



SCENARIO 5
CARDIAC

SIMULATION LEARNING ENVIRONMENT

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Scenario	Deteriorating Patient in Cardiac Rehabilitation
Estimated Scenario Time	15 minutes pre brief 40 minutes scenario
Estimated Debriefing Time	30 – 40 minutes
Target Group	Master of Nursing Science / Doctor of Physiotherapy / Master of Social Work
Student numbers	Groups of no more than three nursing students, three physiotherapy students & two Social Work students
Academic Staff	
Prerequisite Knowledge / Requirements *Participants should meet the following competencies/requirements prior to involvement in the simulation activity	
- Final year students enrolled into Entry to Practice Programs at The University of Melbourne School of Health Science - Nursing student must have a current First Aid certificate	
Cognitive Skills	Psychomotor Skills
Discuss the possible reasons for the deterioration of a patient's condition utilising scientific principles.	Demonstrate the ability to monitor a patient's clinical progress and report deterioration in a patient's condition.
Analyse and interpret assessment data accurately.	Perform a rapid assessment of a patient using a primary survey (DRABCD's) approach.
	Identify, describe and demonstrate the use of common equipment utilised in an assessment of a patient.
	Demonstrate emergency interventions that are within the scope of practice of a nursing/physiotherapy student to assist in the stabilisation of a deteriorating patient.
	Demonstrate the actions that should be implemented if abnormal assessment data is detected.
	Demonstrate the ability to prioritise emergency medical interventions.
	Demonstrate an understanding of the equipment, staff and principles/guidelines that are required for safe patient transfer.

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Clinical Setting – Ritz Medical Centre

The Ritz Medical centre is the oldest hospital in Victoria, having been built just prior to the gold rush era. It is a modern, state of the art hospital which has over 650 beds. The Ritz Medical is recognized as a pacesetter in the national health care arena and has consistently been linked to progressive developments in health care and services, medical research and health care teaching.

The Ritz Medical Centre is the main provider of health services to people living in the inner suburbs of Melbourne and a major provider of specialist statewide services to the people of Victoria. The Ritz Medical Centre is world-renowned for its research and specialist work in burns, trauma management, cancer, liver transplantation, spinal cord injuries, neurology, endocrinology, mental health and rehabilitation. These services are provided across the continuum of care from ambulatory, to inpatient and home and community based services.

Ritz Medical Centre MET Call Criteria (Adults)

Airway	Threatened
Breathing	Respiratory rate < 5 breaths per minute Respiratory rate > 36 breaths per minute
Circulation	Pulse rate < 40 beats per minute Pulse rate > 140 beats per minute Systolic blood pressure < 90
Neurology	Sudden decrease in level of consciousness Decrease in GCS of > 2 points Repeated or prolonged seizures
Other	Any patient causing concern who does not fit the above criteria

*Source ARC Advanced Life Support Level 2 (6th ed), p 13

Brief Summary of Learning Activity

Cardiac rehabilitation programs are designed to limit the physiological and psychological effects of cardiac illness, reduce the risks for sudden death or reinfarction, control cardiac symptoms, stabilise the atherosclerotic process, and enhance the psychosocial and vocational status of selected patients (Woods et al. 2010). A key responsibility of cardiac rehabilitation staff is to anticipate, recognise and react to adverse responses to exercise activity (Moser & Riegel, 2008).

It is recommended that direct staff supervision of exercise programs should occur for at least 6 to 8 exercise sessions or 30 days after the cardiac event or procedure (in a low risk individual)(Woods et al. 2010). Typically, this may involve continuous ECG monitoring and then decrease to polar monitoring as appropriate (Moser & Riegel, 2008; Brown & Edwards, 2012). Thus, a thorough understanding of the normal physiological responses to exercise is required of the Registered Nurse and the Physiotherapist supervising cardiac rehabilitation. Early recognition of

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clinical deterioration, followed by prompt and effective action, can minimise the occurrence of adverse events such as cardiac arrest, and may mean that a lower level of intervention is required to stabilise a patient (ACSQHC, 2010).

During this simulation activity, a low risk patient (Mr De Luca) attends the Cardiac Rehabilitation program at the Ritz Medical Centre. Mr De Luca is three weeks post STEMI/CABS x3 and rapidly deteriorates during the exercise class. Mr De Luca will experience shortness of breath, dizziness, nausea and palpitations (irregular HR of 140 indicating acute onset of atrial fibrillation) during the first 1-3 minutes of the simulated exercise class. The nursing & physiotherapy students will be required to assess the patient, implement an emergency plan of care for the patient including the initiation of a MET call. There are approximately 4 other participants in the class.

Rosa and the S/Worker are in a room adjoining the exercise class. At seeing that Mr De Luca has collapsed to the floor, Rosa becomes highly anxious. The social work students stay with Rosa to support her at the time of distress while that nursing & physiotherapy students attend to MR De Luca

Learning Outcomes – Australian Nursing & Midwifery Council National Competency Standards

- ✓ Approaches and organises assessment in a structure way
- ✓ Determines priorities for case, based on health assessment of an individual's need for interventions
- ✓ Uses resources effectively and efficiently in providing care
- ✓ Performs procedures confidently and safely
- ✓ Monitors the responses of an individual through each interventions and adjusts care accordingly
- ✓ Responds effectively to emergencies
- ✓ Maintains self control in the clinical setting and under stressful conditions
- ✓ Implements crisis interventions and emergency routines as necessary
- ✓ Recognises when resources are insufficient to meet an individual's needs
- ✓ Demonstrates flexibility in providing care when resources are limited
- ✓ Frames questions in ways that indicate the use of a theoretical framework/structure approach
- ✓ Accurately uses health care technologies in accordance with manufacturer specifications and organisation policy
- ✓ Identifies deviation from normal or improvement in the individuals health status
- ✓ Practices in a way that acknowledges the dignity, culture, values, beliefs and right of individuals/groups
- ✓ Understands and practices within own scope of practice
- ✓ Integrates nursing and health care knowledge, skills and attributes to provide safe and effective patient centred care
- ✓ Uses a range of assessment techniques to collect relevant and accurate data
- ✓ Analyses and interprets assessment data accurately
- ✓ Documents a plan of care to achieve expected outcomes
- ✓ Established, maintains and appropriately concludes therapeutic relationships
- ✓ Collaborates within the inter-disciplinary health care team to provide comprehensive patient focused health care
- ✓ Demonstrates accountability and responsibility for own actions within practice
- ✓ Ensures privacy and confidentiality when providing health care

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Learning Outcomes – based on Australian Association of Social Work Practice Standards (2003)

- ✓ Makes an appropriate assessment of the client's situation
- ✓ Explains the service to the client and describes any limitations with what is being offered
- ✓ Involves the client, as far as possible in developing a service plan and in its implementation
- ✓ Acknowledges and respects the strengths and capacities of the client in developing a service plan
- ✓ Develops a social work assessment and intervention plan that is appropriate to the patient's situation and is in keeping with ethical and legislative requirements
- ✓ Maintains social work principles, values and practice whilst acknowledging the practice base of other disciplines in the multidisciplinary team
- ✓ Recognises the need for and arranges a referral to a relevant service provider and puts in place assistance to enable the provision of service as a result of the referral
- ✓ Advises the client of their right to query the service provided and the avenues and procedures to follow if the client wishes to do so
- ✓ Seeks feedback from the patient in the evaluation of service provision and uses this to improve future practice
- ✓ Works with the patient and the medical service so that the patient receives the most appropriate and effective service from the organisation

Learning Outcomes – Physiotherapy

- Perform an appropriate assessment of a patient's suitability to participate in an exercise program
- Recognize an adverse response to exercise and take reasonable action to ensure patient safety (i.e. stop exercise, closely monitor patient, call for help)
- Communicate effectively with the team in a crisis situation
- Ensure the safety and welfare of all participants in an exercise class (taking into consideration other people in the room)

Equipment Checklist

***Equipment that is required for this scenario**

Resuscitation trolley (stocked as per Ritz medical equipment list)	
Telephone	
ECG machine	
Blood sugar machine	
Vital sign monitor	
Cardiac monitor	
Ritz Medical Centre paper work (MET call)	
ALS / MET call criteria chart	
Pre Brief	
• Outline time allocation proposed for simulation activity ○ Pre brief 15 minutes each part ○ 30 minute simulation activity (Part A)	

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- Debrief 30 minutes
- Explain learning objectives for today's experience, and what is required of the students.
 - The aim of the simulation clinical scenario is to enhance a student's ability to detect and respond to the deteriorating patient.
- Students must meet all requirements of the dress code & the general rules of the simulation environment
- Remind students about the patient's from the case study – use laminated patient case details.
- Remind students to utilise a clinical framework to assist in planning and implementing their care.
- Ask students to read and sign Simulation Observation and Participation Agreement.
 - Reinforce need to respect other members of the group during and after this activity.
 - Remind students that the video of their session will be retained after viewing by the students.
- Discuss layout of simulation laboratory, including patient charts, equipment available, and presence of viewing room and video cameras. Orientate student to 3G manikin if used in scenario
- Allow time for students to ask questions

Patient Description:

Name Nicholas De Luca	Age 48	Ethnicity Italian Roman Catholic
Setting:	Ritz Medical Centre Cardiac Rehabilitation Outpatient Clinic	
Patient Information	Previous Medical Hx Type Two Diabetes, Dyslipidemia, Hypertension, BMI 28. Last serum cholesterol was 6.5 mmol/L.	
	Previous Family Hx Type Two Diabetes and Cardiovascular Disease. Carlo De Luca, Nicholas father, died suddenly at the age of 54 of a myocardial infarction.	
	Current Medications He currently takes 40 mg Simvastatin for elevated serum lipids. Since his wife's death, Mr De Luca has been commenced on a beta blocker to treat his blood pressure. He also takes 300 mg of aspirin daily.	
	Allergies – Codeine	
	Lifestyle & Health Practices Mr De Luca has a past medical history of smoking 25 cigarettes a day for 30 years (37 pack years).	

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	Mr De Luca drinks three to four glasses of Chianti per night. He is a member of a gym in Carlton however, due to busy lifestyle he rarely gets to exercise. Mr De Luca does not monitor his blood pressure or his blood glucose level. At times he is non adherent to his medication regime for his chronic conditions.
	Social History Mr Nicholas De Luca is a 48 year old business executive. He is the managing Director of Cassandra Fine Foods Pty Ltd. Cassandra Fine foods is an importer and distributor of pasta, rice, polenta and tomato sauces in Australia. The family operated business was initially started in 1952 by Carlo De Luca. Mr De Luca is a single father of three teenage children, Renzo (15years), Teresa (13years) and Alberto (9 years). His wife Daniela died of breast cancer eight years ago. Since his wife's death, Mr De Luca's mother Claudia has lived with the family in their single storey house in Parkville. Mr De Luca's current girlfriend is called Rosa; she works as a Chartered Accountant with Price Waterhouse and Coopers.
Hx Present Health Concern Mr De Luca presented to the Ritz Medical Centre with an acute episode of crushing central chest pain, nausea and shortness of breath. His oldest son Renzo called an Ambulance when his father collapsed to the ground clutching his chest whilst they were playing a game of backyard soccer. Mr De Luca was quickly reviewed in the Emergency Department and was diagnosed as an experiencing an acute Anterolateral ST Elevation Myocardial Infarction (STEMI). He was rapidly transferred to the Ritz Medical Centre Cathlab where he underwent a Percutaneous Coronary Intervention (PCI). It was discovered that Mr De Luca had a 66% occlusion of his left main artery, an 80 % occlusion of his left anterior descending artery and 75% occlusion of his left circumflex artery. Due to the existence of extensive coronary artery disease, Mr De Luca was transferred to the operating theatre for urgent Coronary Artery Bypass Surgery (CABS). It is now three weeks posts Mr De Luca's STEMI/CABSx3, he has just started attending the Cardiac Rehabilitation Program at the Ritz Medical Centre. Today is the second time that Mr De Luca has attended the CRP. Currently, Mr De Luca's greatest concern is about resuming sexual activity with his girlfriend, Rosa. Today, he has requested some information on how he will know when he is "ready" to return to his normal "level of activity". In addition, Mr De Luca has given informed consent for the hospital social workers to liaise with his girlfriend Rosa around available options for community support and referral. Mr DeLuca claims that Rosa often takes a lead role in helping him and his family negotiate with organisations and services because she is educated and good at all of that.	

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Mr DeLuca attended an initial assessment last week and following completion of outcome measures, an exercise routine was developed appropriate to his capabilities. The routine includes participation in a 10 minute low intensity group warm up, walking on a treadmill, stationary cycling, upper limb range of motion/ strength exercises and a group cool down. Prior to participation in the exercise class, a brief assessment of Mr DeLuca is to be performed (as per the assessment form). Rosa is also attending the Cardiac Rehabilitation Program today as she has an appointment with the Social Worker to discuss community supports for Mr DeLuca. MrDeLuca has given written consent for the hospital social workers to liaise with Rosa on available options for community support and referral.

Additional Information available to students upon their request

Upon discharge Mr De Luca was independent in his ADLs. He was capable of walking around the ward (50 meters) and up one flight of stairs without shortness of breath, dizziness, chest pain or any other evidence of exercise induced myocardial ischemia. At discharge it was reported that Mr De Luca ejection fraction was > 50 %. Apart from a long aortic cross clamp time and an episodes of frequent premature atrial contractions on day two, that responded to IV administration of K+ & Mg Mr De Luca's postoperative recovery was uneventful. Mr De Luca experienced no other complications as a result of his surgery e.g. chest infection, wound infection, DVT etc

Proposed Correct Treatment Outline

Preliminary	Achieved
- Introduces self to patient - Informs patient of intended exercise and obtains agreement - Reviews care plan and appropriately deals with any inconsistencies - Reads cue card which outlines patient condition - Physio students to perform assessment of patient current status (pre exercise) as per standardized assessment form (provided to students)	
Assessment of Patient	Achieved
- Performs hand hygiene and dons personal protective equipment if deemed necessary - In the first 1 – 3 minutes of the simulation Mr De Luca alerts staff to his change in condition. He states that he is experiencing shortness of breath, dizziness, nausea and palpitations. - Students are thus required to demonstrate the ability to apply key principles of assessment <i>Danger</i> - Immediately stops / prevents Mr De Luca performing any further strenuous activity - Places Mr De Luca in position of comfort <i>Response</i> - Calmly raises the alarm and alerts other health care professional staff to change in Mr De Luca's condition - The students are then to continue to assess Airway, Breathing, Circulation, Defects / Blood	

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sugar

- *Airway*
 - Patent and clear, pt is speaking in sentences
- *Breathing*
 - Patient c/o of moderate shortness of breath, this does not settle once patient is position in a comfortable position.
If student count respiratory rate – approximately 28 – 34 bpm
 - If students assess SaO₂ advised that it is 95 % on room air.
 - Students may apply O₂ via Hudson mask at 6 – 8 l/min.
 - If students listen to chest it is clear, equal bilateral air entry with no abnormal breath sounds
- *Circulation*
 - Patient c/o of palpitations in chest. States that it feels as if his heart is racing.
 - If student palpates the patient pulse advised that HR is 140 + and irregular rhythm.
 - Patient is warm and well perfuse. Capillary refill < 3 seconds.
 - If students assess Blood Pressure advised that it is 85/60
 - If student perform ECG give ECG which demonstrates Rapid Atrial Fibrillation
- *Deficits*
 - Glasgow Coma Scale is 15 (E4V5M6)
 - Pupils PEARL
 - Normal limb strength
 - Pt complains of feeling very dizzy which has settles slightly since place in sitting position
 - If student performs BSL advised that it is 5.8 mmols.
- *Chest pain/palpitation assessment*
 - Onset
 - Provocation, palliation, position
 - Quality
 - Region, radiation, referral
 - Severity
 - Timing
 - Presence of associated symptoms
 - Special considerations
- *Brief target history*
 - Current Signs & Symptoms
 - Allergies

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• Medications • Past medical history • Last oral intake • Events leading to incident	
Implementation	
• Demonstrates ability to apply key principles for management of deteriorating patient ○ Stops all patient activity ○ Places patient in semi fowlers position or other position of comfort ○ Undertakes assessment – vital signs & ECG, cardiac monitor at minimum! ○ Student should NOT administer GTN as patient current BP is 85/ systolic ○ May administer aspirin if Mr De Luca states he has not had his morning aspirin ○ May administer Oxygen via Hudson mask at 6 – 8 l/min ○ Initiates hospital MET call as Mr De Luca meets numerous criteria (HR/BP/Concern) ○ Reassess patient at regular five minutely intervals until arrival of MET call team ○ Reassures and calms patient regularly ○ Documents all of assessment findings on inpatient chart	
Evaluation	
• Evaluate own performance • Identifies opportunities for improvement or further training • Demonstrates ability to problem solve • Assessor to note any issues	

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Debriefing Overview	
What went well • How do you think the scenario went? • How successful were you as a team? • Were directions clear?	What else happened • What were some of your challenges • How could you have been more effective • What were your favourite and least favourite aspects • Did anything make you feel uncomfortable • What emotions did the experience trigger
How did the team function • What was your role? • Would you have performed better in a different role? • How did you contribute to the team effort? • What happened to the team during the simulation? • Did team members act professionally? • Did a leader emerge? Why? Why not? • Was important information shared clearly? • How would you describe the communication among team members? • How could communication within the team have been improved? ○ Ask students to identify human factors that may have altered their performance ○ Situational awareness ○ Perception & cognition ○ Teamwork ○ Culture	How would this improve patient care • What new knowledge did you gain • Are you comfortable with your knowledge/skill level • How would this help you in practice • How will you apply what you learned to the clinical setting Summarize • These are the thing that you identified as going well... • These are the things you identified as needing to work on..... • I saw improvements in the areas of..... In closing • Open up the discussion to enable students to discuss any fears or issues of concern from the experience. • End on a positive note, and remind them about the importance of confidentiality.
Teaching Points	
Critical Thinking	Rationale
What other areas of management /self care should Mr De Luca Cardiac Rehabilitation program address?	

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Discuss the possible reasons for the deterioration of a patient's condition utilising scientific principles.	
Why is it not appropriate to administer GTN to Mr De Luca?	

References for Scenario

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