

**IO2**

# Report on the development of behaviour change support case studies



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## Executive Summary

Chronic diseases pose a significant burden on persons, the health systems, and societies as a whole; addressing this burden is a priority of the European Union health policy.

Self-management in chronic diseases is acknowledged as the cornerstone for better health outcomes, whilst contributing to the sustainability of health care systems. It encompasses behaviours, such as engaging in physical activity, eating a healthy diet and taking medication, which often are challenging to adopt and sustain. The Train4health project responds to the pressing need of better preparing health and other professionals to effectively deliver behaviour change support for self-managing chronic diseases.

This document reports the development of the behaviour change support case studies, subsumed in Activity 3.1, led by Nuno Pimenta (ESDRM-IPS) and Isa Brito Felix (ESEL). The case studies are part of the Train4Health educational package, which aims to improve students' behaviour change support competencies to effectively support the self-management of chronic diseases.

Three steps were followed for developing the Train4Health case studies: (1) defining the framework and design of the case studies; (2) creating a set of case studies; (3) iteratively improving case studies, through consultation with external stakeholders and testing by educators and students in a diversity of contexts (different countries, different disciplines in health and related fields).

The final output are two innovative educational materials: case studies of persons living with chronic disease and case study toolkits. A total of four case studies were developed and tested, each comprised by 1) a person profile (i.e., the case), 2) expected learning outcomes, previously derived in relation to the European competency framework for health and other professionals to support behaviour change in persons self-managing chronic disease, related questions and supporting resources and 3) assessment criteria. In turn, each corresponding toolkit consists of the case study plus guidance for educators, such as a list of tips and hints for using the Train4Health case studies, and assessment tools.

This educational material is a sound resource for behaviour change support education in chronic disease across Europe.

## Introduction

The burden of chronic diseases in the European Union (EU) was estimated to represent 7,8% of the EU Gross Domestic Product (GDP) in 2016, meaning that chronic diseases represented a cost of about €1200 billion (EC, 2017). Cancer alone represented a cost of €199 billion in the EU plus Iceland, Norway, Switzerland, and the United Kingdom (Hofmarcher et al., 2020). The economic burden of other chronic diseases also poses a serious threat to the sustainability of health systems. Cardiovascular diseases were reported to impose a cost of €210 billion a year (EHN, 2017), and diabetes alone is estimated to have a cost of €149 billion a year to the EU economies (MMD, 2021). The burden of chronic diseases, however, goes far beyond economic costs, affecting those living with chronic diseases, their family members and caregivers, and the healthcare and health-related workforce, often struggling to effectively manage chronic diseases in an increasing number of persons. Responding to the clinical, humanistic and economic burden of chronic diseases has been declared a priority for Europe (Busse et al., 2010; ECDA, 2011, 2022; EUPHA, 2022).

One cornerstone contribution for tackling this burden in the EU is actively involving persons living with chronic diseases through self-management. Self-management has been defined as “tasks performed by an individual to minimize the impact of one’s disease, with or without the support of health professionals (Lorig & Holman, 2003). Despite evidence supporting self-management interventions in persons living with chronic diseases (e.g., Pal et al., 2013; Zwerink et al., 2014), it has long been recognised that these persons may find it challenging to adopt in tasks such as taking medication routinely and engaging in beneficial lifestyle changes (Lindner et al., 2003). Additionally, healthcare professionals have been reported to prioritise the optimisation of medical treatment and to give low priority to change in self-management behaviours (Westland et al., 2018). This problem is compounded by healthcare professionals’ lack of knowledge and skills on self-management support, particularly for non-drug therapy, as exemplified by the work of Buckley et al. (2020) and Persson et al. (2013) concerning the promotion of physical activity.

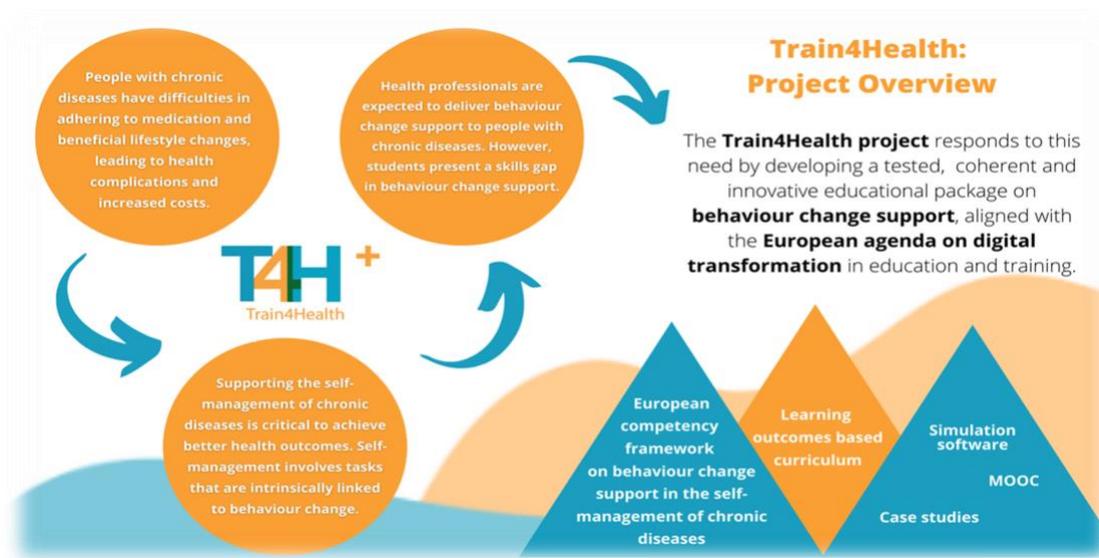
Available evidence suggests that current curricula contribute to a knowledge and skills gap in professionals. This is exemplified by the work of van Hooft and colleagues (2018) in Dutch nursing students, showing that teaching self-management support was restricted to theoretical models and communications skills. Curricular mapping of consortium partners conducted as part of preparatory work for the Train4Health grant application corroborated that existing behaviour change contents were limited.

## About the Train4Health project

The Train4Health is a three-year project (2019-2022) funded by the European Union (Erasmus+; grant agreement no. 2019-1-PT01-KA203-061389).

The Train4Health project aims to improve competencies for behaviour change to effectively support self-care in chronic diseases<sup>1</sup>.

The project envisages a continuum in behaviour change support education, relying on an interprofessional competency framework (Guerreiro et al., 2021) and a learning outcomes-based curriculum, which guides the development of an educational package, comprising case studies, a massive open online course and a simulation software (Figure 1). The project is aligned with the European Union policy on digital transformation in education and training, which encourages open learning resources and the integration of digital technologies in teaching and learning.



**Figure 1 | Overview of the Train4Health project**

<sup>1</sup> Self-care is a broader concept than self-management, involving all actions of the person to manage his or her own health with or without a long-term condition (Jones et al., 2011). In the project context, self-care in people with chronic disease refers to self-management of chronic disease, and therefore this term was used at an operational level.

The Train4Health project was designed and implemented by a strategic partnership across five countries (Portugal, Ireland, Slovenia, the Netherlands, and Belgium). The consortium comprises Institutions involved in the education of nursing students, pharmacy students, sports science students, an IT partner and the European Students' Union, coordinated by the Nursing School of Lisbon.

Information about team members and work packages is available in the project website (<https://www.train4health.eu>).

## Development of the Train4Health behaviour change support case studies

This report details the development of the Train4Health case studies on behaviour change support for persons self-managing chronic diseases, as part of work package 3 – “Key Educational Products development”, specifically in activity (A) 3.1.

Case studies have been defined as “student centred activities based on topics that demonstrate theoretical concepts in an applied setting” (Davis & Wilcock, 2003). They are credited as a beneficial instructional method in different fields, including nursing, pharmacy and sport sciences (Montepara et al., 2021; Moore & Montejo, 2021; Wilson & McCabe, 2021).

Case studies allow students to employ theoretical concepts in a fictional scenario, that resembles real-world. As highlighted in the literature (McLean, 2016; Thistlethwaite et al., 2012), this helps students to better respond to situations they are likely to encounter in professional settings. Train4Health contributes to case-based learning in behaviour change support for self-managing chronic disease, by producing a set of case studies on a range of conditions and target behaviours, based on a structured approach, in which learning outcomes are linked to learning activities and assessment.

The development of the Train4Health case studies was an iterative process, involving different partners and external stakeholders’ consultations, to assure high-quality outputs, as close as possible to real life cases of persons with chronic diseases. As depicted in Figure 2, three stages were followed to develop the case studies, which are described in the next sections.



Figure 2 | Stages of development of the case studies

## Defining the framework and design of the Train4Health case studies

The framework for designing the Train4Health case studies arose from previous work (A2.1 and A2.2), detailed in the Intellectual Output 1 report (Cadogan et al., 2021):

- Development of the European interprofessional competency framework to support behaviour change for the self-management of chronic disease (Guerreiro et al., 2021).
- The associated common learning outcomes-based curriculum.

The design of the case studies was grounded on:

- Knowledge on case studies design, usage and effectiveness (Moore & Montejo, 2021; Thistlethwaite et al., 2012).
- Knowledge from European projects, such as Sim-Versity<sup>2</sup>, to ensure diversity and inclusion in case studies (e.g., ethnicity and sexual orientation), and WE4AHA<sup>3</sup>, to offer a holistic person's profile.
- Knowledge from behaviour change science, such as models (Michie et al., 2011) and a behaviour change taxonomy (Michie et al., 2013), to guide the content produced.
- Transnational co-production with students and academic educators in nursing, pharmacy, and sport science, to maximise the fit with perceived needs and preferred features<sup>4</sup>.

The integration of the framework, the knowledge detailed above, and the team's expertise resulted in a list of requirements:

- Number of case studies: four, focusing on different chronic diseases and self-management behaviours.
- Progressive level of complexity from case study 1 to 4.

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<sup>2</sup> Sim-Versity is an Erasmus plus project (<https://sim-versity.eu>), which aims to optimize patient safety by integrating cultural competence into simulation-based education of health professionals.

<sup>3</sup> WE4AHA (Widening the support for large scale uptake of Digital Innovation for Active and Healthy Ageing), is a Horizon 2020 project, under the umbrella of which the Blueprint action created 12 personas (<https://blueprint-personas.eu/>)

<sup>4</sup> Twelve focus group sessions with a total of 39 students and 27 academic educators, conducted as part of work package 2 (A2.3).

- Guided by general principles, such as anonymity, diversity and authenticity, described in Box 1.
- Components of each case study
  - Person's profile (i.e., the case)
    - Offers a detailed description of a fictional person with at least one chronic disease and the context (e.g., lifestyle, social support).
    - Relates to at least one self-management behaviour.
    - Structured based on a template adapted with permission from the Blueprint action.
  - Learning outcomes and activities
    - Learning outcomes address behaviour change competency statements (Guerreiro et al, 2021), focusing on ability, as described in Annex 1.
    - Open-ended questions are presented, ideally for group work, linked to each learning outcome and content topics.
    - Includes suggested accompanying reading.
  - Assessment criteria<sup>5</sup>.

### Box 1 | Principles guiding the development of case studies

- *Anonymity*: despite being realistic, each profile is not descriptive of any existing person and should not be attributed to anyone.
- *Diversity*: overall, the persons profiles offer diversity, in terms of gender, age, ethnicity, sexual orientation and both social and functional status.
- *Authenticity*: each profile relates to real life and was assessed by persons living with chronic disease to ensure a faithful account of their perspectives.
- *Unjudgmental*: each case study is worded on a factual basis, without opinions or depreciative remarks on the person.
- *Multidisciplinary*: each case study draws on the expertise of different professions, such as nursing, pharmacy, and sport sciences.
- *Evidence-based*: resources provided are grounded on the best possible evidence.
- *Behaviour-related*: each case study was developed for education on health- behaviour change and not other clinical aspects.
- *Continuous improvement*: each case study is subjected to loops of improvement throughout the project lifecycle, based on internal peer-review and tests with stakeholders.

<sup>5</sup> Assessment criteria were developed by the A4.2 team, in work package 4 (Measurement of learning outcomes), in liaison with A3.1.

Data emerging from co-production with students and academic educators, via 12 international focus groups (A2.3), indicated the need to develop support materials for case studies use in-class. Therefore, requirements were produced for these toolkits:

- Presents the full case study (i.e., the person's profile, learning outcomes and activities, assessment criteria).
- Offers guidance for educators to use the case studies.

## Creating the Train4Health case studies and the toolkits

A starting point for creating the Train4Health case studies was the outline of persons' profiles, described in Table 1. To create coherence across the Train4Health educational package, these persons' profiles were used for simulation in the software (A3.3). As part of this process in A3.3, illustrations for each person were created and animated as virtual humans, in close liaison with A3.1, which then used these illustrations to "put a face" to the person described in each profile.

The progressive level of complexity was achieved by increasing the number of chronic conditions and self-management behaviours, also designated as target behaviours, from case study 1 to 4.

**Table 1 | Persons' profiles in the Train4Health case studies**

| Case study | Person  | Name                        | Sex    | Nationality | Job        | Chronic Disease(s)                       | Target behaviour(s)   |
|------------|---|-----------------------------|--------|-------------|------------|--|---|
| 1          |    | Maria José Pereira da Silva | Female | Portuguese  | Accountant | Obesity                                  | Physical activity   |
| 2          |    | Nina Batrackoulis           | Female | Slovenian   | Military   | Asthma                                   | Smoking cessation   |
| 3          |   | Liam O'Malley               | Male   | Irish       | Plumber    | Type 2 Diabetes<br>Hypertension          | Physical activity<br>Diet<br>Medication adherence                                     |
| 4          |  | Luuk de Vries               | Male   | Dutch       | Baker      | Obesity<br>Hypertension<br>Heart Failure | Physical activity<br>Diet<br>Medication adherence<br>Monitoring and managing symptoms |

Firstly, the multidisciplinary A3.1 team developed the person's profile of Case Study 2 as a prototype.

Secondly, to ensure variability of behaviour determinants across the four persons' profiles, determinants were mapped to target behaviours in each profile, based on the literature. This approach was used to inform the person's description.

As described in Table 2, behaviour change techniques (BCTs) that could potentially be used from a core and supplementary list previously derived (Guerreiro et al, 2021) were then

mapped to determinants. The purpose of this step was ensuring alignment between the person's profile and questions that were later drafted as learning activities.

**Table 2 | Example of behaviour determinants linked to BCTs**

| Case study | Person's name               | Target behaviour     | Example of determinant                                   | Example of BCT                            |
|------------|-----------------------------|----------------------|--|---|
| 1          | Maria José Pereira da Silva | Physical activity    | Lack of knowledge of the importance of physical activity | 5.1 Information about health consequences |
| 3          | Liam O'Malley               | Medication adherence | Forgetfulness  | 12.5 Adding objects to the environment    |

The Nina Batrackoulis prototype underwent several iterations within the team and consortium partners. Early feedback by students in higher education institutions of the consortium also contributed to fine-tune the prototype, which was then used for the remaining cases. At this stage all case studies were drafted in English.

The final draft of each person's profile was subjected to feedback rounds from key external stakeholders (Table 3), to benefit from a co-production approach, whilst contributing to quality assurance.

**Table 3 | Key external stakeholders involved in reviewing the persons' profiles**

| Case study | Person  | Name                        | Chronic Disease(s)                       | Reviewed by  |
|------------|---|-----------------------------|--|--|
| 1          |    | Maria José Pereira da Silva | Obesity                                  | Dalia Bajis (International Pharmaceutical Federation)<br>Grace O'Malley (European Association for the Study of Obesity). |
| 2          |    | Nina Batrackoulis           | Asthma                                   | Dalia Bajis (International Pharmaceutical Federation)  |
| 3          |   | Liam O'Malley               | Type 2 Diabetes<br>Hypertension          | Dalia Bajis (International Pharmaceutical Federation)<br>Kate Gajewska (Diabetes Ireland)                                |
| 4          |  | Luuk de Vries               | Obesity<br>Hypertension<br>Heart Failure | Dalia Bajis (International Pharmaceutical Federation)  |

When the persons' profile reached a final draft, efforts of the A3.1 team were shifted to developing questions linked to learning outcomes. These were organised in a way that could lead students logically from assessment (learning outcomes related to BC5 and BC8), planning (learning outcomes related to BC10 and BC11) and intervention (learning outcomes related to BC12) to follow-up (learning outcomes related to BC13). Annex 1 provides a description of learning outcomes and their relation to behaviour change competency statements.

The large number of learning outcomes for each case study, and the consequently large number of related questions, dictated the need to provide resources to support answers in a more comprehensive and well-referenced format. This led to the production of an open access book under the auspices of Springer (ISBN 978-3-031-20009-0), which serves as accompanying reading to case studies.

Feedback received from the testing phase, described in the next section, was discussed, leading to further refinements of case studies.

As planned, learning outcomes, related questions and suggested accompanying reading were presented as part of the toolkits. In this resource, guidance for educators covered key steps before, during and after class for using case studies in behaviour change support education. All toolkits were produced in English.

## Testing the Train4Health case studies

All case studies were tested, as part of A4.1, subsumed in work package 4 (Measurement of learning outcomes).

Testing was performed by using case studies in the Train4Health consortium partners and beyond, through the **Physical Activity and Lifestyle Blended Intensive Programme**, described in Box 2, and the Train4Health early adopters programme, presented in Box 3.

### Box 2 | Physical Activity and Lifestyle Blended Intensive Programme (PAL – BIP)

- Developed by the Physical Activity and Lifestyle (PAL) Network, composed of higher education institutions with bachelor courses on physical activity and lifestyle, led by Inholland University of Applied Sciences.
- The PAL - BIP operates under the framework of ERASMUS+ Blended intensive programmes in higher education, specifically KA131-HED “Mobility of higher education students and staff”.

### Box 3 | Train4Health Early adopters programme

- Offers educators in consortium partners and beyond the opportunity to use innovative products in behaviour change support education in chronic disease and to streamline the digital transformation of teaching and learning
- Benefits the Train4Health project by informing testing of educational products, collecting learnings on implementation, and fostering sustainability.

In a first iteration, students and academic educators receive one case study and were asked to perform one task, in-class or outside the classroom environment. In a second iteration educators and students were asked to use one of the case studies, if possible, in-class.

For example, participants from different Universities used case study 2 in the 2021 edition of PAL - BIP, in an on-line learning environment. Participants in this PAL – BIP edition included, in addition to Inholland University of Applied Sciences (NL), one of the Train4Health consortium members, academic educators and students from Hanze University of Applied Sciences, Groningen, the Netherlands; Lithuanian Sports University, Kaunas, Lithuania; Sport Sciences School of Rio Maior, Portugal; Western Norway University of Applied Sciences, Bergen, Norway; Masaryk University, Brno, Czech Republic.

The 2022 edition of PAL-BIP used Train4Health case studies 1 and 2. In this edition the range of nationalities increased, including not only students from the Czech Republic, Lithuania, the Netherlands, Norway, Portugal and Spain, but also Slovenia, Slovakia, India, and the United States of America. Interestingly, students had also a diverse background in terms of discipline, including physiotherapy, social work, sport science, nutrition and public health.

In any of the testing iterations data were collected using anonymous pre-tested online surveys, for educators and students. The surveys covered aspects such as design, content, usability and perceived value, including both close-ended and open-ended questions.

Globally, the Train4Health case studies were tested by over 20 educators and 750 students from a range of countries beyond the consortium; this broad international feedback was used to refine aspects of the case study components. As part of this process the person's profiles were translated to other languages (Portuguese, Slovenian and Turkish).

Table 4 presents to the full range of case study resources, available in the Train4Health website.

**Table 4 | Hyperlinks to case study resources**

| Case study | Person  | Resources available   | Hyperlink   |
|------------|---|---|---|
| 1          |    | Case study #1 toolkit<br>Assessment criteria for in-class group work by educators<br>Self-assessment criteria for students<br>Person's profile #1 EN<br>Person's profile #1 PT<br>Person's profile #1 SLO<br>Person's profile #1 TR | <a href="https://www.train4health.eu/resources/casestudies/cs1.html">https://www.train4health.eu/resources/casestudies/cs1.html</a> |
| 2          |   | Case study #2 toolkit<br>Assessment criteria for in-class group work by educators<br>Self-assessment criteria for students<br>Person's profile #2 EN<br>Person's profile #2 PT<br>Person's profile #2 SLO<br>Person's profile #2 TR | <a href="https://www.train4health.eu/resources/casestudies/cs2.html">https://www.train4health.eu/resources/casestudies/cs2.html</a> |
| 3          |  | Case study #3 toolkit<br>Assessment criteria for in-class group work by educators<br>Self-assessment criteria for students<br>Person's profile #3 EN<br>Person's profile #3 PT<br>Person's profile #3 TR<br>Person's profile #3 SLO | <a href="https://www.train4health.eu/resources/casestudies/cs3.html">https://www.train4health.eu/resources/casestudies/cs3.html</a> |
| 4          |  | Case study #4 toolkit<br>Assessment criteria for in-class group work by educators<br>Self-assessment criteria for students<br>Person's profile #4 EN<br>Person's profile #4 PT<br>Person's profile #4 TR<br>Person's profile #4 SLO | <a href="https://www.train4health.eu/resources/casestudies/cs4.html">https://www.train4health.eu/resources/casestudies/cs4.html</a> |

## Final remarks

This report outlined the development of a set of four case studies on behaviour change support in chronic disease and associated toolkits for educators. Providing an account of the comprehensive and coordinated process underpinning case studies development is expected to contribute to their credibility and ultimately to their adoption in teaching.

The case studies were created with educators and students from a range of disciplines and countries, firstly within a multidisciplinary project team, and then through feedback in iterative testing processes, ensuring transferability to much broader audiences than the Train4Health consortium. Value to these broader audiences is also ensured by the chronic diseases encompassed in case studies. Obesity, hypertension, and diabetes are amongst the most prevalent chronic diseases, which professionals will encounter in their practice regularly.

Reducing the mismatch between current curricula and students' needs in behaviour change education will ultimately contribute to increase the well-being of persons with chronic diseases and tackle the burden of these conditions in Europe. This mismatch is addressed by the Train4Health case studies and the remaining educational products of the project – the Massive Open Online Course and the simulation software. The persons' profiles initially developed for case-based learning are one of the common threads among these three products; the profiles were used for providing examples in the Massive Open Online Course and animated as virtual humans in the simulation software.

Interprofessional education requires students to learn with, from and about each other. The PAL-BIP was a preliminary interprofessional education attempt, as it gathered students from different disciplines to work with the case studies, following the toolkits guidance. The feedback was extremely positive, and the ground is set for further developments in this direction. Interprofessional learning outcomes defined in the Train4Health curriculum (Cadogan et al, 2021), such as “F1.1 Describe the roles, expertise, and overlapping scopes of practice of disciplines that commonly support behaviour change in the local health system”, can be used to further enable interprofessional education.

Globally, the Train4Health case studies were tested by over 20 educators and 750 students, from a broad range of countries, and translated into three additional languages; collectively, these aspects are expected to facilitate transnational implementation and contribute to the project sustainability.

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## Annex 1 | Learning outcomes related to “ability” behaviour change competency statements

Based on Cadogan et al., 2021

| Competency statement<br>(Ability to:)  | Associated learning outcome  | Bloom's taxonomy Level   | Required knowledge   |
|--|--|--------------------------|--|
| BC5. Identify self-management needs in relation to target behaviour(s) relevant for the chronic disease(s) | BC5.1 Assess the person's behaviour in self-management using appropriate measures  | Cognitive 5: synthesis   | <ul style="list-style-type: none"> <li>Instruments to assess target behaviours in the self-management of chronic disease and interpretation of results: examples.</li> </ul>   |
|  | BC5.2 Compare actual versus desirable health behaviours to identify self-management needs, based on assessment data                      | Cognitive 6: evaluation  | <ul style="list-style-type: none"> <li>Actual behaviour, based on assessment data, versus desirable behaviour: examples.</li> </ul>  |
| BC6. Engage and empower individuals with chronic diseases in self-management                               | BC6.1 Generate with the person opportunities for behavioural change  | Cognitive 5: synthesis   | <ul style="list-style-type: none"> <li>Communication skills: questioning skills and empathic listening.</li> <li>Structuring a behaviour change interaction: setting the stage (ABCD approach).</li> </ul>   |
|  | BC6.2 Assess the extent to which the person wishes and is able to become co-manager of his/her chronic disease                           | Cognitive 6: evaluation  | <ul style="list-style-type: none"> <li>Overview of key concepts: patient empowerment and shared decision-making in behaviour change interventions.</li> <li>Communication skills: questioning skills and empathic listening.</li> <li>Structuring a behaviour change interaction: setting the stage, obtain a commitment (ABCD approach).</li> </ul> |
|  | BC6.3 Demonstrate how to promote coping skills to manage the physical, emotional, and social impacts of chronic disease in everyday life | Cognitive 3: application | <ul style="list-style-type: none"> <li>Concept of coping skills.</li> <li>Applying strategies to promote coping skills in persons self-managing chronic disease.</li> </ul>  |
|  | BC6.4 Assist the person to become co-manager of his/her chronic disease in partnership with health professionals                         | Affective 2: responding  | <ul style="list-style-type: none"> <li>Overview of key concepts: patient empowerment and shared decision-making in behaviour change interventions.</li> <li>Communication skills: questioning skills and empathic listening.</li> </ul>  |

| Competency statement<br>(Ability to:)  | Associated learning outcome  | Bloom's taxonomy Level        | Required knowledge  |
|--|--|-------------------------------|---|
|  |  |                               | <ul style="list-style-type: none"> <li>Structuring a behaviour change interaction: setting the stage, establishing an information base, obtain a commitment, negotiating an intervention plan (ABCD approach).</li> </ul>   |
| BC7. Foster and maintain a good intervention alliance with individuals                                 | BC7.1 Apply strategies to support the co-operative working relationship between the person and the professional  | Affective 2: responding       | <ul style="list-style-type: none"> <li>Overview of key concepts: person-centredness.</li> <li>Communication skills: questioning skills and empathic listening.</li> <li>Optimising the use of verbal language.</li> <li>Structuring a behaviour change interaction: setting the stage, establish an information base, obtain a commitment, negotiate an intervention plan (ABCD approach).</li> </ul>   |
| BC8. Identify opportunities and barriers (determinants) to implementing change in the target behaviour | BC8.1 Demonstrate the importance of collecting holistic information about the person to tailor the behaviour intervention  | Affective 4: organisation     | <ul style="list-style-type: none"> <li>Behaviour determinants</li> <li>Assessing behaviour determinants</li> <li>Tailoring behaviour change intervention to each person: examples.</li> </ul>   |
|  | BC8.2 Demonstrate how to assess behaviour determinants through structured questionnaires, interview and other approaches   | Affective 3: valuing          | <ul style="list-style-type: none"> <li>Behaviour determinants</li> <li>Measures to assess determinants in the self- management of chronic diseases and interpretation of results (e.g., Bartel index for activities of daily living, Beliefs about medicines questionnaire).</li> <li>Communication skills: questioning skills and empathic listening.</li> <li>Structuring a behaviour change interaction: establish an information base (ABCD approach).</li> </ul> |
|  | BC8.3 Discuss opportunities and barriers that influence target behaviours in a person-centred fashion  | Cognitive 5: synthesis        | <ul style="list-style-type: none"> <li>Communication skills: questioning skills and empathic listening.</li> <li>Optimising the use of verbal language.</li> <li>Structuring a behaviour change interaction: establish an information base (ABCD approach).</li> </ul>  |
| BC9. Work in partnership to prioritise target behaviours to develop an intervention plan               | BC9.1 Recognise the person's views, knowledge, and skills, developed through his/her experience with chronic disease, to aid prioritisation of target behaviours | Affective 5: characterization | <ul style="list-style-type: none"> <li>Communication skills: questioning skills and empathic listening.</li> <li>Optimising the use of verbal language.</li> <li>Structuring a behaviour change interaction: establish an information base (ABCD approach).</li> </ul>  |

| Competency statement<br>(Ability to:)   | Associated learning outcome  | Bloom's taxonomy Level   | Required knowledge   |
|---|--|--------------------------|--|
| BC10. Identify and select behaviour change techniques that are tailored to behavioural determinants (opportunities and barriers) in developing an intervention plan | BC10.1 Discuss BCTs addressing behaviour determinants (opportunities and barriers) with the person   | Affective 3: valuing     | <ul style="list-style-type: none"> <li>• Behaviour determinants</li> <li>• Assessing behaviour determinants</li> <li>• Behaviour change techniques</li> <li>• Communication skills: questioning skills and empathic listening.</li> <li>• Optimising the use of verbal language.</li> <li>• Structuring a behaviour change interaction: negotiate an intervention plan (ABCD approach).</li> </ul> |
|   | BC10.2 Among BCTs addressing behavioural determinants, decide on which can include in the intervention plan, according to the person's views and resources | Cognitive 6: evaluation  | <ul style="list-style-type: none"> <li>• Behaviour change techniques.</li> <li>• Communication skills: questioning skills and empathic listening.</li> <li>• Optimising the use of verbal language.</li> <li>• Structuring a behaviour change interaction: negotiate an intervention plan (ABCD approach).</li> </ul>  |
| BC11. Select behaviour change techniques that are appropriate to the length of the intervention (brief or long-term)  | BC11.1 Demonstrate critical understanding of BCTs appropriate for brief or long-term behaviour interventions   | Cognitive 3: application | <ul style="list-style-type: none"> <li>• Distinction between brief and long-term behaviour change interventions.</li> <li>• Examples of the application of BCTs according to the length of the intervention.</li> </ul>  |
| BC12. Apply behaviour change techniques and implement the intervention plan, adapting and tailoring as require  | BC12.1 Apply behaviour change techniques according to the intervention plan  | Cognitive 3: application | <ul style="list-style-type: none"> <li>• Behaviour change techniques</li> <li>• Applying core BCTs as part of an intervention plan: examples.</li> </ul>   |
|   | BC12.2 Assess the person's target behaviour regularly using appropriate data collection approaches   | Cognitive 6: evaluation  | <ul style="list-style-type: none"> <li>• Assessing the person's target behaviour as part of monitoring the intervention plan: examples</li> </ul>  |
|   | BC12.3 Demonstrate how to monitor the implementation of BCTs as part of the intervention plan  | Affective 2: responding  | <ul style="list-style-type: none"> <li>• Assessing the person's target behaviour as part of monitoring the intervention plan: examples</li> <li>• Monitoring BCTs implementation as part of the intervention plan: examples.</li> </ul>  |
|   | BC12.4 Demonstrate how to redefine the intervention plan as appropriate  | Affective 2: responding  | <ul style="list-style-type: none"> <li>• Behaviour change techniques</li> <li>• Applying core BCTs as part of an intervention plan: examples</li> <li>• Changing the plan based on the experience gained when the intervention is not working: examples.</li> </ul>  |
| BC13. Plan for follow-up and maintenance when the target behaviour has been achieved  | BC13.1 Plan the end of the intervention and the use of BCTs and resources beyond its end to promote maintenance of the target behaviour                    | Cognitive 5: synthesis   | <ul style="list-style-type: none"> <li>• Strategies for signalling termination at a near point in time and for dealing with concerns.</li> </ul>   |

| Competency statement<br>(Ability to:)  | Associated learning outcome   | Bloom's taxonomy Level        | Required knowledge   |
|--|---|-------------------------------|--|
| BC14. Provide access to appropriate information and educational materials tailored to individual needs | BC14.1 Share information and adequate educational materials according to individual factors (e.g., knowledge gaps, health literacy level and preferences) | Affective 5: characterisation | <ul style="list-style-type: none"> <li>• Examples of potentially useful resources.</li> <li>• Concept of health literacy</li> <li>• Examples of available educational resources (e.g., websites).</li> <li>• Tailoring information to individual factors: examples.</li> </ul> |