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# More simulation in specialty training

PERSPECTIVES

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**There is considerable untapped potential in the training of medical specialists in Norway. Simulation should be given a more central role.**

Illustration: Espen Friberg

'I hear and I forget. I see and I remember. I do and I understand.' This quote from Confucius (551–479 BC) speaks to why simulation is an effective learning method.

Norwegian hospitals vary considerably in terms of size and work tasks, but they all undertake specialty training of doctors. Simulation can help increase competence levels regardless of which other learning opportunities are available. It can also be used in competence assessment.

## What is simulation?

Simulation is defined as 'imitation or enactment' (1). Within healthcare studies, simulation can be defined as 'a targeted and structured interactive learning tool that entails dealing with situations that imitate reality, and building experience through reflection in and on actions' (2). Simulation is thus based on the key learning theory principle that it is not enough *to do* – you must also reflect on what you have done. This is why healthcare simulation should be led by people trained to foster such reflection, known as facilitators. Simulation-based learning activities include scenario-based team simulations, skills training, VR (virtual reality) and gaming. Simulation is suitable for individual skills training, but for doctors in training, simulation will also be beneficial for teamwork training, taking on leadership roles and broadening their understanding of the healthcare system. Simulation can therefore be an important supplement to other learning activities and to raising the standard within medical specialisations.

## Research on simulation

A considerable amount of research has been conducted on simulation in the last decade. Through the 'Safer Births' project, researchers in Norway have demonstrated how regular simulation training for healthcare personnel led to a significant reduction in both maternal and neonatal mortality in Tanzania (3).

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In the 'Safer Stroke' project in Norway, regular team training has reduced so-called door-to-needle times in stroke patients, resulting in better patient outcomes (4), and team training among obstetricians has been shown to reduce blood loss in postpartum haemorrhage (5). There are now many such examples of how regular simulation training can be used to increase the competence of healthcare personnel, thereby improving patient care.

## Competence-based specialty training for doctors

With the transition to competence-based training of medical specialists in Norway, the focus has shifted to recognising that individuals have different learning curves. In skills training, doctors undergoing specialty training will need varying numbers of repetitions to achieve their competence goal. If we are to move away from asking 'How many procedures have you performed?', and instead ask 'What can you do?', we must also pave the way for individually tailored training volumes. Working time regulations, new and more complicated treatment modalities and, not least, patients' right to be involved in decision-making limit the possibilities for 'training' on patients. Prior to interacting with patients, it would be ideal if doctors undergoing specialty training had thoroughly practised basic skills to the point where they could almost perform them automatically – in other words, 'move the learning curve' away from the patient and into a simulated situation. The traditional 'See one, do one, teach one' approach is not unsafe for patients, but it is very resource-intensive and particularly difficult to implement in a time when learning opportunities have decreased. This is partly due to the rise in the number of doctors undergoing training. Additionally, treatment in Norwegian hospitals has become so specialised that what used to be suitable for 'beginners' now requires a much more advanced level of experience before patient care can be administered. Examples of this can be found in surgical departments, where the introduction of laparoscopy and robot-assisted surgery has resulted in significantly fewer learning opportunities for our future surgeons.

The learning opportunities available will also differ for each hospital. Situations that are rarely or never encountered in a particular hospital can, to some extent, be replaced by simulation, and the Norwegian Directorate of Health encourages more active use of simulation in training: 'Several specialties use simulation as a learning tool' (6). Simulation is also beneficial for situations that pose particular challenges and require additional training to instil confidence. It is also suitable for critical and time-sensitive scenarios.

## Competence assessment

A total of 10 000 hours of training can be needed to become an expert (7), and these hours must consist of targeted skills training, known as 'deliberate practice' (8). Only through targeted training, where you constantly push your own boundaries, can true expertise be achieved. However, more relevant to the speciality training of doctors is how long it takes to become competent and, not least, how to measure competence. In the new regulations on specialty training for doctors, the Norwegian Directorate of Health provides for the use of simulation in competence assessment. Simulation can be used both in formative assessment (ongoing assessment): 'Assessment through simulation can be used before the doctor undergoing specialty training is allowed to practice, i.e. assessment of whether they are competent enough to perform the

task in a real-life situation', and as a summative assessment (final assessment): 'For some learning objectives, specific skills can be assessed in a simulation task' (6).

## The specialists need to get involved

There is significant potential in increasing the use of simulation-based learning in specialty training for doctors, but for the training to be effective, medical specialists must be involved. In order to fully benefit from simulation as a learning tool, doctors undergoing specialty training depend not only on carrying out the simulation but also on receiving feedback and opportunities for reflection: 'Feedback helps to reinforce learning experiences and ensure a lasting impact' (6).

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Healthcare simulation is a pedagogical learning method that is effective but may require significant human resources and/or advanced equipment. Less resource-intensive learning methods, where available, should be prioritised from a healthcare economics perspective. However, it is crucial to involve doctors undergoing specialty training in the simulation training already taking place in Norwegian hospitals, not merely in a passive role in the training of other occupational groups, but as actively engaged participants. In order for simulation-based learning to be effectively integrated into specialty training, medical specialists must not only be actively involved in simulations but also play a leading role in discussions about where, how and when simulation should be used as a learning tool.

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