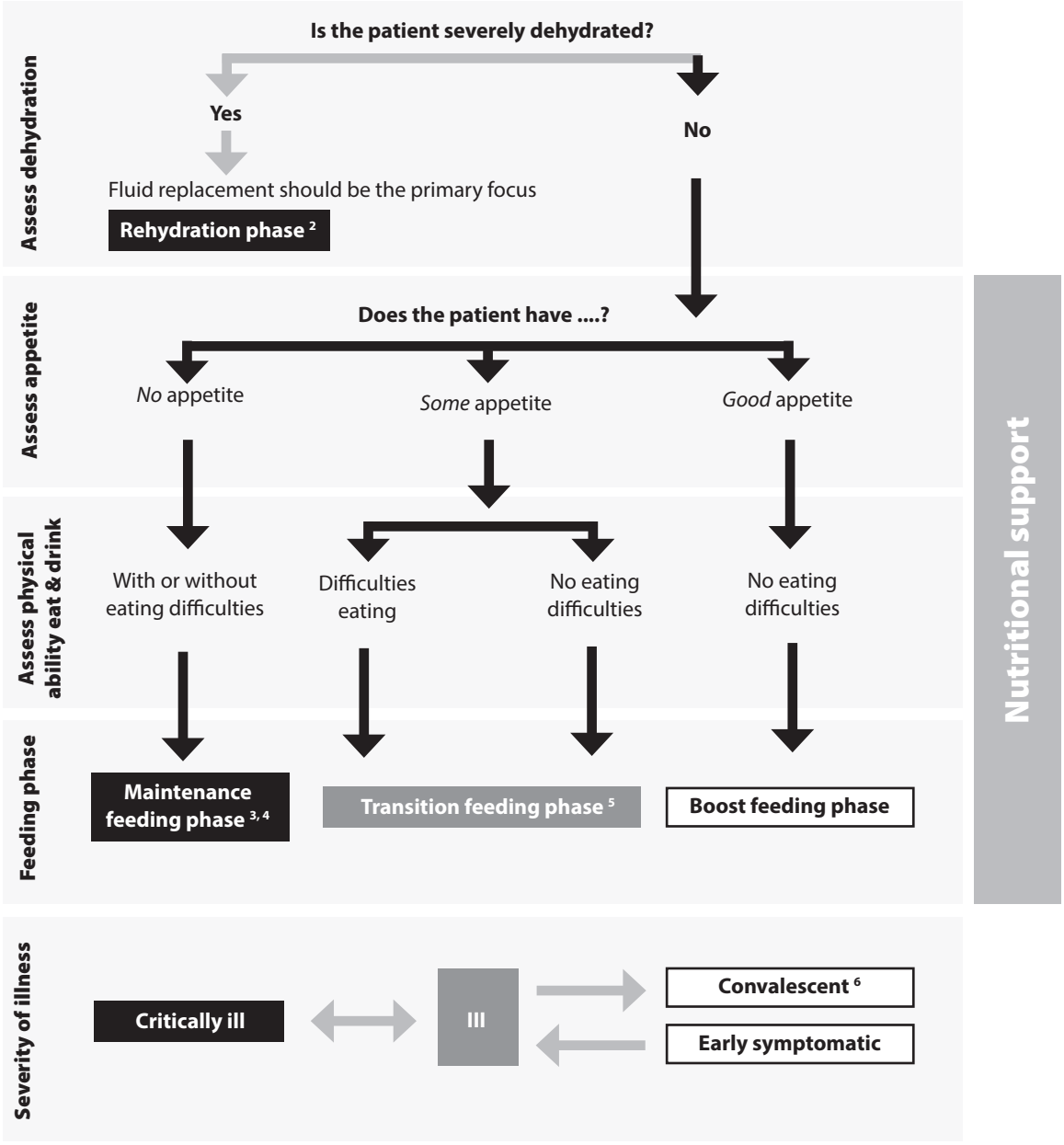
For the breastfed infant of an Ebola-infected mother:

- Where the infant is asymptomatic, it is recommended that the infant is separated from the mother and is replacement fed.
- Where the infant has developed Ebola or is a suspected Ebola case, if the mother is well enough to breastfeed, she should be supported to continue to do so. If the mother is too ill to breastfeed, then replacement feeding is needed.

The safest replacement feeding in the current context for infants aged less than 6 months is ready-to-use infant formula (RUIF). Wet nursing is not recommended.

[1] WHO/UNICEF/WFP. Interim guideline: Nutritional care of children and adults with Ebola virus disease in treatment centres. Geneva: World Health Organization; 2014
http://www.who.int/nutrition/publications/guidelines/nutritionalcare_with_ebolavirus/en/

Figure 1. Decision tree to ascertain patients' feeding phase[1]



[1] It is very important to maintain hydration with oral rehydration salt (ORS) solution; particularly in the maintenance feeding phase.

[2] These patients would only have ORS (and intravenous (IV) fluids if needed). Fluid replacement should be the primary focus in this phase; thus patients in this phase do not fall within the scope of this interim guideline.

[3] "Maintenance feeding phase" refers to maintaining vital body functions.

[4] Irrespective of the presence or absence of eating difficulties, nutritional care will be the same.

[5] The presence or absence of eating difficulties will determine nutritional care.

[6] For convalescent patients do not limit the quantity of food and provide extra snacks.

Table 1. Nutritional care protocols for adults and children aged 6 months and older with Ebola virus disease

Severity of illness	Description of patient's condition
Rehydration phase severely dehydrated	• ORS (and, if needed, IV fluids)
Maintenance phase not severely dehydrated poor or no appetite may or may not have eating difficulties	• Milk-based fortified diets (F-75)[1] • For adults: "sip feeds" (low renal solute load, low-osmolarity options)
Transition phase not severely dehydrated some appetite may or may not have eating difficulties	*No eating difficulties:* Any one or combination of any of the following: • ready-to-use fortified nutrient-rich biscuits/bars (can also be offered as a porridge or paste) • 1–2 porridges per day of fortified cereal legume blends with added sugar (adults) and added sugar and milk (children) • common family meal (plus micronutrient powders [MNP], if no fortified food is given); preferably offer lipid-based nutrient supplements (LNS)[2] in addition to common family food; LNS must be eaten separately[3] *Eating difficulties*: as for those with no eating difficulties, except that: • common family meal should be offered as mashed food or as soups • LNS are not suitable for patients with swallowing difficulties • ready-to-use fortified nutrient-rich biscuits/bars should be offered as porridge In addition, the following commodities are also suitable: • milk-based fortified diets (F-100)[4] • for adults: "sip feeds" (low renal solute load, low-osmolarity options) • For adults: "Sip feeds" (low renal solute load, low-osmolarity options)
Boost phase not severely dehydrated good appetite no eating difficulties	Any one or combination of any of the following: • ready-to-use fortified nutrient-rich foods (as a paste, porridge or biscuit/bar) • 1–2 porridges of fortified cereal legume blends with added sugar (adults) and added sugar and milk (children) • common family meal (plus MNP, if no fortified food is given); preferably offer LNS in addition to common family food; LNS must be eaten separately[3] • snacks: for example high-energy biscuits (HEBs) Convalescent patients usually need (and want) more food: do not limit the quantity of food, and provide extra ready-to-use fortified nutrient-rich foods.

[1] Suitable for any patient (even adults) but particularly for children. F-100 should only be used if F-75 is not available.

[2] The term LNS refers generically to a range of fortified, lipid-based spreads, including products like ready-to-use therapeutic food (RUTF) used to treat severe acute malnutrition (SAM), ready-to-use supplementary food (RUSF) used as supplementary foods to treat moderate acute malnutrition (MAM), and others that are used for "point-of-use" fortification to improve diets and aiming to prevent malnutrition.

[3] In order to optimise the bioavailability of nutrients in the LNS.

[4] Suitable for any patient (even adults) but particularly for children.

Other key recommendations:

In critically ill patients *with severe dehydration*, nutritional support should not interfere with the strategies for volume and electrolyte repletion, as nutritional requirements will temporarily be of a lower priority.

Even in critically ill patients, *without severe dehydration*, who have no appetite, excess energy or protein is not needed and an excess could further compromise liver and kidney function.

As soon as appetite starts to return, patients need sufficient energy (kcal) and essential nutrients, in addition to fluid electrolytes.

EVD patients should be provided with a minimum of the recommended daily allowance for each nutrient. Until further evidence is available, excess use of any micronutrient for EVD patients is currently not recommended, unless correcting for a specific micronutrient loss (eg treating hypokalaemia). For patients who receive adequate quantities of fortified ready-to-use-food, multivitamins are not required.

The food that is offered to the patient should ideally be palatable and attractive; be nutrient dense; be liquid, semi-solid or solid (depending on the patient's condition); be easy to ingest and require minimal assistance from health-care staff when the patient eats; carry limited risk of bacterial contamination when kept at the bedside for 2–3 h; and not require many eating utensils, as these can be a source of contamination.

Whenever possible, an assessment should be done on patients, to indicate what the patients can and prefer to eat, in order to bridge the gap between what is nutritionally needed and what the patient wants to eat.

The intake of high nutrient-dense foods (e.g. ready-to-use-therapeutic food (RUTF) and ready-to-use-supplementary food (RUSF)) may be important in patients in the boost feeding phase and for patients in the transition feeding phase with no eating difficulties, see Fig.1.

In most field settings, the use of nasogastric tubes is not currently recommended for the treatment of EVD. However, when patients tolerate nasogastric tube placement, exceptions can be made for treatment centres that are fully equipped with sufficient and appropriate staff and material, good infection-prevention/control practice and good waste-disposal management.