Effective decision-making: applying the theories to nursing practice

Samantha Watkins

ABSTRACT

Many theories have been proposed for the decision-making conducted by nurses across all practices and disciplines. These theories are fundamental to consider when reflecting on our decision-making processes to inform future practice. In this article three of these theories are juxtaposed with a case study of a patient presenting with an ST-segment elevation myocardial infarction (STEMI). These theories are descriptive, normative and prescriptive, and will be used to analyse and interpret the process of decision-making within the context of patient assessment.

Key words: Decision-making ■ Hypothetico-deductive reasoning ■ Patient assessment ■ Myocardial infarction ■ Deteriorating patient

Decision-making is a fundamental concept of nursing practice that conforms to a systematic trajectory involving the assessment, interpretation, evaluation and management of patient-specific situations (Dougherty et al, 2015). Shared decision-making is vital to consider in terms of patient autonomy and professional duty of care as set out in the Nursing and Midwifery Council (NMC) (2018) *Code,* which underpins nursing practice. Consequently, the following assessment and decision-making processes were conducted within the remits of practice as a student nurse. Decision-making is a dynamic process in nursing practice, and the theories emphasise the importance of adaptability and reflective practice to identify factors that impact on patient care (Pearson, 2013). Three decision-making theories will be explored within the context of a decision made in practice. To abide by confidentiality requirements, the pseudonym 'Linda' will be used throughout. Patient consent was obtained prior to writing.

Scenario

Linda was a 71-year-old who had been admitted to the cardiac ward following an episode of unstable angina. She was on continuous cardiac monitoring as recommended by the National Institute for Health and Care Excellence (NICE) (2016) guideline for chest pain of recent onset. During her stay on the ward, the tracing on the cardiac monitor indicated possible ST-segment elevation (Thygesen et al, 2018). It was initially hypothesised that she might be experiencing an ACS (*Box 1*) and could be haemodynamically unstable.

The possibility that Linda was experiencing ST-segment elevation myocardial infarction (STEMI) meant that she needed rapid assessment of her condition. Stephens (2019) recommended the use of the ABCDE assessment as a timely and effective tool to identify physiological deterioration in patients with chest pain. The student nurse's ABCDE assessment of Linda is shown in *Box 2*.

NICE (2016) recommends that the first investigation for patients with chest pain is to conduct an ECG as a rapid and non-invasive assessment for a cardiac cause of the pain. This was carried out and 2mm ST-segment elevation in the precordial leads V1–V3 was noted, indicating a possible anterior STEMI (Amsterdam et al, 2014). The student nurse had had basic ECG interpretation training as part of the nursing degree undertaken, but had also received informal teaching from registered nursing staff in cardiology. The ECG findings were confirmed by the senior charge nurse after they were alerted to Linda's condition, symptoms, and National Early Warning Score 2 (NEWS 2) (Royal College of Physicians, 2017). The senior charge nurse escalated her care to the cardiology team. A diagnosis of STEMI was made by the cardiology team using the ECG findings and her physiological signs of deterioration from their assessment, within the context of her initial presentation to hospital for unstable angina. This diagnosis, coupled with the deterioration in her condition, meant that she required primary percutaneous coronary intervention (PCI). The NICE (2014) quality standard for acute coronary syndromes and the clinical guideline on STEMI (NICE, 2013a) recommend that primary PCI is initiated within 120 minutes to reperfuse the myocardium and prevent further myocardial cellular necrosis. This improves long-term patient outcomes (Thygesen et al, 2018).

Decision-making theories

The recognition of an evolving STEMI on the cardiac monitor corresponds with the model of hypothetico-deductive reasoning (Pearson, 2013) within the descriptive and normative theories (*Box 3*). Thompson and Dowding (2009) highlighted that this model recognises that decision-making comprises four stages, beginning with cue acquisition. The specific pre-counter cues can be identified as the recognition of the abnormal tracing on the cardiac monitor (Pearson, 2013), suggestive of ST-segment elevation, that indicated Linda might be experiencing haemodynamic deterioration with a cardiac cause. Subsequently, the decision to assess Linda formed the hypothesis generation

Samantha Watkins, Emergency Department Staff Nurse, Frimley Health NHS Foundation Trust, Frimley, s.watkins3@nhs.net

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phase of the decision and the recognition of the clinical signs as indicating STEMI (Nickerson, 1998; Johansen and O'Brien, 2016). This hypothesis focused the assessment to identify and examine pertinent factors that supported this conjecture (Pearson, 2013). However, the student nurse required more data to formulate a robust hypothesis thereby initiating the cue interpretation phase by conducting an ABCDE systematic assessment, including ECG. Lindsey (2013) argued that during cue interpretation, the health professional uses prescriptive guidelines to direct the assessment process and provide a rationale.

Arguably, however, clinical knowledge of the pathophysiology of ACS is fundamental to effective cue interpretation, not simply the individual's knowledge of the NICE guidance (NICE, 2013a; 2013b; 2014; 2016). The student nurse's existing knowledge of the symptoms of ACS supported the cue interpretation with assessing Linda's condition and possible diagnosis of ACS. This knowledge enriched the student nurse's understanding of the guidance, which could then effectively be applied as the central aspect of cue interpretation (Deen, 2018).

Elstein and Schwartz (2002) conceded that the prescriptive theory knowledge synthesised for the decision must be accurate and evidence-based for hypothetico-deductive reasoning to be effective. Courtney and McCutcheon (2009) argued that reliance solely on clinical guidelines can limit decision-making and result in erroneous outcomes and should consequently be used in collaboration with the evidence base. By combining normative theory with prescriptive guidance, clinical decisions can be enriched and validated. Stevens (2013) highlighted that it is vital that the guidance used in corroboration with decision-making models is valid and reliable and therefore prescriptive theory must be critically evaluated against the evidence-base. The guidance published by NICE (2013a) is supported by the American College of Cardiology (O'Gara et al, 2013), European Resuscitation Council (Nikolaou et al, 2015), European Society of Cardiology (Steg et al, 2012) and Cardiac Society of Australia and New Zealand (Chew et al, 2016). Accordingly, these guidelines highlight the clinical signs of STEMI and the diagnostic investigations pertinent to this condition. Within the remits of practice as a student nurse, this evidence supported the decision to escalate Linda's condition.

Antithetically, during cue interpretation and the hypothesis generation phases, Pearson (2013) emphasised the importance of considering multiple hypotheses extrapolated from the clinical data, resulting in the selection of the most appropriate hypothesis when more data are obtained. Despite this, during the interpretation of the cues for the hypothesis, the student nurse failed to consider differential diagnoses, such as pneumothorax or pulmonary embolism, which have similar presentations to STEMI (Deen, 2018). Consequently, this hypothesis generation had an element of uncertainty (Bjørk and Hamilton, 2011), which could have impeded Linda's care by erroneously considering only one potential diagnosis and therefore focusing the assessment on that diagnosis. Student nurses can be considered 'novice' health professionals, demonstrating limitations in knowledge regarding differential diagnoses and therefore in potential hypotheses. Pearson (2013) argued that this is because student nurses lack the requisite experience to cluster information as effectively as an 'expert' health professional. Consequently, the presentation of one hypothesis is permissible within the remits of practice as a student nurse.

Assessment tools such as ABCDE (Resuscitation Council UK, 2015) ensure that all factors indicative of deterioration are recognised. Consequently, by using a systematic assessment, any potential erroneous hypothesis can be precluded. Therefore, as Carayon and Wood (2010) state, the assessment tool was a barrier to active failure to recognise alternative diagnoses thus circumventing any serious consequences, highlighting the importance of comprehensive assessment to avoid error and safeguard the ethical principle of non-maleficence (Beauchamp and Childress, 2013) fundamental to nursing. Antithetically, Benner et al (2008) argued that even the novice nurse should be able to consider multiple hypotheses within a situation, although they may not be able to reflect on these decisions within the

Box 1. Acute coronary syndrome

- Acute coronary syndrome is an umbrella term that includes three cardiac conditions that result from a reduction of oxygenated blood through the coronary arteries, causing myocardial ischaemia. An ST-segment elevation myocardial infarction (STEMI) connotes the complete occlusion of one or more of the coronary arteries, which is demonstrated by patient symptoms and ST-segment elevation seen on an electrocardiogram (ECG)
- A non-ST-segment elevation myocardial infarction (NSTEMI) results from a partial occlusion of a coronary artery. Patient symptoms often present alongside dynamic ST-segment depression, T-wave inversion or a normal ECG
- Unstable angina is a result of a transient occlusion of the coronary arteries causing symptoms at rest or on minimal exertion, which may be eased/resolved with rest with or without glyceryl trinitrate (GTN)
- Signs and symptoms of ischaemia experienced by patient include: chest pain with or without radiation to jaw, neck, back, shoulders or arms, which is described as squeezing or crushing. Associated symptoms of lethargy, syncope, pre-syncopal episodes, diaphoresis, dyspnoea, nausea or vomiting, anxiety or a feeling of impending doom often also prevail

Source: Deen, 2018

Box 2. ABCDE assessment* of 'Linda'

- Airway: patent, no audible sounds of obstruction; however, unable to speak in full sentences due to dyspnoea
- Breathing: dyspnoeic, respiratory rate of 27, saturations of 85% on room air—with guidance from the senior charge nurse, 80% oxygen via non-rebreathe mask was administered (O'Driscoll et al, 2017)
- Circulation: tachycardia of 112 beats per minute, hypotensive at 92/50 mmHg, oliguric, diaphoretic, and with cool peripherals and a thready radial pulse
- Disability: She was alert on the AVPU scale, but anxious and feeling lethargic. Blood glucose was 5.7 mmol/litre
- Exposure: no erythema or wounds noted. She stated she had central chest pain, which was radiating to her jaw and back, described as 'pressure', and rated as a seven out of ten

* in line with Resuscitation Council (2015)

Box 3. Decision-making theories considered

- Descriptive theory: is concerned with each individuals' moral beliefs regarding a particular decision
- Normative theory: connotes what decisions individuals should make logically
- Prescriptive theory: encompasses the policies that govern the remits of a decision within the evidence base that informs practice

Source: Pearson, 2013

moment. However, as Keller (2009) noted, the hypothetico-deductive model is based on presuppositions recognised by the health professional, such as the evolving cardiac tracing and history of pain, indicating that STEMI was the higher probable cause (Deen, 2018). Consequently, a limitation of hypothetico-deductive reasoning is sufficient experience to aid in generating hypotheses.

Thereafter, in the hypothesis generation phase, the decision-making process evolved to include elements of pattern recognition theory (Croskerry, 2002). The clinical decision that focuses on a single hypothesis can be compared to the use of pattern recognition (Pearson, 2013) where existing knowledge is used to establish the hypothesis. Pearson (2013) commented that hypothetico-deductive reasoning is based on the synthesising and analysing of information whereas the formulation of one hypothesis is suggestive of pattern recognition, where the nurse uses previous experience to evaluate the situation. Consequently, the student nurse's previous experience of assessing a patient in acute STEMI may have guided practice to recognise ST-segment elevation on the telemetry, and then subsequently to conduct an ECG, and to recognise the associated clinical signs of STEMI and to gather a history of the pain using NICE (2013b) guidance on unstable angina, in line with Linda's initial presentation. Croskerry (2002) identified that health professionals who rely on pattern recognition initially recognise visual cues that are then supplemented with more in-depth data, often using assessment tools such as NEWS (and now NEWS 2) and ABCDE. Arguably, the recognition of similarities in clinical presentation, past medical history, and cardiac monitoring tracing of Linda's case to the previous case and use of ABCDE and NEWS 2 to further assess her condition and extrapolate data, identifies that previous experience can facilitate decision-making outcomes.

Finally, in the last phase of the decision-making in the hypothetico-deductive model, the student nurse evaluated the hypothesis and by using the merits from the cues (Banning, 2008) established that STEMI was the most probable cause of Linda's deterioration and could escalate her care appropriately using the prescriptive theory tools described above.

Arguably, by using previous experience to guide practice, an element of confirmation bias may have affected the selection of data (Thompson and Dowding, 2009) and consequently the student may have neglected other important data (Croskerry, 2003). For instance, student nurses are inexperienced with chest auscultation and consequently could not have ruled out differential respiratory diagnoses. Stanovich et al (2013) acknowledged that confirmation bias can be circumvented when evidence is assimilated with hypothesis generation. The consideration that Linda may have been at an increased risk of myocardial infarction due to her age, history of smoking and admission to hospital for unstable angina (Piepoli et al, 2016), indicated that the cause of her deterioration would most likely be cardiac. Thus, an evidence-based approach could inform practice and consequently, any limitations as a 'novice' would be minimised through rationalisation and critical thinking. Indeed, Stanovich et al (2013) argued that rationalising and critical thinking are markedly more important than existing knowledge. This is because even an 'expert' in a specific field does not have completely comprehensive knowledge, and therefore relies on a critical thought process to make rational decisions. Conclusively, health professionals must be able to rationalise their decisions (Johansen and O'Brien, 2016) and justify these decisions within the context of each presentation as a central concept of nursing (NMC, 2018).

Communication is vital to establishing consent to treatment where the patient is regarded as having capacity under the Mental Capacity Act 2005. This is particularly significant when conducting investigations and escalating care to ensure that the patient's wishes are respected, and that the patient is empowered with knowledge regarding their condition and care (Coultier and Collins, 2011). Linda was informed that her care required escalation to the appropriate clinical team, and then subsequently recommended to have PCI intervention as the most effective treatment for STEMI (NICE, 2013a; 2014). Presenting a default decision and using choice architecture can be construed as methods of liberal paternalism used to avoid impeded decision-making from choice overload (Rosenbaum, 2015) or irrational decision bias (Marewski and Gigerenzer, 2012). To escalate Linda's care within the recommended timeframe (NICE, 2013a; 2014), it was important to use elements of liberal paternalism (Beauchamp and Childress, 2013) while preserving Linda's autonomy of choice (Kemmerer et al, 2017). Linda had a right to make a decision against medical advice as per Re B (Adult, refusal of medical treatment) [2002] and these choices were presented to her by the cardiology team. As a health professional, a duty of care was owed to the patient to escalate concerns regarding her condition under the *Code* (NMC, 2018).

Conclusion

Conclusively, all three theories of decision-making pertained to this patient's effective care. Nurses must be accountable for their decisions and act within the remits of the NMC (2018) *Code*. Patient care must consequently be effective, evidence-based and patient-centred. Accountability requires the health professional to act within the remits of their role to ensure safe care is delivered to the patient. This is a fundamental aspect of patient-centric care and principal to effective decision making. Demonstrably, the use of descriptive and normative theories can be interchangeable, however, the use of prescriptive theory is pivotal to validate clinical decision-making. The decision-making process can be further facilitated by use of structured assessment tools to reduce margin of error and improve outcome. Collaborative decision making is pivotal to advancing patient autonomy and empowerment but certain decisions require elements of paternalism to improve the process and uphold the ethical principles of beneficence and non-maleficence. Nevertheless, health professionals have a duty of care to adhere to decisions made by patients established to have capacity to give informed consent, irrespective of the personal beliefs of the professional. **BJN**

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KEY POINTS

- This article is a reflection on a case scenario where decisions were made in the care of a patient admitted for cardiac monitoring
- Nursing decision making is complex and involves a multitude of processes based on experience, knowledge and skill.
- Understanding the importance of decision-making theory and how these theories apply to practice can be effective in reflecting on practice, and the application of theory to practice can inform patient care

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CPD reflective questions

- Consider the three different theories of decision making outlined here—which theory do you deem the most important to your practice? How does this affect your practice?
- Consider how reflecting on your own decision making can improve practice
- What can you do to enrich your own knowledge regarding patients with chest pain?