FAQ Patient Care 4. When and how should specialized nutrition products be used in Ebola Treatment Units (ETUs)?

ETU diets should consist primarily of local/traditional foods, regardless of required consistency (i.e., soft, semi-solid, solid). Experience has shown that most patients in ETUs, especially adults, do not like to consume specialized nutrition products (see Table 1), regardless of their state of disease. Specialized nutrition products can have a role in specific situations, but their use should be determined by individual patient needs and food preferences.[1]

Specialized nutrition products are essential for the treatment of acute malnutrition. They may also be useful in providing nutritional supplementation when full nutritional support can not be accomplished via local/traditional foods. Finally, specialized nutrition products may be required in exceptional circumstances, such as while an ETU is being set up or when regular meal provision through catering or on-site preparation is unavailable.

When using specialized nutrition products, attention should be made to optimize their acceptability among patients. Some adults find the taste of RUTF paste too sweet and a diet with specialized nutrition products is often regarded as monotonous and lacking palatability. This results in patients not consuming the supplied food. Not only are the nutritional needs of patients not being met in this case, but unconsumed food can also create significant wastage and an ensuing health hazard in the red zone.

Table 1 summarizes the different nutrition products that can be used in an ETU as well as the specific populations and situations in which their use may be warranted.

Table 1: Special nutrition products for use in ETUs

Product category	Therapeutic milk		Ready-to-use therapeutic food (RUTF)		Ready-to-use supplementary food (RUSF)	Fortified blended flour		High energy drinks**	Enteral feeding products**	Micronutrient supplement
Specific products	**F-75**	**F-100**	**Paste form (e.g., Plumpy'Nut and eeZeePaste)**	**Biscuit form (e.g., BP100)**	**Paste form (e.g., Plumpy'Sup, eeZeeRUSF)**	**Super Cereal**	**Super Cereal Plus**	**"sip feeds" (e.g., Ensure, Nutricomp, Peptamen, Nutricia)**	**(e.g., Sondalis)**	**Multiple micronutrient powder**
Type of diet	Enteral feeding or liquid diet		Semi-solid or solid diets		Semi-solid or solid diets	Semi-solid or solid diets		Liquid diet	Enteral feeding	Semi-solid or solid diets
Essential use in ETUs (1st choice)	6–59 months: Treatment for severe acute malnutrition with complications, acutely ill, or no appetite	6–59 months: Treatment for severe acute malnutrition with poor appetite	6–59 months: Treatment for severe acute malnutrition with intact appetite	6–59 months: Treatment for severe acute malnutrition with intact appetite	6–59 months: Nutritional supplement for moderate acute malnutrition		6–59 months: Nutritional supplement for moderate acute malnutrition	≥6 months: Meal replacement or nutritional support	≥6 months: Meal replacement	
Optional use in ETUs*		6–59 months: Meal replacement (if enteral feeding products or high energy drinks unavailable)	≥5 years: Treatment of severe acute malnutrition with intact appetite	>5 years: Treatment of severe acute malnutrition with intact appetite		≥6 months: Nutritional support	6–23 months and pregnant and lactating women: Nutritional support			≥6 months: Micronutrient supplementation

* If first choice not available and/or insufficient local food options.
**Age-specific formulations are available and must be considered.

Therapeutic milk

F-75 and F-100 are therapeutic milk products formulated for the treatment of severe acute malnutrition among children 6–59 months of age. See national nutrition protocols for the management of acute malnutrition for direction on how to use these milks. Therapeutic milks are packaged as powder and require reconstitution with potable water. They can be given orally using a disposable cup or syringe, or via an enteral tube.

Although not an official indication, F-100 may also be used among non-malnourished children requiring enteral feeding or a liquid diet if enteral feeding products are not available or feasible to be used.

Therapeutic milk is not generally recommended for adults with EVD, regardless of nutritional status, as they were designed to meet the needs of children with severe acute malnutrition. There may also be concerns related to lactose-intolerance[1,2] and poor acceptability.

If a patient with diarrhoea receives oral rehydration solution while also receiving F-75 or F-100, do not administer zinc, as therapeutic milk products contain a sufficient quantity of zinc.[3]

Therapeutic milk should be consumed within two hours after preparation, and preferably immediately.

Ready-to-use therapeutic food (RUTF)

RUTF was developed for the treatment of severe acute malnutrition. This should be its primary use, even in ETUs. Refer to national protocols for the management of acute malnutrition for further details regarding use of RUTF among children with acute malnutrition.

RUTF may also be used in ETUs for providing nutritional support among non-malnourished patients when nutritional requirements can not be met through local/traditional food. In this case, RUTF should only be used as a last resort.

RUTF can be consumed straight from the package or mixed with water and made into a porridge or drink (see below for instructions and details), as per the patient's dietary needs and preferences. Patients should be encouraged to drink plenty of water with RUTF

RUTF can be used as a nutritional supplement for meals or snacks, if there are no other appropriate local alternatives. Though it can be used as a meal replacement, acceptance when used as such is generally low among adults. It is best consumed alongside other foods or mixed with them.

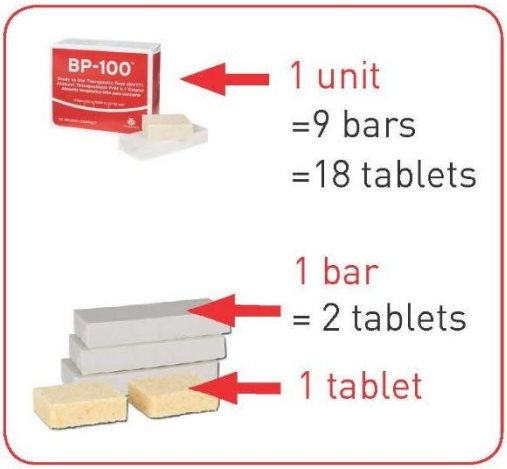
RUTF in biscuit form (e.g., BP-100)

Each 57 g biscuit/bar has 300 kcal (a bar is made up of two tablets). They can be eaten directly from the package or mixed with water and eaten as a porridge. Adults often prefer the biscuit over the paste form of RUTF.

Only patients tolerating a solid diet should be given biscuit/bars for direct consumption from the package.

A porridge can be made by combining six tablespoons of boiled potable water for each biscuit/bar (see Annex 1). This porridge can be given to patients tolerating a semi-solid or solid diet. Consider adapting the mixture according to local preferences to render it more palatable.

Porridge should be eaten within two hours of preparation, and ideally immediately.[3]



RUTF in paste form (e.g., Plumpy' nut® and eeZeePaste™)

Each sachet contains 500 kcal. The contents are generally consumed straight from the sachet.

As RUTF paste is softer than the bars, it can be consumed straight from the sachet by patients tolerating either semi-solid or solid diets. It must not be given to patients with difficulty swallowing.

RUTF paste can be diluted with water for consumption by patients on a liquid diet or with difficulty swallowing (or for children who refuse it straight from the sachet). To do this, dilute one sachet in about 500 ml of water; squeeze contents into a small water bottle; and add warm (not boiling) water and shake vigorously.[5,6]

Once opened, RUTF in paste form should be discarded within 12 hours[2] *if still in the original packaging and within three hours if outside the original packaging. Packaging must be sealed (e.g., with a clip and stored in an air-tight container/bag).*

Ready-to-use supplementary food (RUSF)

RUSF (e.g., Plumpy'Sup®, eeZeeRUSF™) was developed for nutritional supplementation of children with moderate acute malnutrition. This should be its primary use, even in ETUs. Refer to national protocols for the management of acute malnutrition for further details regarding use of RUSF.

As with RUTF, RUSF may also be used in ETUs for providing nutritional support among non-malnourished patients when nutritional requirements cannot be met through local/traditional food. In this case, RUSF should only be used as a last resort. RUSF can be used as a meal replacement or a snack, and consumed alone or alongside other food.

RUSF is generally only available in paste form. It is very similar to RUTF paste, with the principle difference being the type of protein contained in each. See above under 'RUTF in paste form' for details regarding use.

The choice whether to use RUSF or RUTF for non-malnourished patients will likely be influenced by product availability as well as patient preference (as only RUTF is available in biscuit form).

RUSF cannot be used to treat severe acute malnutrition.

Once opened, RUTF in paste form should be discarded within 12 hours[2] if still in the original packaging, and within three hours if outside the original packaging. Packaging must be sealed (e.g., with a clip and stored in an air-tight container/bag)

Fortified blended foods (FBFs)

Super Cereal

Super Cereal, also known as Corn-Soya Blend Plus (CSB+), is a mixture of corn/wheat flour, whole soya beans, sugar, vegetable oil, vitamins and minerals. It is formulated for use as nutritional support for adults and children ≥6 months of age and provides 380 kcal/100 g of dry product. It should be consumed as a porridge, prepared with the ratio of 40 g of super cereal per 250 g of potable water (cooked at simmering point for 5–10 minutes).

Super Cereal can be used in ETUs for providing nutritional support when nutritional requirements can not be met through local/traditional food. It is recommended for patients that are prescribed a semi-solid and solid diet.[3] The product can be used as a complete meal or (preferably) alongside local foods.

Field experience with EVD patients has shown increased acceptance of Super Cereal when made into locally adapted porridge. Recipes can be developed that use local ingredients and align with local preferences. For example, a recipe used in Liberia adds sugar, lemon juice, milk, mashed banana or other local fruit to the standard preparation.[1,5] Coconut shavings can also be added to improve flavour and acceptability.

(NOTE: Adding milk is not recommended for adults with (temporary) lactose intolerance).[7]

Super Cereal should be consumed within two hours of preparation, and preferably immediately.[3]

Super Cereal Plus

Super Cereal Plus, also known as Corn-Soya Blend Plus (CSB++), is similar to Super Cereal, with added milk powder. It is formulated for use as supplementary food for children 6–59 months of age with moderate acute malnutrition and the prefered fortified blended food to be used for nutritional support among children 6–23 months of age and pregnant and lactating women. It provides 410 kcal/100 g of dry product. It should be consumed as a porridge, prepared with the ratio of 50 g of super cereal for 250 g of potable water (cooked at simmering point for 5-10 minutes).

Its preperation is otherwise identical to the recommendations presented above for Super Cereal.

High energy drinks ("sip feeds")

Sip feeds are ready-to-use hypercaloric liquid nutrition, formulated to meet the nutritional requirements necessary for prevention or treatment of disease related malnutrition. They are nutritionally complete and can thus be used as a sole source of nutrition or as supplemental nutrition support. They are also lactose-free, so they are particularly appropriate for patients with high-output diarrhoea. They often come in individual portions (200 ml) and are thus both hygienic and easy to ingest. High energy drinks can be consumed orally by any patient able to swallow or be given via nasogastric tube.

Two forms of high energy drinks available:[7] hypercaloric with normal protein and hypercaloric with high protein. The normal protein formulation will be the best option for most ETU patients.

Sip feeds can be used in ETUs for patients who are unable to meet their nutritional requirements through local/traditional food. They are a particularly important option for patients in critical care and/or on liquid diets. In this case, they can be used as meal replacement or alongside other liquid food. If necessary, sip foods may also be used as a supplement for patients tolerating semi-solid or solid diets; they should not however be the first choice.

Though costly, sip feeds are preferable to therapeutic milks for adult patients. They are specially formulated for adult patients with high energy requirements, they do not require preparation, and they may be better accepted by patients.

High energy drinks can also be used in nasogastric tube feeding if enteral feeding products are not available.

Adult and paediatric versions are widely available in the international market. However, considering cost and local availability, other options might be preferred over high energy drinks for paediatric use.

High energy drinks should be consumed within 3 hours of opening if kept at room temperature.[7] *Any non-consumed product should be refrigerated and discarded after 24 hours.*[8]

Note: These products have not yet been tested in ETUs. Reasons for this include lack of availability in organization supply catalogs, unfamiliarity with product, the need for substantial lead time for ordering and receipt, customs issues, the expense of the product, and its limited shelf life.

Enteral feeding products

When a nasogastric tube is selected as the preferred method for feeding a patient, specialized nutrition products are preferred over local/traditional foods. As the enteral food will serve as a meal replacement, it is important to provide all essential nutrients through the liquid food. Using local foods (e.g., porridges) can result in inadequate patient nutrition as well as osmotic and electrolytic abnormalities. Furthermore, food that is too thick can easily lead to tube blockage, exacerbating the risks associated with nasogastric tube feeding.

Various commercial products are available on the market. The choice of which to use in a specific ETU should be made in collaboration with the medical team and based on product availability. Age-specific formulations should be considered.

Multiple micronutrient powders (MNPs)

MNPs are a mixture of vitamins and minerals packaged as single-dose sachets, to be stirred into a food portion immediately before consumption.[9] They can be added to food without modifying taste or texture. WHO recommends enriching ETU meals with MNPs when fortified or specialized food products are not given, and when the local food served in the ETU may not meet the nutrient requirements of the patient.[10]

To ensure appropriate food consistency, MNP powder should be added to meals just prior to being served (one sachet per day, per patient) when the food is still warm but not at boiling temperature (i.e., just before meals are taken into the red zone). Alternatively, individual sachets can be provided at the patient's bedside and added by the support staff. Whenever possible, patients should be informed about MNPs and their benefit and consent to consuming them.

ANNEXES

Annex 1. Recipe for BP100 porridge[3]

Ingredients:
• 3 dl of water (= 6 spoons) *
• 1 bar of BP100

Porridge preparation:
1. Bring drinking to boil then remove from heat and let it cool.
2. Crush up the BP100 bar.
3. When the water is lukewarm, add the crushed bar.
4. Stir until smooth, being sure to avoid the formation of clumps.

* If the patient has difficulty swallowing or has anorexia, more water can be added to the BP100.

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