IpAC Unit
interprofessional ambulatory care unit

Interprofessional learning through simulation

Leadership and teamwork in Medical Emergency Teams: *MET Call in Focus*

THIS CLINICAL TRAINING INITIATIVE IS SUPPORTED BY FUNDING FROM THE AUSTRALIAN GOVERNMENT UNDER THE INCREASED CLINICAL TRAINING CAPACITY (ICTC) PROGRAM

Health Simulation Centre

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Acknowledgements

This resource was developed by the Interprofessional Ambulatory Care Program (IpAC) at Edith Cowan University (ECU) in collaboration with the ECU Health Simulation Centre with funding provided by the Australian Government under the Increased Clinical Training Capacity (ICTC) Program.

Foreword

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Australia's health workforce is facing unprecedented challenges. Supply will not meet demand, and the safety and quality of care remain key issues. The national health workforce agency, Health Workforce Australia (HWA), an initiative of the Council of Australian Governments (COAG), has been established to address the challenges of providing a workforce that meets the needs of our community – now and in the future.

Accordingly, ECU has set a priority on meeting these challenges, with a focus on the national health workforce reform agenda set out in the 2008 National Partnership Agreement (NPA) on Hospital and Health Workforce Reform.

In June 2010, ECU was awarded $4.6M from the Australian Government through a nationally competitive process under the ICTC Program, an initiative which aims to develop interprofessional learning and practice capabilities in the Australian health workforce.

The IpAC Program aims to complement traditional clinical placement activities with high quality interprofessional learning competency development and assessment, so that at the earliest point students gain exposure to best work practices within multidisciplinary teams that have the patient's individual needs as the focus.

Additionally, the IpAC Program has developed interprofessional learning resources and interprofessional health simulation challenges in collaboration with the ECU Health Simulation Centre. The ECU Health Simulation Centre is recognised internationally as a

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specialist centre in providing human factors based sequential simulation programs using professional actors. Most simulated learning interactions revolve around a single moment, such as a patient's admission to the emergency department. What we provide at the ECU Health Simulation Centre is a sequential simulated learning event that follows the patient and carer's journey through the healthcare system, for example, from the accident site following a motor vehicle accident, to the emergency department, to a hospital ward, to their home and into the community for GP and allied health follow-up.

Human factors in health care are the non-technical factors that impact on patient care, including communication, teamwork and leadership. Awareness of and attention to the negative aspects of clinical human factors improves patient care.

ECU's involvement in national health workforce reform is all about playing a role that enables the health workforce to better respond to the evolving care needs of the Australian community in accordance with the NPA's agenda. The IpAC Program is an example of how we can work across sectors, nationally and internationally, to determine better ways of addressing the pressing issue of how best to prepare students for the workplace and thus assuring that health systems have safe, high quality health services.

Interprofessional Ambulatory Care Program

ECU's IpAC Program was established with support from the Australian Federal Government through funding from the ICTC Program. The IpAC Program aims to deliver a world-class interprofessional learning environment and community clinic that develops collaborative practice among health professionals and optimises chronic disease self-management for clients.

This is achieved through the provision of clinical placements within the multidisciplinary team at the IpAC Unit, a community clinic that develops communication and collaboration among health professionals and optimises chronic disease self-management for clients. Additionally, a range of clinical placements are offered at existing health facilities, where trained IpAC Program clinical supervisors provide clinical support and ensure the integration of interprofessional learning into each clinical placement.

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The IpAC Unit, in collaboration with the ECU Health Simulation Centre, has developed a range of interprofessional learning through simulation resources. These learning resources are packages consisting of an audiovisual resource and a facilitator's manual, and aim to facilitate interprofessional learning and to support the participants in the development of interprofessional skills.

The interprofessional learning through simulation resources developed by the IpAC Program aim to provide health students and health professionals with the opportunity to learn with, from and about one another by engaging them in interactive live simulation events. These simulations encourage students and professionals to challenge themselves and each other in a safe learning environment.

ECU Health Simulation Centre

ECU houses the only fully functioning Health Simulation Centre of its kind in Western Australia, specifically designed and equipped to address the interprofessional learning needs of the health workforce and implementation of both state and national safety and quality frameworks.

The ECU Health Simulation Centre offers health workforce training and development specialising in clinical skills, human factors, and patient safety training for multidisciplinary health teams. Using a variety of educational techniques, including a broad range of simulation mannequins, professional actors and task trainers, ECU specialises in immersive simulation and observational learning. Supporting the ECU Health Simulation Centre are nursing, medical, paramedic and psychology academic and technical staff whose aim is to cultivate the development of competent and confident health professionals centred on enhancing patient safety.

Interprofessional learning

Interprofessional education occurs when two or more professions learn with, from and about each other in order to improve collaboration and quality of care (Centre for the Advancement of Interprofessional Education, 2002).

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Interprofessional learning is the learning arising from interaction between students or members of two or more professions. This may be a product of interprofessional education or happen spontaneously in the workplace or in education settings (Freeth, Hammick, Reeves, Barr, & Koppel, 2005). It has been found that interprofessional education can improve collaborative practice, enhance delivery of services and have a positive impact on patient care (Canadian Interprofessional Health Collaborative (CIHC), 2008).

The World Health Organization (WHO) has recognised the importance of interprofessional education and collaborative practice in developing a health workforce that is able to meet the complex health challenges facing the world and assist in the achievement of the health-related Millennium Development Goals (World Health Organization, 2010). In developing its framework for action, the WHO have recognised that models of interprofessional collaboration are most effective when they consider the regional issues and priority areas (including areas of unmet need) in the local population (World Health Organization, 2010). In doing so, interprofessional education and collaborative practice can best maximise local health resources, reduce service duplication, advance coordinated and integrated patient care, ensure patient safety and increase health professional's job satisfaction (World Health Organization, 2010).

The end goal of interprofessional education is to create a health workforce with improved levels of teamwork, collaboration, knowledge-sharing and problem-solving, eventually leading to better patient and client outcomes in health settings (Braithwaite et al., 2007).

Interprofessional learning through simulation

Simulation in education refers to the re-creation of an event that is as closely linked to reality as possible. Gaba (2004) defined simulation as a technique, rather than a technology, to replace or amplify real life experiences with guided experiences often immersive in nature to evoke or replicate aspects of the real world, in a fully interactive pattern. Simulation provides a safe learning environment for students to practice, where they are free to make mistakes, correct them and improve the processes of care (Kenaszchuk, MacMillan, van Soeren, & Reeves, 2011). Simulation is the bridge between classroom learning and the real life clinical experience, allowing students to put theory into practice.

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Interprofessional learning through simulation combines the principles of interprofessional learning and the use of simulation as an educational methodology. Interprofessional learning through simulation provides students with the opportunity to practice working with other health professionals and allows participants to explore collaborative ways of improving communication aspects of clinical care (Kenaszchuk, et al., 2011).

Many of the interdisciplinary team core competencies, such as problem solving, respect, communication, shared knowledge and skills, patient-centred practice, and the ability to work collaboratively (Canadian Interprofessional Health Collaborative, 2010) can all be developed by interprofessional learning through simulation.

Teamwork and interprofessional practice and learning are being recognised as central to improving client care and outcomes and enhancing client safety (Sargent, 2008). Promoting patient safety through team efforts is one of the five core competencies identified by the Institute of Medicine (2003).

In today's healthcare setting, no one health professional can meet all of the client's needs and therefore a healthcare team approach is required. Interprofessional learning through simulation provides learning opportunities to prepare future healthcare professionals for the collaborative models of healthcare being developed internationally (Baker et al., 2008).

How to use this resource package

This interprofessional learning through simulation resource package has been designed to support the facilitation of interprofessional learning among students and practitioners with an interest in developing their skills and knowledge of interprofessional practice.

The package consists of two components: an audiovisual resource and a supporting manual. In order to optimise the learning opportunities from this package it is recommended that participants are firstly introduced to the concepts of interprofessional learning and human factors in health care.

The audiovisual resource consists of two scenarios, the first demonstrating sub-optimal performance of the healthcare team, with the second demonstrating more effective performance, improving the patient experience. The package has been created in a format

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to enable flexibility in its application depending of the educational setting. We recommend the following format:

1. Facilitator guided discussion around the concepts of interprofessional learning and human factors in health care
2. View scenario 1 of the audiovisual resource
3. Facilitator guided discussion around the scenario specific learning competency areas (samples given within manual)
4. View discussion with clinicians
5. View scenario 2 of audiovisual resource
6. Facilitator guided discussion, identifying and discussing the changes witnessed and how this resulted in an alternative outcome. In particular discussion relating the causes of these changes to personal (future) practice is essential in improving interprofessional practice.

Opportunities for further reading and exploration of the scenario are provided in the *Further Information* and *References* sections of this resource manual.

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Scenario brief

Mr. Keane is a 78 year old man with a history of congestive heart failure who had been admitted to hospital with an episode of Acute Pulmonary Oedema (APO) for which he initially required Bi-level Positive Airway Pressure (BiPAP). The original problem has been resolved but he has developed hospital-acquired pneumonia as a result of a left lower lobe lung infection. He requires daily chest physiotherapy for this.

Around midday on day five of his hospital stay Mr. Keane has got out of the shower and is attending his scheduled physiotherapy session. The effort required to shower has exhausted him.

Present in the room is an Enrolled Nurse who has the joint responsibility of looking after five other patients as well as Mr. Keane, and the Physiotherapist.
During physiotherapy the patient's anxiety levels begin to rise. His panic is due to increased breathlessness and a new onset of chest pain.

As Mr. Keane's distress increases the emergency button is pressed for assistance. This summons members of the Medical Emergency Team (MET), a multidisciplinary team with acute care expertise, to the ward. Medical, Nursing and Allied Health staff members are required to work together to restore Mr. Keane to an optimum level of homeostasis before there is a rapid disintegration in his condition that would require more complex care in a specialised setting such as the Intensive Care Unit.

List of characters

- Anaesthetic Registrar
- Enrolled Nurse
- ICU Resident
- ICU Nurse
- Medical Registrar
- Patient
- Physiotherapist

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Key learning competencies

The key learning competencies for this scenario are based on the IpAC Program learning objectives and the National Interprofessional Competency Framework of the Canadian Interprofessional Health Collaborative (Canadian Interprofessional Health Collaborative, 2010). The specific competency areas for this scenario are:

- Interprofessional communication
- Client centred care
- Leadership characteristics
- Role clarification

Interprofessional communication

The interaction between professionals demonstrates:

- The sharing of relevant client medical history to facilitate rapid and appropriate medical intervention
- Communication that is relevant to the client's medical history
- Active listening to team members (including the client)
- Communication that ensures a common understanding of care decisions
- The development of trusting relationships with client and other team members

Client centred care

The interaction between team members and the client demonstrates:

- Understanding the reason for the MET call and the management plan required
- Sharing important information with client and team members in a respectful manner
- Communicating with the client in a way that is clear, understandable and free of jargon
- Listening respectfully to the needs of all parties to ensure the most appropriate care is given
- The interaction is appropriate and therapeutic for the client

Leadership characteristics

Leadership is a combination of three dynamic factors: the group, the environment and the task. Effective leadership requires the following attributes

- Designation of a central person who can guide the group toward its goal
- The knowledge and skills to achieve the desired outcome

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- The ability to delegate tasks to appropriate team members
- An appreciation and understanding of both the team and the client's needs
- Establish communication between the group members

Role clarification

Expectations, conception and performance have been identified as the three important factors needed to define a specific role.

- To have a clearly defined leader who understands the skill mix and abilities of each team member
- Be clear in what each of the team member's roles and responsibilities are
- Have the correct information to carry out the job assigned
- Know what other members of the team expect from each other
- Know what responsibility is expected from each role

Key discussion points

Scenario 1

The following discussion points are useful in considering scenario 1 of this resource package.

The questions are intended to generate discussion and highlight communication styles. Ideally, the participants include representatives of different disciplines, or in a homogenous cohort a character's viewpoint can be allocated to groups of participants.

Four general discussion questions can be used within the specific scope of each of the specific interprofessional learning objectives:

1. What is your immediate impression of this scenario?
2. What are the causes of the impression you get?
3. What went well?
4. What could have been done better?
5. What advice would you give the health professionals?

Below, for each of the competency areas a set of facilitation questions have been provided, which can be used by the facilitator to highlight a specific competency.

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Interprofessional communication

For communication to be successful a message needs to be transmitted clearly and understood by the receiver. The sense of urgency for further intervention needs to be able to be appropriately conveyed (Donahue, Smith, Dykes, & Fitzpatrick, 2010).

- How would you describe the type and quality of communication in this scenario?
- What was good or bad about the communication in this scenario? Provide examples. Discuss communication within entire team, not forgetting the client/patient.

How could the MET have improved their communication and information sharing:

- With members of the health care team, each other?
- With the patient?

Do you think that the patient was satisfied with the communication he was receiving from the healthcare team? How could this have been improved?

What do you think the style of communication between the healthcare professionals says about their overall level of teamwork and cohesiveness? Do you think this alleviates the fears and concerns of the patient?

Information sharing

Do you think the healthcare team received relevant information about the patient to plan his care quickly and effectively? If not, why was this?

Active listening

Are there any examples of active listening? Where could this be improved and how?

Was the patient asked questions? What was the aim of these questions? Did the team listen to his responses?

Development of trusting relationships with all team members and the client

What do you think the style of communication between the healthcare professionals says about their overall level of teamwork and cohesiveness? What effect does this have on the fears and concerns of the patient?

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What suggestions would you have to improve the development of trusting relationships with all team members and the patient?

Do you think the way the Medical Registrar asks for information is appropriate?

Client centred care

- How do you think the patient is feeling? What has caused this?
- Do you believe the healthcare team was acting in the best interests of the patient? Why?
- Do you believe the patient is clear as to what treatment is being provided to him and why? How would you know this?
- What questions did the patient have? Did he get an adequate response to his questions?
- Do you think the patient is able to comprehend the information he is being told by the healthcare team? How could this be improved?
- How could interactions with the patient be improved?
- Do you think the patient felt part of the decisions made regarding his treatment? Is this important?

Leadership characteristics

- Do you think there was a clearly defined leader during this scenario? Who? Who is supposed to be the leader during a MET call?
- Who (if anyone) took charge to establish a care plan to meet the patient's acute care needs? At what point?
- Who else had a leadership role in this scenario and why?
- Do you think the team demonstrated a level of mutual respect and trust for each other? Do the team members trust the leader(s) to make the right decisions? How do you know?
- What do think might be contributing to the poor level of teamwork between the healthcare team?
- How was each healthcare professional contributing to the dysfunctional operations of the team? What could they have done differently?

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Role clarification

- Was the healthcare team clearly communicating their roles, skills and knowledge to the patient and each other?
- Do you think each member of the team understood what their role was meant to be?
- Do you think that each member of the team understood and had respect for each other's roles?
- How could this have been altered or improved?
- Some examples of misunderstanding of roles:
    - Nurse's role is to provide immediate care, but the Registrar needs to assess all the information available to make a decision. These differing priorities can cause tension between the team members.
    - The Registrar was not aware of the Enrolled Nurse not being allowed to perform a certain duty. If the Enrolled Nurse does not explain that the duty is not within her scope of practice, she will either need to do something outside of her skillset, or she may seem unwilling or incapable.

Key discussion points

Scenario 2

- What did you notice had changed from Scenario 1? How did these changes impact on the final patient outcome?
- How do you think the healthcare team operated in the revised scenario? What were some of the specific changes that occurred? How did this affect the team dynamics?
- How did the team ensure the patient was more informed about his care? What impact will that have had on the patient and his condition?
- What were some of the specific improvements made in regards to communication – with the patient, within the team?

Encourage participants to reflect on their own practice:

- How can you ensure the interprofessional learning objectives are addressed in your interprofessional and patient-centred practice?
-

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Literature review

"Patients who are admitted to hospital believe they are entering a place of safety, where they, and their families and carers, have a right to believe that they will receive the best possible care ... Yet there is evidence to the contrary. Patients who are, or become, acutely unwell in hospital receive sub-optimal care. This may be because their deterioration is not recognised" (Morris & Davies, 2010).

Hospital systems of developed countries service a patient population of increasing complexity and acuity. A substantial number of patients (10-20%) may suffer a serious adverse event (SAE) while hospitalised (World Health Organization, 2009b). Multiple studies reveal that SAE's and cardiac arrests in hospitalised patients are not sudden or unexpected. In up to 80% of cases they are precipitated by derangements in commonly measured vital signs and laboratory test (Jones, 2009). These changes occur over several hours, so that there is potentially time to intervene in the course of the deterioration. Importantly these warning signs, detectable by measurement of routine vital signs, add no additional costs or risks to the patient (Jones, Bellamo, & DeVita, 2009).

Early identification of changes in these parameters is therefore paramount to patient safety and outcomes (World Health Organization, 2009a).

The inpatient population is an aging population and these patients present with a greater number of comorbidities. Medical Emergency Team (MET) systems have evolved partly as a response to this sicker inpatient population in the acute care hospital and have been introduced to identify, review and treat at-risk patients during the early stages of clinical deterioration (Hillman et al., 2002).

Unlike the cardiac arrest team, a MET service can be summoned before an arrest occurs. The MET team differs from other emergency response teams in that the team leader is a physician, typically with intensive care expertise. Other team members are: an Anaesthesia Resident, ICU nurse, Medical Registrar and Ward Nurse (Jones, et al., 2009). All members of the team are skilled in advanced life support. The team is summoned when a patient fulfils one or more predefined criteria for an emergency response activation (Morris & Davies, 2010).

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Rationale for simulation scenario

Growing concern within hospitals that provide treatment for patients with increasing comorbidity and complexity is the lack of cohesion in resuscitation education processes. Training is vital for the efficient functioning of MET, the minimisation of risk and the optimisation of patient outcomes (Barbetti & Lee, 2008)

The simulation technique creates a simplified model of a real scenario and encourages trainees to appreciate the consequences of their actions without harming their patients. The use of simulation training in medical curricula has been established worldwide over the past decades and it has been shown that structured simulation can improve outcomes in patient care (Hinske, Sandmeyer, Hinske, Lackner, & Lazarovici, 2009)

Physiological rationale for MET intervention

The MET is a logical approach (as identified in the principles outlined below) as it is a hospital wide support system in preventing SAE's in hospitalised patients. This approach not only aims at prevention, but enables education and sharing of critical care skills with ward staff and the ability to advise on patient management and follow up (Barbetti & Lee, 2008). The following principles demonstrate where it is appropriate to adopt the MET approach in clinical hospital settings.

Principle one: There is time for intervention

The evolution of clinical and physiological deterioration is relatively slow and can span over several hours.

Principle two: There are warning signs

Clinical deterioration is preceded by physiological deterioration in commonly measured vital signs.

Principle three: There are effective treatments if dangerous conditions are recognised.

The majority of interventions of the MET are inexpensive, relatively simple and non-invasive.

Principle four: Early intervention improves outcome.

It is intuitive that sick people are easier to fix than dead people.

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Principle five: Any member of staff can activate MET

Ward level training and protocols empower staff to activate MET when clinical warning signs are evident**.**

Principle six: Ward staff have insufficient skills to manage a medical crisis

Junior ward staff do not, historically, have the required skill set to identify and manage acutely deteriorating patients on the ward.

Principle seven: The expertise exists and can be deployed.

Intensive care doctors and nurses are experts in the delivery of advanced resuscitation (US Department of Defense, 2006)

To identify deteriorating patients, standardise recordings and reduce the chances of adverse events, the use of an Early Warning System (EWS) chart is widely accepted. The term 'track and trigger' is often used as an alternative description of EWS (Morris & Davies, 2010, p. 1181). The EWS system helps ensure patients' acute care needs are identified and addressed early avoiding unnecessary critical or intensive care unit interventions (Morris & Davies, 2010). It further provides nursing and medical staff with a physiological score generated from the recording of vital signs such as heart rate, respiratory rate, systolic blood pressure, level of consciousness, oxygen saturation and temperature. Once a EWS score is calculated, staff refer to an algorithm on the chart which indicates the response required. Should abnormal observations be recorded, this response ranges from increased frequency of observations to summoning immediate medical assistance (Morris & Davies, 2010, p. 1181).

Conclusion

Serious adverse events are frequently precipitated by signs of physiological instability that manifest as derangements of commonly measured vital signs. These changes can occur over several hours so that there is potentially time to intervene in the course of the deterioration. Importantly, the warning signs are detectable by measurement of routine vital signs with no additional costs or risks to the patient (Jevon, 2010).

An important factor underlying the MET concept is that earlier intervention in the course of the deterioration is likely to improve clinical outcome (Jones, et al., 2009).

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A MET event is always followed up by an audit that will gather information relating to reason for the MET call along with pertinent patient medical details. This is necessary so that trends can be quickly recognised and ongoing education put into place to assist staff in early recognition of the deteriorating patient (Gao et al., 2007).

Featherston et al (2005) conclude that attending an Acute Life-threatening Events Recognition and Treatment (ALERT) course has beneficial effects on confidence levels and attitudes of staff to recognise and manage the acutely ill patient.

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Medical glossary and acronyms

Allied Health

Qualified health professionals who apply their skills and knowledge to restore and maintain optimal physical, sensory, psychological, cognitive and social function.

APO

Acute Pulmonary Oedema

Can be caused by Congestive Heart Failure (CCF), failure of the left ventricle of the heart to remove fluid from the lung circulation, or direct injury to the lung parenchyma. Both lead to respiratory failure which is a medical emergency that requires immediate treatment to :

- Decrease pulmonary capillary pressure
- Eliminate excess fluid in the lungs
- Restore normal arterial oxygenation

BiPAP

Bilevel Positive Airway Pressure

A breathing apparatus that helps people get more air into their lungs. The machine allows air that is delivered through the mask to be set at one pressure for inhaling and another for exhaling.

Cardiac Arrest

(Also known as **Cardiopulmonary Arrest** or **Circulatory Arrest**) is the cessation of normal circulation of the blood due to failure of the heart to contract sufficiently.

CHF

Congestive Heart Failure

Is a condition in which the heart's function as a pump is inadequate to deliver oxygen rich blood to the body. Congestive Heart Failure can be caused by:

- Diseases that weaken the heart muscle
- Diseases that cause stiffening of the heart muscle, or
- Diseases that increase oxygen demand by the body tissue beyond the capability of the heart to deliver adequate oxygen-rich blood.

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Derangement	Is the rearrangement of elements of a set such that none of these elements appear in their original position.
EWS	**Early Warning System** A scoring system that ensures a patients' acute care need is identified and addressed early avoiding unnecessary critical or intensive care unit interventions. It is a record of vital signs that attaches a numerical value to the results. Scores fall within a predefined category which further identifies the action required.
Homeostasis	A tendency to balance or stabilise the normal physiological states of the organism.
ICU	**Intensive Care Unit** Hospital facility for the care of critically ill patients at a more intensive level than is needed by other patients. Staffed by specialised personnel.
Interdisciplinary teams	A team that is collaboration-oriented. The team meets regularly to discuss and collaboratively set treatment goals and carry out treatment plans. There is a high level of communication and cooperation among team members (Korner, 2008, p. 2)
MET	**Medical Emergency Team** Comprised of staff possessing expertise in the management of an acutely unwell patient.
Multidisciplinary teams	A team that is discipline-oriented. Each professional works in parallel, with clear role definitions, specified asks and hierarchical lines of authority (Korner, 2008, p. 2).
Registrar	A senior Doctor who works in a chosen specialty e.g. Medical or Anaesthesia.

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RMO	**Resident Medical Officer** A health care professional who has achieved their medical degree but are required to complete a hospital internship, usually of a year's duration. They may be supervised by a Physician.
SAE	**Serious Adverse Events** Any untoward medical occurrence that requires intervention to prevent permanent impairment or damage.
Vital Signs	Measurement of various physiological statistics taken to assess the most basic body functions. These include body temperature, heart rate, blood pressure and respiratory rate.
WHO	**World Health Organization** A specialised agency of the United Nations that acts as a coordinating authority on international public health.

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Further information

Australian Resuscitation Council: www.resus.org.au

Represents and coordinates the teaching and practice of resuscitation.

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