

Biography Page

1. Title of manuscript

Co-creation with Prelicensure Nursing students to create a Simulated Placement

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5. Funding information:

N/A

6. Add disclaimer or disclosure information:

The author declares no conflict of interest.

7. Acknowledgements:

I would like to thank Dr Lisa Arai for critical feedback provided during the drafting of the submitted manuscript.

Abstract

Introduction

Co-creation is a collaborative process used to develop new initiatives. It has many known benefits associated with innovation in the development of programmes, such as by creating simulations based on firsthand experiences. Simulated learning has been increasing in undergraduate nurse education. The paper explores an elective placement which asked undergraduate student nurses to co-create simulations and lesson plans for a simulated practice placement.

Approach

Thirty undergraduate nursing students co-created simulations and associated lesson plans for a simulated practice placement. They followed a four-step process which required them to 1) collate foundational information on learning outcomes and assessments, 2) understand the platform they were working on, 3) explore the resources and 4) incorporate the activities to create simulations and lesson plans.

Discussion

Co-creation combines lecturers' and students' unique skills and knowledge creating programmes based on the unique firsthand experiences of stakeholders. However, student's

ability to take control of their own workloads varies. As a result, facilitators must be adaptable in the support they provide, depending on the needs of the students.

Conclusion

The staged process provided a clear structure that the students could follow to produce their simulations and lesson plans. The co-creation of the simulated practice placement provided an innovative pedagogical design that supported student development and produced lessons and simulations based on stakeholder need.

Key words: Co-creation; Simulation; Simulated practice placements; undergraduate nurse education

Introduction

Co-creation is a collaborative process between companies and stakeholders used to create new initiatives ¹. Within higher educational settings, co-creation has many known benefits associated with innovation in the development of programmes, including the use of a pedagogical approach that empowers students ¹. Higher educational institutes also benefit as they can offer programme content uniquely tailored to the needs of the student population.

Using co-creation, stakeholders can draw from their own experiences and co-create better quality simulations based on their own learning needs ²¹.

During the COVID-19 pandemic, the Nursing and Midwifery Council (NMC) ³ allowed for 300 hours of clinical placement to be replaced with simulated practice placements within their RN5 directive. RN5 was created as part of the NMC ³ recovery standards aimed at supporting undergraduate nursing students to complete their programme during the COVID-19 pandemic while not compromising quality. After the success of RN5, the NMC ⁴ released RN6(D), which allowed universities to provide 600 hours of simulated practice placement in replacement of clinical hours on application.

This paper explores an elective placement which asked undergraduate student nurses to co-create simulations and lesson plans for a simulated practice placement. The elective placement was not attached to proficiencies and the aim was to provide the students with a broader view of the profession, and in this case, the role of the nurse lecturer.

Background

Higher education creates a platform for students and faculty to work in partnership potentially enhancing the student experience ¹. For example, student satisfaction, motivation and engagement are enhanced through protagonist participation ^{5 6}. Protagonist participation places the student in the centre of the initiative, commanding active, effective and autonomous involvement with a view to influence outcomes ⁷. Co-creation is a type of protagonist participation, one that changes student-lecturer dynamics, places the student in the lead ⁸ and

changes power dynamics between student and staff. Co-creation also provides an opportunity for the co-construction of knowledge leading to greater insight into the subjects discussed by exploring them in depth and from multiple angles and perspectives ¹.

Simulation improves knowledge through co-construction ^{9 10}. The NMC⁴ (P. 9) defines simulation as "*an educational method which uses a variety of modalities to support students in developing their knowledge, behaviours and skills, with the opportunity for repetition, feedback, evaluation and reflection to achieve their programme outcomes and be confirmed as capable of safe and effective practice.*" Simulation has also been defined as 'mimicking' or 'replicating' ¹¹, typically seen in scenarios aimed at replicating clinical practice.

Most current simulated practices use a constructivist approach that looks beyond behaviour alone and examines the learner's thought process^{12 10 13}. Constructivist thinking uses the learner's schema to explore concepts which are unique to them and develop new understandings of the physical world ¹³. Developing new thought processes supports the transferability of knowledge, skills and behaviours through improved problem-solving skills¹⁰. Associated experiential learning encourages exploration related to inquiry-based and problem-based learning^{14 10}. For example, creating simulations requires students to explore the trajectory of deterioration or potential sequence of events, including multiple possible eventualities to write the scenarios.

Approach

Thirty second-year undergraduate nursing students attended a university-based elective placement between 31st January 2022 and 27th February 2022. With the facilitator, they co-created simulations and associated lesson plans for a simulated practice placement. The facilitator provided regular supervision for each group and was available for daily discussions. Groups of three to seven students chose one of five modules from the undergraduate nursing programme (table one; Appendix one). Appendix One also presents the module learning outcomes as well as activities produced by the students. The process of simulation and lesson plan development can be seen in Figure one.

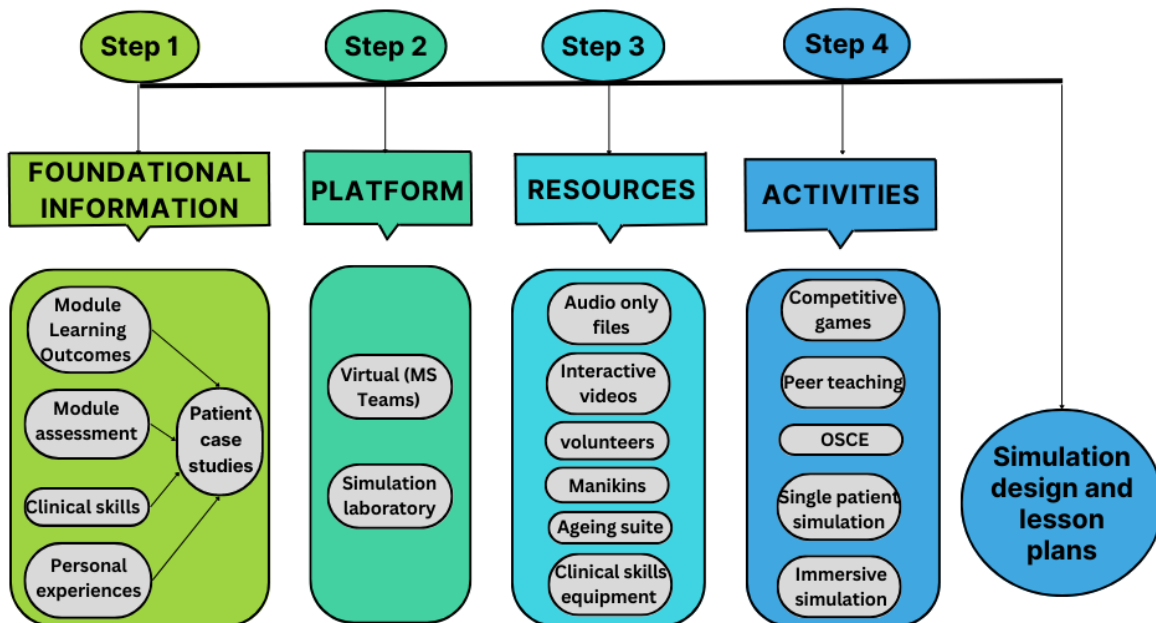


Figure 1: Process of Simulation and Lesson Plan Development

Step one – Foundational Information

The process began with compiling the foundational information the students needed to include in the simulations and lesson plans. Foundational information included:

- module learning outcomes and assessments (table one and Appendix One)
- clinical skills from the future nurse proficiencies ¹⁵
- students' firsthand experiences of the university programme as well as clinical practice

The future nurse proficiencies stipulate the knowledge and skills students must acquire to become a registrant. These were mapped against the university theory modules. For example, group one: 'introduction to physiology, assessment and care planning' linked the learning outcomes to communication-based proficiencies and their experiences attending clinical placements for the first time after never attending a clinical setting. Meanwhile, group five: 'clinical decision-making, risk management and evidence-based practice' (first module in level five) included cannulation, venesection, electrocardiogram (ECG) dot placement and the use of intravenous pumps. These clinical skills from the future nurse proficiencies were mapped against the level five modules. The group also considered ethical dilemmas they had experienced in clinical practice and used these to create clinical decision-making scenarios (Appendix One).

Table 1: Modules in the programme

Group number	Module
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1	Introduction to physiology, assessment and care planning
2	Communication, reflective and professional practice
3	Long-term conditions and multi-morbidity
4	The role of the healthcare professional in health promotion
5	Clinical decision-making, risk management and evidence-based practice

Step two – Platform

The students were presented with the two platforms from which the simulations and lessons would be delivered: virtual using Microsoft TEAMS; and face-to-face in the simulation laboratory. The students had received online teaching prior to the elective placement but had not undertaken a virtual simulated practice placement themselves.

Step three – Resources

The students were asked to familiarise themselves with the online resources and the physical equipment in the simulation laboratory. To explore the online resources, students watched interactive videos and trolled the online pages from a previous virtual placement (see Salje and Moyo¹⁶ for details). Regarding the physical resources, multiple pieces of equipment were distributed throughout the simulation laboratory for the students to explore. Students were also asked to consider the number of trained staff needed to deliver the simulations and lessons. The university has few staff members trained in simulation, and simulated placements are known to create an extensive human-resource burden ^{17 18}.

Step four – Activities

Students considered pedagogical design linked to simulation and real-world learning (figure one, step four). For example, group five: 'clinical decision-making, risk management and evidence-based practice' created a lesson using six stations throughout the simulation laboratory, each with one complex patient. Group three: 'long-term conditions and multi-morbidity' created patient deterioration simulations using a mannikin, each focusing on a different long-term condition. Finally, group four: 'the role of the healthcare professional in health promotion' opted to create group leaflets which would be presented to the rest of the year group.

Simulation design and lessons

To complete the process, the groups combined the information collected from steps one to four to design simulations and lesson plans (figure one; Appendix One). For example, a virtual simulation was designed for group two: 'communication, reflective and professional practice'. This group created patient notes with backstories and designed two sequential videos of a busy ward. The first video introduced the patients by asking a night nurse to hand over the patients to the day nurse. The second video presented events that occurred later in the day. Student activities included de-escalation, supporting a patient suffering from depression and providing health education to a person with diabetes. Competencies surrounding de-escalation and providing holistic care can be found in the future nurse proficiencies ¹⁵, and health promotion and communication are module learning outcomes. The lesson plan also asked students to

update patient notes and conducted a handover; skills which can be found in the future nurse proficiencies ¹⁵ and that the students reported finding challenging during their placement.

Regarding the face-to-face lesson, the students from group two opted to use simulated patients rather than high-fidelity mannikins to allow for verbal and non-verbal communication. They designed a ward-based experience which involved six students taking the role of the patients and six to take the nursing roles. For continuity and to consolidate learning, the students used the same patients as the ones they had created for the online sessions. The session concluded with a debrief, where discussions linked evidence to the actions undertaken during the simulation.

Discussion

Co-creation combines lecturers' and students' unique skills and knowledge ¹. University lecturers' knowledge is around learning outcomes and the pedagogical design of their modules. Whereas students, as stakeholders, have lived experience of the programme, including a view of how taught modules support or hinder clinical placements. Co-creating a simulated practice placement aligns both perspectives, enhancing the content of the placement ¹.

Frow et al. ¹⁹ reported similar findings observing that the joint development of programmes created teaching content that addressed specific student needs which lecturers had not previously considered. In our experience, the students in group one (table one) expressed the need to learn how to feed others, toilet patients, and manage ward environments as a student. As a result, group one created simulations where students learnt the ward's routine and were

advised to speak to patients to get to know them better; activities previously not considered for the simulated practice placement.

Creating the simulations and lesson plans described in this paper required the students to take control of their workloads with facilitator support. Self-directed learning promotes self-efficacy, problem-solving and is linked to an improved ability to learn²⁰. Effective learning skills are a requirement for registered nurses, and the NMC²¹ has stipulated that life-long learning is a requirement of registration. In any group, participants vary in their cognitive capacity to learn²⁰. For example, students not accustomed to self-directed learning may feel overwhelmed by the absence of structure and individual responsibility. Having clear expectations and regular opportunities for guidance supports the process²⁰. Interestingly, each group in the co-creation described in this paper had differing needs during supervision. One group completed the tasks and reported their progress, whereas others needed to be motivated to complete the activities or needed assertive direction and confidence building. Isomöttönen & Kärkkäinen²⁰ reported similar findings, noting that multiple intrinsic and extrinsic factors influenced group working. Isomöttönen & Kärkkäinen²⁰ encouraged facilitator adaptability and an individualised approach to coaching each group to help them achieve the common goal.

Co-creation promotes innovative use of resources¹. The students discussed in this paper attended the simulation laboratory while the resources were distributed. Many students used the opportunity to practise skills they had previously found challenging. Students were not given this opportunity before this placement as the activity had not been timetabled into the programme. Baayd et al.²² found that resource-rich institutions did not fully utilise their resources, and resource-poor institutions could overcome limitations in resources through

innovation. Specifically, the frequency and capacity in which institutions use their equipment differs, and having equipment does not mean they will be used well. Equipment often comes with minimal guidance on how to use it. As a result, institutional evaluations are well-placed to determine what works for each programme in regard to their use of resources ¹¹. Jeffries ¹¹ discussed the need to understand the resources available to simulationists and to align these to learning outcomes and the needs of the participants.

In the co-creation experience described above, students reported feeling better prepared for conducting clinical skills in practice after exploring the equipment. As a result, the unstructured exploratory use of resources has been incorporated into the simulated practice placement within each of the three years of the undergraduate nursing programme.

Lessons and limitations

Because the elective placement was created during the COVID-19 pandemic when students could not organise elective placements in other settings, data collection was limited. However, the positive feedback received from students - and insights from research on the co-creation of simulation - has resulted in similar activities being incorporated into other simulated practice placements. In addition, at the time of writing, the lessons designed by the students are being used in the simulated practice placement for other students. Data is being collected as part of a longitudinal study. The data collected thus far has informed and guided changes to the students' simulations and lesson plans.

Additional and unexpected advantages from co-creating the simulated placement included the fostering of student social support networks and greater levels of active collaborative participation. However, social networking could have been enriched by creating groups based on students' home residence, as these students are likely to attend placement in similar areas. As a result, the simulated practice placement now groups students according to their home addresses. In addition, group participation could have been enhanced through mindful discussions on expectations during collaboration and group roles. Understanding one's strengths and weaknesses, as well as own role within a team, increases productivity and can improve the experience of working in a team²³. Discussions around teamwork roles can help manage expectations regarding task delegation and thus reduce unnecessary conflict. Also, understanding one's attributes supports aligning tasks to personal strengths²³. In recognition of this, teamwork activities have been included in the lessons for the subsequent co-creation projects in the simulated practice placement.

Conclusion

This paper reports insights from co-creating a simulated practice placement incorporated into an undergraduate adult nursing programme. The staged development process provided a clear structure for the students to produce their simulations and lessons (figure one). The process ensured that the learning outcomes, clinical skills and the student's personal experiences informed their lesson designs. The step-by-step process guided the students to collate the necessary information and gain the required knowledge on simulation and lesson design to

produce simulations and lessons that bridge the theory taught in the university with clinical practice. The co-creation process had the unique advantage of incorporating students' firsthand experiences, leading to the inclusion of student need previously unidentified by the lecturers. The students collaborated during this exercise and created support networks and enhanced levels of peer support. However, the process required all students to manage their own workloads, requiring motivation, engagement and skills in self-directed learning. As each student and student group differed in their abilities to manage the tasks, the facilitator adapted the direction and level of support provided. Students were also given the opportunity to explore resources freely, leading to reports of greater confidence in practical clinical skills. The co-creation of the simulated practice placement provided an innovative pedagogical design that supported student development as well as produced lessons and simulations based on stakeholder need. As a result, similar co-creation projects have been incorporated into subsequent simulated practice placements.

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Appendix 1: Learning outcomes and associated activities produced by each student group

Group One – Introduction to Physiology, Assessment and Care Planning	
Learning Outcome	Associated Activities
Apply the principles of taking a holistic nursing history and assessment to clinical practice.	<p>Virtual activity: Watch a holistic assessment taking place. Conduct holistic assessments on one another.</p> <p>Face-to-face activity: Perform a holistic assessment in a simulated ward environment.</p>
Demonstrate competency in the use of appropriate assessment tools to make a safe holistic accurate nursing assessment and use of the nursing process to formulate and evaluate plan of care derived from evidence-based practice.	<p>Virtual activity: Students watch an interactive video and complete a risk assessment form.</p> <p>Students observe a nurse (video) catheterizing a patient. They follow and discuss the nursing process, also completing an associated form. Students complete the nursing process against a scenario, and feedback to the group.</p> <p>Face-to-face activity: Students complete various risk assessments during the immersive simulation.</p> <p>Students conduct the nursing process in catheterization, injection technique and personal care throughout the immersive simulation. These are discussed during debrief.</p>
Demonstrate knowledge and understanding of the main body systems along with their physiological structures and functions.	<p>Face-to-face activity: Debrief includes discussions on the urinary system linked to catheterization, as well as the pancreas in discussing diabetes.</p> <p>Post immersive simulation presents an interactive activity using the anatomage table as well as an opportunity for students to explore anatomy models.</p>

Group Two – Communication, Reflective and Professional Practice

Learning Outcome	Associated Activities
Describe the core skills, processes and theories of interpersonal communication and show how environmental and social factors can potentially impact on the success of interactions.	<p>Virtual activity: An immersive, online simulation asks students to manage patients and de-escalate. Debriefing of the simulation discusses theoretical perspectives.</p> <p>Face-to-face activity: Debriefing the immersive simulation discusses the impact of the environment and social factors on communication.</p> <p>Underpinning theories are related to events in the immersive simulation.</p>
Demonstrate a sound working knowledge of communication pathways and strategies within a health and social care setting, including maintaining confidentiality.	<p>Virtual activity: A video demonstrates a poor handover, which breaks confidentiality. This is discussed, and the students discuss the points and how it should be changed. Theoretical perspectives are discussed during the debriefing sessions.</p> <p>Face-to-face activity: Confidentiality is discussed in the debrief of the immersive simulation. Theoretical perspectives are linked to the events in the immersive simulation.</p>
Demonstrate competence in the use of key interpersonal communication skills across a range of situations and within the multi-professional team.	<p>Virtual activity: An immersive simulation asks students to manage events, such as de-escalation, language barrier, breaking bad news and using distraction with a patient with dementia. Students are able to refer patients and involve other professional through messaging (the lecturer).</p> <p>Face-to-face activity: Students manage a set of patients within the immersive simulation. The students will know the patients from the virtual days and arrive with their own notes.</p> <p>Students can liaise with other professional by speaking to the facilitator.</p>
Discuss issues such as the importance of maintaining professional relationships and patient empowerment.	<p>Virtual activity: One patient is an 'expert patient' with diabetes. Respectful discussions occur with the patient in the form of groups of six students speaking to a volunteer.</p> <p>Face-to-face activity: The patient above has been admitted in the immersive simulation, and is non-compliant. Associated discussions are used within the debrief.</p>
Reflect on own communication skills, drawing on an appropriate evidence base.	<p>Virtual activity: Daily reflective discussions support students to increase self-awareness. A weekly reflection is based on the NMC revalidation model, asking students to link to the code.</p> <p>Face-to-face activity: Debrief sessions enable group reflections.</p>

Group Three – Long-Term Conditions and Multi-Morbidity

Learning Outcome	Associated Activities
<p>Demonstrate knowledge of the pathophysiology, pharmacology and treatment of common long-term conditions.</p>	<p>Virtual activity: Video of a confused patient with back story and patient notes, highlighting vascular dementia. Associated activity to explore the different dementias.</p> <p>Face-to-face activity: The immersive simulation includes six long-term conditions. Each have a drug chart and ask for discussions on pathophysiology to occur during debrief.</p>
<p>Describe and analyse some of the long-term support needs of people living with chronic conditions to enable them to lead fulfilling lives within their limitations.</p>	<p>Virtual activity: The patients presented have back stories and patient notes, including complex living situations and support. These are discussed in patient reviews.</p> <p>Face-to-face activity: The immersive simulation asks students to refer the patients to other community and hospital-based services. These are discussed in the debrief.</p>
<p>Evaluate the enhanced communication skills needed when breaking bad news to people.</p>	<p>Virtual activity: Students are provided with a scenario and break bad news in groups of six, before feeding back to the larger group.</p> <p>Face-to-face activity: One patient on the ward will need an irreversible stoma. Students must discuss this with the patient and debrief the discussion.</p>
<p>Discuss the differing psychological impact on people living with a long-term condition and their carers.</p>	<p>Virtual activity: Students debrief the impact of the scenarios in the 'breaking bad news' scenarios.</p> <p>Face-to-face activity: Activity providing students with a condition. They are asked to speed date, knowing they have limitations. Without revealing their condition, they discuss and debrief the activity. A volunteer with a long-term condition supports the activity.</p> <p>Debriefing and discussions on the impact of the patient conditions in the simulated activity.</p>
<p>Discuss the use of integrated care pathways for people with long terms conditions. Analyse the contributions of a range of inter-professional and interagency groups to the support and care for people with long terms conditions.</p>	<p>Virtual activity: Students are presented with a handover (video of a spoken handover and handover sheet). Each patient has back stories and patient notes. Students read these and make suggestions for inter-professional support.</p> <p>Face-to-face activity: Students are asked to refer patients with long-term conditions then debrief the contribution of the different professions involved.</p> <p>Students can contact any professional by speaking to the facilitator. The facilitator notes any request for the debrief.</p>

Group Four – The Role of the Health Care Professional in Health Promotion

Learning Outcome	Associated Activities
Explain the principles, practice and evidence base for Public Health and Health Promotion policy and theory.	<p>Virtual activity: Each day presents a different video scenario. Discussing these videos asks for theoretical perspectives.</p> <p>Face-to-face activity: The debriefing of the immersive simulation asks for students to discuss policy and theory.</p>
Discuss the relevance of lifestyle choices for population health.	<p>Virtual activity: One scenario consists of a pregnant woman who drinks and smokes. Students are asked to meet a volunteer in groups of six to provide advice.</p> <p>Face-to-face activity: The immersive simulation presents a range of scenarios (which were met by the students during the week). The effects of these choices are discussed during the debrief.</p>
Discuss a range of Public Health and Health Promotion policies and interventions.	<p>Virtual activity: Students are asked to produce a poster or leaflet about a health promotion policy or intervention and present at the end of the day.</p> <p>Face-to-face activity: Students are asked to use their knowledge of health promotion and policy within the simulation (discussed during pre-brief). These are reflected on during the debrief.</p>
Demonstrate the use of approaches to promote informed choice and encouraging positive physical and mental wellbeing choices.	<p>Virtual activity: Students speak to a volunteer regarding stop smoking and drinking during pregnancy.</p> <p>Face-to-face activity: Patients in the immersive simulation provide opportunity for the students to support them to make informed choices. These are discussed during the debrief.</p>
Evaluate the social determinants of health in relation to health inequalities.	<p>Virtual activity: Social inequalities are integral to the health promotion poster or leaflet.</p> <p>Face-to-face activity: The immersive simulation provides patients from multiple backgrounds. These are reflected on during the debrief.</p>
Communicate effectively to empower and support people, using a range of professional and academic sources.	<p>Virtual activity: Motivational interviewing videos are analysed in a large group.</p> <p>Face-to-face activity: Students can gain support or refer to other professionals during the immersive simulation. These are reflected on during the debrief.</p>

Group Five – Clinical Decision-Making, Risk Management and Evidence-Based Practice	
Learning Outcome	Associated Activities
Critically appraise the models and processes underpinning clinical decision-making theories including risk management theory.	<p>Virtual activity: Each day presents a different scenario, with associated video. Students discuss decision making theories linked to one decision within each video.</p> <p>Face-to-face activity: Students rotate across a series of three scenarios (six were written in total). They have ten minutes to discuss with each patient and complete a form at the end which describes different decision-making models and risk management. These are used to debrief.</p>
Demonstrate a conceptual understanding as to how organisational factors, such as the demands of meeting people’s complex nursing and social care needs, lone working, collaboration, hierarchy, urgency and environment, impact on clinical decision- making.	<p>Virtual activity: Daily scenarios ask students to consider patient need and the impact of social and environmental factors on decision-making.</p> <p>Face-to-face activity: The patients in each scenario have back stories and patient notes. Students must consider the impact of social and environmental factors on the patients. These are included in the debrief.</p>
Debate the legal and ethical issues related to decision making including autonomy, beneficence, non-maleficence, justice, duty of care and palliative care.	<p>Virtual activity: Each scenario asks for the students to consider ethical perspectives, and ‘give their case’ during discussions.</p> <p>Face-to-face activity: Ethical considerations are included in the form that the student completes, prior to debrief, to be discussed.</p>
Analyse the factors that influence decision making such as informed choice, culture, health beliefs, political and socioeconomic factors, capacity, risk vs benefit and ethics.	<p>Virtual activity: Each patient within the scenario has complex social stories. The impact of these are discussed during discussions.</p> <p>Face-to-face activity: The patients in each scenario have back stories and patient notes. Students must consider the impact of individual patient factors on their choice.</p>
Deploy a conceptual understanding as to health care costs, safe staffing. resource utilisation and business case planning.	<p>Virtual activity: Students are asked to consider how health care factors impact on decision making, as well as initiatives to improve the care of their patients.</p> <p>Face-to-face activity: The patients in each scenario have back stories and patient notes. Students must consider the impact of health care related factors on the care of the patient. Discussions regarding initiative to improve care occur after the debrief.</p>