Simulation Strategy for Nursing and Midwifery Programmes 2021

Introduction and Background

Defining simulation

The definition of 'simulation' is complex. It refers to any reproduction or approximation of a 'real' event, process, or set of conditions or problems (DH, 2011). Simulation is a technique, not a technology, to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner (Gaba, 2004). For the purposes of this strategy the term simulation is used to encompass all aspects of simulation from haptic and psychomotor skills to high fidelity scenarios. This strategy has been informed by standards from both the Association for Simulated Practice in Healthcare (ASPiH, 2016) and the International Nursing Association for Clinical Simulation and Learning (INACSL, 2016) as well as the Nursing and Midwifery Council Standards (NMC 2018a; NMC 2018b), King's College London Education Strategy 2017-22 (KCL, 2017a) and student feedback via the National Student Survey (NSS) and Postgraduate Taught Experience Survey (PTES). This has been further supported by enhancing education, clinical practice and staff wellbeing. A national vision for the role of simulation and immersive learning technologies in health and care (HEE 2020).

With an increasing focus on patient safety, and direct supervision in clinical practice becoming increasingly challenging, the role of simulation to complement or replace clinical placements is becoming increasingly important. Evidence suggests that simulation can enable the workforce to acquire skills more efficiently when compared to relying on opportunities to gain these skills as part of routine clinical practice (Haycock et al, 2010). It is also seen as offering an important route to safer care for patients (DH, 2008). In addition, as services reconfigure, some areas of practice are becoming increasingly hard to reach or are simply present in insufficient numbers. This makes simulation an appropriate method of learning. Evidence suggests simulation needs to be realistic to facilitate learning and permit the transfer of skills to the clinical setting (Pike & O'Donnell 2009).

Modality and Fidelity

Simulation embraces both technical and operative skills, non-technical skills (such as communication) and cognitive ability (such as decision making, managing uncertainty) and can be delivered using a variety of modalities. Modalities may include procedural simulation, virtual reality, computer-assisted simulation up to simulated clinical immersion (INACSL, 2016). These modalities may incorporate a range of activities including:

- Role-playing
- Simulated patients
- Haptic devices
- Avatars
- Part-task Trainers
- Hybrid models
- Full body Manikins
- Complex simulated environments (ASPiH, 2016)

Fidelity refers to the creation of a perception of realism for students (INACSL, 2016) and may be broken down into three aspects: physical, conceptual and psychological. Physical fidelity refers to how realistic the simulated environment is, compared to the real-life situation in which a situation

would occur, e.g. simulated ward environment or clinic room. Conceptual fidelity refers to the elements of a scenario and how they relate to each other, i.e. is the scenario feasible and realistic? Psychological fidelity maximises the contextual contexts within a simulated environment, for example, noise and lighting, distractions, other members of the healthcare team, time pressures and competing priorities (INACSL 2016).

Human Factors

Providing healthcare can place individuals, teams and organisations under pressure and staff must make clinical decisions often in rapidly changing and unpredictable situations (National Quality Board, 2013). Under these circumstances decision making may become impaired, resulting in harm to the patient. Understanding human factors that can influence decision making can lead to better understanding of the behaviour of individuals and teams under pressure and therefore enhance the quality of care for patients (National Quality Board, 2013). Promoting patient safety is important to a range of stakeholders, simulation provides opportunities for students to collaborate and learn with and from other professionals, and from peers, to develop clinical leadership and communication skills (NMC 2018b, HEE 2020).

Changing Context of Pre-registration Nursing and Midwifery Education

The context of pre-registration nursing and midwifery education is changing. The standards for pre-registration nursing programmes (NMC 2018a) state that approved education institutions must ensure "simulation-based learning opportunities are used effectively and proportionately to support learning and assessment" (NMC, 2018b; p7). Standards for pre-registration midwifery programmes do not currently permit simulation to substitute for practice learning but is used as part of curricula to support student learning (NMC 2019). Following the COVID-19 pandemic, the NMC and other professional bodies are exploring ways of supporting practice learning and the use of simulated practice (HEE 2020).

Post-qualification Education and Advanced Practice Programmes

Simulation-based inter-professional learning is increasingly being used for continuing professional development within NHS and other Healthcare organisations. Students enrolled on Advanced Practice (AP) programmes are required to undergo a minimum of 500 supervised direct patient care clinical hours. Direct patient care precludes the use of simulation-based education (SBE) to meet the mandated 500 hours, however this may be used as an adjunct teaching modality to other methods including narrated lectures, case studies and technology-enhanced learning. Internationally, SBE is used widely in AP education, but not in replacement of clinical hours. Its purpose is optimising students' experiential learning in practice, and maximising 'supervision time' to enable the transition to independent practice (Starkweather et al, 2017).

Ongoing challenges

There is a heavy reliance on clinical rotation to develop experiential learning required to meet AP programme outcomes, which is often varied and non-standardised. Additionally, there are limited number of clinical placements to achieve core and selected speciality competencies for the clinical hours expected. The most challenging aspect of all is the lack of 'structured supervision models' to support the 'transfer of learning' and transition to independent practice (Duvivier et al. 2012). The utility of SBE in replacing practice learning hours related to improved practitioner outcomes is being debated (Rutherford-Hemming et al, 2016). This Faculty Simulation Strategy will need to be reviewed in the light of any changes to mandatory practice learning hours for AP programmes.

The launch of Advanced Clinical Practice (ACP) Framework by Health Education England (HEE) to develop a multi-professional workforce (HEE, 2017) has witnessed the competitive interests of other professions for 'supervised practice' across professional boundaries, hence new structured supervision models are being developed by practice partners.

Strategic Aims

Within the Faculty there is much focus on skills-based simulation, with increasing complexity through the programmes. A range of patient care scenarios are also included in clinical modules, some incorporating high technology, complex simulation within a totally immersive inter-professional context. There is extended use of simulation within our curricula. Simulation fidelity is applied to include single discipline, simple task, and fully immersive, inter-professional learning where relevant. There is a need to further develop standardised approaches to the delivery related to assessment, and parity to the awarding and recording of simulation hours

Students have fed back that they value the opportunity to learn through simulation to make mistakes in a safe environment. They value fully immersive simulation to develop their clinical and professional skills in preparation for practice. Our strategic aims build on the 2018 Simulation Strategy and set out a strategy for achievement from 2021 and beyond.

Strategic Aims

1. Develop curricula that extend and embed simulation-based learning and assessment that meet the standards of the Nursing and Midwifery Council for programmes leading to registration, including peer-to-peer facilitation.
2. Provide research-enhanced and inter-professional simulation opportunities across a range of modalities and fidelity for students on all programmes of study within the Faculty that encourage student development through experiential learning, with the opportunity for feedback, evaluation and reflection.
3. Provide technology-enhanced learning and other materials that promote students' ability to meet identified objectives and achieve expected outcomes from the simulated experience.
4. Provide students with opportunities for assessment through simulated practice that enables them to demonstrate they meet the proficiencies required for their programme of study, enhancing employability.
5. Develop skilled staff to facilitate skill development, reflection and critical thinking among students and provide opportunities for professional development and sharing best practice across modules and programmes and among staff.
6. Work in partnership with patient educators and simulated patients to develop and deliver simulation based education and practice.
7. Innovate and engage in pedagogical research in simulated learning, contributing scholarly and research output to further advance the discipline.

Theoretical Frameworks

A range of theoretical frameworks have been developed to underpin simulation-based learning and curriculum development teams should consider the most appropriate approach for their respective programmes. Jeffries Simulation Model is used frequently in nursing simulation programmes (Jeffries, 2005). Kirkpatrick's 4-level training evaluation framework is often cited in simulation evaluation and used to evaluate training outcomes (Level 1 Reaction, Level 2 Learning, Level 3 Behaviour, Level 4 Results) (Kirkpatrick and Kirkpatrick, 2016). Miller's Pyramid (Miller, 1990) may also be adapted to a simulation-based learning context (Figure 1)

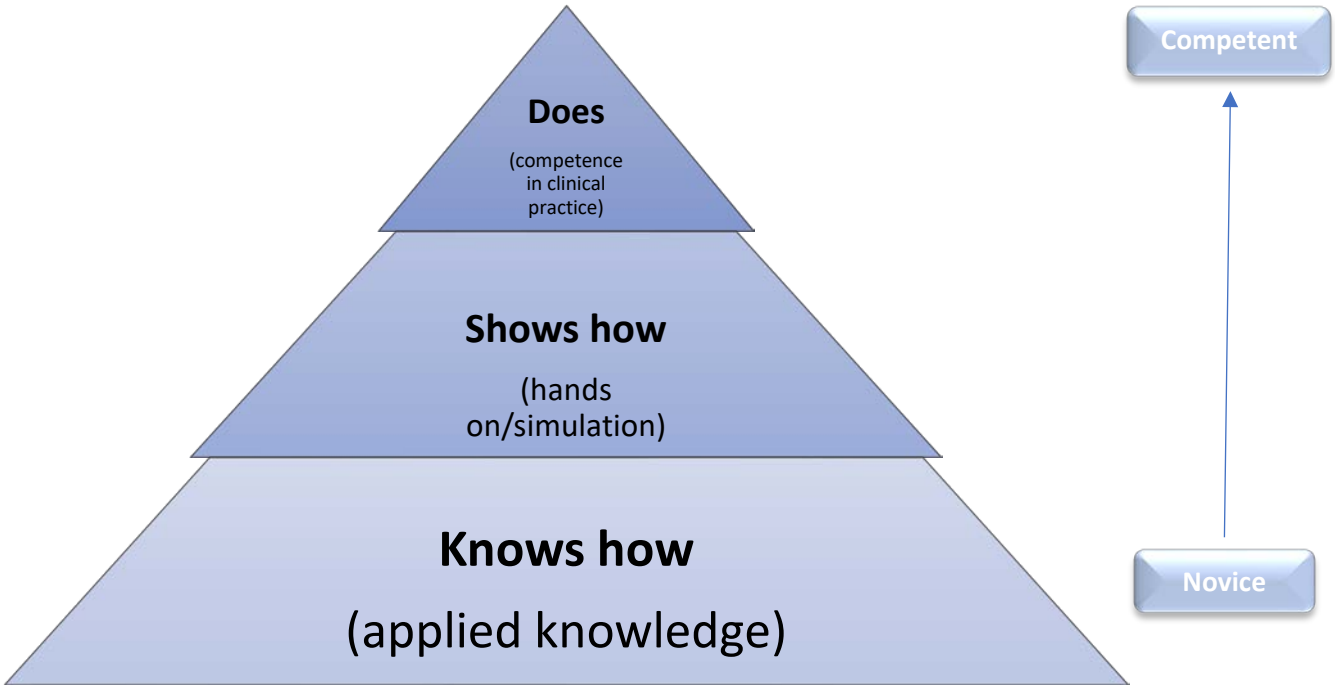

Figure 1: Adapted from Miller (1990)

Debriefing

Debriefing is considered one of the most important elements of simulation-based learning (ASPiH, 2016) and a key role of the debrief is to enable/enhance reflective practice among students. Debriefing should be included immediately (within 5 minutes) following any scenario-based simulation and the approach to and structure of the debrief should ensure the psychological safety of the students, while optimising opportunities for reflection and providing feedback on performance (ASPiH, 2016). A range of approaches to debriefing structure have been identified and curriculum development teams should consider the most appropriate approach for learning outcomes for programmes and modules.

Examples of structures that staff may wish to consider include:

- Debriefing with good judgement (Rudolph et al, 2007)
- PEARLS approach to healthcare debriefing (Cheng et al. 2016)
- The Diamond model (Jaye et al, 2015), (Figure 2)
- Virtual debriefing as a Community of Inquiry (Cheng et al 2020)
- Plus-Delta (Cheng et al 2021)

At the end of the descriptive phase, the facilitators can clarify any outstanding clinical issues or technical questions

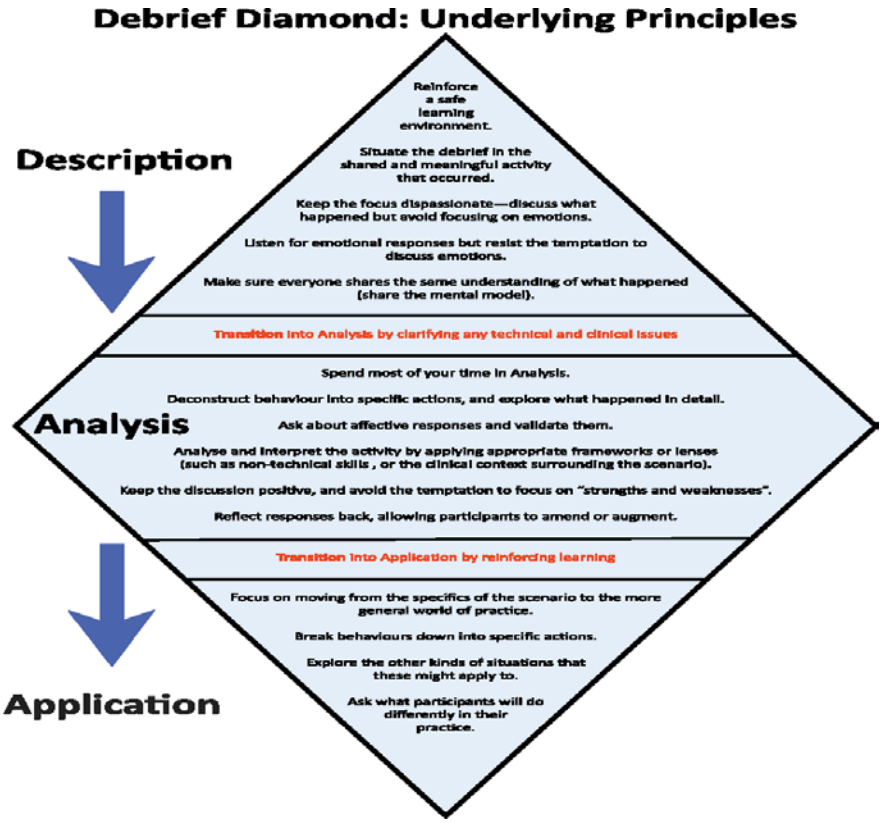

Figure 2: The Diamond Model

Simulation-based learning versus simulated practice learning

Simulation-based learning is considered a useful method through which health professionals may develop knowledge, skills and attitudes whilst maintaining patient safety and protecting them from unnecessary risk (Lateef, 2010). Simulation may also be used as a technique to "replace and amplify real experiences with guided ones, often "immersive" in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion" (Lateef, 2010, p348). The immersive nature of the experience means that the participants are engaged in a task, scenario or setting as if it were the real world and could therefore be considered to simulate clinical practice. Learning in a simulated practice setting, with opportunity for repetition, feedback and reflection, can provide a safe and effective means of supporting learning and enhancing knowledge, skills, behaviour and confidence to facilitate evidence-based and safe direct care (NMC 2018a, HEE 2020). As a result, simulation can support development and assessment alongside lifelong learning and transformation (HEE 2020).

Simulated practice within the Faculty is based on key principles (adapted from NMC, 2018a, NMC 2021; National Quality Board, 2013);

1. Partnership working – may involve registered nurses and other healthcare practitioners as well as patient educators, simulated patients and students as appropriate
2. Clinically credible – used to support the achievement of practice learning outcomes.
3. Promoting competence – provides opportunities for rehearsal of skills prior to being applied in practice; assessment of simulated practice is valid and reliable
4. Progressive – should build on student experience, with students taking increasing responsibility for and contributing to their learning through simulated practice as they progress

5. Explores Human Factors – embeds an understanding of human factors and limitations (e.g. understanding the behaviour of individuals, their interactions with each other and with their environment) to enhance clinical performance
6. Includes opportunities for debriefing, especially after all scenario-based simulation learning to optimise reflection and provide feedback on performance
7. Quality assured – feedback should demonstrate that simulated practice learning supports the application of knowledge and skills in clinical practice.

Resources

King's Vision (KCL, 2017b) is to provide a learning environment that stimulates curiosity, supports intellectual endeavour and encourages independence over time. The Faculty undertakes a range of simulation across pre and post qualification nursing and midwifery programmes. Students will be taught in a learning environment with appropriately trained staff using robustly designed simulation-based learning activities and suitable equipment that contribute to students' mastery of the required proficiencies for their programme of study.

Faculty

The Faculty has a pool of educators, including clinical teachers, experienced and skilled in delivering simulation-based education. Professional development will be offered to all staff who are designing, delivering and/or debriefing simulation-based education and opportunities for continuing professional development in simulation-based learning will be made available. The staff to learner ratio is designed to allow students to practise clinical procedures under supervision (ASPiH, 2016) and opportunities for peer-to-peer learning as well as partnership working and facilitation with clinical partners will be increased. Peer-to-peer facilitation has been shown to be a student-centred, effective approach to ensuring active engagement of all students (Curtis, 2016) and has the potential to allow students to demonstrate leadership proficiencies.

To enable a safe environment, physically and psychologically, for students to meet the required learning outcomes of the simulation, it is important to provide a ratio of 1 facilitator to 8-10 students, which is the current standard within the Faculty. Skills teaching may be delivered with a 1:15-20 ratio, but when physical safety is paramount, such as learning injection technique, or the skill is complex, more facilitators are necessary and the 1:10 ratio should be ensured.

Staff will be afforded adequate time to develop simulation activities as part of module development and delivery. The use of a health simulation authoring platform will enable scenarios to be shared across programmes and modified as required. Consideration will be given to developing and supporting opportunities for co-production of simulated activities with students and for peer-to-peer facilitation.

Development of both the number and quality of facilitators is vital to the successful implementation of this strategy. Staff involved in the development and delivery of simulation based education and simulated practice learning will be required to undergo an induction to the university Simulation and Independent Learning facilities, to include technical aspects of specific simulation equipment such as manikins. New staff will be able to observe and/or co-facilitate simulation-based learning alongside experienced facilitators and receive feedback to enhance their skills.

All facilitators will have opportunities, through workshops, technology-enhanced learning e.g. King's Health Partners Learning Hub Simulation in Healthcare, workshops developed in partnership with the SaIL centre technologists, and peer observation, to develop skills in:

- Use of equipment
- Working with standardised patients in facilitating communication

- Debriefing
- Simulation design

Student "Peer Facilitators" will provide an opportunity for students to support simulation based activities and contribute to the development of simulation scenarios. If it is intended for peer facilitators to support simulation with no teacher present within a programme of study, then their training will also need to incorporate health & safety elements whilst in the SaIL centres. Practice Learning Partners (PLPs) have expertise in the development and delivery of simulation based education for their workforce. PLPs are involved in the development of scenarios as subject matter experts and co-facilitation of simulation -based education alongside Faculty staff.

Specialist Facilities

Where possible and relevant, equipment used in simulation-based learning or simulated practice should be identical to that used in clinical practice (ASPiH, 2016) to ensure fidelity of the experience. The Chantler SaIL Centre (CSC) and the Weston Education Center (WEC) SaIL support for simulation in a variety of ways. This includes clinical skills and high-fidelity simulation. The technologists at the SaIL centres contribute to the development of simulation based education and practice learning. In addition, there is expertise in the use of advanced technologies to enhance the simulation experience. There is also the opportunity for students to use the Independent Learning Room (ILR) which is designated space for students to practise clinical skills. The Faculty works in partnership with the SaIL Centre managers to design courses around available equipment, plan the logistics of delivery and investigate potential purchases of new and/or additional equipment to improve the student experience.

To support the development of scenarios for simulation the Faculty is moving to the use of iRIS, a health simulation authoring platform. iIRIS incorporates best practice frameworks including INACSL, ASPE, PEARLS Healthcare Debriefing Tool. Use of iRIS enables scenario development by subject matter experts. The Faculty will join the FareShare scheme which allows access to scenarios developed by other providers whist affording the opportunity for scenarios developed by the Faculty to be used by other providers with staff acknowledged as the authors. The Faculty receives the Healthcare Education and Training Tariff for simulated practice learning. This funding is paid into a simulation budget and used to support the ongoing development and delivery of simulation.

Rule of Engagement

The Faculty will contribute to university working groups to identify need for built environment and resources to support further development of simulation-based learning and practice. Simulated practice will include preparatory learning, simulated practice within a clinical skills facility and debriefing/reflection on the learning undertaken. A number of approaches to simulation will be used against practice hours, for example, workshops, teaching in person or online focusing on case study scenarios that support knowledge development, application to practice and clinical decision making.

A worked example (table 1) is shown below for one clinical skill and curriculum teams will identify the specific breakdown of hours for their programmes of study.

Table 1: Worked example on one clinical skill: urinary catheterisation		
Preparatory learning	**Clinical skill practice**	**Reflection on learning**
4 hours: E-learning and video	2 hours simulated practice on models	1.5 hours

The importance of rehearsal time to enable students to reinforce skills learnt is important. This can be achieved by students using independent learning facilities available in the SaIL centres. Monitoring and reporting of attendance of simulated practice is included in the Faculty attendance policy.

Technology Enhanced Learning

Pre-activity material should be provided to students and may include, but is not limited to, videos, slide presentations and/or interactive e-learning (ASPiH, 2016). The Faculty will continue to develop high quality preparatory material to engage students in advance of simulation-based learning activity and enhance their experience and learning. For example, online case study scenarios designed to support knowledge development, application to practice and clinical decision making will form part of the Faculty's approach to simulation.

Inter-professional learning

Simulation-enhanced inter-professional learning is recognised as an effective way to promote teamwork and inter-professional communication skills in healthcare (INACSL, 2016 & Rogers et al 2017). The Faculty will continue to build on existing inter-professional simulation-based learning and seek to increase and enhance opportunities for students to engage in these activities. This includes both Hi and Low Fidelity scenarios, for example, facilitating patient safety. The use of a health simulation authoring platform further supports the development of inter-professional learning simulation scenarios by appropriate subject matter experts. With inter-professional simulation it is valuable for facilitators to demonstrate team working and therefore debriefing teams should be inter-professional with a 1:8 facilitator to student ratio. For peer-to-peer facilitation student numbers should not exceed 6 students per student facilitator.

Assessment of practice through simulated practice

Simulation-based education is an effective tool for formative assessment to aid learning but is increasingly being used for summative assessment (ASPiH, 2016). The Faculty will explore opportunities to develop curricula that permit the assessment of competence against specified proficiencies as part of a number of assessment tools. For example, the Pan London Practice Assessment Document for pre-registration nursing programmes permits the summative assessment of some proficiencies through simulation rather than assessment in clinical practice, some of which may be assessed summatively within the Faculty. This is of particular importance in relation to the Future Nurse Annex B proficiencies (NMC 2018b) which have been mapped across the pre-registration nursing programmes and shared with practice learning partners. Assessment of practice learning through simulation is in line with the Standards of Student Supervision and Assessment (NMC 2018c).

Simulation interest group

Each teaching department has a nominated member of staff to lead the development of simulation-based learning. The simulation interest group has membership consisting of the Associate Dean Practice Learning, Associate Dean Assessment and Teaching, teaching department leads, Head of Simulation Operations, Health Faculties, SaIL Centre Technical Manager and the programme lead for the MA Clinical Education. This provides a forum for:

- sharing best practice

- considering how simulation enhances existing programmes or provides learning opportunities to address current or anticipated gaps in curricula, including the application of biological sciences within simulation based education.
- co-production of new simulation-based learning materials, including further opportunities for inter-professional learning
- peer review
- considering potential innovation or research in relation to simulation-based learning
- Professional development of participants.

Research-enhanced learning and pedagogical innovation

King's Strategic Vision is to become the leading UK Russell Group University for research-enhanced teaching. The Faculty will encourage individuals and teams to produce scholarly and research output demonstrating innovation and contributing to the pedagogical debate around simulation-based learning. Applications to the staff development committee from staff to disseminate these outputs to relevant conferences will be encouraged.

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