Virtual Patient: Enhancing Clinical Reasoning Skills in Midwifery Education

Case Study

Hybrid Healthcare

This case study presents the development of the Virtual Patient application, designed to enhance clinical reasoning skills in midwifery students. The tool supports the development of cognitive and psychomotor competencies in planning, implementing, and evaluating care for women across all stages of life.

Through interactive case studies and simulated communication with patients, the app helps students improve diagnostic thinking and decision-making. Additionally, it can be used during clinical placements in hospitals, allowing students to practice care planning with real patients.

The application supports professional competence and provides free access to reliable educational content in obstetrics and gynaecology.

Implementation Process

Stage I – Pre-Implementation Analysis (Presenting application requirements to the software development team; User Interface design; Design of application modules and mutual interactions between them)

Stage II – Implementation and testing (software development with key functionalities for each module; software testing)

Stage III – Technical Support and Maintenance (software bugs corrections; implementation of requested changes)

Impact and Results

- Since the academic year 2022/2023, a total of approximately 1500 Virtual Patient users. They have completed 4,800 virtual patient simulations (as of May 30, 2025).
- Out of this number, nearly 1,800 were based on fictional cases, and around 3,000 were completed during clinical classes with real patients.

Country	Poland
Institution/Organisation	Medical University of Warsaw
Type of setting	University, hospital
National Context	There is a clear shortage of modern audiovisual materials based on real clinical cases in midwifery education. Clinical reasoning, which is essential for midwives and nurses, has mostly been taught through written descriptions of patient conditions and care plans, a method many students find difficult and unintuitive.A survey among midwifery students showed that 91% would like to use an application supporting clinical reasoning, indicating a strong need for interactive digital tools. In response, the "Virtual Patient" application was developed in 2022, enabling students to practice diagnosing, planning, delivering, and evaluating care in a realistic digital environment.

Success Factors

- Involvement of academic staff and students at all stages of the project.
- Design of the application based on real student feedback.
- Flexibility of use in both simulation settings and real clinical practice.
- Simple and visual integration of the nursing process, helping students better understand care planning and evaluation.

Challenges and Barriers

- Need for training academic staff who are not fully comfortable with new technologies.
- Requirement for regular annual updates to maintain compatibility with current mobile operating systems

Resources and Funding

- Until 2023, the development and implementation of the Virtual Patient application were funded under the project WUM for WUM – Medical University of Warsaw – Knowledge and Skills for Mazovia FS 229, Task 1: Supporting the education of midwives and nurses in diagnosing obstetric and gynaecological problems using a virtual patient.

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Recommendations:

- For future implementations, it is recommended to ensure that the application is easy to use and works well on different devices, especially smartphones, as they are most often used by students. It is also important to provide regular software updates to keep the app compatible with current operating systems.
- Before launching the tool, training for academic staff should be planned in advance, as some teachers may need more time and support to feel comfortable using new technologies.
- To scale the project to other institutions or countries, it is helpful to prepare a version of the app that allows for adding custom clinical cases and adapting the language and medical guidelines to local standards. Collaboration with educators and students in the target institution is also key to a successful implementation.

Integration in Education Settings:

- The case study was integrated into clinical practice modules as a demonstration for midwifery and nursing students to work real patient.

Specific Environment and Limitations:

- Not all hospitals where students complete their clinical training provide free and stable Wi-Fi, which makes it difficult to use the application when working with real patients.
- Another challenge is sharing the platform with other institutions. The project was initially designed for use only by students of the Medical University of Warsaw. Access to the application is currently limited to students with a user profile in the WUM domain. However, expanding the platform is possible, and work is currently underway in this area.

Key Lessons Learned:

- Early involvement of students ensures the tool reflects real educational needs and increases acceptance.
- Digital tools in medical education must be simple, intuitive, and visually structured to support clinical reasoning.
- Training and supporting academic staff is essential, as educator readiness determines successful implementation.

Supporting Materials:

•You can watch an example animation from the Virtual Patient application on YouTube at the following link: https://www.youtube.com/watch?v=PM2j8MQiLm4

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