Guidelines and format for the development of clinical cases within the IMPECD project

Authors:

Alyanne Barkmeijer

Renate Heine

Maaike Roemeling-Walters

Andrea Werkman

June 2018

Hanze University of Applied Sciences Groningen

The Netherlands

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Contents

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Introduction

Within the IMPECD project, clinical cases about the most common non-communicable diseases will be developed, which are based on the unified framework of the Dietetic Care Process (DCP). The clinical cases will be implemented in a Massive Open Online Course (MOOC), which can be used as a training material for students in Nutrition and Dietetics and for dietitians in order to keep their knowledge and skills up to date. For a uniform development, it is necessary to establish guidelines for generating the clinical cases based on the unified framework DCP and the requirements of the MOOC. In this document, practical guidelines on the requirements, structure, and learning outcomes of the clinical cases (PART I), a standardized format for the development of a clinical case (PART II), and a format for the solution of the clinical case (PART III) will be pointed out. Team Groningen proposes a restrictive approach, despite everything should be technically possible in the MOOC.

Objectives

The general objectives of the development of clinical cases within the IMPECD project are to

- create evidence based practice clinical cases for the use of educating students and dietitians (further mentioned learners) within the field of dietetics based on the unified framework of the DCP;
- implement unified dietetic care among learners in the field of dietetics.

Target group

The clinical cases are suitable for the following learners:

- Students in Nutrition and Dietetics;
- Teachers of the Higher Educational Institutes (HEI) and stated licensed schools (“Berufsfachschulen für Diätassistenz”);
- Current registered dietitians.

Implementation of the clinical cases in education and the working field

The MOOC should be implemented in each curriculum of the consortium. E.g. for the curriculum of

the Hanze University of Applied Sciences Groningen

- second year: simple linear cases in dietetic education;

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

- third year: internal practice placement (real cases from UMCG);
- third year: specialisation Nutrition and Care (clinical course + real cases from UMCG);
- fourth year: major practice placement (analysing real cases from the work field).

The programme directors have to agree on the topics and modules. The outcome of the evaluation of clinical cases in the ISP will be implemented in the further production of clinical cases.

Supportive materials/tools for the clinical cases

Below are some ideas for the supportive teaching and training materials/tools. The application of those materials depends on the topic of the clinical case. All teams decide what materials can be added and make sure the materials can be used (copyrights etc.). Some suggestions of supportive materials are depicted below:

- Media(s) Interactive Resource (discussion board, forum, personal portfolio etc.)
- Text/syllabus
- Webinar
- Video
- Internet
- Storyboard for filming a consult with a (simulation) patient
- Presentation about analyses of case for working field (multidisciplinary)
- Quizzes
- Wikis
- Blog

Review / evaluation of the development of the cases

The development of the cases will be (peer)reviewed in order to guarantee the quality and contents of the cases (based on the outcomes of Workpackage 5). This does not concern the testing of the learners for the learning outcomes in an exam. In order to evaluate the (development of the) clinical cases, the following considerations should be taken into account:

- If possible, experts in the various fields of clinical dietetics will review the clinical cases. These experts are internal or external lecturers at the HEI who will be recruited. In any case study, a medical doctor or another professional within the field of practice the case is related to, will be involved in the reviewing process of the clinical cases. Those experts will check the following: medical procedures, medically related guidelines, medications, and steps of the medical treatment.

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

- The Sustainability and Impact Board will give feedback on the developed cases after the experts reviewed the cases.
- Then, the clinical cases will be tested /(peer) reviewed in the two Intensive Study Programmes (ISP) by students and teachers according the DCP.
- The clinical cases and other materials will be presented to students from several countries to compare the outcomes and to discuss the national differences in dietetic practice (intercultural learning as well as developing presentation and debating skills in English). This will be done in cooperation with ENDietS (European Network of Dietetic Students).

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Part I: Guidelines for developing IMPECD clinical cases

Introduction

In part I, relevant guidelines for generating the clinical cases within the IMPECD project will be described. The requirements, structure, and learning outcomes of the clinical cases will be highlighted in this section. Team Groningen proposes a restrictive approach, despite everything should be technically possible in the MOOC.

Requirements of the clinical cases

The case should meet the following requirements:

- The topics of the clinical cases will mainly focus on non-communicable diseases (NCDs) since these are the major health concerns in Europe, e.g.: endocrinology (e.g. diabetes, overweight, obesity), gastroenterology (e.g. coeliac disease, fructose/lactose malabsorption), oncology (e.g. breast cancer, colon cancer);
- Each partner develops evidence-based and practice-based clinical cases in cooperation with students in Nutrition and Dietetics and dietitians in the working field, which are divided in batch 1 and batch 2 clinical cases;
- Each clinical case follows the steps and terminology of the unified framework DCP;
- Each clinical case should be formulated clearly and shortly with suitable learning outcomes according to the Pyramid of Miller (Taylor DCM & Hamdy H, 2013, see criteria for LOs);
- Standardized European units and European guidelines (EFSA, 2016; WHO, 2016; ESPEN, 2016), including reference values, should be used for developing the clinical characteristics (e.g. laboratory values) and (macro, micro)nutrients);
- Use generic names for medication (EMA, 2016) (no brand names but chemical names; e.g.: no Aspirin but acetylsalicylic acid);
- Calculation of dietary intake is depending on the content of the clinical case and may be implemented. If not, then the calculated data should be provided in the clinical case.
- Each partner delivers one or more supportive teaching and training materials per clinical case;
- The information in the clinical case should stay up to date, i.e. adaptations in the clinical case should be made when there are recent developments during the IMPECD project (e.g. if dietary guidelines change). For future changes after the IMPECD project, it should still be discussed who is responsible for those adaptations;

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

- The case should fit within the (technical) possibilities of the MOOC – these seem to be unlimited, thus the consortium should restrict the possibilities keeping in mind the overall goals of the application of the cases in the MOOC;
- All clinical cases together within the IMPECD project, which are implemented in the MOOC, are worth 5 ects. Each partner organization implements the MOOC in the curriculum.

Structure of the clinical cases

The overall aims considering the cases within IMPECD:

- create a set of clinical cases with different routes, different topics and therefore several learning perspectives;
- provide enough information during the clinical case;
- evaluate the progress of the learner considering content of the clinical case and DCP steps (separate work packages – Team Antwerp);
- let the learner reflect on the progress (Team Antwerp).

The consortium should make sure to fulfil the overall goals of the MOOC. In order to do so the structure of the cases should be somewhat limited to not be distracted by too complex algorithms and decision points.

Therefore, based on the Granada meeting a flow chart of the structure of a clinical case is designed and agreed on. In figure 1 an example flow chart is depicted, and will be explained first.

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

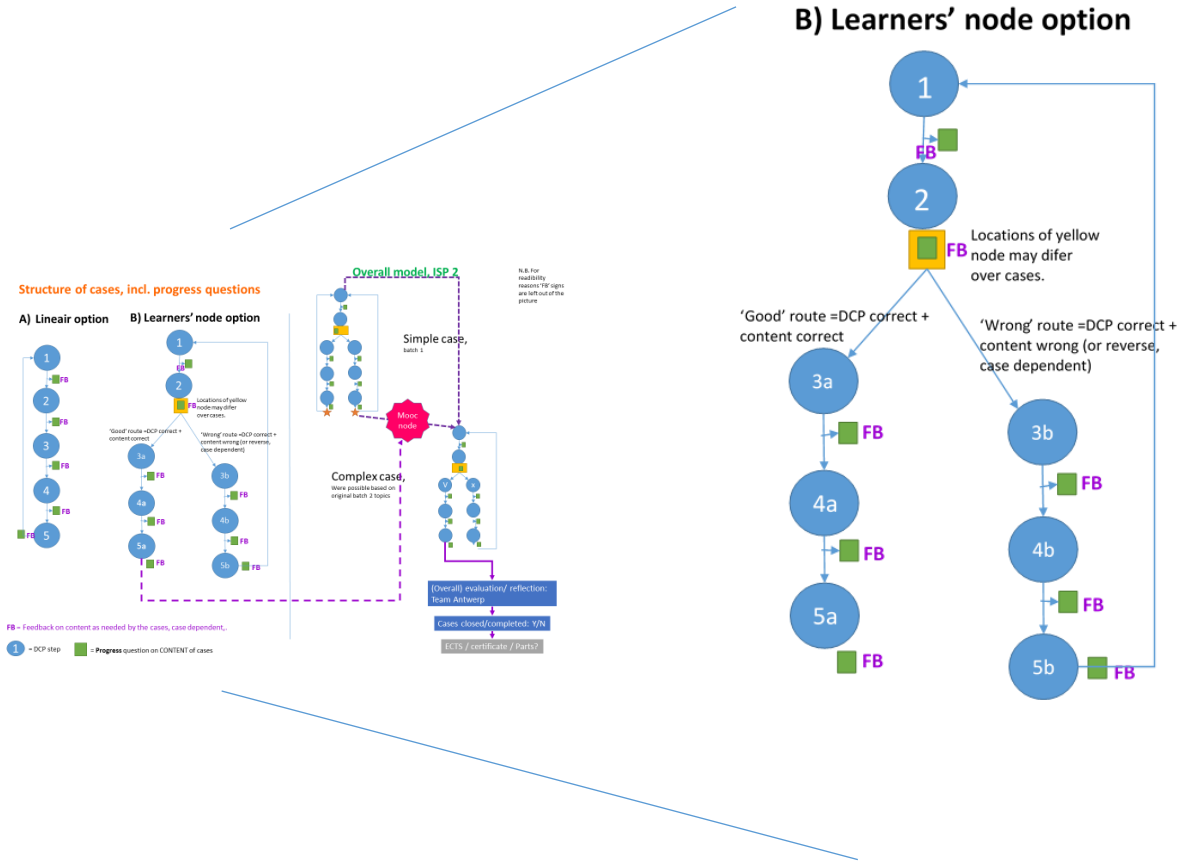

Figure 1. Example of a flow diagram of the structure of a clinical case.

Within the right flow chart:

FB = After each DCP step the learner will receive FB based on the progress questions on **content**

Progress question base on content

The green squares represent the PROGRESS QUESTION. This question and its answer are needed to go to the next step as the case develops. Make sure that the answer scales are kept as simple as possible (the more options the more routes….). When using open ended questions it is difficult to accomplish what we want in the MOOC.

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Decision nodes

The decision nodes are depicted with the yellow square in figure 1. Case developers should decide at what point in the routing a good/wrong decision node is wanted. Due to the design this can happen after each step, in table 1 some examples are given. Considering the attractiveness of the MOOC / cases, we will have to make sure that we have a variety of yellow blocks.

For the first batch of cases (simple), a repair is possible after a wrong decision node. However, for the second batch of cases (complex), repair is not possible and a case can turn into a real tragedy after a wrong decision node.

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Table 1. Division of decision nodes

DCP Step	Task	Examples	Batch 1	Batch 2
1	Dietetic assessment	Wrong interpretation of lab values	xx	Diabetes Mellitus type 2 Team St. Pölten Lactose intolerance Team Fulda
2	Dietetic diagnosis	Wrong diagnosis, e.g. due to missing information on symptoms	Coronary heart disease and hypertension Team St. Pölten	xx
3	Planning dietetic intervention	Wrong calculations for energy requirement (what % range will be used?)	xx	Metastases, refeeding syndrome, enteral tube feeding Team Groningen
4	Implementing dietetic intervention	Wrong intervention applied to client: energy restricted instead of energy enriched diet.	Case gestational diabetes Team Antwerp	Chronic kidney disease Team Antwerp
5	Dietetic monitoring and evaluation	Wrong choice for monitoring duration, instrument of interpretation of re-assessment values.	Colorectal cancer case Team Groningen Obesity Team Neubrandenburg	Bariatric surgery Team Neubrandenburg

While further developing the case, the following requirements should be fulfilled with respect to the structure of the case as explained before.

- All five steps of the unified framework DCP should be used to solve the clinical case;
- The scenario develops according to the learners' answers to the **progress questions**.
- The case developers decide where the good/wrong decision node is added to the case.
- Feedback is provided on the content, after each DCP-step / according to the wishes of the case developers.

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

- Use a maximum of one decision node in the clinical case. Hence, develop two routes:
    - a ‘good route’ (correct answer on progress question(s))
    - a ‘wrong route’ (incorrect answer on progress question(s)).
- Make the clinical case sufficiently challenging (i.e. sufficiently difficult) to stimulate critical thinking and discussion;

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Learning outcomes

This part is based on the information provided by Team Antwerp and is added to the guidelines because of the close connection between cases and learning outcomes.

The learning outcomes for each individual clinical case should be based on the Pyramid of Miller (figure 2; Taylor DCM & Hamdy H, 2013), which is a regularly used learning theory in medical education. The pyramid of Miller is important, because in training students for the healthcare professions it is essential to remember that the outcome of the training is intended to be a graduate who can take their place in the workforce (action) (Taylor DCM & Hamdy H, 2013).

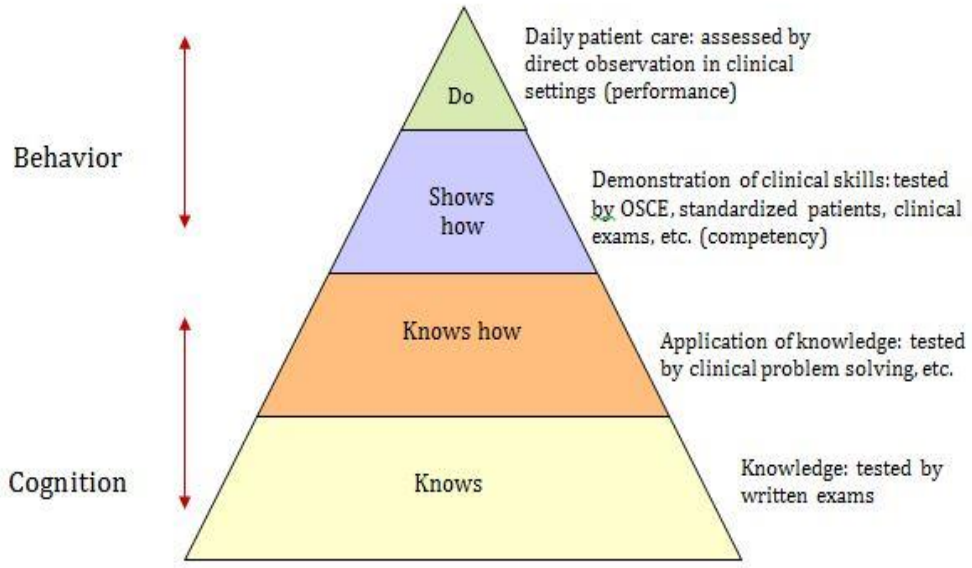

Figure 2. Pyramid of Miller (Taylor DCM & Hamdy H, 2013)

For each level of the pyramid, i.e. ‘ knows’, ‘knows how’, ‘shows how’, and ‘do’, several adequate verbs can be used to formulate learning outcomes (see table 2).

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Table 2. Verbs according to the level of the Pyramid of Miller. We will apply levels 1, 2 and 3 within the formulation of the learning outcomes of the cases, since the fourth level cannot be tested.

Level (Pyramid of Miller)		**Verbs**
1. Knows	Knowledge	classify, categorize, identify, remember, putting in the right order, mention, localize, repeat, call, reproduce, list, describe, identify, mention, classify, select, differentiate, indicate, define, distinguish, describe, declare, characterize, typify, formulate, explain, make something clear, justify, identify, illustrate, give examples, tell in their own words, list (schematic), make connections, compare, mention (main point and side issue), indicate differences and similarities, arrange, instruct, attend, represent
2. Knows how	Applying knowledge and understanding	explain (how), construct, calculate, apply, use, manage, execute, demonstrate, do, shape, show, present, modify, complete, analyse, find out, examine, compare, be in contrast with, justify, divide, organize, conclude, phasing, motivate, detection causes, reflect, create, produce, create, develop, evolve, realize, form, combine, compile, summarize, resolve, reason, generalize, relate, develop a plan, collect information, prepare, conclude, report, supply share, indicating borders / gaps etc., treat, calculate, describe, monitor, contribute, define, provide an overview, choose and follow procedure, explain, predict, make a proposal, reject, make a consideration, present alternatives
3. Shows How	Integration of knowledge, understanding, skills and attitudes	represent, negotiate, direct, lead, instruct, delegate, implement, facilitate, encourage, collimation, determine, signalize, create, invent, conceptualize, think, introduce, long-term plans, change, renew, provided, initiate, recommend, formalize, standardize, complete, finish off, optimize, consummate, give a vision, (critical) review, assess, comment, (critical) screening, verify, improve, quoting, score, appreciate, comment, rate, evaluate, support, decide, dispute, estimate
4. Do		Portfolio, performance on the work floor

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Input for Team Antwerp

In order to be able to create a good evaluation and reflection tool, Team Antwerp needs the following information: for all cases a complete set of learning outcomes (see below for examples and explanation).

Action for all case developers: come up with at least three learning outcomes – one for each level: know, know how, show how - for each DCP step considering the CONTENT OF THE CASE.

N.B. Team Antwerp and Team Fulda will develop the learning outcomes for the DCP steps.

Overall learning outcomes (per clinical case)

In general, the following general learning outcomes for learners are formulated based on the levels of the Pyramid of Miller:

Learners can

LO1 (knows): describe the (clinical) characteristics of the disease;

LO2 (knows how): communicate appropriately in English (orally as well as written);

LO3 (shows how): implement evidence-based dietetic practice, critical thinking, clinical reasoning and decision making;

LO4 (shows how): comment on his/her own professional behaviour and actions to enlarge the understanding and insight in how to improve their professionalism.

Learning outcomes for the DCP steps

No action needed for case developers

The learning outcomes for the DCP will be the same for each clinical case. According to the levels of the Pyramid of Miller (except for the level 'do), three learning outcomes are formulated for each step of the DCP:

Step 1: Dietetic assessment

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Learners can:

LO 1 (knows): describe the components of the dietetic assessment

LO 2 (knows how): calculate the BMI of the client

LO 3 (shows how): evaluate the clinical status

Step 2: Dietetic diagnosis

Learners can:

LO 1 (knows): identify the PAS(R) statements

LO 2 (knows how): use the construct of the ICF model to categorize all the symptoms that lead to the dietetic diagnosis

LO 3 (shows how): formalize the dietetic diagnosis based on the PAS(R) statements

Step 3: Planning dietetic intervention

Learners can:

LO 1 (knows): mention the main points and the side issues of the planning of the intervention

LO 2 (knows how): motivate the main points of the dietetic intervention

LO 3 (shows how): provide within the intervention long-term plans

Step 4: Implementing dietetic intervention

Learners can:

LO 1 (knows): identify the right dietetic tool to educate the client about the intervention

LO 2 (knows how): show which other professionals could be included in the care of the client

LO 3 (shows how): think about how he/she wants to monitor the intervention plan

Step 5: Dietetic monitoring and evaluation

Learners can:

LO 1 (knows): list all the components that he/she wants to monitor

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

LO 2 (knows how): make a conclusion of the measure outcomes

LO 3 (shows how): formalize the positive and negative outcomes

Learning outcomes for case content

Action needed for the case developers

For the content of each clinical case, three learning outcomes in total after each step of the DCP have to be formulated. An example of learning outcomes of a clinical case on gestational diabetes after *step 1 (dietetic assessment)* of the DCP is given below.

LO1 (content of the case):

The learner describes the medical diagnosis of gestational diabetes *(knows)*.

LO2 (evaluation question on the content of the case):

The learner demonstrates which test is adequate to diagnose gestational diabetes *(knows how)*.

E.g. Which test is needed to diagnose gestational diabetes?

Answers (multiple choices):

- fasting glucose > 126 mg/dl
- oral glucose tolerance test (75mg) **(right answer)**
- high glycemic postprandial > 250 mg/dl
- HbA1c > 8% (63 mmol/mol)

Learning outcomes for the reflection

No action needed for the case developers!

LO3 (reflection question after step 1 of the DCP):

The learner comments on the difficulties he/she has encountered *(shows how)*.

E.g. Which difficulties have you encountered?

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

A final reflection question after either successfully or not finalising a route in the case have to be formulated, which will also be a closed question. Learners will be asked to reflect on the total accomplishment of the case.

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

PART II. Format of the clinical cases

Basic information

Each case will start with general information.

- Case title
- Authoring team
  - Responsible team
  - Students
  - Reviewing team
  - External professionals
- Learning objectives for the overall case: what do you want the learner to accomplish?
- Target group: students in nutrition and dietetics and dietitians
- Remarks: Length of the case, duration, credits, other

Content

The story

- What is the setting this case takes place in?
- Who are the characters?
- What role is the learner playing?
- How does the case start?
- Common story-telling nodes (narrative and inquiry)

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Step 1. Dietetic assessment

1. Client History	
Client History	Current and past information related to personal, family and social history
Personal History	General client information such as age, gender, race/ethnicity, language, education, and role of family, tobacco use, physical disability, mobility Client socioeconomic status, housing situation, medical care support and involvement in social groups
Medical/Health History of Client Family	Client or family disease states, conditions, and illnesses that may have nutritional impact Referral: Documented medical or surgical treatments, complementary and alternative medicine that may impact nutritional status of the client Pregnancy
2. Diet History	
Meal and snack pattern	Type, amount and pattern of intake of foods and food groups, indices of diet quality intake of fluids, preferences and aversions
Fluid Intake	Type, amount, and pattern of intake of beverages; oral fluids, food derived fluids, liquid meal replacement, preferences and aversions
Fluid balance	Fluid Intake in comparison to requirements
Energy intake	total energy intake from all sources, including food, beverages, supplements, or enteral and parenteral nutrition
Energy expenditure	Energy balance defined as changes in energy balance Amount of energy oxidized by a person under resting or physically active conditions.
Energy balance	Energy intake vs energy expenditure
Food and Nutrient balance	Food and Nutrient intake in comparison to nutrient requirements Composition and adequacy of food and nutrient intake, and meal and snack pattern
Food and Nutrient Administration:	Diet order, diet experience, enteral and parenteral nutrition administration, current and previous diets and or food modifications

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

	Description of food and drink regularly provided or consumed, past diets followed or prescribed and counselling received
Medication including over the counter medication and supplements	Prescription and over-the counter medications, including herbal preparations and complementary medicine products used
3. Behavioural-Environmental	
Food and nutrition knowledge Beliefs and attitudes Behaviour	Understanding of nutrition-related concepts and conviction of the truth and feelings/emotions towards some nutrition-related statement or phenomenon, along with readiness to change nutrition-related behaviors client activities and actions, which influence achievement of nutrition related goals
Behavioural factors, willingness to change and potential for changing behaviour	eating environment including diet habits
Factors Affecting Access to Food and Food/Nutrition-Related Supplies	economic information factors that affect intake and availability of a sufficient quantity of safe, healthful food as well as food/nutrition-related supplies
Physical Activity and function nutrition related activities of daily living	physical activity, cognitive and physical ability to engage in specific tasks
Quality of life	how people participate or are involved in their daily life situation
4. Clinical Status	
Anthropometric data	Measurement of height, weight; calculation of BMI, waist circumference, waist hip ratio; skin fold measurements
Body composition	Estimation of different body compartments
Biochemical data, medical tests and procedures	Metabolism parameter, clinical chemistry, vital signs, procedures outcome
Nutrition-focused physical findings	Findings from an evaluation of body systems, muscle and subcutaneous for wasting, oral health, suck/ swallow/ breathe ability, appetite, and affect

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

PART III. Format for the solution of the clinical case

The clinical case should be solved taking all steps of the unified framework DCP into account (see also workpackage O2 for the final version of the DCP). The components of each DCP-step are shortly mentioned below:

Step 1. Dietetic assessment

- Client history
- Diet history
- Behavioural-Environmental
- Clinical Status

Step 2. Dietetic diagnosis

To identify an existing Dietetic problem, ICF and NCPT (attachment 1 Figure 1 and 2) are two standardized languages which can be used (alone or in combination) to formulate PAS(R)-Statements. The PAS(R) statement arises from the dietetic assessment.

The formulation of PAS(R)-Statements consist of 3 (or 4) steps:

- Problem, or the dietetic diagnosis
    - Nutrition based
    - Resolvable/improvable (for a dietitian)
- Aetiology, or the cause/causes of the problem
    - Main cause
- Signs (objective)/Symptoms (subjective), or the 'evidence' of the existence of the problem
    - Specific enough to: measure changes over time; measure problem resolved/improved
- (Resources)

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Step 3. Planning dietetic intervention

- Prioritize the Dietetic Diagnoses
- Consult evidence based guidelines
- Work with clients and carers to identify outcomes for the intervention
- Obtain consent as required
- Define the intervention plan
- Select interventions based on the best available evidence
- Define length, frequency and duration of the intervention
- Identify who will carry out which part(s) of the intervention
- Identify any resources needed
- Optimize intervention within resource allocation
- Apply risk management strategies as necessary

Step 4. Implementing dietetic intervention

- Communicate the Dietetic intervention plan to the client/family/carers
- Education and counselling of client/other professionals by using adequate techniques
- Monitoring and modify the individualized plan of care as needed
- Collaboration with other professionals, clients, carer or care workers

Step 5. Dietetic monitoring and evaluation

1) Monitoring

- Check client understanding
- Check client compliance with Dietetic Intervention Plan if appropriate
- Determine if the intervention is being implemented as planned
- Provide evidence that the plan/intervention strategy is or is not changing client behaviour or status

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

- Identify other positive or negative outcomes (Re-assessment)
- Gather information indicating reasons for lack of progress
- Support conclusions with evidence

2) Measure outcomes

Select outcome indicators that are relevant to the Dietetic Diagnosis (signs and/or symptoms), Dietetic Intervention Goals, medical diagnosis, and outcomes and quality management goals

- Use standardized indicators to increase the validity and reliability of measurements of change and facilitate electronic recording, coding and outcomes measurement

3) Evaluate outcomes

Compare current findings with previous status, Dietetic Intervention Goals, and/or reference standards and quality management goals

Please make sure also learning outcomes are provided. See Part II.

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Reference list

EFSA. (2016). *Dietary reference values and dietary guidelines.* Retrieved 30 June 2016, from https://www.efsa.europa.eu/en/topics/topic/drv

European Medicines Agency. (2016). *Generic Medicines.* Retrieved 30 June 2016, from http://www.ema.europa.eu/ema/index.jsp?curl=pages/special_topics/document_listing/document_listing_000335.jsp&mid=WC0b01ac0580514d5chttp://www.ema.europa.eu/ema/index.jsp?curl=pages/special_topics/document_listing/document_listing_000335.jsp&mid=WC0b01ac0580514d5c

http://www.ema.europa.eu/ema/index.jsp?curl=pages/special_topics/document_listing/document_listing_000335.jsp&mid=WC0b01ac0580514d5c

European Commission. (2016). The European Qualifications Framework. Retrieved 30 June, 2016, from https://ec.europa.eu/ploteus/search/site?f%5B0%5D=im_field_entity_type%3A97

Taylow D.C.M., Hamdy H. Adult learning theories: Implications for learning and teaching in medical education: AMEE Guide No. 83. Med Teach. 2013; 35: e1561-e1572

World Health Organization. (2016). *Dietary recommendations / Nutritional requirements.* Retrieved 30 June 2016, from http://www.who.int/nutrition/topics/nutrecomm/en/

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Attachments

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Attachment 1

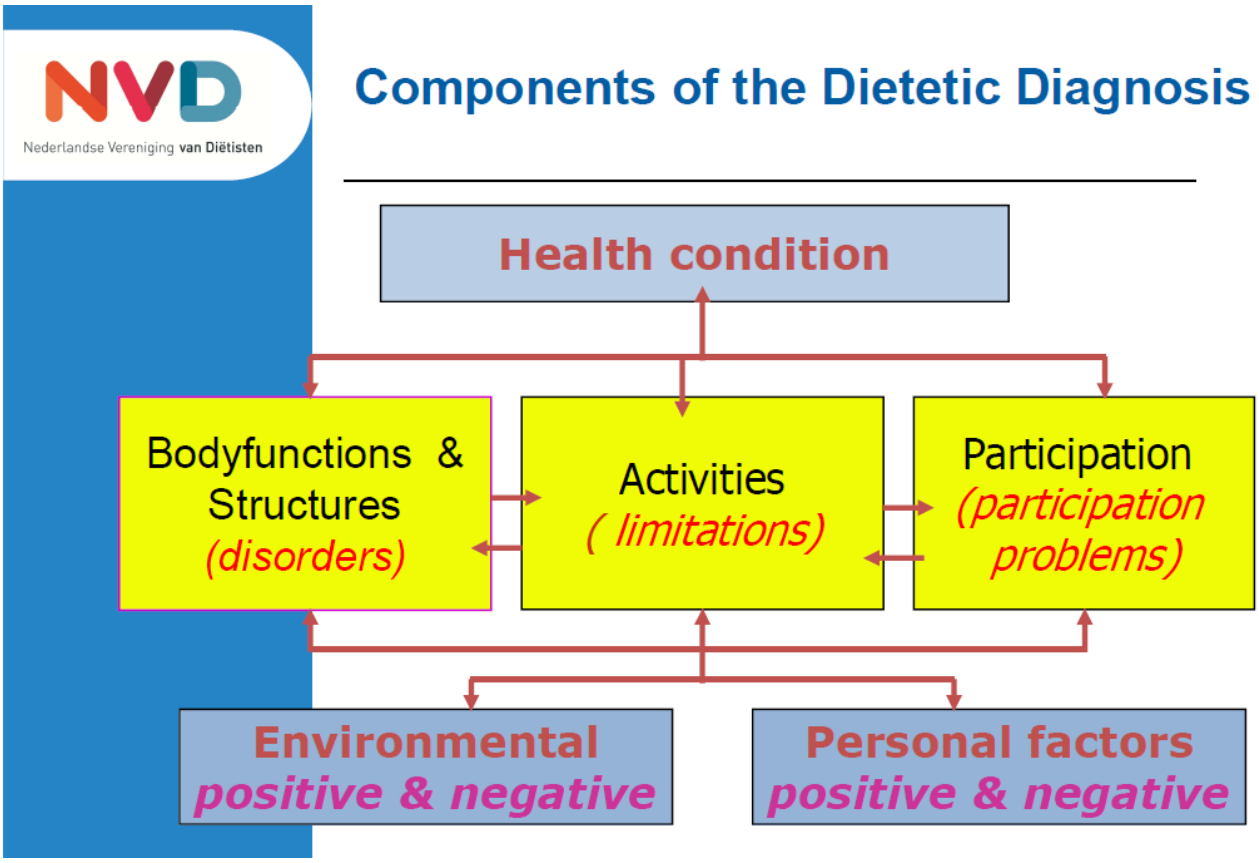

Figure 1: ICF model (source: www.nvd.nl)

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

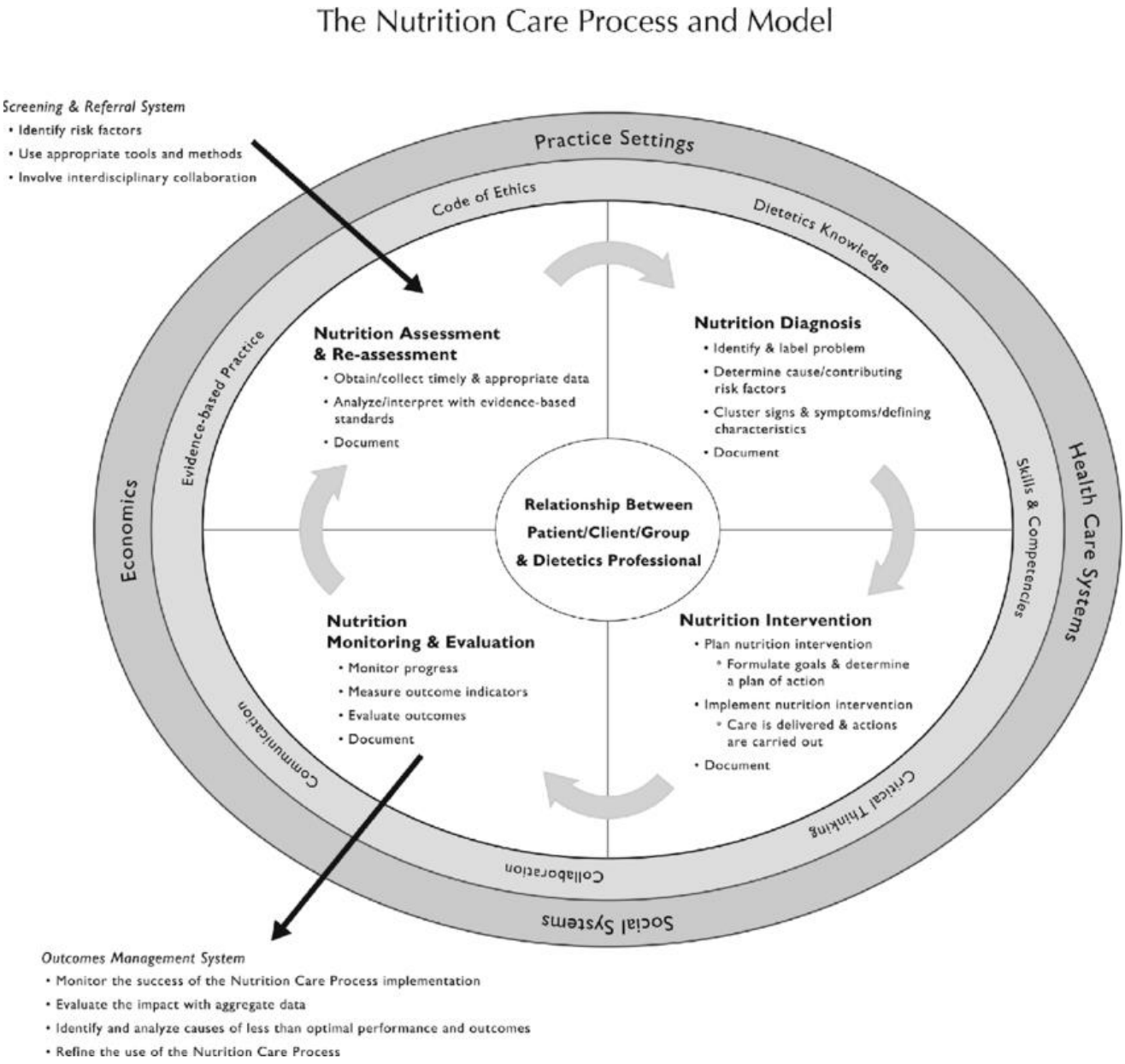

Figure 2: NCPM (source: www.internationaldietetics.org)

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."