

**Clinical Excellence Division**  
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**Statewide Anaesthesia and Perioperative Care Clinical Network (SWAPNet)**

**Rural Perioperative Team Training Program  
Teamwork and Crisis Resource Management Principles**

## **Rural Perioperative Team Training Program**

### **Teamwork and Crisis Resource Management (CRM) Principles**

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## Teamwork

In team work, considerable advantages are gained by using a variety of individual strengths. There are often instances where temporary teams are formed for a limited duration or limited goals. Examples can be found in aviation, cardiopulmonary resuscitation teams, and the operating theatre. Such teams do not have the advantage of having trained together, yet need the structure and function of teamwork. They rely on the individuals to bring the skills of team working, and use individual skills to achieve the team goal.

### Defining a team

A team is a group of individuals that work together to achieve a common goal. This working definition has two key elements:

- a common goal
- individuals working together

In terms of crisis management, the temporary team might have as its goal the resolution of the crisis. An example may be managing a cardio-respiratory arrest. For each goal there may be one or more aims, such as maintaining oxygenation and maintaining a rhythm. The goal may be obvious but the aims may not be clear to the team. In such cases, a clear articulation of the aims to all members of the team allows clarity and definition, so that actions can be directed towards the aims and goal.

The second critical element is the individuals. Individuals come to a group with strengths in both the skills necessary to achieve the common goal and social skills to work as a team member. Individuals give up or adapt their individual goals and aims to align themselves to the common goal. Individual strengths are used towards the goal.

This means that each team requires leadership and membership, cooperation, coordination, and communication.

### Team members

Team members perform certain functions that allow the team to fulfil the common goals and aims. These are separate to the required technical functions and can be thought of as social skills, functions or roles. These roles are summarised below.

#### Leader

This person brings individuals together to achieve the common goal. The leader's responsibilities are to:

- identify the common goal
- articulate the common goal to the team
- set specific aims in achieving the goal
- know the members and their strengths
- communicate a plan using the resources available
- coordinate and organise the members according to the plan
- be aware of the environment.

Other team member roles include:

**Completer** or finisher: a person who can see errors and omissions and ensure they are fixed

**Team worker:** a person who is cooperative, and works at tasks assigned

**Resource coordinator:** a person who can see opportunities and uses for resources

**Problem solver:** a person who can create solutions specially for difficult problems

**Evaluator:** a person who can stand back and clarify the activities, and discerns how the goal or aim is being achieved

**Specialist:** a person whose specialist skills are required for particular sub-tasks.

These roles fulfil vital elements of team work. Together the social functions required to achieve the team

goal include:

- awareness of the situation
- problem-solving and decision-making
- task management
- team coordination
- stress management.

In terms of crisis management, these social skills and functions become more important because:

- available time is limited
- problems are ill defined and there is often conflicting information
- goals and aims may not be clear
- stress is increased
- the team is assembled ad hoc.

It is possible to develop these social skills and functions and transport them to various ad hoc teams.

### Teamwork summary

Teams gain advantages in achieving major feats that the individuals cannot achieve by themselves. For a team to perform, its members need to be organised and perform as a team. They need to have leadership, cooperate, coordinate, and communicate.

### Crisis Resource Management (CRM) principles

Crisis resource management originated in the aviation industry as 'crew resource management'. The principles have been adapted to other high-pressure work environments, including medicine.

#### What is a crisis?

A crisis is a 'time of great danger whose outcome decides whether possible bad consequences will follow'<sup>1</sup>. The crisis is a situation that involves the environment, patient, and health workers. The resolution of the crisis requires management of the whole situation, not just the direct physiological changes in the patient.

Crisis states are difficult to deal with. There are a number of reasons why they are such a challenge. The problems or triggers responsible for the crisis may be poorly structured or ill defined. When a crisis occurs, it seems to be sudden. This gives little time to collect information and analyse it. The information or data collected can be incomplete, have errors of measurement, or be in conflict with other data. This data needs to be filtered appropriately and analysed, to allow the correct decision to be made.

Crisis situations often progress and change rapidly. The change often involves a rapid deterioration requiring immediate attention. The goals of treatment may be conflicting or poorly defined.

The rapidity of changes places time pressure on the health worker to respond appropriately. The consequences of the crisis are usually seen in a morbidity or mortality, placing extra stress. As crises develop the workload also increases in an effort to restore order. This workload is both mental and physical.

The nature of crisis elicits responses in the health worker in terms of stress. Such stresses cause reactions that need to be addressed. These include fear, anxiety, with the physiological responses of tachycardia and tachypnoea. Other reactions include mental block, fixation of ideas, a central focused view and a sense of panic. The increase in mental workload leads to 'load shedding' and placing formation and work to the periphery so it is out of view.

Managing critical events requires some basic principles, framed by Dr Gaba<sup>2</sup>, that allow for an outcome. These include the 7 key points of Crisis Resource Management.

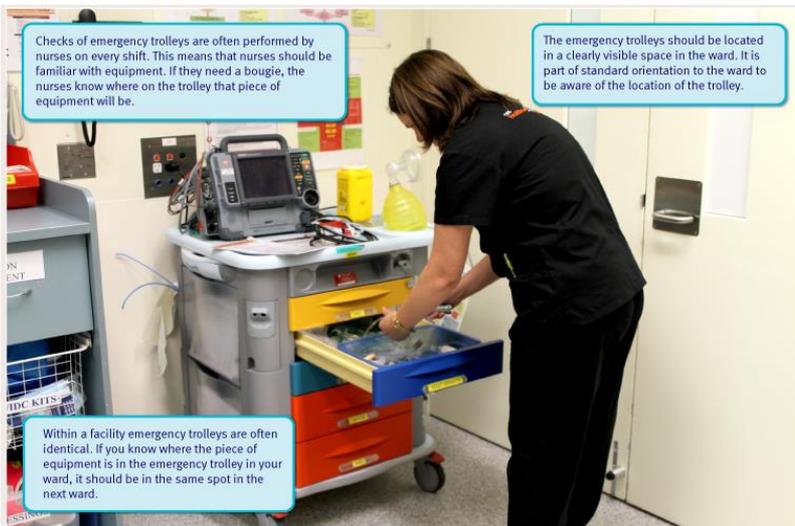
- Know your environment
- Anticipate and plan
- Call for help early
- Take the leadership role
- Communicate effectively
- Allocate attention wisely using all available information
- Distribute the work and use all available resources

### Know your environment

To assess a crisis situation and understand how the resources available may influence the outcome, familiarity with the work environment is essential. In a crisis situation this includes the location and use of emergency equipment and its limitations. Lack of familiarity with the location and equipment may increase stress levels dramatically.

Knowing your environment includes knowledge of:

- the capabilities of fellow staff
- local protocols that influence operations
- the work environment and the location of equipment, including drugs and consumables
- how to operate equipment.



### Anticipate and plan

Anticipating and planning requires an understanding of patient care both at the present time and in the future. Experience can help to predict the increased likelihood of critical events and the steps that should be taken to avoid or prevent an adverse event. For events that cannot be prevented, planning for the crisis can minimise the problem and produce a successful outcome.

Asking and testing 'what if' questions may reveal unforeseen deficiencies in individual skills and team structure, limited resources and/or problems with behaviors and system design and function.<sup>3</sup> By asking what might happen if a piece of equipment fails, you could reveal that its replacement is nonexistent or temporarily unavailable.

Anticipating and planning for critical events may include:

- creating written checklists of actions to be performed
- using established procedures in response to crisis, such as DRSABCD
- practice for likely crises
- training in crisis resource management to reduce stress and anxiety.

Effective anticipation and planning may involve the team:

- seeking additional help when appropriate
- recognising that senior help is needed (if the team is comprised of inexperienced clinicians)
- recognising early on what the end point of the crisis is likely to be (such as needing surgery in an operating theatre or urgent coronary revascularisation) and pursuing steps to make this occur as a priority.

### Call for help early

Optimal patient care requires an early call for help, to gather necessary staff and resources. The key factor in calling for help early is knowing what help will be effective and when.

The assistance provided by calling for help can be used in a number of ways:

- cognitive help to get a second opinion or provide alternative views to management
- physical help from an extra pair of hands
- organisational help in providing the physical management of resources
- help in setting up a sub team to address particular issues such as transfusion or surgery.

Sometimes staff members are reluctant to call for help. Barriers to calling for help may range from factors which include:

personal – ‘I might look silly’

interpersonal – ‘last time I called that person they yelled at me’

cultural – ‘I am the consultant and it is my job to’.

Conversely, many healthcare facilities have gone to great lengths to encourage calls for help. For example, installing staff assist and emergency buttons in clinical areas, introducing Modified Early Warning Scores (MEWS) and mandatory reporting criteria.



### Take a leadership role

Leadership is the ability to take responsibility for the direction and choices made by the team and to guide the team in the necessary direction. In a clinical emergency there needs to be a single, clearly identifiable, designated leader who must have good technical knowledge, skill competency, and the ability to remain calm and organised in a crisis situation.

A good leader:

- is clearly responsible for providing direction to other team members while maintaining an overview of the entire situation
- gives specific instruction by using audible, clear, closed loop communication; addressing individuals using their names (or roles if names are unknown); and by establishing eye contact team members during the crisis
- summarises the treatment plan and goals and ensures shared understanding
- includes all members of the team with a manner that is acceptable to all
- is appropriately calm and assertive, and inspires confidence
- monitors and adapts to changes in team performance and skill mix to maximise effectiveness.

#### Tip

Leadership may be passed between individuals. To avoid confusion within the team, the person taking the leadership role should state 'I am now the team leader'.

Team effectiveness improves when the leader encourages team members to contribute information that is relevant and helpful to management of the situation.

#### Information

For further information on leadership during a crisis, you may refer to the following article:

[Leading Teams in Crisis Situations: From Chaos to Extraordinary Performance.](#)

### **Communicate effectively**

In crisis situation team members are required to talk and listen to each other, share information, and act on the inputs provided. It is important that all team members understand what is said by others, and that they are also understood. The stress inherent in a crisis situation can make effective communication difficult. Therefore, team members need to make a particular effort to communicate effectively when in a crisis situation.

Effective communication requires: clear, calm verbal exchanges of information and instructions using simple standardised language appropriate use of positive non-verbal behaviours including eye contact and gesturing interactions between the leader and team members that are facilitated by closed loop communications, and encouragement of effective management of family or carers with a team member allocated to explain events and/or to obtain important history as required.

### **Communication techniques and tools**

Barriers to communication may include: interpersonal problems noise leader behaviour group distractions hierarchies. Using proven communication techniques may help to eliminate errors during a crisis. One such technique is closed loop communication. Closed loop communication occurs when the receiver repeats back to the speaker the information they heard for confirmation by the speaker. Using closed loop communication ensures information is both accurate and repeated, which helps to increase situational awareness.



Fig 4: Closed loop communication

### Key Point

Several acronym tools exist to assist rapid team communication such as:

- **PACE**
- **SEGUE**
- **SBAR**

We will look at these in closer detail in the next section.

### Important

Team members have a duty of care to the patient to make sure their concerns are heard and acted upon in an appropriate manner. Graded assertiveness is a technique for managing conflict and preventing critical errors in a crisis. It allows all team members to feel empowered to voice their concerns over a planned action that risks patient safety in an assertive (not aggressive) manner. Probe, Alert, Challenge, Emergency (PACE) is a four-step technique of increasing urgency. It provides a graded assertiveness pathway for rapid, effective, but respectful, escalation of the response.<sup>2</sup>

### Reporting

Other communication tools focus on reporting, such as SBAR, which is useful for handover or communicating critical information about the patient's condition.

**SBAR** is useful for providing handover or communicating critical information about a patient's condition. It establishes a standardised format for communication that summarises the problem and urgency of the situation in a few sentences

<b>SBARSBARSBAR</b>	
S	<p><b>Situation:</b> What is the immediate situation?</p> <ul style="list-style-type: none"> <li>• Identify Self, Unit, Patient, Room number</li> <li>• Briefly state the problem</li> </ul>
B	<p><b>Background:</b> What led to this situation?</p> <ul style="list-style-type: none"> <li>• Admitting diagnosis and date of admission</li> <li>• Current Medications, Allergies, IV Fluids</li> <li>• Brief history</li> <li>• Current treatment</li> </ul>
A	<p><b>Assessment:</b> What do you think the problem is?</p> <ul style="list-style-type: none"> <li>• Explain your assessment of the patient and how you came to this assessment</li> <li>• e.g. Stable/deteriorating</li> </ul>
R	<p><b>Recommendation / Request</b> What do you recommend should happen next? I would like you to...</p> <ul style="list-style-type: none"> <li>▶ Review/see the patient now</li> <li>▶ Perform/review tests</li> </ul>

Two-way communication refers to the communication between different team members. The SEGUE approach seeks to ensure a safe, brief but thorough, communication.

<b>S</b> eek attention	<ul style="list-style-type: none"> <li>• eye contact</li> <li>• use of name / designation</li> <li>• physical contact</li> </ul>
<b>E</b> licit information	<ul style="list-style-type: none"> <li>• obtain patient history</li> <li>• use all sources: team members, monitors</li> </ul>
<b>G</b> ive information	<ul style="list-style-type: none"> <li>• option</li> <li>• action plan</li> <li>• response</li> <li>• challenge</li> </ul>
<b>U</b> nderstand others	<ul style="list-style-type: none"> <li>• form a clear, mutual position</li> </ul>
<b>E</b> nd of the interchange	<ul style="list-style-type: none"> <li>• confirm message received</li> <li>• message understood</li> <li>• message acted on</li> </ul>

### Allocate attention wisely

When dealing with a clinical emergency, there are usually multiple sources of information to consider and the situation may change frequently as new information becomes available. It is important to be aware of what is happening around you, including the human and technical resources available and the specific actions of team members.

Situational awareness is necessary in a crisis. Situational awareness is being aware of what is going on around you: the 'big picture'. Haines and Flateau define it as: 'one's ability to remain aware of everything that is happening at the same time and to integrate that sense of awareness into what one is doing at the moment'<sup>4</sup>. 'Fixation errors' may occur when team members become fixated on a particular detail and miss other important data or tasks. The clinician's attention needs to transition between the 'big picture' and very specific issues, such as a difficult airway.

There are two types of fixation errors, **task fixation** and **diagnosis fixation**.

#### Task fixation

Task fixation occurs when a key team member becomes absorbed in one particular task even if they would be better occupied in another task at that time. For example, the team leader becomes absorbed with the insertion of a difficult peripheral cannula and ceases to provide leadership.

#### Diagnosis fixation

Diagnosis fixation occurs when a clinician decides on a reasonable diagnosis and fails to consider other rarer alternatives. For example, deciding that a patient is having a myocardial infarction when they could alternatively have a ruptured abdominal aortic aneurysm.

### Distribute the workload and use all available resources

Distributing the workload focuses on what tasks need to be done, when they need to be done, and what skill level they require. To avoid overdependence on one team member it is important to distribute the workload.

To distribute the workload:

- team members recognise and state when they are becoming overwhelmed

- team members tell the leader if they cannot complete an allocated task and provide a brief reason
- when necessary, tasks are reallocated - quickly and to an appropriate team member
- if there are less people than is ideal, team members should discuss how best to use the existing skill mix.

#### Tip

It is important for each member of the team to understand and appreciate the workload and struggles of their fellow team members.

#### Information

There are many tools available to assist with allocating and clearly identifying roles during a crisis. Roles are best allocated to the team members at the beginning of an emergency but may need to be re-allocated as the situation changes. Specific roles should be allocated to staff with the appropriate skill set and experience. Team members need to speak up if they are given a role that they feel ill-equipped to perform effectively.

### Summary

Working in multi-disciplinary teams requires coordination and communication skills. Many errors occurring during a crisis can be attributed to human factors and a lack of non-technical skills. All healthcare professionals should adopt strategies to prevent these human errors harming patients. One way of reducing human factor errors is the use of CRM principles. All the principles that help in dealing with an acute crisis also help avoid the crisis in the first place. CRM is about capturing errors as soon as possible and minimising the negative consequences of errors that have already occurred.

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