

# Levette Jones' Clinical Reasoning Cycle: A Case Study

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## Abstract

*Introduction: The Clinical Reasoning Cycle (CRC) is a tool that helps in making decision that enable nurses to select best care options using a process systematically; it takes many factors into consideration. The CRC by Tracy-Levette Jones stimulates critical thinking in order to deliver appropriate management plan for the patient. This article presents a case study in medical-surgical nursing through a discussion of patient-centred and evidence-based care provisions through a theoretical examination using the CRC of Tracy Levette- Jones (2010). This article will help the nurses both novice and proficient, to understand implementation of CRC in the clinical areas and in writing the case study for the patient.*

Keywords: Clinical reasoning cycle, Critical thinking, holistic care

The Clinical Reasoning Cycle (hereafter referred as CRC) by Tracy-Levett Jones stimulates “critical thinking” in order to deliver appropriate management plan for the patient among the doctors and nurses. The CRC help the healthcare workers to walk through an array of systematic phases, eventually leading to a final decision which is the best for the patient in the given circumstances (European Heart Association, 2018). Nurses, particularly the ones who strive to be critical thinkers must have attributes like reasoning, rationalising, transparency, thoroughness, honesty, truthfulness and justice and each one of these characteristics must be shown through their behaviour and communication (Gummesson et al, 2018). Thus, when a chronically ill patient is admitted in the hospital, nurses require complex thinking process to analyse and interpret various clinical manifestation of the patient and then planning the effective and qualitative management plan (Hoiseith et al, 2015)

Nurses with effective clinical reasoning skills have a positive impact on patient outcomes. Conversely, those with poor clinical reasoning skills often fail to detect impending patient deterioration resulting in a “failure-to-rescue”. This is significant when viewed against the background of increasing numbers of adverse patient outcomes and escalating healthcare complaints.

In clinical practice experienced nurses engage in multiple clinical reasoning episodes for each patient in their care. An experienced nurse may enter a patient's room and immediately observe significant data, draw conclusions about the patient and initiate appropriate care. Because of their knowledge, skill, and experience the expert nurse may appear to perform these processes in a way that seems automatic or instinc-

tive. However, clinical reasoning is a learnt skill. For nursing students to learn to manage complex clinical scenarios effectively, it is essential to understand the process and steps of clinical reasoning. Nursing students need to learn rules that determine how cues shape clinical decisions and the connections between cues and outcomes (Clinical Reasoning Resources, 2021).

Clinical reasoning is challenging and requires a different approach to that used when learning routine nursing procedures. Learning to reason effectively does not happen serendipitously. It requires determination and active engagement in deliberate practice for continued learning; it also requires reflection, particularly on activities designed to improve performance. The circle represents the ongoing and cyclical nature of clinical interventions and the importance of evaluation and reflection. There are eight main steps or phases in the clinical reasoning cycle (Fig 1). Though divided into phases, it is a continuum. In reality, one does not always move from one step or phase to the next, but rather move back and forth from one phase to another until an accurate assessment of a patient's health status is made (European Heart Association, 2018). The various phases of clinical reasoning include:

*Consideration of facts from the patient or situation:* This is the phase where the nurse is first presented with a clinical case. Here the nurse receives the presenting information and current medical status of the patient, for example, a new-born admitted in the NICU on account of neonatal jaundice (Adapted from Tracy Levett Jones, et al (2010).

*Collection of information:* In this phase, the nurse carefully considers the past medical history of the patient, the history of presenting complaints, the current treatment plan, results of investigations done,

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and current vital signs. The nurse then analyses the findings using your established knowledge of physiology, pharmacology, pathology, culture, and ethics to establish cues and draw information.

*Processing gathered information:* This is a critical stage and the core of clinical reasoning. Here, the nurse processes the data on the patient's current health status in relation to pathophysiological and pharmacological patterns, know what details are relevant, and determine potential outcomes for possible decisions the nurse makes.

*Identify the problem:* With a solid information processing phase, the nurse will be able to determine the reason behind the patient's current state.

*Establish goals:* Here, the nurse determines the treatment goals for the patient's situation. Treatment plans should not be open-ended or without a time-oriented goal. Know what step to take, and how fast you want the desired outcome.

*Take action:* Now, the nurse implements the actions steps needed to meet the patient's treatment goals. This will, of course, involve other members of the healthcare team, so everyone should be updated about the treatment goals for the particular patient.

*Evaluation:* At this phase, the nurse evaluates the effectiveness of the course of action you have taken. This will allow the nurse to determine whether to re-adjust or continue the line of action.

*Reflection:* This phase of clinical reasoning fortifies the skill. At this phase, the nurse reflects on new things he or she learned about the case, what he or she could have done differently to achieve a better outcome, and what should be avoided in similar occurrences in the

future.

This paper presents a case study which uses patient-centred and evidence-based care approach through a theoretical examination using the CRC. In order to maintain the confidentiality of the patient she will be named as Mrs ABC. The plan for person-centred care is for Mrs ABC, an 88 years old individual with the diagnosis of Post Fall inferior pubic rami fracture.

In the current case of Mrs ABC, the CRC has been utilised with its eight stages which structure a continuum that move to and fro until the most precise assessment is obtained. These stages are explained in detail with her complains, assessments and management plan including the nursing interventions.

**1. Consider the patient situation:** An 88-year-old ABC was transported to a private hospital by ambulance on gurney with the diagnosis of post fall fracture of inferior pubic rami and presenting complaint of severe pain in the hip region with restricted movements with oxygen support of 2 L/min via nasal prongs. She was mobilising with Forearm Support Frame (FASF) with 2 assists, and constipation for 4 days.

She had a history of Rt Ductal Ca breast with no active treatment, multinodular goitre, hypertension, depression, tibial plateau fracture 5 years ago, permanent pacemaker placed 2 years ago, measles, osteoarthritis and Gastro Oesophageal Reflux Disease.

She was allergic to adrenaline and lignocaine and was later on aluminium hydroxide+ magnesium hydroxide + simethicone oral liquid (PRN), citalopram, cholecalciferol, docusate sodium, Movicol, omeprazole, oxycodone hydrochloride, clexane, paracetamol and spirinolactone.

**2. Collect cues/information:**

Mrs ABC had average BMI and appeared to be alert and oriented with high fall risk and low skin integrity score. During admission her blood pressure was 162/70 mm Hg, pulse 76 beats per minutes, RR 22 per minutes, body temperature 36.4°C and SPO2 94% with 2 L/min oxygen via nasal prongs which was eventually brought down to 1 L/min.

She had constipation for 4 days which was confirmed by an abdominal x-ray which showed faecal impaction. Her CRP level was 15 mg/L which indicated acute infection and inflammation. Mid-Stream Urine (MSU) was advised for the patient but still awaiting the result.

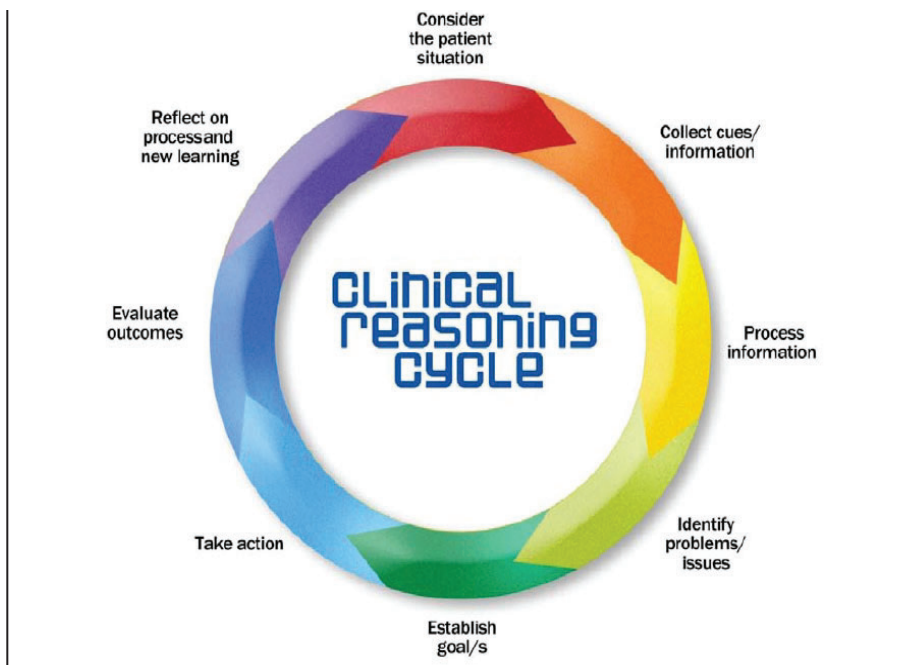


Fig 1: The 8-Stage Clinical Reasoning Cycle (Clinical Reasoning-Instructor Resources, 2021).

Her pain score was 4 during rest and 8 during movement. She could mobilise with Forearm Support Frame (FASF) with 2 assists with severe pain. She was on oxycodone hydrochloride 5 mg tablet with a maximum dose of 30 mg per day with minimum dose interval of 4 hours. Oxycodone is an opioid analgesia and which has its onset in 15-30 min reaching peak in 1 hr, can produce effect for 2-6 hr, metabolised by liver, excreted in urine, it can cross placenta and can be excreted in breast milk. It has a half-life of 3-5 hr and protein binding of 45% (Skidmore-Roth, 2019). She was also taking spironolactone 25 mg tablet, a potassium sparing diuretic mostly used for reducing oedema due to heart failure, hypertension, diuretic-induced hypokalemia, primary hyperaldosteronism, oedema of nephrotic syndrome, cirrhosis of liver with ascites. Its onset is usually 24-48 hr reaching peak in 48-72 hr, metabolised in liver, excreted in urine, crosses placenta, protein binding >90%, terminal half-life 10-35 hr (Drug bank, 2021).

**3. Process information:** Mrs ABC arrived with complaint of severe pain in the hip region as she had fracture of inferior pubic rami. The most common pelvic fracture patterns which can be seen in elderly population above the age of 60 years are pubic ramus fractures. Mrs ABC being in the risk category because of her age of 88 years she even had osteoarthritis which led to pelvic injury (Radha et al, 2013). The presentation for this type of fracture can be seen with the evidence of fall by elderly due to the presence of osteoporotic bone. In this case, Mrs. ABC also tripped and fell which led to the pelvic fracture (Emergency Care Institute, 2020).

One of the most common symptoms of pelvic fracture is pain and tenderness in the groin, hip, lower back, buttock or pelvis Mrs ABC too had moderate to severe pain on rest and during movement respectively (Tidy, 2017). It was found that pain reduces the tissue oxygen saturation and perfusion index in a person (Hoiseth et al, 2015). Due to severe pain in this patient, oxygen saturation level was seen below 90 percent at room air. So, she was provided with oxygen therapy with the use of nasal prongs at the rate of 2 L/min which improved her saturation level to 94 percent. After the administration of oxycodone 5 mg, there was decrease in her pain and her oxygen saturation also improved with 1 L/min O<sub>2</sub> with nasal prongs.

Another sign that could be seen in Mrs ABC was increased blood pressure of 162/70. Here too, pain is considered responsible for that shoot up in her BP level by the mechanism of “hypertension-associated hypoalgesia” which is an inverse relationship between resting BP levels and pain sensitivity; together with her history of hypertension and heart failure has aggravated her condition (Sacco et al, 2013).

Due to presence of pain in movement, patient had

restricted movement. Thus, she was referred from to private hospital for her rehabilitation care and nursing care.

**4. Identify problems/needs:** In this case, the priority-based problem of Mrs ABC is acute pain in pelvic region which can be evidenced by patient’s expression, pain score of 8, restricted movement along with rise in her blood pressure due to fractured inferior pubic rami. The next acute problem that needs to be addressed in this case is of constipation which can be evidenced by patient’s subjective data and also by the confirmation of faecal impaction in abdominal x-ray.

**5. Establish goals:** For acute pain, the goals can be Mrs ABC will verbalise relief of pain, display relaxed manner, demonstrate ability to participate in activities with minimal complaints of discomfort. For constipation, the goals can be that she maintains passage of soft, formed stool and will state relief from discomfort of constipation.

**6. Take action:** For Acute pain: Assessed Mrs ABC’s pain intensity with the help of pain scale where 0 being no pain and 10 being the severe. She was having pain score of 8 on movement and 5 on rest. Also monitored the vital sign. This was done to have as the baseline data which will help in finding the effectiveness of the care given to Mrs ABC (Hommel et al, 2012). Immobilisation of the pelvic bone was done with the help of movement restriction and supporting with the pillow to relieve the pain and prevent further tissue injury (Hinkle & Cheever, 2014).

Provided with the heat pads to the pelvic region in order to reduce the pain as heat reduces resting muscle tension and soothes irritated painful nerve endings. Heat application also helps in healing the injury as heat causes increase in the blood supply to the region which helps in flushing out the injured debris (Physio works, 2019).

Provided with the books from hospital library as Mrs ABC was fond of reading as a part of diversional therapy which helps in coping the pain without much attention. Encouraged her to concentrate on deep breathing as it can enhance coping abilities in the management of the stress of traumatic injury and pain (Black & Hawks, 2014).

Opioid analgesia was administered to reduce pain specifically before the physiotherapy session so that there will be muscle relaxation and she can fully participate in the session thus can gain the strength needed back to do all her activities (Cohen et al, 2021).

For Constipation: Initially assessed Mrs ABC for her bowel pattern and presence of bowel sound in order to determine the presence of bowel movement. After that, encouraged her to have high fibrous diet and to increase tolerable level of fluid in order to soften the stool (Hinkle & Cheever, 2014).

Administered microlax enema in order to relieve constipation as she had not defecated for 4 days causing some amount of abdominal discomfort. After the administration of enema, within an hour she managed to evacuate bowels twice in moderate amount. Explained her the reason of her constipation as she is taking opioid analgesia which has the side effect of constipation and thus encouraged her to take other laxatives such as coloxylsenna daily to encourage opening of bowel.

**7. Evaluate outcomes:** Mrs. ABC showed relief in her pain as there was reduction in her pain score from 8 to 5 during movement and even her vital signs were between the flags with only 1 L/min oxygen saturation and 144/70 mm of Hg BP. There was also relieving of constipation and softening of her stool.

**8. Reflect on process and new learning:** Mrs ABC is admitted in this hospital for the rehabilitative care. The paper did not discuss regarding the rehabilitative measures to be adopted for this patient and the importance of using the walking frame to prevent the risk of fall in future.

This paper helped in studying the condition of fracture of pubic rami in details along with the risk factors, sign and symptoms, medical and nursing management along with collaborative approach including physiotherapist and occupational therapist.

### Recommendations

The phases of the clinical reasoning cycle will facilitate problem-solving and decision making, allowing health care professional to provide the best care for their patients. Moreover, by applying other nursing theories or reasoning cycle while caring for the patient, it will help in strengthening the body of nursing which will help improve the quality of patient care. Similar case study can be done using other nursing models and theory which will further solidify the knowledge and critical thinking abilities of nursing students.

### Conclusion

Clinical reasoning and critical thinking ensure that nurses will have holistic care approach while caring the patient within their scope of practice. This paper and the whole care of Mrs ABC helped to understand the role of nurse, doctor, physiotherapist, occupational therapist, patient and patient's relatives in the management of care.

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