JEMTAC
Journal of Emergency Medicine Trauma & Acute Care
A PEER REVIEWED JOURNAL

OPEN ACCESS

Qatar Health 2022 Conference

Approaches that promote clinical reasoning in clinical and simulation-based practice settings

Emad Almomani[1,*], Guillaume Alinier[2,3,4,5], Natalie Pattison[2,6]

[1]Department of Nursing, Midwifery, Education and Research, Hamad Medical Corporation, Doha, Qatar
[2]School of Health and Social Work, University of Hertfordshire, Hatfield, UK
[3]Hamad Medical Corporation Ambulance Service, Doha, Qatar
[4]Weill Cornell Medicine-Qatar, Doha, Qatar
[5]Faculty of Health and Life Sciences, Northumbria University, Newcastle upon Tyne, UK
[6]East and North Herts NHS Trust, Hertfordshire, UK
*Email: Ealmomani@hamad.qa

ABSTRACT

Background: Clinical reasoning is described as a reflective process that enables health care practitioners to collect data, solve problems, and make decisions and judgments to enhance patient outcomes and patient safety[1]. To avoid practice mistakes, healthcare professionals should possess or develop effective clinical reasoning skills. To develop effective clinical reasoning skills, enough exposure to various experiences is required. Practicing and developing clinical reasoning skills can be achieved in both clinical and simulated settings[2]. Using structured clinical reasoning models could enhance effective clinical reasoning development[3]. This review aims to explore the current clinical reasoning models.

Methods: A scoping review was undertaken to answer the question; what are the best available clinical reasoning models to enhance clinical reasoning in clinical and simulated settings? The following sources were searched: Medline; Scopus; Education Research Complete, and Google Scholar to identify relevant recent primary research conducted on this topic published in 2000 onwards. The search included [MeSH] topics of; "Clinical reasoning" and "Clinical Reasoning Models". The inclusion criteria were primary studies that described the use of clinical reasoning models in clinical and simulated settings. Two independent researchers agreed on the inclusion of the identified papers for full-text review. This review followed the review guidelines of the Joanne Briggs institute.

Results: There are valid clinical reasoning models to be used for clinical and simulated settings which are; TANNER, DML, clinical Reasoning Model (CRM), Outcome-Present State Test (OPT), and Self-Regulated Learning (SRL) model (Table 1). However, the validity of these models needs to be tested considering different health care specialties, the scope of practice, complexity, and seniority levels.

Conclusion: Considering the importance of clinical reasoning skills in health care practices, using structured models could enhance the clinical reasoning process, however, despite the availability of clinical reasoning models, additional validation for these models is still required.

Keywords: Clinical reasoning, Clinical reasoning models, Reflective practice, Problem-solving, Clinical judgment

http://dx.doi.org/10.5339/jemtac.2022.qhc.66

Submitted: 27 July 2021
Accepted: 3 September 2021
Publication date: 15 January 2022

QSCIENCE
HAMAD BIN KHALIFA UNIVERSITY PRESS

Cite this article as: Almomani E, Alinier G, Pattison N. Approaches that promote clinical reasoning in clinical and simulation-based practice settings, *Journal of Emergency Medicine, Trauma & Acute Care* 2022:66 http://dx.doi.org/10.5339/jemtac.2022.qhc.66

Table 1. Information about the identified Clinical Reasoning Models.

Model/Tool (Source Reference)	Objective	Methodology/Description	Findings
TANNER's model Tanner CA. Thinking like a nurse: A research-based model of clinical judgment in nursing. Journal of nursing education. 2006 Jun 1; 45(6):204-11.	To provide clinical reasoning guidance for nurses and teaching faculty.	Literature synthesis on clinical judgement, and derive conclusions from the literature. The model has five conclusions; 1) Clinical judgment is primarily influenced by situational awareness. 2) Clinical judgment is based on knowing the patient through an active engagement. 3) Clinical judgment is influenced by the culture of practice. 4) Variety of clinical reasoning patterns can be used alone or in combination mode. 5) Reflective practice can be enhanced through an active clinical judgment process.	TANNER's model provides a fundamental sense and guidance of clinical judgment process for nurses.
Debriefing for meaningful learning (DML) Model Dreifuerst KT. Debriefing for meaningful learning: Fostering development of clinical reasoning through simulation (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses (PQDT). 2010.	To explore the effect of simulation-based education on nursing students' clinical reasoning skills using the Debriefing for Meaningful Learning (DML) approach.	Quasi-Experimental study with pre-test/post-test design with two groups of nursing students attending a simulation-based adult health courses. The DML was compared to customary debriefing using Health Sciences Reasoning Test (HSRT) to assess clinical reasoning before and after the debriefing of the simulation experience, as well as the student version of the Debriefing Assessment for Simulation in Healthcare (DASH-SV).	DML had a more positive impact on the clinical reasoning skills of the undergraduate nursing students, developing their clinical reasoning skills in comparison to the other customary debriefing approaches.
The Outcome-Present State Test (OPT) clinical reasoning model Pesut DJ, Herman J. OPT: Transformation of nursing process for contemporary practice. Nursing Outlook, 1998; 46(1):29-36.	An iterative model that promotes reflective self-monitoring. The OPT model encourages students to utilise all aspects of the nursing process to develop their existing knowledge and nursing thinking skills.	The OPT was developed based on a nursing process model. The model uses retrospective analysis of experiences through reflection. The OPT model identifies keystone nursing issues to be contrasted with a specified outcome state, and provides a conceptual structure.	The model can be used to enhance clinical reasoning and thinking within the educational, clinical, and healthcare research practice context. The OPT model reinforces clinical reasoning and thinking skills through analyzing nursing problems with a high-order of thinking.
The Self-Regulated Learning (SRL) Model for reflective clinical reasoning Kuiper RA, Pesut DJ. Promoting cognitive and metacognitive reflective reasoning skills in nursing practice: self-regulated learning theory. Journal of advanced nursing. 2004;45(4):381-91.	To explore how self-regulated learning theory impacts reflective practice in nursing, and to advance the clinical reasoning skills through enhancing cognitive and metacognitive processes.	Literature review in social science, educational psychology, nursing education, and professional education. Clinical reasoning can be enhanced through self-regulation process incorporating observations of behaviors. Critical thinking and metacognition are essentials in learning process.	The SRL model allows learners to develop higher order thinking skills, including interpretation, analysis, inference, explanation, and evaluation as they are taught nursing clinical reasoning skills.
The Clinical Reasoning Model (CRM) Levett-Jones T, Hoffman K, Dempsey J, Jeong SY, Noble D, Norton CA, Roche J, Hickey N. The 'five rights' of clinical reasoning: An educational model to enhance nursing students' ability to identify and manage clinically 'at risk' patients. Nurse education today. 2010;30(6):515-20.	For nursing students to have better clinical reasoning skills and ability to manage critical patients.	Literature review of commonly used thinking strategies. The CRM model development was based on the work of Andersen (1991), Tanner (2006), Hoffman (2007), and Alfaro-LeFevre (2009). The model uses an eight-step cyclical process: "look, collect, process, decide, plan, act, evaluate, and reflect". The model is also related to the five rights of clinical reasoning, namely; "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 can be applied during the classroom teaching, self-directed learning, and through online applications. It provides a structure that can be used in simulation-based learning experiences to enhance clinical reasoning skills via problem-based and enquiry-based learning.

REFERENCES

[1] Liaw SY, Rashasegaran A, Wong LF, Deneen CC, Cooper S, Levett-Jones T, Goh HS, Ignacio J. Development and psychometric testing of a Clinical Reasoning Evaluation Simulation Tool (CREST) for assessing nursing students' abilities to recognize and respond to clinical deterioration. *Nurse education today.* 2018 Mar 1; 62:74–9. https://doi.org/10.1016/j.nedt.2017.12.009

[2] Almomani E, Sullivan J, Hijjeh M, Attlallah K. The perceived relationship between reflective learning conversation and clinical reasoning skills amongst critical care and trauma nurses: A cross sectional parallel mixed method. *Nurse Education Today.* 2021 Oct; 105:105044–105044. https://doi.org/10.1016/j.nedt.2021.105044

[3] Gee RM. Evaluating the Impact of High Fidelity Patient Simulation on Clinical Reasoning in Undergraduate Nursing Students (Doctoral dissertation, Augusta University). 2019 Dec. Retrieved on 24 July 2021 from [https://augusta.o-penrepository.com/handle/10675.2/622781]