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EDUCATION

A19 IDENTIFICATION OF CLINICAL REASONING MODELS COMMONLY USED IN SIMULATION-BASED EDUCATION

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Background and aim: Simulation can immerse learners in scenarios that mimic clinical situations, simultaneously mitigating safety risks and increasing standardization in healthcare education [1]. Through simulation, learners can get the chance to develop clinical reasoning with focused learning opportunities [2]. Clinical reasoning is multidimensional in nature, and underdeveloped clinical reasoning skills and the risk of cognitive overload can potentially threaten patient safety and delay care, so it is important to systematize, optimize and structure clinical reasoning for simulation-based education [3]. That can be achieved through using valid clinical reasoning models but with careful consideration to the contributing and influencing factors of case complexity, staff seniority, competence, scope of practice, specialty and subspecialty.

Methods: A scoping review was undertaken to answer the questions: what are the best available valid and reliable clinical reasoning models for simulation-based education? We searched Medline, Scopus, Education Research Complete and Google Scholar to identify relevant recent primary research conducted on this topic from 2000 onwards. The search included MeSH topics of 'Clinical reasoning', 'Simulation-based education' and 'Clinical Reasoning models'. The inclusion criteria were primary studies describing the clinical reasoning models developed for simulation-based courses. Two independent researchers agreed on the inclusion of the identified articles for full-text review. This review followed the review guidelines of Joanne Briggs Institute.

Results: Five valid and reliable models to structure the clinical reasoning process while attending simulation-based training were identified and are reported in Table 1-19. However, their validity and reliability were tested on working and undergraduate student nurses, and there was no consideration for different seniority and competence levels, and applicability to other healthcare professions.

Conclusion: There is an adequate number of clinical reasoning models to be used while taking part in simulation-based training; however, there is a significant basis to test the reliability and validity of these models against different

Table 1-A19: Identified clinical reasoning models based on the scoping review

Model	Objective	Methodology/description	Findings
TANNER's Model (Tanner 2006)	To describe the clinical judgment of nurses, and to guide educators to help undergraduate students diagnose breakdowns, identify areas for improvement, and consider learning experiences that focus attention on those areas.	Literature synthesis on clinical judgment and conclusions derived from the literature.	Nurses enter the care of patients with a fundamental sense of clinical judgment about what is good and right, and a perception for what is high quality care.
DML Model Debriefing for meaningful learning (Dreifuerst, 2011).	To discover the effect of the use of DML on the development of clinical reasoning in undergraduate nursing students.	Exploratory, non-equivalent group quasi-experimental, pre-test/post-test design. Participants were assigned to either the experimental or control group where the DML was compared to customary debriefing using the Health Sciences Reasoning Test (HSRT) before and after the debriefing experience, and the Debriefing Assessment for Simulation in Healthcare–Student Version (DASH–SV)	DML Model positively influenced the undergraduate nursing students' development of clinical reasoning skills, as compared to customary debriefing.
The Outcome-Present State Test (OPT) clinical reasoning model (Pesut and Herman, 1998).	The OPT model is a concurrent, iterative model of clinical reasoning that emphasizes reflective self-monitoring. It requires learners to use all the elements of the nursing process and to build on prior knowledge in an iterative fashion to further hone nursing thinking skills.	The model is designed based on the literature review of the history of nursing process over time. The components of the OPT model include the client-in-context story, keystone issue, cue logic, reflection, framing, testing, decision-making, and judgments. The OPT model focuses on outcomes and encourages backward thinking to move the client from his or her current health status (present state) to the desired (outcome) state. The present state is derived from an analysis and synthesis of relationships between and among nursing and client nursing care needs.	The model can be used to enhance educational practices. It reinforces thinking skills, as learners analyse nursing problems from different aspects based on a high-level thinking process. It also serves as a structure for teaching, for clinical supervision, and for developing middle range theories organized around nursing knowledge taxonomies.

Table 1-A19: Identified clinical reasoning models based on the scoping review (*continued*)

The Self-Regulated Learning (SRL) Model for reflective clinical reasoning (Kuiper and Pesut, 2004).	To explore the impact of self-regulated learning theory on reflective practice in nursing, and to advance the idea that both cognitive and metacognitive skills support the development of clinical reasoning skills.	Integrative review of published literature in social science, educational psychology, nursing education, and professional education. The SRL model describes self-regulation as a dynamic process that includes the observations of behaviours and self-regulation of reactions to make self-judgments of competence and areas for improvement for clinical reasoning. The environmental self-regulation of skills, activities, physical context and relationships with preceptors, staff and patients is necessary to determine the context where clinical reasoning takes place. Metacognitive self-regulation includes metacognitive (reflective) self-correction associated with the use of knowledge and thinking strategies that are used to determine goals.	The SRL model is offered to support teaching and learning of reflective clinical reasoning. The model supports the development and acquisition of higher order thinking skills such as interpretation, analysis, inference, explanation, and evaluation.
The Clinical Reasoning Model (CRM) (Levett-Jones, 2010)	To enhance nurses' clinical reasoning skills and consequently their ability to manage 'at risk' patients.	A literature review and an examination of research data to identify commonly occurring thinking strategies. The model describes an eight-step cyclical process: look, collect, process, decide, plan, act, evaluate, and reflect. Effective use of the CRM by nursing students and its application in practice by novice nurses is directly linked to the five rights of clinical reasoning, that is, the ability to collect the right cues and take the right action for the right patient at the right time, and for the right reason	The CRM has applications for classroom teaching and provides a structure that links well with problem-based and enquiry-based learning. The phases and steps in the model are appropriate for self-directed learning and can be used to develop computerized learning packages and case studies. The CRM also provides an approach that can be used in simulation-based learning experiences using patient simulators or standardized patients

competence and seniority levels, and applicability to other healthcare professions. The authors are presently working on the development of a new model using an innovative and rigorous approach.

Ethics statement: Authors confirm that all relevant ethical standards for research conduct and dissemination have been met. The submitting author confirms that relevant ethical approval was granted, if applicable.

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EDUCATION

A20 DOES THE USE OF SIMULATION ENHANCE THE DEVELOPMENT OF REGISTERED PHYSIOTHERAPIST'S RESPIRATORY 'ON-CALL' SKILLS – A LITERATURE REVIEW

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Background and aim: On-call respiratory physiotherapy is utilized when an acutely unwell patient could deteriorate without immediate assessment and treatment overnight. Education related to this topic varies greatly and is often of poor quality. Simulation-based education (SBE) has been increasingly used within other areas of healthcare yet, Gough et al. [1] completed a study in 2013, which found only 39% of acute trusts used simulation for respiratory on-call training. **Aim:** To determine from existing research, whether SBE can enhance the development of registered physiotherapists respiratory 'on-call' skills in order to impact future practice. **Methods:** A qualitative literature review was completed as part of a PgCert in Health Simulation at Coventry University, in March 2023. Ethical approval was gained from Coventry University (P149952). Studies included were found by searching AMED, CINAHL Embase and Medline databases. Figure 1-A20 presents the PRISMA flow diagram [2]. Final reports included were critically analysed using the Critical Appraisal Skills Programme framework [3] and data extracted and formatted into a table. General themes were identified using an inductive approach. **Results:** Eleven papers were selected to be reviewed after the removal of duplicates, screening and the exclusion criteria were applied. The main themes identified were the use of high-fidelity simulation, the measure of confidence and/or competence, and findings of positive implications for practice. SBE is widely used for other healthcare professions with positive outcomes; however, its use within respiratory physiotherapy is limited. Most studies chose to measure