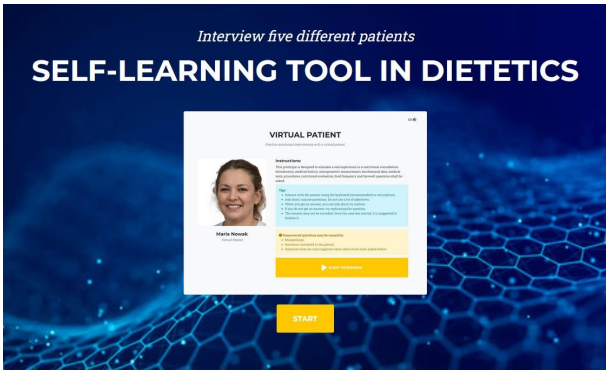
#5 Updates from the E+DIETing_LAB: Introducing the E+Dieting_Lab Virtual Patients

We are delighted to announce the launch of the E+Dieting_Lab virtual patient chatbots, a groundbreaking initiative in dietetic education and practical training. This project, which has undergone extensive planning and development over the past eighteen months, is now commencing its pilot phase.

In the coming months students and educators across Spain, Belgium, Portugal, Poland, and Austria will be testing the chatbots and providing valuable feeback. This pilot will be conducted in six languages, reflecting our commitment to a diverse and inclusive learning environment.

This newsletter presents in detail how to access and use the virtual patient chatbot and our plans for future improvements.

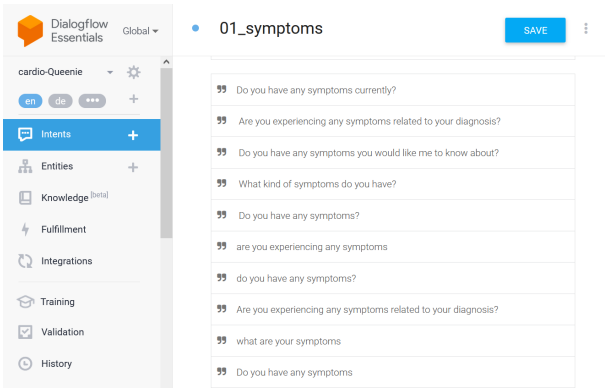


1 - The new E+Dieting_Lab virtual patient platform

Objective and Design of the Virtual Patients

Our virtual patient chatbots are ingeniously crafted to mimic real-life patient interactions with dietitians, thereby enabling users to practice gathering crucial clinical information in a risk-free and supportive setting. This innovative approach is intended to bridge a often identified gap in dietetic education – the development of practical competencies through experiential learning.

The chatbots have been carefully designed by our teams of dietitians through patient case studies and digitised by our technical team using Dialogflow.

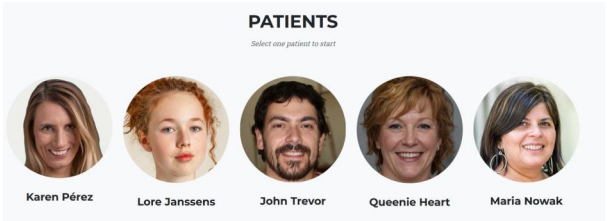


2 - Development of virtual patients in Dialogflow

Getting Started

We are excited to guide you through the process of accessing and utilising these virtual patients. Our newly launched website provides a user-friendly platform for registration and access. The system is open to students, educators, practicing dietitians, and other interested stakeholders.

Upon registration, users can select from five virtual patients – Karen, Lore, John, Queenie, and Maria – each presenting unique health conditions such as overweight, heart disease, diabetes, coeliac disease, and kidney disease. Importantly, the individual diagnosis and related conditions of each virtual patient is not disclosed upfront, mirroring real-world scenarios and encouraging users to ask the virtual patient detailed questions.



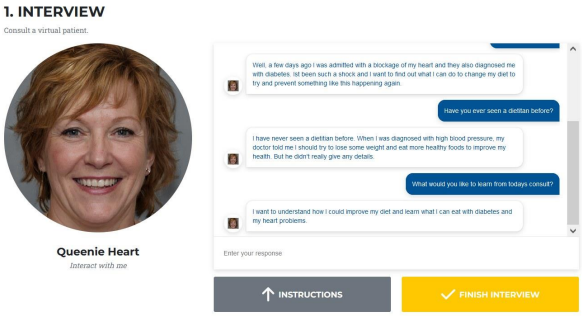
3 - The five virtual patients

Accessibility and Interaction with the virtual patient

Our virtual patients are accessible in English, German, Spanish, Dutch, Polish, or Portuguese. Users can engage with them through audio or typing, initiating the interaction with a simple greeting. The chatbot system is optimized for direct questions but is also capable of providing more detailed responses to follow-up inquiries.

The core question bank for all patients covers introductions between the patient and practitioner, including the patients' expectations for the consult, collection of medical and social history, anthropometric measures, a detailed nutrition history and closing remarks/farewells.

Users are encouraged to approach the interaction with the virtual patient much the same as they might a real patient, following the questioning assessment processes learnt during dietetic training.



4 - Interaction with virtual patient

Addressing Challenges and Enhancements

We recognize that during this pilot phase users may encounter challenges, such as unresponsive or irrelevant answers from the chatbots. In some cases reformulating the question may resolve the issue but for others the issue may persist. In these cases, the project team will be able to review the interactions and adjust the chatbots via training to improve the responses including adding extra information and modifying the existing question bank.

The chatbots have been designed to give specific responses to a limited set of questions, discussed in our previous newsletter. This means that there is more control of the content of the answers but limited flexibility of the conversation. For example, while all patients can give answers about their weight or what they eat for breakfast, more complex or specific questions may not yield an answer as the bots currently do not have the ability to generate answers to novel questions they are not programmed to respond to.

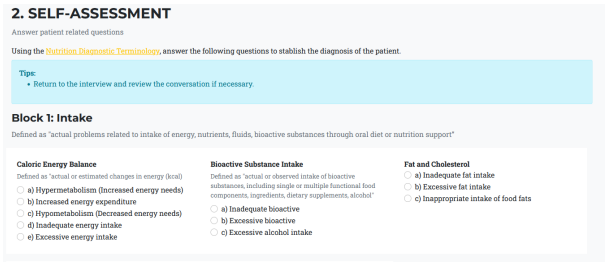
Initial feedback from pilot users indicates that there is a learning curve to formulating effective questions when interacting with the chatbots. This is reflective of how many students feel during their first independent consultations with real patients, so we hope practicing the critical thinking skills needed to develop effective questioning techniques in this safe virtual environment will help develop competency for real-world application.

The Self-Assessment

To be an effective self-learning tool, it is important for users to receive feedback on their interaction with the bot and test their clinical critical thinking skills. In the E+Dieting_Lab platform this is achieved in two ways, through self-assessment questions targeting clinical knowledge and through feedback on the number and type of questions asked to the virtual patient.

After completing their interaction with the virtual patient, users are asked to complete a self assessment. At this stage of development, the self-assessment is based on the International

Dietetic Nutrition Terminology (1). Users can use the information collected from the patient interaction to select the most appropriate diagnostic terms applicable to the patient's case.



5 - Self assessment of clinical skills

Once the self-assessment is complete, users are given feedback on their answers and on their interaction with the virtual patient. Currently, the user is shown what percentage of key questions that have been asked out of the possible question bank, organized by the categories of introduction, medical history, anthropometric measures, diet history, food frequency and farewell. The aim here is to show the user the different portions of a dietetic interview and where they may need to work on developing more extensive questions to gather the required information. To support this learning process the user can also download their entire conversation with the virtual patient to enable detailed review.

6 - Feedback to patient assessment data collection

Next Steps and Improvements

Initial piloting has been successful with students and teachers from partner universities participating in testing. We have been pleased with the positive comments from users as well as constructive feedback to help with further improvements.

As we continue the piloting phase of our project, we are excited to explore how we can further develop and refine our patient chatbots. Key points that are planned to be further developed include: training of chatbots based on interactions with pilot group, further development of the self-assessment question format in line with the unified framework Dietetic Care Process (DCP) (2), extension and customization of feedback to students and improvements to translations.

Furthermore, we will soon be piloting the second part of our project, the virtual clinic, where students can interact with real patients under supervision. So, stay tuned for more exciting developments in this space.

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References

1. Writing Group of the Nutrition Care Process/Standardized Language Committee. Nutrition care process part II: using the International Dietetics and Nutrition Terminology to document the nutrition care process. J Am Diet Assoc. 2008 Aug;108(8):1287-93. doi: 10.1016/j.jada.2008.06.368. PMID: 18656567.
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#Newsletter 1, #Newsletter 2, #Newsletter 3, #Newsletter4