**MODULE 3**

# Understanding malnutrition

## PART 3: TRAINER’S GUIDE

The trainer’s guide is the third of four parts contained in this module. It is NOT a training course. This guide provides guidance on how to design a training course by giving tips and examples of tools that the trainer can use and adapt to meet training needs. The trainer’s guide should only be used by experienced trainers, to help develop a training course which meets the needs of a specific audience. The trainer’s guide is linked to the technical information found in Part 2 of the module.

Module 3 is about understanding malnutrition. Classifying different types of malnutrition is an important step towards prevention and treatment in both emergency and non-emergency situations. You are most likely to be asked to train field workers working on, or preparing for emergency response programmes where there is a risk of increased malnutrition and death. It is possible, however, that senior managers may want a short practical briefing on the classification of malnutrition so as to become familiar with its different forms and the links between malnutrition, illness and death.

**Note: This module should be followed by Module 6 for more understanding of the classification of undernutrition according to anthropometric criteria.**

#### **Navigating your way around the guide**

The trainer’s guide is divided into six sections.

1. **Tips for trainers** provide pointers on how to prepare for and organize a training course.
2. **Learning objectives** set out examples of learning objectives for this module that can be adapted for a particular participant group.
3. **Testing knowledge** contains an example of a questionnaire that can be used to test participants’ knowledge of undernutrition either at the start or at the end of a training course.
4. **Classroom exercises** provide examples of practical exercises that can be done in a classroom context either by participants individually or in groups.
5. **Case studies** contain examples of case studies (one from Africa and one from another continent) that can be used to get participants to think by using real-life scenarios.
6. **Field-based exercises** outline ideas for field visits that may be conducted during a longer training course.

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1. **Case studies**

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**Handout 5a**: Case study I: Size of the nutrition problem in the Philippines

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1. **Field-based exercise**

**Handout 6a**: Identifying different forms of malnutrition

**1. Tips for trainers**

**Step 1: Do the reading!**

* Read Parts 1 and 2 of this module.
* Familiarize yourself with the technical terms from the glossary.
* Read through the following key documents (see full references and how to access them in Part 4 of this module):
* The Sphere Project (2011). Sphere Handbook, ‘Chapter 3: Minimum Standards in Food Security and Nutrition’. Sphere Project, Geneva.
* Department for International Development (2010). The neglected crisis of undernutrition: DFID’s Strategy.
* ACF International (2010). Taking Action, Nutrition for Survival, Growth and Development, White paper.
* FANTA (2008). Trainers Guide - Community Based Management of Acute Malnutrition (CMAM).
* Lancet (2008). Lancet series on Maternal and child undernutrition. Summary can be found at: http://fex.ennonline.net/33/summary.aspx
* FAO (2007). Distance Learning Course:Nutritional Status Assessment and Analysis, Learner Notes, Part 1.Rome: FAO. (3 pages).
* Young, H. and Jaspars, S. (2006). The Meaning and Measurement of Malnutrition in Acute Emergencies. Humanitarian Practice Network Paper, No. 56. London: Overseas Development Institute.
* Refer to **Module 4** on micronutrient deficiency diseases and **Module 6** on anthropometric measurements as complementary reading on how malnutrition is classified and measured.
* Be sure that you take time to read the exercises and model answers so that you can decide if they meet your training objectives.
* Decide which sessions to include and within sessions, which activities to include.

**Step 2: Know your audience!**

* + Find out about your participants in advance of the training:
* How many participants will there be?
* Have any of the participants already seen cases of undernutrition through growth monitoring activities at mother and child health clinics or otherwise?
* Could participants with experience be involved in the sessions by preparing a case study or contribute through describing their practical experience?

**Step 3: Design the training!**

* Decide how long the training will be and what activities can be covered within the available time. In general, the following guide can be used:
* A **90-minute** classroom-based training session can provide a basic overview of the forms of undernutrition.
* A **half-day** classroom-based training session can provide an overview of definitions of undernutrition and include practical exercise 3 or 4.
* A **one-day** classroom-based training session can provide a more in-depth understanding of definitions of undernutrition and include all three practical exercises and/or one case study.
* Combine Modules 3 and 4 for fuller coverage of the topic in two half-day sessions.
* Identify appropriate learning objectives. This will depend on your participants, their level of understanding and experience, and the aim and length of the training.
* Decide exactly which technical points to cover based on the learning objectives that you have identified.
* Divide the training into manageable sections. One session should generally not last longer than an hour.
* Ensure the training is a good combination of activities, e.g., mix PowerPoint presentations in plenary with more active participation through classroom-based exercises; mix individual work with group work.
* This module is a theoretical session and visual aids, such as photos, will make it much easier to identify forms of undernutrition. No matter who your audience is, take time to explain the technical terms highlighted in italics, as this module provides the basics for many of the modules that follow.
* Be sure to emphasise that undernutrition is often of the chronic, silent type that goes unnoticed, but that acute malnutrition can set in very quickly in populations already suffering from chronic malnutrition. Think of examples of places and populations this applies to (see technical notes).

**Step 4: Get prepared!**

* Prepare PowerPoint presentations with notes (if they are going to be used) in advance and conduct a trial run. Time yourself!
* Recommended PowerPoint presentations that can be adapted from existing sources include (see full references and how to access them in Part 4 of this module):

**Existing PowerPoints for a session on understanding malnutrition**

|  |  |  |
| --- | --- | --- |
|  | **Author** | **Session** |
| **1.** | FAO (2007). Distance Learning Course – Nutritional Status Assessment and Analysis  <http://www.foodsec.org/dl/dlintro_en.asp> | Part 1: PowerPoint and trainer notes |
| **2** | **Trainers Guide - Community Based Management of Acute Malnutrition.**  <http://www.fantaproject.org/cmam/training.shtml> |  |
| **3.** | **FAO Training Package of Materials for the Course Food and Nutrition Surveillance and Emergency.**  <http://www.unscn.org/en/resource_portal/index.php?types=9> | Unit II. Session 7. Overview of malnutrition in emergencies |
| **4.** | Nutrition Works. Nutrition In Emergencies Training Course  (now housed by Westminster University, London)  Contact [k.godden@westminster.ac.uk](mailto:k.godden@westminster.ac.uk) | What is malnutrition? |

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* 1. Prepare exercises and case studies. These can be based on the examples given in this trainer’s guide but should be adapted to be suitable for the particular training context.
* Prepare a ‘kit’ of materials for each participant. These should be given out at the start of the training and should include:
* Timetable showing break times (coffee and lunch) and individual sessions
* Handouts, including Parts 1, 2 and 4 of this module plus exercises as required
* Pens and paper, flip charts and markers, as necessary

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| **REMEMBER**  People remember 20% of what they are told, 40% of what they are told and read, and 80% of what they find out for themselves.  People learn differently. They learn from what they read, what they hear, what they see, what they discuss with others and what they explain to others. A good training is therefore one that offers a variety of learning methods which suit the variety of individuals in any group. Such variety will also help reinforce messages and ideas so that they are more likely to be learned. |

**2. Learning objectives**

Below are examples of learning objectives that could be adapted for training on understanding malnutrition. . Trainers may wish to develop alternative learning objectives that are appropriate to their particular participant group. The number of learning objectives should be limited; up to five per day of training is appropriate. Each exercise should be related to at least one of the learning objectives.

**Examples of learning objectives**

At the end of the training participants will:

* Be able to identify various forms of undernutrition.
* Be familiar with technical terms that describe malnutrition.
* Understand the consequences of undernutrition for individuals in emergency situations.
* Understand the impact of food prices, urbanisation and climate change on malnutrition.
* Understand the links between nutrition, health, food insecurity and mortality.
* Be aware of who is specifically vulnerable to malnutrition and why.
* Be aware of the global prevalence of malnutrition.
* Be aware of the latest policy and strategy positions in order to understand malnutrition

**3. Testing knowledge**

This section contains one exercise, which is an example of a questionnaire that can be used to test participants’ understanding of malnutrition either at the start or at the end of a training session. The questionnaire can be adapted by the trainer, to include questions relevant to the specific participant group.

**Exercise 1**:What do you know about malnutrition?

**What is the learning objective?**

* To test participants’ knowledge about definitions and types of malnutrition

**When should this exercise be done?**

* ***Either*** at the start of a training session to establish knowledge level
* ***Or*** at the end of a training session to check how much participants have learned

**How long should the exercise take?**

* 20 minutes

**What materials are needed?**

* **Handout 1a**:What do you know about malnutrition?: questionnaire
* **Handout 1b**: What do you know about malnutrition?: questionnaire answers

**What does the trainer need to prepare?**

* Familiarise yourself with the questionnaire questions and answers.

Add your own questions and answers based on your knowledge of the participants and their knowledge base.

**Instructions**

**Step 1**: Give each participant a copy of Handout 1a.

**Step 2**: Give participants 15 minutes to complete the questionnaire working alone, or in pairs.

**Step 3**: Give each participant a copy of Handout 1b.

**Step 4**: Give participants 5 minutes to mark their own questionnaires and clarify the answers where necessary

**Handout 1a**: What do you know about malnutrition? questionnaire

***Time for completion: 15 minutes***

***Answer all the questions.***

***Note that for some questions there is only ONE correct answer while for other questions there are SEVERAL correct answers.***

1. Which of these does not describe forms of malnutrition? ***Circle the correct answer.***
2. Chronic and acute undernutrition
3. Wasting and growth failure
4. Overnutrition and undernutrition
5. Clinical and serious
6. True or false?

Everybody needs the same amount of macro and micronutrients for an adequate diet.

1. Which term best describes growth failure? ***Circle the correct answer.***
2. Thinness
3. Low birth weight
4. Stunting
5. Wasting
6. Which of these are examples of micronutrients? ***Circle the correct answers.***
7. Vitamin A
8. Protein
9. Zinc
10. Mineral water
11. Acute malnutrition is classified through: ***Circle the correct answers.***
12. Clinical signs
13. Clinical history
14. Biochemical markers
15. Anthropometric measurements
16. Which of these does not describe forms of malnutrition? ***Circle the correct answer.***
17. Showing symptoms of severe acute malnutrition
18. Showing symptoms of moderate acute malnutrition
19. Showing symptoms of growth failure
20. Showing symptoms of micronutrient deficiency diseases
21. True or false?

Mortality increasesexponentially with declining nutritional status

1. Pregnant women have additional nutritional needs to ensure: ***Circle the correct answers.***
2. Adequate foetal growth
3. Adequate nutritional status of their children
4. Reserves for breastfeeding
5. Reducing the risk of delivering a low birth weight baby
6. True or false?

During an emergency situation, people already infected with HIV are always the ones with the greatest risk of malnutrition.

1. Where is the rate of underweight children highest? ***Circle the correct answer.***
2. South America
3. South Africa
4. East Africa
5. South Asia
6. What does the double burden of malnutrition refer to? ***Circle the correct answers.***
7. Acutely malnourished child and obese mother
8. Stunting and wasting in the same individual
9. High levels of heart disease and acute malnutrition in the same community
10. Which of these global phenomena influence undernutrition? ***Circle the correct answers.***
11. Climate change
12. Food prices
13. Fuel prices
14. Global economy
15. Gender inequality

**Handout 1b**: What do you know about malnutrition?: questionnaire answers

1. Which of these does not describe forms of malnutrition?
2. Chronic and acute
3. Wasting and growth failure
4. Overnutrition and undernutrition
5. **Clinical and serious**

**There are many ways of classifying malnutrition. The most common include differentiating undernutrition from overnutrition, chronic from acute forms, and within acute forms, the moderate from severe forms. Clinical malnutrition does not exist; clinical examination is a method for diagnosing malnutrition.**

1. True or **false**?

Everybody needs the same amount of macro and micronutrients for an adequate diet.

**Nutrient requirements are dependent on age, sex, body weight, level of physical activity, growth, health status, and outside temperature. They are therefore very varied.**

1. Which terms best describes growth failure?
2. Thinness
3. **Low birth weight**
4. **Stunting**
5. **Wasting**

**Thinness is not necessarily a form of malnutrition. Low birth weight describes intra-uterine growth failure, applicable to growth during gestation. Stunting describes chronic malnutrition which is a form of growth failure. Wasting describes acute malnutrition which can be a sign of growth failure, but may not be if the affected person is an adult or the acute malnutrition is very short term.**

1. Which of these are examples of micronutrients?
2. **Vitamin A**
3. Protein
4. **Zinc**
5. Mineral water

**Micronutrients are the collective name for minerals and vitamins and include Vitamin A and Zinc. Protein is one of three *macronutrients*, with carbohydrate and fat. Mineral water may contain micronutrients but in minute amounts, and it is often unavailable to vulnerable individuals.**

1. Acute malnutrition is classified through: ***Circle the correct answer.***
2. **Clinical signs**
3. Clinical history
4. Biochemical markers
5. **Anthropometric measurements**

**Acute malnutrition refers to wasting, measured by weight-for-height, or through clinical signs of bilateral pitting oedema Biochemical markers can measure the status of certain micronutrients such as iodine and iron, but these are not good proxy indicators for acute malnutrition.**

1. **True** or false?

Mortality increasesexponentially with declining nutritional status

**The risk of death is greater among the severely malnourished than the moderately malnourished.**

1. Pregnant women have additional nutritional needs to ensure:
2. **Adequate foetal growth**
3. Adequate nutritional status of their children
4. **Reserves for breastfeeding**
5. **Reducing the risk of delivering a low birth weight baby**

**Answers a, c, and d place extra energy requirements on pregnant women, the nutritional status of their other children is dependent on more than maternal nutritional health status, such as household food security, care practices and health environment.**

1. True or **false**?

During an emergency situation, people already infected with HIV are always the ones with the greatest risk of malnutrition.

**While HIV status and nutritional risk are associated, in an emergency situation, it is necessary to identify which groups are affected in relation to the cause of the emergency. For example, in floods or drought situations, people with HIV may be one of the groups that are cut off from their normal food sources and caring practices may be affected, but children, elderly and people with other chronic diseases will also be at risk. It is necessary to evaluate the risk of malnutrition of all vulnerable groups in an emergency**

1. Where is the rate of underweight children highest?
2. South America
3. South Africa
4. East Africa
5. **South Asia**

**A total of 27 per cent of children in South Asia are underweight. There are 129 million underweight children in low*-* and middle*-*income countries in the world.**

1. What does the double burden of malnutrition refer to? ***Circle the correct answers.***
2. **Acutely malnourished child and obese mother**
3. Stunting and wasting in the same individual
4. **High levels of heart disease and acute malnutrition in the same community**

The double burden of malnutrition can occur within the same household and within the same or different communities in the same country.

1. Which of these global phenomena influence undernutrition? ***Circle the correct answers.***
2. **Climate change**
3. **Food prices**
4. **Bio fuel prices**
5. **Global economy**
6. **Gender inequality**

**All of these phenomena influence either directly or indirectly the global and national rates of undernutrition.**

#### **4. Classroom exercises**

This section provides examples of practical exercises that can be carried out in a classroom context either by participants individually or in groups. Practical exercises are useful between plenary sessions, where the trainer has done most of the talking, as they provide an opportunity for participants to engage actively in the session. The choice of classroom exercises will depend upon the learning objectives and the time available. Trainers should adapt the exercises presented in this section to make them appropriate to the particular participant group. Ideally, trainers should use case examples with which they are familiar.

**Exercise 2**: Can you identify the signs of undernutrition correctly?

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| **What is the learning objective?**   * To be able to identify various forms of undernutrition   **When should this exercise be done?**   * ***Either*** at the beginning to gauge your participants’ knowledge * ***Or*** half way through the session once the main concepts related to undernutrition have been covered   **How long should the exercise take?**   * 30 minutes   **What materials are needed?**   * PowerPoint slides with photos for trainer * Handout 2a: Identifying signs of malnutrition correctly: model answers   **What does the trainer need to prepare?**   * Six to eight PowerPoint slides showing different forms of malnutrition   **Instructions**  **Step 1**: Divide the participants into groups of three or four people.  **Step 2**: Explain to the group that you will present some slides illustrating different forms of malnutrition. Ask them to discuss each slide in their group, identify any possible clinical symptoms and agree on what form of malnutrition it might be.  **Step 3**: (10 min.) Show six to eight power point slides illustrating different forms of malnutrition.  **Step 4**:(20 min.) Groups report back their conclusions to plenary.   * **Discussion points for feedback in plenary** * Encourage discussion on what may have led to this type of malnutrition. * Emphasize that it is not easy to visually detect mild forms of wasting, stunting or micronutrient deficiencies. |

Handout 2a: Can you identify signs of undernutrition correctly?: model answers

Note that chronic malnutrition is much more difficult to detect with the naked eye. Do not be surprised if Slides 4, 8 and 9 prove to be too difficult for the group to assess correctly. Emphasize this point.

Slide 1 Wasting – severe acute malnutrition

Slide 2 Stunting – chronic malnutrition

Slide 3 Low birth weight

Slide 4 Severe acute malnutrition – Kwashiorkor with bilateral pitting oedema

**Exercise 3**:Clarifying nutritional terms

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| **What is the learning objective?**   * To be familiar with technical terms that describe malnutrition   **When should this exercise be done?**   * Steps 1 and 2 work best at the beginning of the session, as a warm up. * Step 3 works best at the end as a wrap up.   **How long should the exercise take?**   * 20 to 30 minutes for Steps 1 and 2 * 30 minutes for Step 3   **What materials are needed?**  **Steps 1 and 2**:   * Blackboard * Up to 30 white pieces of paper for group work * Blutack or tape to stick paper on blackboard * Handout 3a: Definitions of key terms in nutrition   **Step 3**:   * The following 10 technical terms written separately on coloured pieces of paper:  1. Underweight 2. Stunting 3. Marasmus 4. Micronutrient deficiencies 5. Wasting 6. Kwashiorkor 7. Undernutrition 8. Overnutrition 9. Macronutrients 10. Acute malnutrition 11. Obese 12. Overweight 13. Chronic malnutrition 14. Bilateral pitting oedema  * Definitions of the terms below from **Handout 3a** written out on separate pieces of white   paper the same size and shape as the 30 white pieces of paper used in Step 2. |
| **Instructions**  **Step 1**:(10-20 min.)   * Write ‘Nutrition’ on the flipchart and ask participants: *“What words or phrases come to mind when you think of the word ‘nutrition’?”* * Get three or four participants to come and write up their ideas. They may come up with ideas such as: * Protein, minerals, fat, carbohydrates * Food people eat * What the body needs to live * Nourishment for good growth * Encourage the group to use these words and phrases to come up with a short definition of nutrition. * Write up and discuss various suggestions. Rewrite these until you have a good working definition that everyone is happy with. Make sure that the definition refers not just to the food people eat, but also to how food is used to produce energy to maintain life and growth. * An example of a definition: *‘Nutrition is the outcome of the food eaten (the diet) and it manifests as good growth and energy to conduct activities and fight infection’.* * Add ‘mal’ to the beginning of the word ‘nutrition’ on the board and ask what it means. Then ask what *malnutrition* means. Make sure that participants understand that malnutrition includes overnutrition and undernutrition.   **Step 2**: (15–20 min.)   * Ask the participants if they know any terms used to describe different forms of malnutrition. * Stick terms on coloured pieces of paper on the blackboard as they are called out. * Stick all remaining pieces of paper on the board. * Divide the participants into groups of three or four people. * Give each group two pieces of white paper and two of the coloured pieces of paper from the board. * Ask each group to discuss what the nutritional terms they have been given mean and to write a definition of each on the white paper. * Give groups five minutes then collect all the white and coloured pieces of paper. Tell participants you will use them later on in the session. * Give out Handout 3a and ask groups to check the definitions for a few minutes and discuss in their group if they felt their definition was close to that on the handout for the terms they each defined. * Finally ask the group how easy that was and which terms were least familiar. Explain they will be covered in the session.   **Step 3**: **To be done at the end of the session** (30 min.)   * Fold up all the pieces of coloured and white paper you received from the participants. * Add to them the 10 definitions you prepared before the session, by folding them in the same way. * Mix them and randomly distribute all the coloured and white pieces of paper to the participants. There should be 10 coloured pieces of paper and 20 definitions on white paper. Ask everyone to look at their paper. * Ask a participant with a coloured piece of paper to read aloud what it says. * Ask the participant who thinks they have the correct definition of this term on a piece of white paper to stand up and read it aloud. There should be one definition you have prepared and one definition prepared by the groups in Step 2 of this exercise. * Ask the group to decide which definition is correct. Repeat this until all the coloured pieces of paper are finished. * Ask if these terms are now clear to everyone. If not, spend time going over queries.**3:T** |

**Handout 3a**:Definitions of key terms in nutrition

**Nutrition** is a broad term referring to processes involved in eating, digestion and utilisation of food by the body for growth and development, reproduction, physical activity and maintenance of health.

**Malnutrition** includes both **undernutrition (**acute malnutrition, i.e. wasting and/or nutritional oedema; chronic malnutrition, i.e. stunting; micronutrient malnutrition; and inter-uterine growth restriction, i.e. poor nutrition in the womb), and **overnutrition** (overweight and obesity).

**Nutrients** are the smallest particles in food that must be provided to the body in adequate amounts. They include protein, fats, carbohydrates (macronutrients), vitamins, minerals (micronutrients), water and fibre.

**Nutritional status** is the health status of an individual as determined by the utilization of nutrients.

**Undernutrition** is an insufficient intake of energy, protein or micronutrients, that in turn leads to nutritional deficiency

**Overnutrition** is an excess intake of energy, protein or micronutrients, which leads to an individual becoming overweight and eventually obese. A person is overweight when their body mass index (weight/height²) is between 26 and 30.

**Body Mass Index** (BMI) is an index of nutritional status in adults measured using body mass index or weight/height²

**Overweight** A person is overweight when their body mass index (weight/height²) is between 26 and 30.

**Underweight** Wasting or stunting or a combination of both, measured through the weight-for-age nutritional index

**Chronic malnutrition or Stunting** Chronic malnutrition, also known as stunting, is a sign of ‘shortness’ and develops over a long period of time. In children and adults, it is measured through the height-for-age nutritional index.

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| **Acute malnutrition** (wasting and/or nutritional oedema), is caused by a decrease in food consumption and/or illness resulting in sudden weight loss or oedema. Acute malnutrition is defined by a low weight-for-height, by visible wasting or by the presence of nutritional oedema.  **Food security** When all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.  **Nutrition Security** is achieved when secure access to appropriate nutritious food is coupled with a sanitary environment alongside adequate health services and care. This ensures a healthy and active life for all household members.  **Hunger** is often used to refer in general terms to MDG1 and food insecurity. |

**Double burden of malnutrition** When under- and overnutrition occur simultaneously, reflecting the consequences of poor nutrition security.

**Low birth weight** Infants born <2500 grams (5 lbs. 8oz.).

**Intra-uterine growth restriction** Refers to the poor growth of a baby while in the womb. Specifically, it refers to a foetus whose weight is below the 10th percentile for its gestational age.

**Sub-optimal breast feeding** When breast feeding falls short of the optimal practices: early initiation (within 1 hour of birth); exclusive breastfeeding for 0-6 months, then continuing breastfeeding to 2 years and beyond in conjunction with suitable complementary foods.

**Micronutrient malnutrition** is a term used to refer to diseases caused by a dietary deficiency of vitamins or minerals. More than 2 billion people in the world today may be affected by Micronutrient malnutrition. Vitamin A deficiency, iron deficiency anaemia and iodine deficiency disorders are the most common forms of Micronutrient malnutrition.

**Marasmus** is characterised by wasting of body tissues, particularly muscles and subcutaneous fat, and is usually a result of severe restrictions in energy intake. A child with marasmus is severely wasted and has the appearance of “skin and bones”.

**Kwashiorkor** is a form of severe undernutrition referred to alternatively as oedematous malnutrition. Symptoms may include bilateral pitting oedema; thin, sparse or discoloured hair; and skin with discoloured patches that may crack and peel.

**Severe acute malnutrition** is defined by a very low weight for height (below -3z scores of the median WHO growth standards), by visible severe wasting, or by the presence of nutritional oedema.

**Moderate acute malnutrition** is defined by a low weight for height (below -2z scores of the median WHO growth standards),

**Macronutrients** are carbon-containing compounds (energy providing) of which the body requires large amounts and include proteins, carbohydrates and fats.

**Micronutrients** are substances needed by the body in small amounts for growth and prevention of infections, and include vitamins and minerals.

**Micronutrient Deficiency Diseases** result when the body is lacking in one or more specific vitamins or minerals.  **Exercise 4**:Which part of the world is most affected by undernutrition?

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| **What is the learning objective?**   * To be aware of the worldwide trends in undernutrition levels   **When should this exercise be done?**   * At the end of the session   **How long should the exercise take?**   * 30 minutes   **What materials are needed?**   * **Handout 4a**: Which part of the world is most affected by undernutrition? * Handout 4b: Which part of the world is most affected by undernutrition?:model answer   **What does the trainer need to prepare?**   * Handouts   **Instructions**  **Step 1**: Divide the group into pairs.  **Step 2**:Distribute Handout 4a.  **Step 3**:Ask pairs to discuss undernutrition rates in different regions in the world and to decide which region is most affected, with reasons (10 minutes).  **Step 4**:Feedback pair work in plenary for 10 minutes  **Step 5**:Distribute Handout 4b and ensure that everyone is clear about what the trends mean in terms of undernutrition in emergencies and non-emergencies. This should raise a debate about where most undernutrition is located and where most nutritional emergencies occur (10 minutes). |

**Handout 4a**:Which part of the world is most affected by undernutrition?

***Time for completion: 10 minutes***

***Working in pairs, decide in which part of the world under-fives are most affected by undernutrition and justify your answer using the correct terminology.***

In this session we have seen that undernutrition takes on many forms and has different definitions relating to its causes, its symptoms and its severity.

Table 1 shows the distribution of stunting and wasting among children (0-5 years old) in the world combining data from 2003- 2008. The world has been divided into six regions. Data for the industrialized world (Western Europe and North America) is not included.

***Table 1: Estimated prevalence of children under five years, suffering from wasting***

***and stunting in the world by region***

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| **Percentage of under-fives**  **(2003-2008 data)** | **Wasting (%)** | **Stunting (%)** |
| Sub-Saharan Africa | 10 | 42 |
| Middle East and North Africa | 10 | 32 |
| South Asia | 19 | 48 |
| East Asia and Pacific | 3 | 22 |
| Latin America and the Caribbean | 2 | 14 |
| CEE[[1]](#footnote-1) | 4 | 16 |
| Industrialized countries | No data available | No data available |
| **Average** | **13** | **34** |

Source: UNICEF (2009), Tracking progress on child and maternal nutrition.

**Handout 4b**:Which part of the world is most affected by undernutrition?

Model answer

It is clear from the graphs that South Asia has the highest percentage of stunted (48 per cent) and wasted (19 per cent) children. This is followed by sub-Saharan Africa.[[2]](#footnote-2)

Levels of stunting are much higher than levels of wasting.

Stunting is much more difficult to reverse than wasting and has longer-term consequences. However nutritional emergencies focus less on levels of stunting, instead they aim to reduce wasting levels which are associated with increased risk of mortality.

**5. Case studies**

Case studies from the Philippines and the Occupied Palestinian Territory are presented in this section. Case studies are useful for getting participants to think through real-life scenarios. They also provide an opportunity for participants to work in a group and develop their analytical and decision-making skills. Trainers should develop their own case studies, which are contextually appropriate to the particular participant group. Ideally, trainers should use scenarios with which they are familiar. The FAO Nutrition Country Profile data exists for many countries.

**Exercise 5**: Identifying those vulnerable to malnutrition

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| **What is the learning objective?**   * To give participants an overview of the size and distribution of the problem of   malnutrition in their country or region  **When should this exercise be done?**   * As part of a longer in-depth training   **How long should the exercise take?**   * 60 minutes   **What materials are needed?**   * **Handout 5a**: Case study I: Size of the nutrition problem in the Philippines * **Handout 5b**: Case study I: Size of the nutrition problem in the Philippines   model answer   * **Handout 5c**: Case study II: Size of the nutrition problem in the Occupied   Palestinian Territory   * **Handout 5d**: Case study II: Size of the nutrition problem in the Occupied   Palestinian Territory: model answer  **What does the trainer need to prepare?**   * Prepare a case study from a context familiar to the participants based on the template in   Handouts 5a and 5c.  **Instructions**  **Step 1**: Give each participant a copy of Handout 5a or 5c. Point out that we use anthropometric measurements of children as a proxy measure/indicator for the nutritional status of the population and that they will find out how to do this in more detail in Module 6.  **Step 2**: Divide the participants into groups of (maximum) five people.  **Step 3**:Groups have 30 minutes to answer questions and prepare a three-minute presentation.  **Step 4**:Get the first group to feedback and subsequent groups to add to what has been presented. Allow for discussion in plenary and clear up any issues related to their local experience. |

**Handout 5a**: Case study I: Size of the nutrition problem in the Philippines

***Time for completion: 30 minutes***

***There are two questions to answer. Prepare a brief presentation of your discussion.***

Food is abundant in markets, and prices of food, including the basic staple rice, have not increased markedly since 1995. In fact, prices of rice have plummeted to record levels. Cases of drought-induced shortages in food supplies which were reported in the southern island of Mindanao in 1998 have all but disappeared. Robust harvests of rice and other food crops are expected in the main season crop, and all indications are of a further reduction in the cost of food. The upturn in food production has prodded government officials to stop further importation of strategic commodities such as rice. There are similar calls to stop the importation of poultry and livestock products. Food insecurity is considered to be primarily a chronic problem, except for in the conflict affected Mindanao where sporadic fighting and displacement affect household food security.

***1. What do these tables tell us about the distribution of undernutrition in the Philippines?***



**National Nutrition Survey data 1998**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NNS[[3]](#footnote-3), 1998** |  |  |  | **Underweight % Weight for Age** | | **Stunting % Height for Age** | | **Wasting % Weight for Height** | | **Overweight % Weight for Height** |
| **National** | **No.** | **Sex** | **Age (m)** | < -3SD | < -2SD\* | < -3SD | < -2SD | < -3SD | <-2SD | **>+2SD** |
| Llocos. | 985 | M/F | 0-59 |  | 33.9 |  | 24.5 ... |  | 6.5 |  |
| Cagayan | 1085 | M/F | 0-59 |  | 31.6 |  | 30.9 |  | 8.3 |  |
| CAR | 1419 | M/F | 0-59 |  | 27.0 |  | 39.3 |  | 4.0 |  |
| C. Luzon | 1664 | M/F | 0-59 |  | 26.6 |  | 21.4 |  | 6.4 |  |
| S. Tagalog | 2933 | M/F | 0-59 |  | 26.1 |  | 25.5 |  | 5.4 |  |
| NCR | 2928 | M/F | 0-59 |  | 26.0 |  | 24.3 |  | 6.5 |  |
| Bicol | 1500 | M/F | 0-59 |  | 36.3 |  | 34.3 |  | 5.1 |  |
| W. Visayas | 1877 | M/F | 0-59 |  | 39.0 |  | 35.1 |  | 10.4 |  |
| C. Visayas | 1729 | M/F | 0-59 |  | 33.0 |  | 38.0 |  | 3.7 |  |
| E. Visayas | 1377 | M/F | 0-59 |  | 38.8 |  | 40.4 |  | 6.1 |  |
| W. Mindanao | 772 | M/F | 0-59 |  | 35.1 |  | 37.3 |  | 8.5 |  |
| N. Mindanao | 1097 | M/F | 0-59 |  | 31.0 |  | 36.1 |  | 4.7 |  |
| S. Mindanao | 2017 | M/F | 0-59 |  | 33.7 |  | 38.6 |  | 6.1 |  |
| C. Mindanao | 1107 | M/F | 0-59 |  | 32.6 |  | 38.4 |  | 6.3 |  |
| ARMM | 879 | M/F | 0-59 |  | 30.2 |  | 36.9 |  | 9.2 |  |
| CARAGA | 939 | M/F | 0-59 |  | 34.3 |  | 40.4 |  | 6.2 |  |
| FNRI UNICEF | 10668 | M/F | 0-59 |  | 33.9 |  | 34.3 |  | 6.7 | 0.4 |

Source: FAO nutrition country profile Philippines[[4]](#footnote-4)

***2. What do you notice about the distribution of micronutrient deficiencies?***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Hemoglobin[[5]](#footnote-5)** | **Vitamin A[[6]](#footnote-6)** |
| **NNS, 1998** |  |  |  | **% < 11.0 g/dl** | **% < 10.0ug/dL** |
| **National** | **No.** | **Sex** | **Age (m)** |  |  |
| Llocos. | 985 | M/F | 6-59 | 35.5 | 4.6 |
| Cagayan | 1085 | M/F | 6-59 | 48.8 | 2.4 |
| CAR | 1419 | M/F | 6-59 | 25.4 | 6.3 |
| C. Luzon | 1664 | M/F | 6-59 | 30.5 | 6.8 |
| S. Tagalog | 2933 | M/F | 6-59 | 20.7 | 6.8 |
| NCR | 2928 | M/F | 6-59 | 31.9 | 2.5 |
| Bicol | 1500 | M/F | 6-59 | 34.3 | 7.5 |
| W. Visayas | 1877 | M/F | 6-59 | 32.1 | 7.9 |
| C. Visayas | 1729 | M/F | 6-59 | 28.8 | 12.2 |
| E. Visayas | 1377 | M/F | 6-59 | 47.3 | 10.4 |
| W. Mindanao | 772 | M/F | 6-59 | 42.4 | 22.7 |
| N. Mindanao | 1097 | M/F | 6-59 | 19.8 | 8.7 |
| S. Mindanao | 2017 | M/F | 6-59 | 27.5 | 6.9 |
| C. Mindanao | 1107 | M/F | 6-59 | 33.8 | 9.4 |
| ARMM | 879 | M/F | 6-59 | 50.6 | 11.8 |
| CARAGA | 939 | M/F | 6-59 | 25.6 | 12.7 |

FAO nutrition country profile Philippines[[7]](#footnote-7)

**Handout 5b**: Case study I: Size of the nutrition problem in the Philippines:

Model answers

***1. What do these graphs tell us about the distribution of undernutrition in the Philippines?***

East and West Visayasas, Bicol and W Mindinao have high rates of underweight and although there are some similarities high rates of stunting also occur across the whole of Mindinao and Vivavas regions as well as CAR, ARMM and Caragan. Wasting levels are not particularly high in most regions. West Visayas, West Mindinao are again amongst the highest rates for wasting and stunting.

Therefore, a concerted effort to understand the causes of malnutrition, and identify a response plan, should be focused here. Remind participants that stunting is related to long-term undernutrition when children fail to grow to their full potential (height and cognitive) due to chronically poor quality diets, and/or frequent or chronic illness, or regular acute episodes of both.

***2. What do you notice about the distribution of micronutrient deficiency?***

The distribution is similar to underweight and stunting. Micronutrient deficiency is mostly linked to poverty and possibly poor diet and/or malaria[[8]](#footnote-8)

Discuss the situation of malnutrition in the Philippines in general (and in the provinces/regions, in particular, where the training and/or programme are being conducted/implemented).

Point out the links between undernutrition and poverty. Eventually poverty results in not having enough to eat or limiting dietary variety. Thus the manifestations of undernutrition are indicative of a problem further ‘up the line’; food insecurity, care practices and sanitation in this case, as well as long term conflict and displacement for Mindinao.

**Handout 5c**: Case study II: Size of the nutrition problem in the Occupied Palestinian Territory

***Time for completion: 30 minutes***

The humanitarian crisis in the occupied Palestinian territory (oPt) is a complex emergency caused primarily by persistent civil, political, and military conflict. A Food Security Survey was conducted by WFP and FAO from April to June 2009, based on a sample of 7,536 households in the Gaza Strip. It is estimated that nearly 1.6 million people are food insecure in the oPt, (38% of the population). An additional 12% are believed to be vulnerable to food insecurity. Food has been available, yet it is estimated that 61% of the population are food insecure due to lack of access. The Palestinian Medical Relief Society has found that up to 52% of Gaza’s children are anaemic.

Living conditions for most Palestinians in Gaza have continued to deteriorate. The ongoing blockade has crippled the private sector, driving unprecedented numbers of Palestinians into unemployment and poverty. Global price increases for fuel and food commodities have had a severe impact on the population, due to the high dependency on imports.

The oPt produces less than 5% of its cereals and pulses, and prices of locally produced meat, poultry and vegetables have risen significantly. The severe limitations on imports of agricultural inputs, fuel and spare parts have devastated the agricultural sector. Previously self-reliant families are progressively falling into poverty and are unable to escape due to the absence of job opportunities. These predominantly lower-middle class or middle class households have been severely affected by the increased restrictions and economic restraints. Their resources have been slowly depleted and they now represent a group termed the ‘new poor’.

Approximately one-third of Palestinians reported a decrease in income in 2008, with the poor having disproportionately suffered, with a 40% reduction in earnings. Negative coping strategies have been adopted, such as reducing the quality and quantity of food consumed. High costs have led to the exclusion of meat and fruits from the average diet.

***1. What do these tables tell us about the distribution of undernutrition in the West Bank and Gaza Strip in the Occupied Palestinian Territory?***

***2. What do you notice about the distribution of micronutrient deficiencies?***

******

**Nutritional status of children under 5 years of age, 2004-2008**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Underweight | | Stunting | | Wasting | | Overweight | |
|  | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
|  | <-2 Z scores | <-2 Z scores | <-2 Z scores | <-2 Z scores | <-2 Z scores | <-2 Z scores | <-2 Z scores | <-2 Z scores |
| West Bank | 4.1 |  | 9.2 | 8 | 2.4 | 4 | 2.3 |  |
| Gaza Strip | 5.4 |  | 10.3 | 17.5 | 3.0 | 13 | 2.3 |  |

Source: FAO, <ftp://ftp.fao.org/es/esn/nutrition/ncp/pse.pdf>.for 2004 data, and Field Exchange, issue 38, Thurstan, S., Sibson, V. Assessing the intervention on infant feeding in Gaza 2008, p 23-25 and Abu Hamad, Bassam., Johnson, E and ., Experiences and addressing malnutrition and anaemia in Gaza, 2008 p 26-29.

The table above details the latest available FAO data. More recent data[[9]](#footnote-9) suggests that acute malnutrition rates amongst children under 5 have remained low, but have risen dramatically in the four years 2002 to 2008. The rate of **chronic malnutrition** has also risen sharply.

In addition, the high rate of low birth weight (7%) and an ‘alert level’ of micronutrient deficiency rates (iron deficiency anaemia > 40%, vitamin A deficiency > 20% in certain age groups, and a rickets prevalence of 4.1% in 6-36 month olds) have been identified. [[10]](#footnote-10)

**Prevalence of sub-clinical vitamin A deficiency in children under 5 years[[11]](#footnote-11) (defined as serum retinol < 20 μ g/dL or 0.70 μmol/L)**

West Bank 18.9

West Bank North 21.9

West Bank Middle 13.8

West Bank South 19.4

Gaza Strip 26.5

Gaza Strip North 31.2

Gaza Strip South 21.5

**Handout 5d**: Case study II: Size of the nutrition problem in the Occupied Palestinian Territory: model answers

***1. What do these graphs tell us about the distribution of undernutrition in the Occupied Palestinian Territory?***

West Bank and Gaza Strip do not appear to have noticeably high levels of malnutrition for any of the three indicators. Levels of underweight, stunting and wasting are marginally higher in Gaza Strip than in the West Bank, but this data may not be statistically significant (as we do not have access to confidence intervals, and therefore do not know the statistical significance of the data). However, wasting levels have increased in both areas between 2004 and 2008, as well as levels of stunting in the Gaza Strip. This is closely associated with levels of poverty since the second intifada in 2000, and underlying causes include reduced market access to fresh fruit, vegetables and protein sources. The diet has become more monotonous and there is an increased dependency on food aid. It is worth noting that levels of overweight are 2.3 %in both regions, and equal to the levels of wasting in West Bank, so this society is suffering from a double burden of malnutrition. In view of the protracted crisis situation it is important to look at micronutrient deficiencies.

***2. What do you notice about the distribution of micronutrient deficiencies?***

The distribution of vitamin A deficiency is similar to that of the anthropometric indicators. The regional differences for West Bank and Gaza Strip show that the northern part of each region have higher levels of vitamin A deficiency. This would need to be investigated further to try and attribute the cause of this; it could relate to cultural feeding preferences, availability of vitamin A rich foods and economic access to them. More information on iodine and iron deficiency would be useful. These micronutrient deficiencies have been attributed to poor dietary diversity (due to a reliance on food aid and a lack of purchasing power) and a decline in good infant feeding and breastfeeding practices. Considering the Middle Eastern diet is based on wheat and legumes and includes a high tea consumption pattern, maternal nutritional status data would be useful.

**6. Field-based exercise**

This section outlines ideas for exercises that can be carried out as part of a field visit. Field visits require a lot of preparation. An organization that is actively involved in programming or nutritional surveillance has to be identified to ‘host’ the visit. This could be a government agency, an international NGO or a United Nations agency. The agency needs to identify an area that can be easily and safely visited by participants. Permission has to be sought from all the relevant authorities and care taken not to disrupt or take time away from programming activities. Despite these caveats, field based learning is probably the best way of providing information that participants will remember.

**Exercise 6**: Identifying different forms of malnutrition

|  |
| --- |
| **What is the learning objective?**   * To provide first-hand experience of seeing individual cases of malnutrition and its causes   **When should this exercise be done?**   * As part of an in-depth course and after the session on understanding malnutrition. Possibly after Module 4 as well   **How long should the exercise take?**   * 1 hour for the exercise plus travel (half day) * 1 hour for the plenary feedback discussion at the end of the trip   **What materials are needed?**   * A digital camera for 4 to 5 people * **Handout 6a**: Identifying different forms of malnutrition   **What does the trainer need to prepare?**   * The trainer will need to identify a suitable organisation and area for the field visit and organise all logistics (transport, fuel, meals etc.) for the visit. It is essential that the trainer visits the field site in advance of the visit in order to set up focus groups, identify key informants and identify potential problems. Discussion of the exercise should take place at the end of the visit either back in the classroom or in a suitable public place away from where the visit took place.   **Instructions**  **Step 1**: Divide participants into smaller groups. Give each group a camera.  **Step 2**: Take them to the nutrition centre or primary health care centre where  severe cases of acute malnutrition are being screened for or treated and ask them to complete the handout.  **Step 3**: After an hour, groups return to the classroom for discussion of findings. |

**Handout 6a**: Identifying different forms of malnutrition

***Time for completion: 1 hour***

***You should be part of a group of four or five people with a digital camera. You will all go and visit a nutrition centre or a primary health care centre and interview one of the staff. Once you have finished you will share your findings in the classroom with the rest of your groups.***

***Part I – 1 hour***

The aim of the field visit is to speak to a member of staff in the nutrition centre or primary health care centre in order to be able to answer the following questions. During the visit, you will hopefully be allowed to wander around and observe individual cases of malnutrition and take some photos. This will only be possible if it is done discreetly and professionally taking the individuals and their carers’ concerns into consideration. In no way must the visit disrupt the normal activities going on.

**Questions to ask:** (Suggest students interview 5 children / caretakers to try to identify potential causes of malnutrition)

1. How is malnutrition classified by nutrition staff?
2. Are there cases of chronic and acute malnutrition here? How can they be differentiated?
3. How are different forms of moderate and severe malnutrition differentiated?
4. Are there any cases of severe acute malnutrition?
5. Are there any cases of severe acute malnutrition with bilateral pitting oedema?
6. Are there any cases of micronutrient deficiency disease, and how are they identified?
7. What clinical differences can you see between them?
8. Have you seen children that are overweight, or children that are undernourished with overweight caretakers? If so, could you give an explanation?
9. What can you say of the nutritional status of the carers?
10. Any other observations

***Part II***

Once you have discussed your answers with the nutrition staff at the centre or primary health care clinic, write up your answers and take some photos to illustrate the different forms of malnutrition you have discovered during the visit. Be prepared to present the photos and your explanation as to the causes of malnutrition for that individual, to the rest of the group back in the classroom. The whole group will discuss the findings with help from the trainer.

1. Central Europe and Russia [↑](#footnote-ref-1)
2. UNICEF, ‘Tracking progress on child and maternal nutrition’, 2009. [↑](#footnote-ref-2)
3. National Nutrition Survey [↑](#footnote-ref-3)
4. <ftp://ftp.fao.org/ag/agn/nutrition/ncp/phlmap.pdf> [↑](#footnote-ref-4)
5. Indicates Iron deficiency anaemia [↑](#footnote-ref-5)
6. Indicates vitamin A deficiency [↑](#footnote-ref-6)
7. <ftp://ftp.fao.org/ag/agn/nutrition/ncp/phlmap.pdf> [↑](#footnote-ref-7)
8. A major cause of iron deficiency anaemia [↑](#footnote-ref-8)
9. Abu Hamad, B., Johnson, E. (2008), Experiences and addressing malnutrition and anaemia in Gaza, in Field Exchange, issue 38, p 26-29. [↑](#footnote-ref-9)
10. Thurstan, S., Sibson, V. (2008). Assessing the intervention on infant feeding in Gaza, in Field Exchange, issue 38. [↑](#footnote-ref-10)
11. FAO, ftp://ftp.fao.org/es/esn/nutrition/ncp/pse.pdf [↑](#footnote-ref-11)