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# TRAINING CURRICULUM

ON MANAGEMENT OF OVERWEIGHT/OBESITY  
FOR PRIMARY HEALTH CARE WORKERS

IN PRIMARY HEALTH CARE CENTERS IN IRAQ

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#### DISCLAIMER

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# Table of Content

## Contents

Table of Content.....	2
List of Acronyms .....	3
Part I: Trainer’s Guide.....	4
Approaches to Training and Learning.....	6
Methods frequently used in this curriculum.....	10
Evaluation.....	17
Form 1: END OF COURSE EVALUATION QUESTIONNAIRE.....	20
Form 2: END OF MODULE EVALUATION QUESTIONNAIRE .....	27
Form 3: QUICK FEEDBACK FORM .....	30
Form 4: TRAINING SKILLS CHECKLIST .....	32
Module One: Management of overweight/obesity in adults .....	38
Module Two: Management of Obesity in Children and adolescent .....	59
Module Three: Obesity in Pregnancy and Elderly .....	74

## List of Acronyms

<b>BMI</b>	Body Mass Index
<b>CVD</b>	Cardio – Vascular Diseases
<b>LCD</b>	Low Caloric Diet
<b>MoH</b>	Ministry of Health
<b>MoHE</b>	Ministry of Higher Education
<b>PHC</b>	Primary Health Care
<b>PHCPI</b>	Primary Health Care Project in Iraq
<b>USAID</b>	United States Agency for International Development
<b>VLCD</b>	Very Low Caloric Diet

## Part I: Trainer's Guide

This training curriculum is a guide to assist trainers in improving health care by training health professionals in the Management of overweight/obesity in primary health care centers

Materials in this document are designed for training service providers who work at a variety of health facilities in Iraq. The modules can be used to train health professionals, physicians and other health workers in group training or, with adaptation, as a basis of individualized or self-directed learning.

Trainers implementing this course should be thoroughly familiar with the guideline. The trainers need to have a positive attitude about the participants and their training work.

Training may be implemented either off-site or on-site. In off-site training, a group of participants come together from several health facilities and then return to apply what has been learned. Off-site training may be the most appropriate way to reach individuals from many small sites. On-site training refers to training held in a health facility team where the participants work. Both types of training can be very effective. When training is conducted off-site, it may be more difficult to observe actual clinical settings. On the other hand, when training takes place on-site, there may be interruptions due to participants being called away for other responsibilities.

### How to Use the Manual

This manual is designed as a working instrument for trainers and facilitators. The module schedule contains a condensed summary of the contents organized in units and is meant as a check list for the facilitator/s before and during the course. The time indicated for each unit is an average time span based on experience, and can vary according to the composition and dynamics of each respective group.

The manual is divided into two parts. The first part is an introduction to the training course giving an overview over the rationale, objectives, and target groups for the course. It includes the present section on recommendations on how to use the manual, introducing the structure, training methods and course schedule. It also contains information on how to organize a workshop / training course and concludes with some recommendations on the limitations of the document and how to deal with them.

The second part presents the actual training contents, methods, didactic materials and additional literature recommended for each content area, organized/compiled in the different modules of the program. Every training course starts with the introduction of participants and team presenting the course objectives, contents, methods and program and allowing participants to express their expectations and fears.

The course content is presented according to three broad content areas (modules), subdivided into different sessions:

**Overall learning objectives:** states the objectives to be achieved at the end of the module in terms of knowledge, skills and competence.

**Schedule:** gives an overview over the time span, methods, materials and recommended content for each session / topic and states the specific objectives of each session.

**Sessions:** are subdivisions/sessions of the module that follow a logical flow to develop the content of the module.

**Specific objectives** of the sessions: relate to the content and the expected level of competence to be achieved and can also be used as basis for the development of exam questions.

**Background information for the facilitator:** includes background information important for the facilitator to develop the content of the module, necessary and recommended definitions, concepts, theory and its applications.

**Exercises:** describe practical applications of the theory and are meant to facilitate the learning process through experiential approaches: role plays, games, etc. (see list of exercises).

**Handouts:** are the essential documentation for the participants about the content of the session / module stating the objectives, listing the key words, developing the concept / theory of the content, and giving recommendations for further reading.

**References:** additionally recommended literature, articles and books, which are related to the content of the module.

## Structure of the Training Course

The training course has been planned as a three days course. However, it is also possible to shorten the course due to limited time and / or to select modules according to learning objectives and needs. As well the time can be expanded in order to deal more in depth with the content and allow for more exercises, practical, field work.

The time frame of the training course consists of six working hours per day. These hours are divided into two morning and two afternoon sessions. Each session normally has duration of 2 hours. The number of course trainers/ facilitators can range from one to two per course according to the requirements. Also, for special topics, external resource persons should be asked to lecture and work with the group in their respective areas of expertise. The trainee - facilitator ratio should be 15 to one, a ratio of 20 or 25 to one still being acceptable. The total number of participants should not exceed 25.

The course structure and training methods not only allow for the development of knowledge, skills, competence and change of attitudes of the participants. The course concept is also designed to be put into practice by participants after the training during their work or by organizing their own training courses.

## Approaches to Training and Learning

The training course outlined in this document is based on adult learning principles, competency-based training and performance improvement. Selected elements of the strategies that guided the development of this material and should guide its implementation and use are listed below.

### How people learn best

People learn best when the following conditions are met:

- Participants are motivated and not anxious, know what is expected of them and treated with respect
- Information and skills are interesting, exciting, meaningful, and build on what participants already know, encourage problem-solving and reasoning
- Experiences are organized, logical, practical, include a variety of methods, and protocols and procedures are available
- New learning experiences are relevant to work and training needs of participants, and are applied immediately
- Training involves every participant in active practice and participants share responsibility for learning
- Training is a team activity, including trainers and co-trainers, providing participants with a variety of experiences and limiting trainer's biases
- The trainer acts as a facilitator of the learning process rather than a teacher who "spoon feeds" the learner
- The role and responsibilities of the trainers/facilitators and those of the participants/learners are clearly defined with:
  - The facilitators responsible for providing the learners with the necessary opportunities to acquire the knowledge and skills necessary to perform the tasks for which they are being trained
  - The facilitators responsible for providing the learners with the necessary opportunities to be exposed to the attitudes necessary to implement the acquired skills in a systematic manner and initiate the process of internalizing these attitudes
  - The learner remains responsible for her/his learning

The transactional relationships between the learners and the facilitators are at the level of adult to adult characterized by mutual respect and support

- Trainers are knowledgeable and competent in the subject matter and skills, use a variety of training methods, pay attention to individual participants' concerns, and provide motivation through feedback and reinforcement
- Participants must be selected according to specific criteria, such as the relevance of the training content to the job expectations/tasks
- Participants must have the necessary prerequisite level to enable them to benefit from the learning experience
- Feedback is immediate and focused on behavior that the participants can control
- Assessment of learning and skills is based on objectives that the participants understand

### **Knowledge, skills and attitudes**

This course aims to improve health care by changing health workers' knowledge, skills and attitudes.

- Knowledge includes the facts that the participants need to know to perform their jobs.

#### Tips on increasing **knowledge** through training

- Start with what the participants already know or have experienced
  - Use a variety of educational resources, including participatory activities that require participants to use their knowledge
  - Use learning aids
  - Review and summarize often
  - Assess knowledge to verify learning
- Skills include the specific tasks that participants need to be able to perform.

#### Tips on increasing **skills** through training

- *Describe the skill*
  - *Provide protocols and procedures*
  - *Demonstrate the skill*
  - *Have participants demonstrate the skill*
  - *Verify that each skill is practiced correctly*
  - *Assess skill by observation using a checklist*
- Attitudes affect behaviors, such as whether learned skills are applied and interactions with clients.

### Tips on changing **attitudes and behavior** through training

- *Provide information and examples*
- *Include direct experience*
- *Invite discussion of values, concerns and experience*
- *Use role plays and brainstorming*
- *Model positive attitudes*
- *Assess changes in attitude by observing behavior*

### **Methods**

The training will use a participatory and “hands on” approach where the role of the trainers is to facilitate learning by the participants. The responsibility for learning remains with the participants.

Participants learn more and stay engaged in learning activities when they play an active role in their learning and a variety of training methods are used. The following methods are recommended in the curriculum/modules.

#### Selected Training Methods

Brainstorming	Individual assignments	Return demonstration
Case study	Individual exercises	Role play
Clinical session	Interview	Self-directed activities
Demonstration	Lecture-Discussion	Small group discussion
Discussion	Mini-lecture	Simulation
Field visits	Observations	Small group exercises
Plenary group exercises	Pairs exercises	Summary
Group assignments	Presentation	Survey
	Questions and answers	Team building exercises
	Research	

## In each module or session

This document contains an outline of a training plan for each of the key areas of content.

Each module contains the following sections:

- Front page with a module number, module objectives, module content by session and an estimated duration for the module.
- Session plans covering the various content areas.

Each session contains the following sections:

- **Trainer Preparation:** This section lists the specific preparations that trainers should make for the session. Preparations for every session include:
  - Making sure the room is properly arranged
  - Ensuring that markers and flip chart or a writing board with chalk or markers are available
  - Reviewing the training plan
  - Reviewing steps for the methods used in the training session
  - Ensuring that the resources needed to facilitate the learning process are available including copying materials that participants need
- **Methods and Activities:** This section lists the methods and activities that are used in the module. General instructions for methods that are frequently used are included in this introductory material. Instructions for participatory activities are included in the training plan.
- **Resources:** The relevant reference materials/handouts and other resources needed are listed here.
- **Evaluation/assessment:** Evaluation methods for the knowledge or skills included are listed. Questionnaires and skills checklists are included where needed.
- **Estimated Time:** The time that each session/module will require depends upon the particular group of participants, the amount of time available and other constraints. The module gives a general time range to allow for flexible scheduling.
- **Training Plan:** This section gives the specific learning objectives or purpose of a session, the key **”must know”** content, and the appropriate training methods and activities for each objective. All modules include one or more activities that give participants structured, participatory practice with the content of the module.
- **Handouts:** When specific activities require handouts, these are included after the training plan and should be copied before the session in which they will be used

- **Skills Checklists:** Each session that includes skills objectives includes a skills assessment checklist. The checklist is used by the trainer to evaluate the participant's skill based on observation of the specific steps included in the skill. The skills checklists are also used by each participant to assess their performance and take charge of their own learning. They can also be used by other participants for peer assessment. It is recommended that these checklists not only be used during training to assess the acquisition of skills, but also for post training evaluation and supervision.

**Note:** There are various possible formats for modules and sessions. Provided the necessary information is included for the trainer to use, the selection of format will depend on how comfortable the trainers are in using it.

## Methods frequently used in this curriculum

Instructions for methods used frequently in this training course are included here. Activities for specific methods are included with the sessions where they are used.

### Mini-lecture

Trainer makes a short (5 to 15minutes) presentation using the materials available. Mini-lectures are used to provide information and knowledge. They insure that all participants have an adequate level of information and insure standardization and uniformity of this information. Mini-lectures should be kept short and should be followed by questions and answers for clarification to enable participants to better understand the content of the session/module and clarify issues, and questions and answers for evaluation to ensure comprehension.

### Questions and Answers (Q&A)

Questions and answers sessions are used to recall information or elicit participants' knowledge (in introductory sessions in order to assess training needs), for clarification (to ensure that participants understand information/content), presentation of information (to elicit information that participants may already know) and evaluation (to assess acquisition of knowledge and fill gaps in participants' knowledge).

#### Steps for Questions and Answers for clarification

1. Trainer asks participants if they have questions
2. If a participant has a question, trainer asks another participant to answer
3. If the participant's answer is correct and complete, trainer reinforces
4. If the participant's answer is incorrect and/or incomplete, trainer may ask questions that lead the participant to a more correct answer or ask another participant to answer

5. If the answer is still incorrect and/or incomplete after two or three trials, trainer corrects and/or completes and informs the participants where to find the information
6. If there are no questions, trainer asks questions to verify knowledge and follows the same steps (3, 4, 5)

#### Steps for Questions and Answers to elicit information from participant (s)

1. Trainer asks participants questions
2. If a participant's answer is correct and complete, trainer reinforces
3. If the participant's answer is incorrect and/or incomplete, trainer may ask questions that lead the participant to a more correct answer or ask another participant to answer
4. If the answer is still incorrect and/or incomplete after two or three trials, trainer corrects and/or completes and informs the participants where to find the information

#### **Brainstorming**

Brainstorming is an excellent way to find out what participants already know and gaps in their knowledge. Brainstorming brings participants experience into the classroom and lets the participants know that their experience is valuable.

Brainstorming is also a very effective way for problem solving.

A brainstorming session should always end with a summary.

#### Steps for brainstorming

1. Trainer asks an open-ended question
2. Participants shout out their answers or ideas:
  - Until no more ideas are generated, or at least every participant has a chance to contribute or time allocated has run out
  - No ideas are discarded criticized or analyzed, but clarifying questions can be asked
3. Trainer records ideas on newsprint or in another format where all can see them
4. Trainer leads a discussion of each of the ideas generated
5. Trainer clearly marks ideas that are agreed upon
6. Trainer summarizes or asks participants to summarize points of agreement
7. Trainer moves to the next question only after finishing discussion of previous question
8. Ideas generated in brainstorming can be used for summarizing, as input to group exercises, and to relate content to participant experience

## **Case study**

A case study is method of training whereas data/information about a case, preferably a real one or based on one, is presented to the participants for review and analysis. It includes specific questions to be answered. Case studies are a very effective way to allow participants to practice using information to solve problem, the highest level of knowledge objective. They are also effective in providing participants opportunities to explore their attitudes and confront/compare them with other participants and trainers' attitudes. Moreover case studies allow for the identification of gaps in knowledge.

Participants, individually or in small groups are asked to study the case and prepare responses to the questions. The responses are then processed. During the processing the trainer must encourage and ensure that all participants get a chance to provide inputs. Processing can be done using questions and answers and/or discussion.

The questions must be answered in an orderly manner in the sense that each question must be answered fully and the inputs summarized before moving to the next question. Answer key must be given to the participants after the processing of the case study.

Case studies can be presented in different format. They can be based on the presentation of a real patient, the files of a patient, a written description of a case, an illustration such as a photograph or slides of a case, or a video.

This method is not used in this curriculum but trainers can develop case studies based on local conditions/data as additional exercises if time permits.

## **Discussion**

Discussion is indicated when the outcome is not predetermined in advance and is “still negotiable”. Therefore using discussion to provide “scientific” knowledge/information or a decision that has already been made and not to be changed can lead to frustration.

Discussion in plenary or in small groups is recommended to explore attitudes, values and opinions. It is also indicated to confront/compare different options of “doing things” ensuring that the “why” is covered.

During the discussion the trainer's role is to facilitate the process, and ensure that the discussion remains “on track” and that every participant gets a chance to contribute.

When small groups do not have the same assignment/topic to discuss, each group presents their output(s) and discussion follows immediately after the presentation before moving to the next group. Time management is essential to ensure that no group gets “short changed” and has ample time for the presentation and discussion.

If all the groups have the same assignment, all groups present before discussion takes place. Only clarification questions are allowed during the presentation. Processing the

output(s) must focus on the points of agreement before moving to the differences.

If time does not allow for all groups to present, one group can present and the other groups complete from their own group's output before discussion starts.

Every discussion must be followed by a summary.

### **Demonstration**

Demonstration is a very effective way to facilitate learning of a skill or initiation of the development of an attitude. The facilitator should use this method to show the skill(s) and/or the attitude(s) addressing more than one sense at a time. Often a demonstration can effectively replace a presentation provided the facilitator explains as s/he is doing.

A demonstration should always be followed by a Q/A for clarification session before the learners are required to do a return demonstration.

#### Steps for a demonstration

1. Trainer assembles resources needed for the demonstration
2. Trainer ensures that participants are ready, can hear and see
3. Trainer explains what s/he is going to do
4. Trainer instructs participants on what is expected of them (e.g. to observe closely, to take notes if appropriate, to use the skills checklist when appropriate etc.)
  - To prepare for the Q/A, and
  - Because they are required to do return demonstration(s) for practice
5. Trainer demonstrates while explaining the skill(s)/attitude necessary for each step of the procedure being demonstrated
6. Trainer conducts a Q/A for clarification at the end of the demonstration

### **Return demonstration**

Return demonstrations provide the learners with the opportunity to practice the skills necessary to perform the procedures they are being trained on. The trainer must ensure that each learner/participant has the opportunity to practice **enough times to reach a preset minimum acceptable level of performance.**

#### Steps for a return demonstration

1. Trainer reminds participants of what is expected of them:
  - To practice the procedure/skills
  - To observe when others are practicing to be able to ask for clarification
  - To observe when others are practicing to be able to provide feedback and peer evaluation
2. Trainer divides participants into small groups, if more than one workstation.  
(**Note:** each workstation requires at least one facilitator/trainer).

3. Participants take turns practicing the procedure/skills
4. Trainer ensures that all participants can hear and see
5. While each participant is practicing trainer can provide guidance as necessary provided it does not interfere with the process and confuse the participant
6. After each participant, trainer solicits feedback from other participants
7. After feedback from other participants, trainer reinforces what is correct and corrects and/or completes feedback
8. Each participant needs to practice more than once or until control of the skill, as time permits
9. If participant(s) need more than time permits, trainer arranges for additional practice opportunities

### **Simulation/simulated practice**

A simulated practice is a very effective method to allow participants to practice procedures/skills in an environment that recreates as closely as possible the “real world” without the stress involved in practicing procedures/skills that they do not control yet in the field. It is recommended to have participants practice on models before they do perform the procedure/ use the skill in the work place. During a simulation the participant practices tasks that are part of her/his actual role in the workplace or that s/he will perform in the job s/he is being trained for.

Use the same steps as for a demonstration/return demonstration practice.

### **Role play**

Role plays are a very effective method to practice procedures/skills in the training room. They are especially effective to practice procedures/skills that deal with human interactions such as health education and counseling sessions. They are also very effective when the learning objective deal with attitudes.

In a role play participants “play roles” that are not necessarily their roles in the “real world”. Often they are asked to play the role of someone they would be dealing with. In this case it is called “role reversal” or “reverse role play”. This allows the participants to explore and discover how other perceive/live the interaction.

A role play must always be processed to analyze the lessons learned.

## **Summary**

Every time a training method allows for inputs through exchanges between the trainer(s) and the participants and between the participants themselves, it must be followed by a summary session to “tie up the loose ends” and provide the participants with clear answers. If this does not happen there is the likelihood that the participants will forget the “correct” answers.

A summary can be done by the trainer to ensure that there are “no loose ends”. If time permits, it is recommended to use the summary for evaluation. In this case the trainer can use the Q/A method.

### Steps for a summary for evaluation

1. Trainer asks a participant to summarize
2. Trainers reinforces if the summary is correct/complete
3. Trainer asks another participant to correct/complete if the summary is incorrect/incomplete
4. Trainer repeats steps 2 and 3
5. Trainer corrects/completes if after 2 or 3 trials the summary is still Incorrect/incomplete.

## **Discussion Lecture**

Discussion Lecture: It is introducing of scientific material to the listeners and involving them in the discussion and exchanging viewpoints, raising questions and answering them and this leads to enriching the training process and increasing the chances of its success. The main difference between it and the short lecture is that the trainees are given the chance for questioning and discussion during the lecturing

Discussion lecture uses the principles of the lecture and discussion together in applying this method.

Privileges of the discussion lecture:

1. Drawing the trainees attention because it is a method of communication between the two sides in more than one direction
2. Increasing the interaction between the trainees and trainer and among trainees themselves
3. Allowing the exchange of viewpoints
4. Operating according to the rules and principles of seniors education
5. Allowing the provision of information and decision taking in the same session

Faults of discussion lecture:

1. Discussion may lead to the deviation from the basic subject and this neglecting the fundamental points of the subjects
2. It cannot be used in gaining the skills
3. It may lead to open the door of the discussion about information and firm decisions that cannot be changed and this leads to disappointment

# Evaluation

## Evaluation of learning and training objectives

Evaluation or assessment of learning and of training objectives allows trainers, program managers and participants to know how successful a training program has been. On-going evaluation and assessment allows trainers to identify gaps in learning and to fill those gaps. Evaluation also assists in revising learning experiences for later trainings. Many strategies can be used to evaluate learning. Some of the most useful methods include:

- **Knowledge assessments:** Written or oral questions that require participants to recall, analyze, synthesize, organize or apply information to solve a problem. The knowledge component of a skill objective should be assessed prior to beginning skill practice in a training room or clinical session.
- **Questionnaires:** Written exercises that assist trainers and participants to identify and fill gaps in knowledge. Questionnaires can be administered as self-assessments. In some situations, it may be reasonable to have participants use course materials or to work together on questionnaires.
- **Skill checklists:** Observation of a participant performing a skill and assessment of the performance using a checklist. Simulated practice (using real items or models in a situation that is similar to actual practice) should ideally be assessed prior to beginning clinical practice with clients. Checklists should be used by the trainer and other participants to observe simulated (training room) performance and actual practice and provide feedback to help improve the performance. The checklists can also be used by the participant for self-assessment. During the training participants should be trained on how to use the checklists and encouraged to use them after the training to continue assessing their own performance and improving it.

Additional techniques for evaluation include: projects, reports, daily reflection, on-site observation, field performance, and discussion.

Each training module includes assessment of learning methods and tools:

- **Questions and Answers** should be used to frequently identify gaps in knowledge and fill them.
- **Questionnaires** are included with every module and can be used for self-assessment. To use them as self-assessment, participants fill out the questionnaire and then use any course materials to check their own answers. Trainers should work with participants filling out the questionnaires to make sure that all gaps in knowledge are filled before practicing and evaluating skills. When time permits, process responses in

plenary to address any issues and fill the gaps in knowledge. At the end of this activity the answer key needs to be distributed to the participants.

- Skills Checklists are included for each of the skills that are included in this training curriculum. Participants can use the Skills Checklists as learning guides during practice sessions in training room or clinical sessions. To evaluate skills, trainers should generally observe participants three times with coaching as needed to ensure the skills are learned.

### **Evaluation of the participants**

The evaluation of the learning by participants will be done through questions and answers, synthesis of sessions done by selected participants, self-assessment following the micro-sessions, peer assessment through feedback provided by other participants following the micro-sessions and assessment of performance by facilitators.

Each participant will practice more than once, preferably three times” the use of the curriculum to plan, organize, conduct and evaluate the training through simulated micro-sessions. A checklist will be used both by participants for self and peer assessment, and by the facilitators.

Videotaping the micro sessions or at least significant segments of the micro sessions and reviewing the taped segments after each session will enable the participants to assess their own progress in terms of acquisition of training/facilitation skills. This approach to evaluation although time consuming is very effective in helping participants assess their own performance and stabilize feedback received from their peers and from the trainers/facilitators.

Post training evaluation of the learners must be conducted within three (3) to six (6) months after the end of the training. Further post training evaluation and follow-up can be integrated into routine supervision. It is highly recommended to use the skills checklists used during the training for post training evaluation and follow-up.

### **Evaluation of the training**

The “End of Training” evaluation can be done through a questionnaire (form 1) whereby the participants are asked to respond and express their opinions about various aspects of the workshop, such as organization, the process, the facilitation, and a general assessment.

The “End of module” evaluation can be done through a questionnaire (form 2) whereby the participants are asked to respond and express their opinions about various aspects of the module, such as the relevance of the module objective to the course ones, the relevance of the content to the objectives, the adequacy of the content, the presentation of the content, the effectiveness of the methodology, the facilitation and the sequencing of the content.

A confidence/satisfaction index can be calculated to determine how confident the learners feel that they acquired the knowledge and skills necessary to perform the tasks they have been trained for, and how committed they feel to using those skills to ensure the quality of the services they are to provide. The confidence index applies to the training objectives and acquisition of skills and knowledge and to the degree to which the participants feel that they are able to apply what they have learned during the training. The satisfaction index applies to the organization and implementation of the training.

The items are labeled in the form of statements followed by a scale 5 (Strongly Agree), 4 (Agree), 2 (Disagree), and 1 (Strongly Disagree), where 5 represents the highest level of satisfaction/confidence (agreement with the statement) and 1 represents the lowest. The participants are asked to select the level that expressed their opinion best. A space for comments is provided after each statement.

The confidence and satisfaction indices are calculated by multiplying the number of respondents by the correspondent coefficient in the scale, then adding the total. The total is multiplied by 100. The product is divided by the total number of respondents to the statement multiplied by 5. 60% represents the minimal acceptable level and 80% a very satisfactory level of performance.

For example, if the total number of respondents is 19 and 7 of them selected 5 on the scale, 6 selected 4, 4 selected 2, and 2 selected 1, then the index will be  $(5 \times 7) + (4 \times 6) + (2 \times 4) + (1 \times 2)$  multiplied by 100, divided by  $(5 \times 19)$ . A 100% index would be if the total number of respondents selected 5. In this case it would be 95. In this example the index is 72.63%.

The training content and process are evaluated on a continuing basis through daily evaluations using methods such as “things liked the best” and “things liked the least” and/or “quick feedback” forms. The facilitators will use the results of this evaluation during their daily meeting to integrate the feedback and adapt the training to the participants needs.

“Where Are We?” sessions will be conducted with the participants to assess the progress in content coverage and process towards reaching the training goals and learning objectives.

Comments are analyzed and categorized. Only significant comments, those mentioned more than once and/or by more than one participant, are retained. The facilitators need to use the results of this evaluation during their daily meeting to integrate the feedback and adapt the training to the participants needs. Feedback and assessment of training experiences allows trainers and program managers to adapt training to better meet participants’ needs. Trainers can also assess their own performance in facilitating the learning experience of participants using a standardized “facilitation skills” checklist (form 4).

# Form 1: END OF COURSE EVALUATION QUESTIONNAIRE

**TRAINING CENTER**

**DATE**

**COURSE TITLE:**

## **INSTRUCTIONS**

This evaluation will help adapt the course to your needs and to those of future participants.

It is anonymous. Please respond freely and sincerely to each item. The items are labeled in the form of statements followed by a scale where:

- 5 = **strong** agree
- 4 = agree
  
- 2 = disagree
- 1 = **strongly** disagree

Please circle the number that expresses your opinion; the difference between **strongly** agree and agree, and between **strongly** disagree and disagree are a matter of intensity.

Add your comments in a specific and concise manner, in the space provided after each statement. If that is not sufficient feel free to use extra paper. If you select 2 or 1, make sure to suggest how to make the situation better, practical, and offer solutions.

**N.B:** Course goals objectives and duration will vary based on the type of training conducted. Adapt the form to each specific course by including in it the relevant course items.

## **COURSE GOALS**

The Course Achieved Its Goals

1. To provide the participants with the opportunities to acquire/update the knowledge and skills necessary to:

<b>1.1</b> Play an effective role as a member of the PHC Center team to improve the quality of care and services	5-4-2-1
Comments:	
1.2 Use the team approach to solve problems at the PHC center level	5-4-2-1
Comments:	
<b>2.</b> Provide the participants with opportunities to be exposed to and initiate the development of attitudes favorable to the systematic use of the knowledge and skills acquired in team building and problem solving to improve the quality of care and services	5-4-2-1
Comments:	

## COURSE OBJECTIVES

1. The course helped me reach the stated objectives:

1.1 Apply the team approach principles to play an effective role as a member of the Model PHC Center service delivery team	5-4-2-1
Comments:	
1.2 Use the team approach to implement the problem solving cycle to solve service delivery and management problems at the PHC Center level	5-4-2-1
Comments:	
1.3 Explain the importance of being an effective team member of the Model PHC Center to improve the quality of care and services	5-4-2-1
Comments:	
1.4 Explain the importance of using the team approach to implement the problem solving cycle to solve service delivery and management problems at the Model PHC center	5-4-2-1
Comments:	

2. The course objectives are relevant to my job description / task I perform in my job	5-4-2-1
Comments:	
3. There is a logical sequence to the units that facilitates learning	5-4-2-1
Comments:	

**ORGANIZATION AND CONDUCT OF THE COURSE**

1. Time of notification was adequate to prepare for the course	5-4-2-1
Comments:	
2. Information provided about the course before arriving was adequate	5-4-2-1
Comments:	
3. Transportation arrangements during the course were adequate (if applicable)	5-4-2-1
Comments:	
4. Training site (Training Center) was adequate	5-4-2-1
Comments:	
5. The educational materials (including reference material) used were adequate both in terms and quantity and quality in relation to the training objectives and content	5-4-2-1
Comments:	

6. The methodology and technique used to conduct the training were effective in assisting you to reach the course objectives	5-4-2-1
Comments:	
7. Clinic/ practice site, as applicable, was adequate	5-4-2-1
Comments:	
8. Relationships between participants and course managers and support staff were satisfactory	5-4-2-1
Comments:	
9. Relationships between participants and trainers were satisfactory and beneficial to learning	5-4-2-1
Comments:	
10. Relationships between participants were satisfactory	5-4-2-1
Comments:	

11. The organization of the course was adequate (Time, breaks, supplies, resource materials)	5-4-2-1
Comments:	

**Additional comments:**

**GENERAL ASSESSMENT**

1. I can replicate this training in my future work	5-4-2-1
Comments:	
2. I would recommend this training course to others	5-4-2-1
Why or Why Not?	
3. The duration of the course (10 days) was adequate to reach all objectives and cover all necessary topics	5-4-2-1
Comments:	
General comments and suggestions to improve the course (Please be specific)	

## Form 2: END OF MODULE EVALUATION QUESTIONNAIRE

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**COURSE: DATE:**

**MODULE NUMBER & TITLE:**

### **INSTRUCTIONS**

This evaluation is intended to solicit your opinions about the modules. Your feedback will help adapt the course to your needs and to those of future participants.

It is anonymous. Please respond freely and sincerely to each item. The items are labeled in the form of statements followed by a scale where:

- 5 = **strongly** agree
- 4 = agree
  
- 2 = disagree
- 1 = **strongly** disagree

Please circle the number that best expresses your opinion; the differences between **strongly** agree and agree, and between **strongly** disagree and disagree are a matter of intensity.

Add your comments in a specific and concise manner in the space provided after each statement. If that space is not sufficient feel to use extra paper. If you select 2 or 1, make sure to write specific comments on how to improve the module.

### **EVALUATION ITEMS**

1. The module objectives are relevant to the course objectives	5- 4- 2- 1
Comments:	
2. The content / topics covered in the unit are relevant to the objectives	5- 4- 2- 1
Comments:	

3. The content / topics were adequate to help me achieve the objectives	5- 4- 2- 1
Comments:	
4. The content / topics were clear and well-presented	5- 4- 2- 1
Comments:	
5. The training methods and activities were effective in facilitating learning	5- 4- 2- 1
Comments:	
6. The training methods and activities were conducted adequately to facilitate learning	5- 4- 2- 1
Comments:	
7. These are important topics that will enable me to better perform my job	5- 4- 2- 1
Comments: (specify these points)	
8. There is a logical sequence to the sessions and topics that facilitates learning	5-4- 2- 1
Comments:	

9. There are certain topics that need further clarification	5- 4- 2- 1
Comments: (specify these points)	
10. The training materials and resources provided were adequate	5- 4- 2- 1
Comments:	
11. Training materials and resources were provided on time to facilitate learning	5- 4- 2- 1
Comments:	
1. The training materials and resources used were adequate to facilitate my learning	5-4-2-1
Comments:	
14. The training site was adequate	5- 4- 2- 1
Comments:	

5. The clinic/ practice site was adequate (if applicable)	5- 4- 2- 1
Comments:	

**General comments** (if any not covered):

**Form 3: QUICK FEEDBACK FORM**

**TRAINING COURSE: DATE:**

**LOCATION:**

**MODULE NUMBER AND TITLE:**

**SESSION NUMBER AND TITLE:**

**INSTRUCTIONS**

This evaluation is anonymous. Please respond freely and sincerely to each item. The items are labeled in the form of statements followed by a scale where:

5 = **strongly** agree

4 = agree

2 = disagree

1 = **strongly** disagree

Please circle the description that expresses your opinion best; the difference between strongly agree and agree, and between strongly disagree and disagree are a matter of intensity.

Add your comments in a specific and concise manner, if you have any, in the space provided after each statement. If that space is not sufficient feel free to use extra paper. If you selected 2 or 1 please make sure to give comments (e.g. why? Solutions?)

1. The session objectives are relevant to the tasks in the job description	5- 4- 2- 1
Comments:	

2. The methods/learning activities were adapted to the objectives	5- 4- 2- 1
Comments:	
3. The materials provided were adequate to cover all of the content	5- 4- 2- 1
Comments:	
4. The time allocated to the session was adequate to cover all the topics	5- 4- 2- 1
Comments:	
5. The facilitation (conduct of the session) helped reach the session objectives	5- 4- 2- 1
Comments:	
6. The content of the training was clearly presented	5- 4- 2- 1
Comments:	
7. The materials/resources were used in a way that helped me learn	5- 4- 2- 1
Comments:	

8. There are points of content that need further clarifications (Specify what specific content areas)	5- 4- 2- 1
Comments:	

**Other comments:**

### **Form 4: TRAINING SKILLS CHECKLIST**

This checklist is used with the relevant curriculum to give feedback on the trainer's performance.

The checklist contains a list of items to be observed:

- If they are observed a check mark (√) is entered in the column observed under **adequate** or **inadequate** depending on the performance.
- Comments are entered in the appropriate column to clarify/specify what is observed or not observed.
- Is not observed a check mark (√) and comments are entered in the appropriate columns.

The finding and comments are analyzed and discussed with the trainers supervised. Any immediate corrective action(s) taken and further action(s) needed must be entered in the spaces provided.

The trainers supervised must be given an opportunity to comment and the comments must be entered in the appropriate space. The form must be dated and signed by the trainer and the supervisor. It is then filed in the trainer's file for future follow-up and reference.

Legend: A = Adequate      NA = NOT adequate      NO = NOT observed

Items	Observed		NO	Comments
	A	NA		
<b>1. <u>Planning of the session</u></b> <ul style="list-style-type: none"> <li>• Relevant sessions plan selected from curriculum</li> <li>• Organization conduct and evaluation of training in conformity with curriculum (based on observation during the session)</li> </ul>				
<b>2. <u>Organizing the session</u></b> <ul style="list-style-type: none"> <li>• Arrive before beginning of session</li> <li>• Ensure that all training resources are in place</li> <li>• Ensure that equipment is in working condition</li> <li>• Ensure that training site is set up in accordance with the requirements of the training objective (s) and methodology</li> <li>• Prepared/rehearsed for the training (based on observation of mastery in conducting activities and using resources during training)</li> </ul>				
Items	Observed		NO	Comments
	A	NA		
<b>3. <u>Conducting the session</u></b> <b>3.1 <u>Introduction</u></b> <ul style="list-style-type: none"> <li>• Introduce oneself <ul style="list-style-type: none"> <li>- Name</li> <li>- Job</li> <li>- Experience relevant to topic</li> </ul> </li> <li>• Introduce/let team members introduce themselves</li> <li>• Module: <ul style="list-style-type: none"> <li>- Introduce topic</li> <li>- Present objective</li> <li>- Clarify topic and objectives</li> <li>- List sessions</li> <li>- Establish linkage with job/task</li> </ul> </li> <li>• Session <ul style="list-style-type: none"> <li>- Introduce topic</li> <li>- Present objectives</li> <li>- Clarify topics and objectives</li> <li>- Establish linkage with module</li> <li>- Establish linkage with preceding</li> </ul> </li> </ul>				

<p>session(s)</p> <ul style="list-style-type: none"> <li>- Explain methodology</li> <li>• Present evaluation methodology</li> <li>• State estimated duration</li> </ul> <p><b>3.2 <u>Facilitation skills</u></b></p> <p>➤ <b><u>Clarifying</u></b></p> <ul style="list-style-type: none"> <li>• Make sure participants are ready before starting on any content item</li> <li>• Make sure participants can hear: <ul style="list-style-type: none"> <li>- Trainer</li> <li>- Other participants</li> </ul> </li> <li>• Make sure participants can see: <ul style="list-style-type: none"> <li>- Writing</li> <li>- Illustrations/ educational aids</li> <li>- Trainer</li> <li>- Each other</li> </ul> </li> <li>• Make sure s/he look at participants</li> <li>• Make sure s/he can hear participants</li> <li>• Use appropriate educational material</li> <li>• Summarize after each content topic item before moving to next topic</li> <li>• Use examples relevant to objectives, content, and participants learning.</li> </ul>				
<b>Items</b>	<b>Observed</b>		<b>NO</b>	<b>Comments</b>
	<b>A</b>	<b>NA</b>		
<p>➤ <b><u>Ensuring Active Participation</u></b></p> <ul style="list-style-type: none"> <li>• Ask participants questions</li> <li>• Allow participants to ask questions</li> <li>• Allow participants to question/discuss/make contributions</li> <li>• Ensure that all participants contribute</li> <li>• Provide participants with opportunities to practice</li> <li>• Adapt to participants' learning capability (speed, learning activities, use of educational material)</li> <li>• Encourage participants through: <ul style="list-style-type: none"> <li>- Listening</li> <li>- Letting participants complete their interventions</li> <li>- Not being judgmental</li> <li>- Maintaining cordial relationships with participants</li> </ul> </li> </ul>				

<p style="text-align: center;">➤ <b><u>Mastering Training</u></b></p> <ul style="list-style-type: none"> <li>• Conduct the learning activities as per session plan</li> <li>• Use the training resources/ materials as per plan</li> <li>• Cover content adequately (relevant, clear, concise, complete, concrete, credible, consistent and correct)</li> <li>• Follow curriculum for learning/training activities</li> <li>• Use content as per curriculum</li> </ul> <p><b>1. <u>Evaluating learning/training process</u></b></p> <ul style="list-style-type: none"> <li>• Check that participants understand</li> <li>• Check that participants learn skills</li> <li>• Provide supportive feedback by: <ul style="list-style-type: none"> <li>- Reinforcing the positive learning</li> <li>- Correcting any errors</li> <li>- Correcting any incomplete learning</li> </ul> </li> <li>• Listen to participants comment about one's performance (without making it personal)</li> <li>• Adapt one's performance based on feedback from participants</li> <li>• Allow participants to answer questions asked by the group.</li> </ul>				
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**Additional comments or observations**

**Analysis of findings**

**Action (s) taken**

**Further action (s) needed**

**Trainer's comments**

**Date:**

**Trainer's name & signature**

**Supervisor's name & signature**

## **Part Two**

### **Training Modules**

## **Module One: Management of overweight/obesity in adults**

### **Module Objectives:**

**At the end of this module the participant will be able to:**

1. Identify cases of adult overweight and obesity
2. Illustrate levels of intervention and management for adult overweight/obesity
3. Explain indications for referral of overweight/obesity to a specialized care service

### **Modules Sessions**

- **Session 1:** Definition, measurement, causes and risk factors of overweight/obesity
- **Session 2:** Goals and levels of intervention including dietary therapy and physical activity
- **Session 3:** Medication or referral for obesity surgery

### **Evaluation/ Assessment**

Questions and answers, participants' summaries, trainer's evaluation

### **Estimated Training Time**

7 hours

## **Module 1**

### **Session 1: Definition, measurements, causes and risk factors of overweight/obesity**

#### **Objectives**

At the end of this session participants will be able to:

1. Define overweight/obesity
2. List six steps in followed in the management of overweight/obesity in adult
3. Demonstrate measurements of overweight and obesity
4. Explain risks of associated diseases
5. Compare between weight loss and fat loss
6. Assess co-morbidities associated with overweight/obesity

#### **Trainers Preparation:**

- Review the reading material and the session plan.
- Prepare the presentation as appropriate and as recommended in the method column of the session plan, or write the information on a flipchart or board where all participants can see it.
- Prepare copies of the reference materials/handouts and exercises.
- Arrange the training room.

#### **Methods and activities**

- Brain storming
- Questions and answers
- Discussion
- Demonstration, Re demonstration.

#### **Evaluation/assessment**

Questions and answers, trainer's observation

#### **Estimated Time**

220 minutes

## Session Plan

Objectives	Content	Methodology
1.1.1 Define overweight and obesity	<ul style="list-style-type: none"> <li>Obesity is abnormal or excessive fat accumulation that presents a risk to health.</li> </ul>	Brain storming 25 minutes
1.1.2 List six steps in followed in the management of overweight/obesity in adult	<ul style="list-style-type: none"> <li>Measure BMI and waist circumference</li> <li>Assess underlying causes and risk factors for overweight/obesity</li> <li>Assess co-morbidities</li> <li>Determine the goals and levels of management</li> <li>Advise for dietary therapy and physical activity</li> <li>Medication or refer for obesity surgery</li> </ul>	Discussion 45 minutes
1.1.3 demonstrate measurements of overweight and obesity	<ul style="list-style-type: none"> <li>BMI : weight (kilograms)/ height (meters)<sup>2</sup></li> <li>Waist circumference measured at the mid-point between the lowest rib and the ileac crest on the umbilicus</li> </ul>	Demonstration, Remonstraton 40 minutes
1.1.4 Compare between weight loss and fat loss	<b>Weight loss</b> is reduction of the total body mass due to a mean loss of fluid, body fat or adipose tissue and/or lean mass, namely bone mineral deposits, muscle, tendon and other connective tissue	Mini lecture 20 minutes
1.1.5 Explain causes and risk factors of obesity	<ul style="list-style-type: none"> <li>Unhealthy diet</li> <li>Environmental factors</li> <li>Genetic factors</li> <li>Stress</li> <li>Medication</li> <li>Certain medical causes</li> </ul>	Brain storming 45 minutes

1.1.6 Assess co-morbidities associated with overweight/obesity	<ul style="list-style-type: none"> <li>• Metabolic consequences a result of increased weight : hypertension, dyslipidemia and type 2 diabetes</li> </ul>	Case Study 45 minutes
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### 1.1.1 Definition of overweight and obesity

Obesity is defined as abnormal or excessive fat accumulation that presents a risk to health.

Obesity occurs when energy intake from food and drink consumption is greater than energy requirements of the body's metabolism over a prolonged period (positive energy imbalance), resulting in the accumulation of excess body fat

### 1.1.2 Six steps for management of overweight/obesity in adults

- **Step one:** Measure BMI and waist circumference
- **Step two:** Assess underlying causes and risk factors for overweight/obesity
- **Step three:** Assess co-morbidities
- **Step four:** Determine the goals and levels of management
- **Step five:** Advice for dietary therapy and physical activity
- **Step six:** Medication or refer for obesity surgery

### 1.1.3 Clinical Measurements of overweight and obesity

There are no perfect measures of overweight and obesity in the clinical situation. At this stage discussion with patient about his/her weight should be done as well as measuring body weight, height, body mass index and waist circumference. It would be more comfortable and relieving for many patients to be given the option of losing weight as a baseline treatment for various metabolic disorders; nevertheless, communication is done

in a non-judgmental attitude.

## Combining BMI and waist measurement to assess overweight and obesity and diseases (type 2 diabetes, hypertension and CVD) risks in adults

	BMI (Kg/m <sup>2</sup> )	Disease risk (relative to normal measures)	
		Waist circumference Men < 102 cm Women < 88 cm	Waist circumference Men >102 cm Women > 88 cm
Normal	< 25		High
Overweight	< 30	Increased	High
Obesity	< 40	High to very high	Very High
Sever Obesity	≥ 40	Extremely high	Extremely High

**Body Mass Index (BMI)** is defined as weight (kilograms)/height (meters)<sup>2</sup>, this measure is used most often; however, it is not always an accurate predictor of body fat or fat distribution.

$$\text{BMI} = \frac{\text{Weight (Kg)}}{\text{Height (m}^2\text{)}}$$

**Waist circumference** measures indirectly visceral fat and is a better predictor of health risk in some circumstances; it is measured at the mid-point between the lowest rib and the iliac crest on the umbilicus; therefore, the most useful absolute indicator of risk and relative change is a combination of BMI and waist circumference (table 1).

### 1.1.4 Differences between weight loss and fat burning

Weight loss, in the context of medicine, health or physical fitness, is reduction of the total body mass due to a mean loss of fluid, body fat or adipose tissue and/or lean mass, namely bone mineral deposits, muscle, tendon and other connective tissue. It can occur unintentionally due to an underlying disease or can arise from a conscious effort to improve an actual or perceived overweight or obese state. Fat is a component of weight. Weight loss might or might not mean fat loss. It can also mean loss of tissue, muscle and water whereas the target should be fat loss which is a harmful component of weight. The least intrusive weight loss methods and those most often recommended are adjustments to eating patterns and increased physical activity, generally in the form of exercise. Physicians will usually recommend that their overweight patients combine a reduction of processed foods and caloric content of the diet with an increase in physical activity

### 1.1.5 Causes and risk factors of obesity

Increased body weight always results from imbalance between energy intake (food) and energy expenditure (metabolism, thermogenesis, and physical activity) thus history covering risk factors and causes of the overweight and/or obesity is taken from the patient to identify the causative factors. The health worker should assess the following:

- Unhealthy dietary habits like increased intake of energy-dense food but low in vitamins, minerals and other micronutrients
- Environmental factors; Home, work and social environment can influence weight gain and the inability to lose weight
- Genetic influences: genetic predisposition may affect weight gain and lost. The presence of parental obesity and an early age of onset (e.g. <7 years) can be indications of genetic influences
- Stress may need to be considered as a factor that can cause either weight gain or weight loss, depending on the patient's reaction to stress
- Prescription medications can exacerbate weight gain (in particular, benzodiazepines, corticosteroids, anti-psychotics, tricyclic antidepressants, anti-epileptics, sulphonylurea , and insulin)
- Certain medical conditions (such as hypothyroidism and Cushing syndrome) are known causes of overweight.

### 1.1.6 Co-morbidities associated with overweight/obesity

There are several co-morbidities associated with overweight/obesity which are either caused by metabolic complications or excess in body weight itself.

Weight loss has beneficial effect in reducing:

- High blood pressure in those with hypertension
- Elevated blood glucose in those with type 2 diabetes
- Adverse levels of blood lipids and triglycerides in those with dyslipidemia

In addition improving both self – esteem and quality of life. (Table 2)

**Table 2: Diseases and conditions associated with obesity**

<b>Relative Risk</b>	<b>Associated with metabolic consequences</b>	<b>Associated with excess weight</b>
Greatly increased risk (RR>3)	<ul style="list-style-type: none"><li>• Type 2 diabetes</li><li>• Gall bladder diseases</li><li>• Hypertension</li><li>• Dyslipidemia</li><li>• Insulin resistance</li><li>• Non – alcoholic steatohepatitis (fatty liver)</li></ul>	<ul style="list-style-type: none"><li>• Sleep apnea</li><li>• Breathlessness</li><li>• Asthma</li><li>• Social isolation and depression</li><li>• Day – time sleepiness and fatigue</li></ul>
Moderately increased (RR 2-3)	<ul style="list-style-type: none"><li>• Coronary heart disease</li><li>• Stroke</li><li>• Gout/hyperuricemia</li></ul>	<ul style="list-style-type: none"><li>• Osteoarthritis</li><li>• Respiratory disease</li><li>• Hemia</li><li>• Psychological problems</li></ul>
Slightly increased (RR 1-2)	<ul style="list-style-type: none"><li>• Cancer (breast, endometrial, colon and others)</li><li>• Reproductive abnormalities/impaired fertility</li><li>• Polycystic ovaries</li><li>• Skin complications</li><li>• Cataract</li></ul>	<ul style="list-style-type: none"><li>• varicose veins</li><li>• musckloskeletal problems</li><li>• bad pack</li><li>• stress incontinence</li><li>• Odema/cellulitis</li></ul>

Adapted from Australian Guideline for general practitioners

## 1.1.6 Case Study

### Presentation

A 52-year-old woman with obesity and a 9 year history of type 2 diabetes presents with complaints of fatigue, difficulty losing weight, and no motivation. She denies polyuria, polydipsia, polyphagia, blurred vision, or vaginal infections.

She notes a marked decrease in her energy level, particularly in the afternoons. She is tearful and states that she was diagnosed with depression and prescribed an antidepressant that she chose not to take.

She states that she has gained an enormous amount of weight since being placed on insulin 6 years ago. Her weight has continued to increase over the past 5 years, and she is presently at the highest weight she has ever been. She states that every time she tries to cut down on her eating she has symptoms of shakiness, diaphoresis, and increased hunger. She does not follow any specific diet and has been so fearful of hypoglycemia that she often eats extra snacks.

Her health care practitioners have repeatedly advised weight loss and exercise to improve her health status. She complains that the pain in her knees and ankles makes it difficult to do any exercise.

Her blood glucose values on capillary blood glucose testing have been 170–200 mg/dl before breakfast. Before supper and bedtime values range from 150 mg/dl to >300 mg/dl. Her current insulin regimen is 45 U of NPH plus 10 U of regular insulin before breakfast and 35 U of NPH plus 20 U of regular before supper. This dose was recently increased after her HbA<sub>1c</sub>, was found to be 8.9% (normal <6.1 %).

Past medical history is remarkable for hypertension, hypertriglyceridemia, and arthritis. Current medications include only insulin, lisinopril, and hydrochlorothiazide with triamterene.

On physical exam, her height is 165 cm and her weight is 110 kg. Her blood pressure is 160/88 mmHg. The remainder of the physical exam is unremarkable.

On laboratory testing, chemistries, BUN, creatinine, and liver function tests are normal. Thyroid function tests and urine microalbumin are also normal.

After an explanation that the increasing insulin doses were contributing to her weight gain and that she would need to decrease her insulin dose along with her food intake to prevent hypoglycemia, the patient agreed to follow a restricted-calorie diet and to decrease her insulin to 30 U of NPH and 10 U of regular insulin twice daily. As she had no contraindications to metformin (Glucophage), she was also started on 500 mg orally twice daily.

She returned to clinic 3 months later, still on the same dose of insulin. She was feeling a little less depressed. She continued to complain of fear of hypoglycemia in the middle of the night and was overeating at night. Despite this she had lost 7 lb. Her blood glucose values were still elevated in a range of 120–275 mg/dl before meals.

She was reassured that further insulin reduction would prevent hypoglycemia. Her insulin dosage was decreased to 25 U of NPH and 5 U of regular insulin twice daily and metformin was increased to 500 mg three times daily. Two months later, she returned to the clinic with an average blood glucose level of 160 mg/dl. Her weight was now 246 lb, and her HbA<sub>1c</sub> was 7.5%. She was feeling much more energetic, no longer felt depressed, and was able to start a walking program.

## Questions

1. Can individuals on high insulin doses successfully lose weight?
2. How does fear of hypoglycemia contribute to uncontrolled diabetes?
3. Does this patient have depression or symptomatic hyperglycemia?
4. What is a possible approach to obese patients with insulin-treated, poorly controlled type 2 diabetes?

## Commentary

This is a common case that illustrates several issues: high insulin doses contributing to weight gain, fear of hypoglycemia, the similarity of symptoms of depression and hyperglycemia, and the use of combination therapy in type 2 diabetes.

Patients do not often communicate their fear of hypoglycemia and subsequent overeating to their health care providers. When they present with poorly controlled diabetes, practitioners usually increase the insulin dose and advise them to lose weight and exercise. The continual increase in insulin doses to correct hyperglycemia can cause weight gain from cessation of glycosuria, fluid retention, and increased synthesis of fat. When the patient tries to decrease calories, the mismatch of insulin to food intake will result in low blood glucose levels and symptoms of hypoglycemia. The perception of and fear of hypoglycemia is a major problem for individuals treated with insulin, and it is often unrecognized by health care providers.

If insulin doses are not lowered in conjunction with caloric restriction, a cycle begins of hypoglycemia, overeating, further hyperglycemia, increasing insulin requirements, and subsequent weight gain. Even with the use of metformin, which will usually lower insulin requirements, fear of hypoglycemia may persist with increased eating and high blood glucose levels.

The cycle continues as the individual feels exhausted, experiences polyuria, polydipsia, and polyphagia and feels helpless and hopeless. These symptoms can escalate into symptoms of poor self-image, low self-esteem, low energy, difficulty concentrating, and poor self-care. Whether these symptoms represent depression or are a result of severe hyperglycemia is confusing and difficult to determine. There is a high incidence of

depression in individuals with diabetes, and uncontrolled diabetes can contribute to or exacerbate symptoms of depression.

Once this woman was convinced that lowering her insulin dose would prevent hypoglycemia and that this would enable her to decrease calories and lose weight, she was much more adherent to her treatment regimen. The use of metformin may have helped decrease her hunger and insulin requirements and thus assisted in her weight loss. In this case, the patient's symptoms of depression improved with improved blood glucose control, which resulted in increased energy. She was then able to exercise, further reducing her insulin requirements and leading to successful weight loss.

### **Clinical Pearls**

1. When recommending caloric restriction to obese, insulin-treated patients, decrease insulin doses at the same time. When assessing obese, insulin-treated patients with diabetes, ask about symptoms of hypoglycemia and overeating.
2. When accessing obese, insulin-treated patients, decrease insulin doses at the same time.
3. Adding metformin to insulin can help decrease insulin requirements and assist with weight loss.
4. Treating Obesity and hyperglycemia can alleviate symptoms of depression.

## **Module 1**

### **Session 2: Goals and levels of overweight/obesity management.**

#### **Objectives**

At the end of this session participants will be able to:

1. List management goals
2. Describe low caloric diet therapy
3. Explain physical activity therapy
4. List cautions in physical therapy

#### **Trainers Preparation:**

- Review the reading material and the session plan.
- Prepare the presentation as appropriate and as recommended in the method column of the session plan, or write the information on a flipchart or board where all participants can see it.
- Prepare copies of the reference materials/handouts and exercises.
- Arrange the training room.

#### **Methods and activities**

- Discussion
- Lecture – discussion
- Mini lecture
- Brain storming

#### **Evaluation/assessment**

Questions and answers, trainer's observation

#### **Estimated Time**

2 hours

Objectives	Content	Methodology
1.2.1 List management goals	<ul style="list-style-type: none"> <li>• Improve health</li> <li>• Reduce risks of associated diseases</li> <li>• Achieving waist circumference of <math>\leq</math> 88 cm for women , men <math>\leq</math> 102 cm.</li> <li>• Achieving 5% - 10% weight loss of initial body weight</li> </ul>	Discussion 35 minutes
1.2.2 Describe low caloric diet therapy	<p>Low caloric diet:</p> <ul style="list-style-type: none"> <li>• Females 1200 calories Males 1600 calories.</li> <li>• Contains nutrients that will decrease other risks factor</li> <li>• Reduces total body weight: 8% over a period of 6 months</li> </ul>	Mini lecture 25 minutes
1.2.3 Explain Physical activity therapy	<ul style="list-style-type: none"> <li>• Weight loss is about 2 – 7 kg in 6 months</li> <li>• Weight loss is relatively slow</li> <li>• Maintaining weight loss is greatly enhanced.</li> <li>• Exercise performed: 10 – 30 minutes 3 – 5 days a week.</li> </ul>	Brain storming 40 minutes
1.2.4 List key points in exercise therapy	<ul style="list-style-type: none"> <li>• Proper warm-up and cool-down</li> <li>• the use of athletic shoes with thick soles is recommended</li> <li>• Exercise should begin at mild intensity and for a short period of time</li> <li>• Exercise for patients with comorbidities should be designed individually and under supervision</li> </ul>	Questions and answers 20

### 1.2.1 Management of overweight/obesity goals

Weight loss management is recommended for

- Patients with BMI  $\geq 25$  (Kg/M<sup>2</sup>) with or without co-morbidities.
- Patients with high risk waist circumference with or without co-morbidities.

Improvements in health should be the main goal of any weight loss program. To reduce the risk of disease, men should aim for a long-term waist circumference of less than 102 centimeters and women for less than 88 centimeters. Achieving a 5 to 10% loss of initial body weight can result in significant improvements in metabolic health. Other achievable short and long term goals, including process goals (such as reduction of food/fat intake, number of steps walked), should be determined in consultation with the patient.

There is no single, best management strategy for long-term weight loss. All successful long-term weight management programs involve some form of lifestyle modification that either reduces an individual's energy intake and/or increases his or her energy expenditure (more physical activity), creating a net energy deficit; However, in many individuals, behavior modification, very low energy diets, pharmacotherapy and/or surgery can be useful adjuncts to lifestyle modification and can significantly improve the success rate over lifestyle changes alone.

Interventions According to The Stage of Overweight/Obesity			
BMI classification	Waist Circumference		Co- morbidities present
	Men < 102 cm Women < 88 cm	Men > 102 cm Women > 88 cm	
Overweight 25 - 30 kg/m <sup>2</sup>			
Obesity I > 30 kg/m <sup>2</sup>			
Obesity II > 35 kg/m <sup>2</sup>			
Obesity III ≥ 40 kg/m <sup>2</sup>			

General advice on healthy weight and lifestyle.

Diet and physical activity.

Diet and physical activity; consider drugs.

Diet and physical activity; consider drugs; consider surgery.

### 1.2.2 Describe low caloric diet therapy

Low-calorie diet (LCD) provides 1200 - 1600 kcal of energy daily, many of these LCDs also promote low fat intake as a practical way to reduce calories. The recommended LCD contains a nutrient composition that will decrease other risk factors. LCDs can reduce total body weight by an average of 8 percent and help reduce abdominal fat content over a period of approximately 6 months. When weight loss occurs, the loss consists of about 75 percent fat and 25 percent lean tissue. A deficit of 500-1,000 kcal/day will produce a weight loss of 70-140 grams/day and a deficit of 300-500 kcal/day will produce a weight loss of 40-70 grams/day. A patient may choose a diet of 1,200 kcal for women and 1,600 kcal for men (Annex 1.a, 1.b and 1.c).

• **Avoid:**

- Fried food
- Take away and fast foods
- Foods high in sugar or saturated fats
- Drinks and confectionery high in added sugar
- Minimize alcohol intake

- **Be aware that:**
  - A return to normal body weight may be difficult
  - A 10% weight loss can be an initial realistic goal
  - For some people, weight maintenance may be a more realistic goal
- **Changing eating habits is challenging**
  - Start with two or three specific changes e.g.:
  - Fruit instead of pudding
  - Olive oil, corn oil or sunflower oil instead of butter
- **Daily intake should be roughly divided into:**
  - One quarter fruit
  - One quarter vegetables
  - One quarter carbohydrates
  - One quarter consisting of: milk and dairy, meat, fish and alternatives, fats and sugary food (smallest portion)

### 1.2.3 Explain Physical activity therapy

The major fraction of daily energy expenditure in the obese comes from their resting metabolism, although exercise can contribute to a substantial portion, lean body mass retention tends to maintain resting metabolic rate. Aerobic exercise enhances the effect of moderate dietary restriction by augmenting the metabolic activity of lean tissue. The combination of moderate energy restriction and either resistance or aerobic exercise induces significant reductions in visceral and subcutaneous adipose tissue and are thus effective means of reducing obesity. The weight loss due to physical exercise is about 2-7kg within short term (6 months). Since many obese individuals are at an increased risk for orthopedic injury, non-weight bearing activities may initially be recommended. Likewise, a variation of exercise modes and modifications in frequency and duration may be required. An intensity of 70% or less of functional capacity or maximal heart rate may be maintained to improve cardiorespiratory endurance. Although weight loss through exercise and modest calorie restriction is slow, the likelihood of achieving successful weight maintenance is greatly enhanced through physical activity. Physical training has been valued in the treatment of obesity for elevating mood, reducing hunger, and improving the likelihood of a successful outcome. It was reported a temporary suppression of the appetite after the initial bouts of a conditioning program. Exercise can result in health and fitness benefits in the obese independent of weight loss. An increase of fitness can decrease the risk of cardiovascular disease, hypertension, insulin resistance, metabolic abnormalities and type 2 diabetes even if no weight loss is observed. Specifically, patients are instructed to engage in aerobic exercises that involve the muscles of the entire body, e.g., walking, jogging, gymnastic exercises, bicycle ergometer, and swimming, with the latter two particularly suitable for obese patients.

Exercise of moderate intensity, generally aiming at pulse rate of 120/min (100/min for patients aged 60–70 years), should be performed for 10–30 min at a time (60 min or more for patients who have sufficient physical strength), at least 3–5 days a week. In regard to exercise intensity, if the patient has no time to carry out a regular exercise regimen, he or she should be instructed to incorporate physical activity into daily life activities, such as using stairs instead of elevators, or getting off the bus one bus stop early and walking to work (Annex 2).

#### **1.2.4 List key points in physical activity**

Exercise alone is not sufficient and needs to be combined with diet therapy.

- Proper warm-up and cool-down should be performed before and after exercise, respectively.
- Since obese patients are likely to suffer injuries to the knee or foot, the use of athletic shoes with thick soles is recommended.
- Exercise should begin at mild intensity and for a short period of time, gradually increase to higher intensity and a longer period.
- Patients should be instructed to eat fruits and vegetables to prevent any increase in free radicals caused by exercise, and vitamins C and E should be administered if necessary.
- Techniques of group therapy and behavior modification therapy should be introduced.
- Exercise for patients with comorbidities should be designed individually and under supervision.

## **Module 1**

### **Session 3: Pharmacotherapy and Surgical therapy for obesity**

#### **Objectives**

1. Explain medications used to treat obesity
2. List criteria of patient selection for surgery
3. List indications of referral to a secondary health care provider

At the end of this session participants will be able to:

#### **Trainers Preparation:**

- Review the reading material and the session plan.
- Prepare the presentation as appropriate and as recommended in the method column of the session plan, or write the information on a flipchart or board where all participants can see it.
- Prepare copies of the reference materials/handouts and exercises.
- Arrange the training room.

#### **Methods and activities**

- Discussion
- Lecture – discussion
- Brain storming
- Questions and answers

#### **Evaluation/assessment**

Questions and answers, trainer's observation

#### **Estimated Time**

80 minutes

## Session plan

Objectives	Content	Methodology
1.3.1 Explain medications used to treat obesity	Pharmacotherapy can be a useful adjunct to lifestyle change for weight loss in patients with a BMI >30 and in patients with a BMI >27 with co-morbidities	Mini lecture 25 minutes
1.3.2 List three criteria of patient selection for surgery	<ul style="list-style-type: none"> <li>• They have a BMI of 40 kg/m<sup>2</sup> or more, or between 35 kg/m<sup>2</sup> and 40 kg/m<sup>2</sup> with other significant disease (for example, type 2 diabetes or high blood pressure) that could be improved if they lost weight</li> <li>• All appropriate non-surgical measures have been tried but have failed to achieve or maintain adequate, clinically beneficial weight loss for at least 6 months</li> <li>• The person has been receiving or will receive management in a specialist obesity service</li> </ul>	Discussion 25 minutes
1.3.3 List indications of referral to a secondary health care provider	<ul style="list-style-type: none"> <li>• Presence of clinical indications of underlying medical causes</li> <li>• Previous attempts of weight loss, evidence of having participated in at least 6 different weight interventions, each for at least 3 months.</li> </ul>	Brain storming 30 minutes

### 1.3.1 Explain medications used to treat obesity

Pharmacotherapy can be a useful adjunct to lifestyle change for weight loss in patients with a BMI >30 and in patients with a BMI >27 with co-morbidities.

**Orlistat (Xenical):** is a drug designed to treat obesity. Its primary function is preventing the absorption of fats from the human diet, thereby reducing caloric intake. It is intended to use in conjunction with a physician supervised reduced calorie diet. The amount of weight loss achieved with orlistat varies. Main side effects are steatorrhea, flatus and fecal incontinence, contra indicated in malabsorption, gall bladder disease, pregnancy and lactation.

**Lorcaserin (Belviq):** is a selective 5-HT<sub>2C</sub> receptor agonist, promote weight loss through satiety. it induce 5-10% weight loss. Side effects include nausea, headache, sinusitis, pharyngitis.

**Phentermine and topiramate combination (Qsymia):** Phentermine is an appetite suppressant and stimulant of the amphetamine and phenethylamine class. Topiramate is an anticonvulsant that has weight loss side effects, and has been found to lower blood pressure and cholesterol, its main side effects are dry mouth and constipation.

**Sibutramine:** is an oral anorexiant a centrally-acting serotonin-norepinephrine reuptake inhibitor structurally related to amphetamines. Not in use now because of its cardiovascular side effects.

Surgery is indicated for patients with a BMI greater than 40, or with a BMI greater than 35 and serious medical co-morbidities, although it is increasingly being used successfully in patients with body mass indices lower than this (Annex)

As the skills and time required to deal with overweight and obese patients vary, clinicians should seek assistance from health professionals in other disciplines with specialist knowledge in obesity management such as dietitians, exercise physiologists and specialist physicians.

### 1.3.2 List criteria of patient selection for surgery

Bariatric surgery is recommended as a treatment option for adults with obesity if all of the following criteria are fulfilled:

- They have a BMI of 40 kg/m<sup>2</sup> or more, or between 35 kg/m<sup>2</sup> and 40 kg/m<sup>2</sup> and other significant disease (for example, type 2 diabetes or high blood pressure) that could be improved if they lost weight
- All appropriate non-surgical measures have been tried but have failed to achieve or maintain adequate, clinically beneficial weight loss for at least 6 months

- The person has been receiving or will receive intensive management in a specialist obesity service
- The person is generally fit for anesthesia and surgery
- The person commits to the need for long-term follow-up.

### 1.3.3 List indications of referral to a secondary health care provider

- 1- Presence of clinical indications of underlying medical causes:
  - Poorly controlled diabetes despite optimal therapy.
  - Risk of CVD.
  - Established CVD on optimum secondary prevention.
  - Poorly controlled hypertension on 3 or more agents (persistent hypertension above 150/90 mmHg).
  - Sleep apnea.
  - Established significant joint disease.
  - Respiratory disease (significant dyspnea, asthma, etc.).
- 2- Previous attempts of weight loss, evidence of having participated in at least 6 different weight interventions, each for at least 3 months.

## Module 2: Overweight/Obesity in Children and Adolescent

### Module Objectives:

**At the end of this module the participant will be able to:**

1. Explain the difference between adult and childhood overweight/obesity
2. Identify the six steps to be followed in the management of overweight/obesity in children and adolescents

### Modules Sessions

- **Session 1:** Significance of overweight/obesity in children and adolescent
- **Session 2:** Assessment of children and adolescent overweight/obesity
- **Session 3:** Goals and levels of management

### Evaluation/ Assessment

Questions and answers, participants' summaries, trainer's evaluation

### Estimated Training Time

7 hours

## **Module 2**

### **Session 1: Significance of Overweight/Obesity in Children and Adolescent**

#### **Objectives**

At the end of this session participants will be able to:

1. Define obesity in children/adolescent.
2. Explain significance of obesity in children/adolescent
3. List 6- step guide to Clinical Management of Obesity in children/adolescents.
4. Identify differences between adult and adolescent or children obesity

#### **Trainers Preparation:**

- Review the reading material and the session plan.
- Prepare the presentation as appropriate and as recommended in the method column of the session plan, or write the information on a flipchart or board where all participants can see it.
- Prepare copies of the reference materials/handouts and exercises.
- Arrange the training room.

#### **Methods and activities**

- Brain storming
- Discussion
- Questions and Answers
- Mini Lecture

#### **Evaluation/assessment**

Questions and answers, trainer's observation

#### **Estimated Time**

2 hours

## Session plan

Objectives	Content	Methodology
2.2.1 Define obesity in children and adolescent	<ul style="list-style-type: none"> <li>• An excess amount of <b>body fat</b> based on BMI-modified for: age, pubertal stage, gender. Or</li> <li>• <b>Body weight</b> at least 20% higher than the healthy weight range for a child or adolescent of that height <b>or body fat</b> percentage above 25% in boys, 32% in girls.</li> </ul>	Brain storming 35 minutes
2.1.2 Explain significance of obesity in children and adolescent	<ul style="list-style-type: none"> <li>• About 15% adolescents (12-19), children (6-12) years, 7% school age are obese.</li> <li>• They have: raised serum lipids, blood pressure, glucose, insulin.</li> <li>• <b>Increased left ventricular mass</b> compared with healthy children.</li> <li>• More likely to be obese as adults.</li> </ul>	Discussion 25 minutes
2.1.3 List 6- step guide to Clinical Management of Obesity in children and adolescents.	<ul style="list-style-type: none"> <li>• Assess the extent of obesity child/adolescent.</li> <li>• Assess co-morbidities, treat independently.</li> <li>• Assesses the occurrence of imbalance.</li> <li>• Determine levels, goals of required intervention.</li> <li>• Advice for treatment strategy.</li> <li>• Regular assistance for weight management, maintenance.</li> </ul>	Mini lecture 35 mintues
2.1.4 Identify differences between adult and children/adolescents overweight.	<ul style="list-style-type: none"> <li>• BMI should be expressed as a BMI centile in relation to age, sex-matched population.</li> <li>• Dietary, energy restriction, increase activity, decrease in sedentary behavior <b>must not compromise</b> normal growth, development.</li> </ul>	Questions and Answers 25

### 2.1.1 Definition of Obesity in Children and adolescent

Obesity means an excess amount of body fat. No general agreement exists on the lowest definition of obesity in children and adolescents, unlike standards for adults.

Nevertheless, most professionals accept published guidelines based on the body mass index (BMI) -- modified for age, pubertal stage, and gender -- to measure obesity in children and adolescents. Others define pediatric obesity as body weight at least 20% higher than the healthy weight range for a child or adolescent of that height.

### 2.1.2 Significance of obesity in children and adolescent

Although rare in the past, obesity is now among the most widespread medical problems affecting children and adolescents living in the United States and other developed countries. About 15% of adolescents (12-19 years of age) and children (6-11 years of age) are obese in the United States according to the American Obesity Association. These numbers have continued to increase since at least the early 1990s. Pediatric obesity represents one of our greatest health challenges.

Obesity has a profound effect on a patient's life. Obesity increases the patient's risk of numerous health problems, and it also can create emotional and social problems. Obese children are also more likely to be obese as adults, thereby increasing their lifelong risk of serious health problems such as heart disease and stroke.

If your child or teenager is overweight, further weight gain can be prevented. Parents can help their children keep their weight in the healthy range.

### 2.1.3 Six step guide to clinical management of obesity in children and adolescent

- **Step one:** Assess the extent of overweight/obesity in the child or adolescent
- **Step two:** Assess co-morbidities associated with overweight/obesity, and treat them independently where appropriate.
- **Step three:** Assess why and how energy imbalance has occurred
- **Step four:** Determine the level of clinical intervention required and treatment goals with the patient and family
- **Step five:** Advice for treatment strategy, including outcome indicators not related to weight
- **Step six:** Review and provide regular assistance for weight management and maintenance.

## 2.1.4 Identify Differences between overweight/obesity in adult and children

Obesity in children is different from obesity in adults in some important aspects:

- First, BMI cannot be used in isolation; instead it should be expressed as a BMI centile in relation to age- and sex-matched population
- Second, when considering the prevention and treatment of childhood obesity, dietary and energy restriction, increase in activity and decrease in sedentary behavior must not compromise normal growth and development.

Therefore, weight maintenance is often a suitable goal, rather than weight loss.

Gradual, measured and sustainable weight loss may be an appropriate target in some cases when the degree of obesity is more severe. More dramatic weight loss goals may be appropriate for post pubertal teenagers with extreme obesity.

A child who is overweight should also be monitored. If a child's weight is consistently above the curved lines on the growth chart, and the height of the child is not above average (children who are much taller than average will probably also show weights above the curved lines), the cause should be investigated.

## **Module 2**

### **Session 2: Assessment of Children and Adolescent Overweight/Obesity**

#### **Objectives**

At the end of this session participants will be able to:

1. Demonstrate measurements of obesity
2. Assess causes of obesity
3. Assess risk factors of obesity
4. Assess co-morbidities of children and adolescent obesity

#### **Trainers Preparation:**

- Review the reading material and the session plan.
- Prepare the presentation as appropriate and as recommended in the method column of the session plan, or write the information on a flipchart or board where all participants can see it.
- Prepare copies of the reference materials/handouts and exercises.
- Arrange the training room.

#### **Methods and activities**

- Discussion
- Demonstration
- Mini lectures
- Brain storming

#### **Evaluation/assessment**

Questions and answers, trainer's observation

#### **Estimated Time**

100 minutes

## Session plan

Objectives	Content	Methodology
2.2.1 Demonstrate weight measurements in children.	<ul style="list-style-type: none"> <li>• Height/length: fixed wall stadiometer. <b>To the nearest millimeter.</b></li> <li>• Weight: by standing on scales. To the nearest <b>0,1kilogram.</b></li> <li>• Look, ask for pubertal abnormalities, refer if indicated.</li> </ul>	Demonstration 35 minutes
2.2.2 List five co-morbidities of children and adolescent obesity	<ul style="list-style-type: none"> <li>• High blood pressure.</li> <li>• Type 2 diabetes.</li> <li>• Orthopedics problems.</li> <li>• Reproductive morbidities.</li> <li>• Psychosocial distress.</li> </ul>	Questions and Answers. 20 minutes
2.2.3 Explain risk factors of children and adolescent obesity.	<ul style="list-style-type: none"> <li>• Genetic factors.</li> <li>• Family, school, social environments</li> <li>• Medical conditions.</li> <li>• Congenital Syndromes.</li> <li>• Medical treatments.</li> </ul>	Discussion. 25 minutes
2.2.4 Describe five causes of children and adolescent obesity.	<ul style="list-style-type: none"> <li>• Hours of watching television, other small screen entertainment.</li> <li>• Eating in front of TV.</li> <li>• Use of food as a reward or comfort.</li> <li>• Amount of food eaten at a meal.</li> <li>• Hunger and request of food.</li> </ul>	Brain storming 20 minutes

### 2.2.1 Weight measurements in children

The initial physical examination should include measurements of height/length and weight.

- Height/length: There should be a fixed wall stadiometer and the measurement should be to the nearest millimeter.
- Weight: Is measured by standing on scales. It should be to the nearest 0.1 kilogram.
- Look and ask for any pubertal abnormalities and refer to a specialist if indicated.

It can be determined whether a child or adolescent is overweight or obese by using the growth chart. Child with a BMI for age above + 2 SD suggests overweight and above + 3 SD suggests obesity. There are no definitions of obesity and overweight for children less than 2 years of age.

### 2.2.2 List five co-morbidities of children and adolescent obesity

Look for the following:

- High blood pressure: Obese children are at approximately three times greater risk of hypertension than non-obese children.
- Dyslipidemia
- Type 2 diabetes: becoming more common in adolescents
- Orthopedics problems: slipped capital epiphysis is the most serious one.
- Respiratory conditions: These include obstructive sleep apnea.
- Reproductive morbidities: Such as menstrual irregularities
- Psychosocial distress: By the age of seven years, children may already be experiencing teasing and social isolation as a result of their obesity.
- Other morbidities

### 2.2.3 Risk factors of children and adolescent obesity.

Not all risk factors can be modified; factors that may influence treatment strategies should be assessed by the clinician. Risk factors include the following:

- **Genetic influence:** Two indicators are suggestive of a genetic predisposition and patients should be referred for specialist assessment :
  - Severe/morbid obesity in first-degree relatives.
  - Rarely very early-onset
- **Family, school and social environments** can influence weight gain and the inability to lose weight.

- **Medical conditions:** There is an association between obesity and number of endocrine disorders (e.g. hypothyroidism, Cushing's disease, growth hormone deficiency or resistance, hypophosphatemic rickets, and pseudohypoparathyroidism). These disorders are characterized by height-growth failure.
- Numbers of **congenital syndromes** have obesity as a component with intellectual impairment and multiple physical abnormalities as common features. Examples include Prader–Willi, Bardet–Biedl and Cohen syndromes.
- Medical treatments: e.g. steroids, psychoactive agents and other drugs.

#### 2.2.4 Causes of children and adolescent obesity.

The components that lead to energy imbalance like eating and exercise behaviors are difficult to measure accurately in children and adolescents; the following questions may give an indicator about the life style and how energy imbalance has occurred:

- Hours of watching television and other small-screen entertainment
- Time spent in organized physical activity
- Opportunities for participating in activity
- Parental activity and inactivity
- Level of activity compared with peers
- Hunger and requests for food
- Eating in front of TV
- Meal patterns
- Snack choices
- Amount of food eaten at a meal, for example, compared to parent
- Use of food as a reward or comfort

#### Television Watching

Television watching has been demonstrated to be linked to the onset of obesity. The more TV one watches, the greater the degree of obesity. TV watching leads to childhood obesity and excess weight in adults. One clinical study of 4,771 adult women examined the relationship between time spent watching TV per week and obesity.

There are several psychological effects of watching TV that promote obesity. TV watching reduces physical activity. It was also found to lower the resting (basal) metabolic rate to a level similar to that experienced during trancelike states.

We response to external stimuli such as light, smell and taste of food which can trigger almost addictive tendencies to eating. We are constantly bombarded by advertising and one of the biggest culprits is television. Around meal times, advertisers promote their fast

food product, which triggers memories of sweet, fat, and other stimulatory tastes. Trance like effect that is created by TV watching leaves the brain thinking, it needs something and not knowing exactly what it wants, it decides that food is the easiest answer.

People who watch a lot of TV also happen to do least amount of exercise (couch potatoes). All these factors contribute to obesity and weight gain.

## **Module 2**

### **Session 3: Goals and Levels of Management**

#### **Objectives**

At the end of this session participants will be able to:

1. Determine levels of clinical interventions required
2. Identify management targets and goals
3. Recognize six successful outcomes, other than change in body weight.
4. Discuss treatment strategy with the child and the family
5. Explain providence of regular assistance and for weight management and maintenance
6. List six indications for referral to a secondary health care provider

#### **Trainers Preparation:**

- Review the reading material and the session plan.
- Prepare the presentation as appropriate and as recommended in the method column of the session plan, or write the information on a flipchart or board where all participants can see it.
- Prepare copies of the reference materials/handouts and exercises.
- Arrange the training room.

#### **Methods and activities**

- Discussion
- Role play
- Mini lectures
- Brain storming

#### **Evaluation/assessment**

Questions and answers, trainer's observation

#### **Estimated Time**

200 minutes

## Session plan

Objectives	Content	Methodology
2.3.1 Determine levels of clinical interventions required 35 minutes	<ul style="list-style-type: none"> <li>• Conventional weight management strategies.</li> <li>• Weight management strategies for extreme degrees of obesity, associated with co-morbidity.</li> </ul>	Discussion
2.3.2 Identify management targets and goals 25 minutes	<ul style="list-style-type: none"> <li>• Weight maintenance/relative weight loss.</li> <li>• Management of adolescents with no or limited height growth potentials.</li> <li>• Absolute weight loss, if BMI above +3SD, obesity-related medical co-morbidity.</li> <li>• Target: 0,5-1,0kg/month with the lower range for children and the upper range for adolescents.</li> </ul>	Case Study
2.3.3 Recognize six successful outcomes other than change in body weight. 45 minutes	<ul style="list-style-type: none"> <li>• Changed eating behavior.</li> <li>• Reduced hunger, food demands.</li> <li>• Increased capacity for self-regulation.</li> <li>• Improved exercise capacity, endurance.</li> <li>• Improved self-esteem, confidence.</li> <li>• Improved family support.</li> </ul>	Role play
2.3.4 Discuss treatment strategy with the child and the family 45 minutes	<ul style="list-style-type: none"> <li>• Reducing energy intake.</li> <li>• Increasing energy expenditure.</li> <li>• Pharmacotherapy.</li> <li>• Surgery.</li> </ul>	Case Study
2.3.5 Explain providence of regular assistance for weight management and	Obesity management is a long term commitment. Don't expect rapid changes.	Mini lecture

maintenance 25 minutes	Check weight every month. Measure height every -3 months.	
2.3.6 List six indications for referral to a secondary health care provider 25 minutes	<ul style="list-style-type: none"> <li>• Obesity above + 3 SD.</li> <li>• Suspected secondary cause of obesity.</li> <li>• Suspected single gene defect.</li> </ul> Short stature. <ul style="list-style-type: none"> <li>• Intellectual disability.</li> <li>• Presence of other co-morbidities.</li> </ul>	Brain storming

### 2.3.1 Levels of clinical interventions required

Children and adolescents above +2 SD should be considered for intervention, particularly if obesity related co-morbidity is present.

In general, weight loss diets are not recommended for most children and many adolescents. **Weight maintenance during growth will create a relative weight loss that will allow a satisfactory weight to be reached.**

Parents should be involved in the management of overweight/obesity in children and adolescents.

#### Levels of intervention Include:

- Conventional weight management strategies such as avoid high caloric food items, increase energy expenditure, modify behavior, and involve the family in the process of change.
- For extreme degrees of obesity and associated co-morbidity, particularly in adolescents, other weight management strategies (e.g. pharmacotherapy and surgery) can be considered.

### 2.3.2 Identify management targets and goals

On the basis of weight-loss recommendations, a reasonable weight-loss goal for children and adolescents would be a BMI below the 2 SD.

Main goals to reach that target:

- Weight maintenance/relative weight loss: Absolute weight loss is generally not necessary in children and many adolescents. In these groups, weight maintenance

during height growth will create a relative weight loss that will allow a satisfactory weight to be reached.

- Adolescents with no or limited height-growth potential will need to lose absolute weight to reduce fatness
- Consideration should be given to absolute weight loss in children if they have a BMI well above + 3SD and/or obesity-related medical co-morbidity, which might be expected to respond to a more rapid weight change.
- Half to one kilogram per month is an achievable goal, with the lower range for children and the upper range for adolescents.

### **2.3.3 Successful outcomes other than change in body weight.**

Success can also be measured by several outcomes other than change in body weight. For example:

- Changed eating behavior
- Reduced hunger and demands for food
- Increased capacity for self-regulation
- Increased participation in regular, enjoyable physical activity
- Improved exercise capacity and endurance
- Reduced sedentary hours
- Improved self-esteem and confidence
- Improved family support (life style changes in type of food and exercise) and education about metabolic risk factors (cholesterol, triglyceride, glucose, blood pressure).

### **2.3.3 Role Play**

- 1- Using volunteer participants, create a 5-minute role play demonstrations of each of the following:
  - Session- discussing successful outcomes other than change in body weight.
- 2- Do not tell the participants what this demonstration represents
- 3- Ask participants to observe the subject and the process of the demonstration

### **Discussion in plenary session**

- 1- Lead discussions by asking participants to present their observations about the distinguishing elements:
  - Objective
  - Process
- 2- Write the observation on newsprint

3- If using chalkboard, do not erase any point until end of discussion and consensus

### **Summary for Evaluation**

- Trainers ask participants to summarize content of objectives 3, 4.
- If correct and complete, reinforce
- If incorrect and incomplete
- After 2 or 3 trials, corrects/complete as needed.
- Explain that the following parts of the session will cover the techniques/skills

### **2.3.4 Discuss treatment strategy with the child and the family**

The conventional components of weight management in children and adolescents are the same as those for adults. They include:

- **A reduction in energy intake** by modifying the energy-dense components of the diet, and avoiding high energy food items.
  - Reducing the serving or portion size
  - Encouraging different eating patterns (e.g. slowing the rate of eating and limiting the time and place of eating).
  - Three meals and three snacks, with an emphasis on healthy snack choices
  - Change the meal composition (with more vegetables, fruits and fibers).
  - It is essential that in a period of rapid growth, such as childhood and adolescence, intakes of vitamins and minerals, such as iron or calcium, are not compromised.
- **An increase in energy expenditure** through an increase in both planned and lifestyle activity, there are at least three types of activity to explore:
  - Structured organized activities such as sporting clubs, swimming lessons and youth clubs.
  - Less structured activities such as outdoors sports family walks, long bike rides
  - Lifestyle activities such as walking part or all of the way to school, using stairs, doing chores around the house.

Additional weight-management strategies used for severe degrees of obesity and associated co-morbidity, particularly in adolescents, it may be necessary to consider other weight management strategies as well as those interventions described above.

## Case study:

5 years old female child presented with excessive gaining of weight. She is a product of cesarean section with birth weight of 4.8Kg, normal postnatal checkup. She was breast fed for the first 2 months then changed to bottle feeding , her development is within normal apart from some delay in walking in comparison to her peers. The mother noticed increment in her daughter weight started after her 2<sup>nd</sup>. birthday , moreover , she is calm , shy unwell to play with her peers , enjoying watching TV while she is taking snacks .The family history is positive for obesity and hypertension.

On physical examination: she looks overweight, calm. Vital signs are normal. Anthropometric measurements: weight = + 3SD, height on 25 percentile, waist circumference = 75cm. other systemic examination are apparently normal.

On discussing the problem with the parent they have the will to control their daughter weight so as herself.

So before putting the plan for treatment , the pediatrician recommend a cascade of investigations to exclude secondary causes for obesity.

During the second set and after revealing the results of investigations, The pediatrician discuss the goal of the treatment and the plan of action with the parents. So he recommends to put the child on low caloric healthy diet with encouraging exercise and changing the life style of the child as well as the family, to enhance the psychological support to the child.

The parent was curious about pharmacotherapy as adjuvant treatment but the pediatrician doesn't agree with such therapy for the time being.

### **2.3.5 Explain providence of regular assistance for weight management and maintenance**

Obesity management in children and adolescents is a long-term commitment. Do not expect rapid changes. It would be appropriate to check the patient's weight every month for both weight maintenance and the management of weight loss. Height could be measured every three months. If weight maintenance is the goal, this allows time for adjustments to diet and activity to have an effect if weight is found to be increasing. If weight loss is the goal, the rate of weight loss should be determined monthly.

### **2.3.6 Indications for referral to a secondary health care provider**

- Obesity above +3 SD.
- Suspected secondary cause of obesity
- Suspected single-gene defect.
- Short stature
- Abnormal physical stigmata
- Intellectual disability
- Visual disturbance and headache (central nervous system lesion)
- Height-growth abnormalities.
- Presence of other co-morbidities.

## **Module Three: Obesity in Pregnancy and Elderly**

### **Module Objectives:**

**At the end of this module the participant will be able to:**

1. Identify cases of adult overweight and obesity
2. Illustrate levels of intervention and management for adult overweight/obesity
3. Explain indications for referral of overweight/obesity to a specialized care service

### **Modules Sessions**

- **Session 1:** Obesity in pregnancy and elderly
- **Session 2:** Prevention of obesity in different age groups

### **Evaluation/ Assessment**

Questions and answers, participants' summaries, trainer's evaluation

### **Estimated Training Time**

9 hours

## **Module 3**

### **Session 1: Obesity in pregnancy and elderly**

#### **Objectives**

At the end of this session participants will be able to:

1. Introduction of preconception health
2. Explain consequences of maternal obesity on the mother
3. Explain consequences of maternal obesity on the fetus
4. Identify extra food intake requirement during pregnancy
5. Identify sequences and effect of obesity in elderly

#### **Trainers Preparation:**

- Review the reading material and the session plan.
- Prepare the presentation as appropriate and as recommended in the method column of the session plan, or write the information on a flipchart or board where all participants can see it.
- Prepare copies of the reference materials/handouts and exercises.
- Arrange the training room.

#### **Methods and activities**

- Brain storming
- Questions and answers
- Discussion
- Demonstration, Re demonstration.

#### **Evaluation/assessment**

Questions and answers, trainer's observation

#### **Estimated Time**

160 minutes

## Session Plan

Objectives	Content	Methodology
3.1.1. introduction to preconceptions health 30 minutes	Preconception care any intervention provided to women of childbearing age, regardless of pregnancy status or desire, before pregnancy, to improve health outcome for women, newborns and children.	Discussion
3.1.2 Explain consequences of maternal obesity on the mother 25 minutes	<ul style="list-style-type: none"> <li>• Gestational diabetes mellitus</li> <li>• Pre-eclampsia</li> <li>• Increase in obstetrical intervention such as caesarean section and induction of labor</li> </ul>	Questions and Answers
3.1.3 list four consequences of maternal obesity on the fetus 25 minutes	Maternal obesity may result in any of the following: <ul style="list-style-type: none"> <li>• Neural tube defects</li> <li>• Large for dates</li> <li>• Preterm delivery</li> <li>• Shoulder dystocia</li> </ul>	Questions and answers
3.1.4 Identify extra food intake requirement during pregnancy 40 minutes	<ul style="list-style-type: none"> <li>• Inadequate weight gain results in low birth weight</li> <li>• Energy needs increase in the second, and particularly the third, trimesters of pregnancy and during lactation.</li> <li>• As much as possible, extra food intake should not be just staple carbohydrates (e.g., rice or bread) but should contain protein, fat and vitamins (e.g., cheese, beans, eggs).</li> </ul>	Discussion lecture
3.1.5 Identify sequences and effect of obesity in elderly 40 minutes	<ul style="list-style-type: none"> <li>• mortality and morbidity associated with overweight and obesity only increases at a BMI above 30 kg/m<sup>2</sup></li> </ul>	Discussion lecture

### 3.1.1 Preconception care

**Preconception care** any intervention provided to women of childbearing age, regardless of pregnancy status or desire, before pregnancy, to improve health outcome for women, newborns and children.

Preconception care ensure a continuum of healthy women, healthy mothers and healthy children; and promote productive health for couples. Preconception care recognize that many male partner are affected by and contribute to many health issues and risk factors that influence the maternal and child health such as STD. preconception health must reach both partner to promote health of mothers and the newborns.

### 3.1.2 Consequences of maternal obesity on the mother

Maternal obesity based on BMI > 29.9 kg/m<sup>2</sup>, has emerged as an important risk factor in modern obstetrics worldwide. In short term it has been associated with an increase in pregnancy complications such as: gestational diabetes mellitus, pre-eclampsia, congenital malformations and fetal growth abnormalities, and has been associated with an increase in obstetrical intervention such as caesarean section and induction of labor. In the longer term, maternal obesity is associated with increased lifelong risk of childhood obesity for her offspring

### 3.1.3 Consequences of maternal obesity on the fetus

Risks of maternal obesity on the infant or newborn: neural tube defects, large for dates, preterm delivery, shoulder dystocia, increase in birth weight, neonatal hypoglycemia and offspring obese as children and adults.

### 3.1.4 Extra food intake requirement during pregnancy

When energy and other nutrient intake do not increase, the body's own reserves are used, leaving the pregnant woman weakened.

- Inadequate weight gain during pregnancy often results in low birth weight, which increases an infant's risk of dying.
- Energy needs (the amount of calories a woman needs to consume) increase in the second, and particularly the third, trimesters of pregnancy and during lactation.
- As much as possible, extra food intake should not be just staple carbohydrates (e.g., rice or bread) but should contain protein, fat and vitamins (e.g., cheese, beans, eggs).

The recommended amounts of extra food are shown in Table 2 below:

<b>Period of Pregnancy or Breastfeeding</b>	<b>Additional Food Needed Each Day</b>
Second trimester (4th–6th month)	One nutritious snack
Third trimester (7th–9th month)	One additional meal plus one nutritious snack, or three snacks
First six months of breastfeeding	One additional meal or two nutritious snacks
Examples of nutritious snacks	Bread with meat, liver, egg, hummous, lebni or cheese; or a combination of any two of the following: pumpkin, carrots, yoghurt and apricots.

### 3.1.5 Sequences and effect of obesity in elderly

The prevalence of obesity is rising progressively, even among older age groups. Although cut-off values of BMI, waist circumference and percentages of fat mass have not been defined for the elderly (nor for the elderly of different ethnicity), it is clear from several meta-analyses that mortality and morbidity associated with overweight and obesity only increases at a BMI above 30 kg/m<sup>2</sup> ; Thus, management should only be offered to patients who are obese rather than overweight and who also have functional impairments, metabolic complications or obesity-related diseases, that can benefit from weight loss. The weight loss therapy should aim to minimize muscle and bone loss but also vigilance as regards the development of sarcopenic obesity - a combination of an unhealthy excess of body fat with a detrimental loss of muscle and fat-free mass including bone - is important in the elderly, who are vulnerable to this outcome. Life-style intervention

should be the first step and consists of a diet with a 500 kcal (2.1 MJ) energy deficit and an adequate intake of protein of high biological quality together with calcium and vitamin D, behavioral therapy and multi-component exercise. Multi-component exercise includes flexibility training, balance training, aerobic exercise and resistance training. Knowledge of constraints and modulators of physical inactivity should be of help to engage the elderly in physical activity. The role of pharmacotherapy and bariatric surgery in the elderly is largely unknown as in most studies people aged 65 years and older have been excluded.

## **Module 3**

### **Session 2: Prevention of obesity**

#### **Objectives**

At the end of this session participants will be able to:

1. Discuss importance of preventing obesity
2. Explain how to keep healthy diet
3. Explain how to keep active life style

#### **Trainers Preparation:**

- Review the reading material and the session plan.
- Prepare the presentation as appropriate and as recommended in the method column of the session plan, or write the information on a flipchart or board where all participants can see it.
- Prepare copies of the reference materials/handouts and exercises.
- Arrange the training room.

#### **Methods and activities**

- Brain storming
- Questions and answers
- Discussion
- Demonstration, Re demonstration.

#### **Evaluation/assessment**

Questions and answers, trainer's observation

#### **Estimated Time**

70

## Session Plan

<b>Objectives</b>	<b>Content</b>	<b>Methodology</b>
3.2.1 Discuss importance of preventing obesity 10 minutes	<ul style="list-style-type: none"> <li>• According to the national survey in 2006 approximately (63.6%) of adult males and (69.6%) adult females in Iraq were overweight or obese and 11% of children below five years of age and 7% of school age children (6 – 12 years old) are either overweight or obese.</li> <li>• More than 1.4 billion adults were overweight in 2008, and more than half a billion obese</li> <li>• Globally, over 40 million preschool children were overweight in 2008</li> <li>• Curbing the global obesity epidemic requires a population-based multi-sector, multi-disciplinary, and culturally relevant approach</li> </ul>	Mini lecture
3.2.2 Explain how to keep healthy diet 30 minutes	<ul style="list-style-type: none"> <li>• Eat healthy meals and snacks.</li> <li>• focus your meals on starchy foods</li> <li>• Eat plenty of fiber-rich foods</li> <li>• Watch the portion sizes of meals and snacks</li> </ul>	Discussion
3.2.3 Explain how to keep active life style 30 minutes	<ul style="list-style-type: none"> <li>• Exercise regularly</li> <li>• Look for opportunities during the day to</li> </ul>	Brain storming

	perform even 10 or 15 minutes of some type of activity	
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### 3.2.1 Importance of preventing obesity

Obesity has reached epidemic proportions globally, with at least 2.8 million people dying each year as a result of being overweight or obese. Once associated with high-income countries, obesity is now also prevalent in low- and middle-income countries.

Governments, international partners, civil society, non-governmental organizations and the private sector all have vital roles to play in contributing to obesity prevention.

Obesity is:

- **According to the national survey in 2006 approximately (63.6%) of adult males and (69.6%) adult females in Iraq were overweight or obese and 11% of children below five years of age and 7% of school age children (6 – 12 years old) are either overweight or obese.**
- **More than 1.4 billion adults were overweight in 2008, and more than half a billion obese**
- **Globally, over 40 million preschool children were overweight in 2008**
- **Curbing the global obesity epidemic requires a population-based multi-sectoral, multi-disciplinary, and culturally relevant approach**

### 3.2.2 How to keep healthy diet

To keep **healthy diet** make sure to:

- Eat healthy meals and snacks. Focus on low-calorie and nutrient-dense foods such as fruits, vegetables and whole grains. Avoid saturated fat and limit sweets
- Base your meals on starchy foods such as potatoes, bread, rice and pasta, choosing wholegrain where possible.
- Eat plenty of fiber-rich foods such as oats, beans, peas, lentils, grains.
- Watch the portion sizes of meals and snacks, and the interval between meals.



### 3.2.3 Explain how to keep active life style

To keep an **active life style** make sure to:

- Exercise regularly: 30 minutes per day at least five days a week of moderate-intensity is necessary to prevent weight gain. Moderately intense physical activities include fast walking and swimming and cycling
- Look for opportunities during the day to perform even 10 or 15 minutes of some type of activity, such as walking around the block or up and down a few flights of stairs.
- Avoid sitting for long hours in front of TV or video game
- Regular monitoring of weight (once a week) is more successful in maintaining weight and keeping off excess pounds, as it detects small weight gain before becoming big problem.
- Be consistent. Sticking to healthy-weight plan during the week, on the weekends, and amidst vacation and holidays as much as possible increases your chances of long-term success

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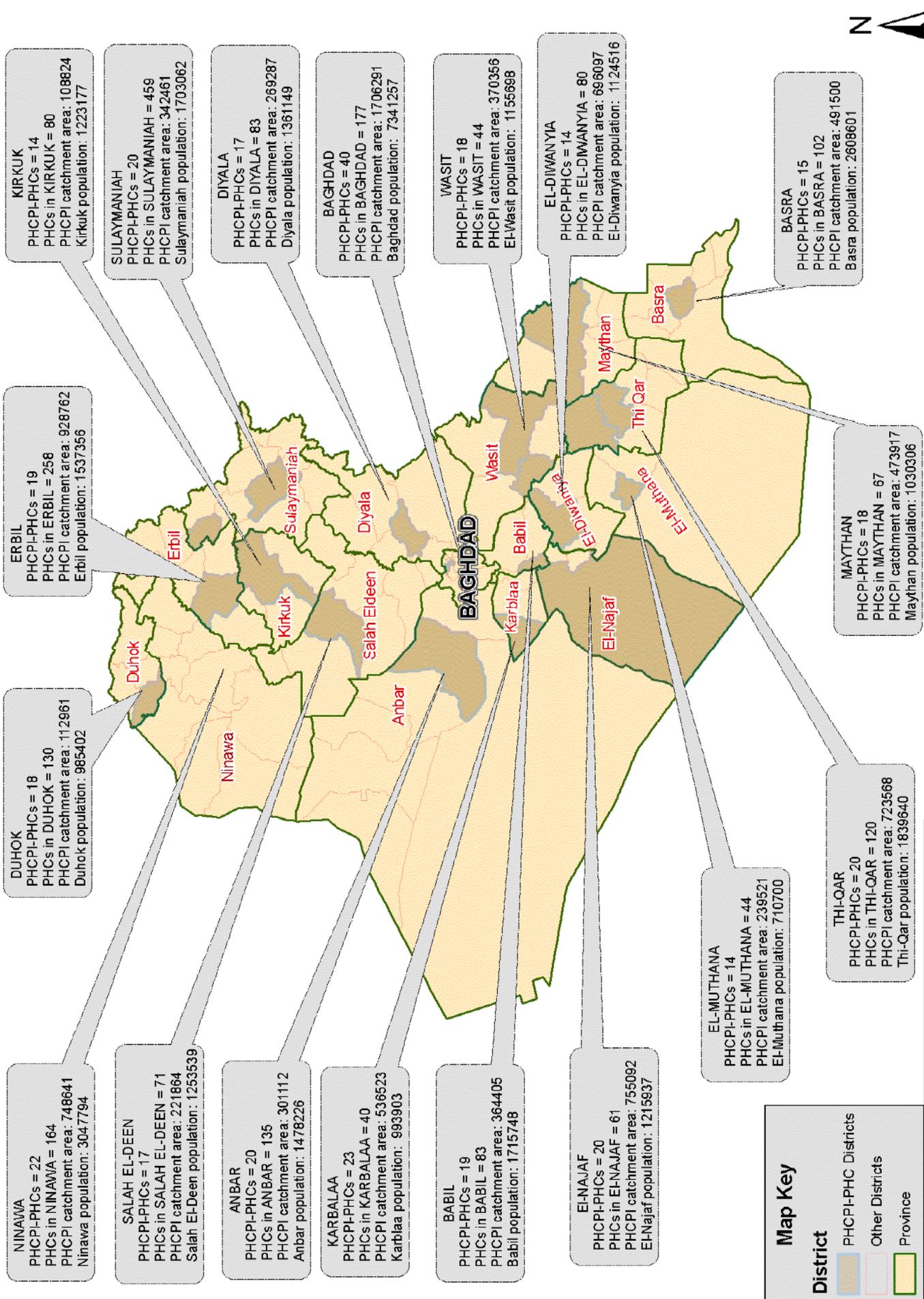
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# PHCPI-PHCs population mapped to IRAQ population



### Map Key

**District**

- PHCPI-PHC Districts
- Other Districts
- Province

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