Clinical Skills Facilitator's

ADVANCED COURSE MANUAL

2007

StV

State Government Victoria

Preface

In 2007 St Vincent's Health was commissioned by the Department of Human Services (DHS) to design, develop and implement a training program for clinical skills trainers within Victorian Hospitals.

The project aims to equip Victorian health professionals, specifically hospital clinical educators, with the skills and knowledge required to deliver simulation-based clinical skills training.

The two courses offered are:

- The Basic Course which focuses on educators who currently use or intend to use part task trainers to teach clinical skills and the basics of scenario training.
- The Advanced Course which is for participants who have completed the Basic Course and who would like to progress to the advanced skills required to conduct medium fidelity simulation training.

The information in this manual is provided to participants to complement training provided in the Advanced Course and as a resource in their workplace.

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- Julian Van Dyjk, Tess Vawser and Neil Cunningham at St Vincent's Health Education Centre for their contributions towards this manual.

Every effort has been made to provide the reader with the most current literature references.

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Clinical Skills Facilitator's Advanced Course Manual

 Reading

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Chapter 1. Simulation-based Education

Author Debbie Paltridge

The use of simulation in health care education is becoming more widespread and interest in this modality of teaching and learning is growing. Simulation has been used within the military, space and aviation industries for many years (Bradley, 2006), with simulation training now a compulsory continuing education requirement for most pilots. In particular, aviation has led the way by training teams in non technical skills, which they have recognised can equally impact on safety. Likewise the nuclear industry has also used simulation to test critical events in a safe environment (Bradley, 2006).

Within health, simulation has been used for many years at its simplest level that is using models to assist in teaching anatomy. However within modern healthcare education, anaesthetists were the first group to develop a simulation manikin with the ability to mimic patient conditions. The original manikins have come a long way to that of the more sophisticated computer programmed and physiologically modelled manikins of today.

This chapter provides background information on the use of simulation within healthcare education. The benefits and limitations are discussed, including ways to maximise the effectiveness of simulation within education programs.

1.1 Definition

Simulation-based education, in the broadest terms, encompasses any educational methodology which 'simulates', imitates, creates, or replicates the real clinical environment. Simulation technology or the simulator refers to the devices that assist the educator to recreate the real world. These devices can be manikins, computer assisted devices, models, or part task trainers.

Simulation education also encompasses the use of non technical simulation aids such as simulated patients, which are specially trained actors or volunteers used to simulate "real" patients in the training environment. They are also called standardised patients within the literature. Simulated patients are commonly used in nursing, medical and allied health university courses for assessment and training purposes. Actors need to be specially trained not only in the condition they are to simulate but also in the interaction with the learner.

Simulation-based education need not rely on manikins, people or models "it could as easily be a paper based activity" (Ker and Bradley, 2007). However within this chapter the focus will be on technology or manikin based simulation programs.

1.2 Why use simulation?

There have been a number of drivers to the increased uptake and interest in simulation-based education. Ker and Bradley (2007) suggest that influences include:

- Society and patient expectations have changed so that it is no longer seen as appropriate to practice on patients. Healthcare practitioners are expected to be competent before performing on a patient.

- There have been numerous changes to healthcare delivery including; the move to ambulatory and community settings, increased acuity within hospitals, day surgery etc, all of which mean that there has been a reduction in opportunities for healthcare workers to gain experience in the same breadth of patient care.

- Reductions in working hours for healthcare practitioners also impacts on opportunities for learning.

- The safety movement has raised awareness of adverse event management and the need for training in this area of critical incidents/ adverse events.

- New technologies in medicine have required different approaches to training e.g. endoscopic surgery.

- Criticisms of the more traditional educational methodologies such as the apprenticeship model have resulted in a search for improved methodology. (Maran and Glavin, 2003).

So what then does simulation offer to address these issues? The advantages of simulation suggested within the literature are:

1. There is a decreased risk to patients as skills are learnt away from the patient prior to transferring them back to the health setting. “Simulation based education more often allows trainees to have their first encounters with real patients when they possess higher levels of technical and clinical proficiency” (Ziv et al, 2006).

2. Simulation promotes self reflection and the ability to learn from mistakes in a safe environment.

3. There is the opportunity to practise skills repeatedly.

4. Scenarios can be created to suit the learning objectives. There isn’t a reliance on finding a patient with that condition. This makes the education experience focus on the learner’s needs.

5. Critical incidents or crisis situations that occur rarely but require a high level of preparedness can be practised easily.

6. The environment can be manipulated as desired to enhance learning and unwanted distractions eliminated.

7. Simulation suits learners of different levels and with different learning needs.

8. Some simulators can provide objective measures of performance.

9. There is the opportunity to provide immediate feedback.

10. Simulation provides opportunities for team training and interdisciplinary learning.

11. It can be used to assess "vulnerabilities in health care delivery" and system analysis (Ziv et al, 2003).

(Ker & Bradley, 2005, Maran & Glavin, 2003, Good, 2003, Kneebone, 2003, Ziv et al, 2006, Peteani, 2004, Wallin et al, 2007).

1.3 Underlying Educational theory

There are a number of educational theories which form the theoretical basis of simulation.

Experiential Learning

Experiential Learning theory as espoused by Kolb (1984) describes experiential learning activities as opportunities for learners to acquire and apply knowledge, skills and attitudes in an immediate and relevant setting. Kolb describes a four point learning cycle, which is continuous and involves:

1. Concrete experience

2. Observation and reflection

3. Forming abstract concepts

4. Testing in new situations.

Simulation in healthcare education is clearly an example of experiential learning. It provides the learners with a relevant and realistic patient problem to manage. Following the experience the learners are able to observe their performance and reflect, whilst exploring with a facilitator hypotheses and new concepts. They can then test this experience by repeat simulations.

Reflection

David Schon (1987) describes two processes. Firstly Reflection-in-Action which occurs at the time of the experience when a person uses past knowledge, skills and attitudes to assist them to problem solve the new situation. Reflection-on-Action, occurs after the experience and is facilitated by feedback from others, videotape analysis etc. Simulation allows for both types of reflection. Participants are required to draw on past experiences when solving the patient problem within the scenario and then are provided an opportunity to reflect in the debrief environment post scenario.

Adult Learning Principles

Simulation addresses many of the principles of Adult Learning (Maran & Glavin, 2003). It provides relevance to the learner and hence motivation, it provides feedback on performance and an opportunity to reflect, it provides an effective educational climate which allows the learners to feel safe and encouraged to express themselves without judgement.

The importance of objective or facilitated feedback has been shown to be "the single most important feature of simulation-based education towards the goal of effective learning" (Issenberg & Scalese, 2007). Simulators can provide 'built in' feedback via a computer screen, haptics or readout. Alternatively facilitators can give feedback in debriefing situations.

The importance of deliberate practise for learning and skill acquisition has been shown by many and that practice must be accompanied by feedback and reflection (Kneebone et al, 2004).

Social Constructivism

Another suggested underpinning educational theory for simulation comes from the work of Vygotsky a Russian psychologist who stresses the importance of "social interaction as a means of learning" (Ker and Bradley, 2007). As an important means of learning, the debriefing component of the simulation experience provides an opportunity to explore the social interactions that occur within a particular setting. There is also the opportunity to make these social interactions explicit.

1.4 Types of Simulators

Simulators are often classified according to their 'fidelity' or closeness to reality. Fidelity has been dealt with in detail in the Basic Course Manual Chapter 9. Alternatively the level of technology has been used to classify simulators (Maran & Glavin, 2003).

Types of simulators include:

- Anatomical models

- Part task trainers – designed to simulate a part of the body and used to train specific individual skills e.g. insertion of an IV using an arm with veins to allow practice of the skill, or insertion of a urinary catheter using a pelvic model with appropriate anatomy to allow insertion.

- Computer simulators – allow the learner to interact through a computer interface. Can be presented on a CDROM, DVD or online modality.

- Virtual reality (VR) – is the highest level of computer simulation and is usually combined with a part task trainer to increase the level of realism (Bradley, 2003). An example of a virtual reality simulator is one that allows the learner to practise an endoscopy or surgical procedure such as a cholecystectomy. The computer gives a visual image for the learner to watch and in some instances uses 'haptics' to provide the learner with a realistic 'feel' or touch feedback (Bradley, 2006).

  Kneebone (2003) discusses VR simulators with haptics; "New training devices with forced feedback improve the subtlety of 'feel' and loss of resistance when passing through ligaments in order to identify the epidural space. This may improve motor skills and lead to increased transfer to clinical practice".

- Integrated simulators or whole body manikins. These simulators are often referred to as high-fidelity simulators. They combine a whole body manikin with sophisticated computer software which allows the manikin to be programmed to mimic certain physiological conditions. The degree of integration of the software and the physiological modelling determines how automatic the responses to treatment are. This reality, in terms of responses to treatment, determines the simulator's degree of 'fidelity' or realism. (Bradley, 2006). Ker and Bradley (2007) differentiate this by classifying them as instructor driven or model driven simulators.

1.5 What factors influence the effectiveness of simulation-based education?

Simulation-based education can be costly particularly where the simulators to be used are the more technologically sophisticated. So what then is the cost benefit ratio for simulation? Is simulation more effective than other educational methodologies? What is the impact of simulation training on patient safety? These questions remain largely unanswered and ongoing research is required in simulation-based education (Ziv et al, 2006).

Literature regarding the efficacy of simulation-based education has tended to focus on measurement of learner satisfaction, learner acceptance and program evaluation rather than objective measurement of improved competency. The educational theories, as described earlier, intuitively support the notion of simulation as a rich learning tool. However, there is a paucity of evidence. In the area of virtual reality surgical simulator research has demonstrated reduced performance time, increased proficiency and transference of learning to the workplace (Kneebone et al, 2003). However in the area of team training the variation in methodology used has made comparison of results difficult.

In a recent systematic review by Issenberg et al (2005) from 670 articles only 109 met the criteria for inclusion in a Best Evidence Medical Education (BEME) review. However, the review identified the following factors of simulation-based education that influence the effectiveness of learning:

1. Providing feedback is the most important feature of simulation-based medical education.

2. Repetitive practice is required.

3. Curriculum integration - into either the standard medical school or postgraduate educational curriculum.

4. Need to include a range of difficulty levels,

5. Need to incorporate multiple learning strategies,

6. It is better to use a wide variety of clinical conditions rather than a narrow range,

7. Controlled environment –where learners can make, detect and correct errors without adverse consequences.

8. Individualized learning – need for reproducible, standardized, educational experiences where learners are active participants, not passive bystanders.

9. Defined outcomes –clearly stated goals with tangible outcome measures.

10. Simulator validity – ensuring it is a realistic recreation of the clinical condition.

Beaubien and Baker (2004) discuss the use of simulation in healthcare team training and suggest additional ways to maximise the effectiveness of simulation training in this context. These include:

1. Tailoring training needs, goals, content and evaluation to reinforce each other. This is a fundamental instructional design principle relevant to all courses.

2. Use case studies and role plays to introduce the concepts of team training.

3. Use lower technical simulators to practise the basic skills of teamwork.

4. Progress to high fidelity simulators for the more complex team training in crisis situations and in time pressured environments.

5. Use post training debriefs to reinforce lessons learnt.

6. Training shouldn't be a onetime event.

Salas & Burke (2002) suggest that simulation training can be effective when:

1. Instructional features are embedded within the simulation. This involves the use of 'event based approach to training' where events are embedded into the scenario at different time points and serve to provide learners with an opportunity to demonstrate a specific competency at these points. This also provides some control within the scenario and also an opportunity to have some standardisation across learners.

2. Scenarios need to be carefully storyboarded. The authors suggest using a cognitive task analysis to help in determining content. Also there is a need to identify triggers in the script to assist in achieving learning outcomes.

3. The simulation has opportunities to assess individual or team behaviours. There is a need to diagnose skill deficiencies.

4. The learning experience is guided. The authors reinforce the need for targeted feedback to assist in achieving learning outcomes. Practise alone is not sufficient for learning.

5. Simulation fidelity is matched to training requirements. This is dealt with in the Fidelity chapter of the Basic Course Manual, however "the level of simulation fidelity needed should be driven by the cognitive and behavioural requirements of the task and the level needed to support learning" (Salas & Burke, 2002).

6. There is a partnership between subject matter experts and training specialists. This is important in both the planning and implementing phases of course design.

Issenberg (2006) also argues that there has been an over emphasis on the training resources and their role in promoting effectiveness in simulation training. Two additional features are equally important. These are the educators using the simulation-based education and the degree to which the simulation is integrated into either undergraduate or postgraduate curricula. He argues that the educators need to be adequately trained in order to maximise the effectiveness of the simulation training.
Harden and Crosby (2000 as cited in Isenberg, 2006) define the roles of an educator as being:

- Information provider
- Role model
- Facilitator
- Assessor
- Planner
- Resource Developer.

Clearly consideration needs to be given to faculty development in order to assist those educators new to simulation to develop the necessary skills to transition to effective simulation-based educators.

1.6 Limitations

Whilst there are a number of clear advantages to simulation-based education there are some limitations which should be acknowledged. Simulation-based education is not intended to be a replacement for clinical experience (Ker and Bradley, 2007). Rather it is a valuable educational strategy to prepare health practitioners for the healthcare environment.

Potential limitations to simulation-based education include:

- Cost of delivering training. The simulators themselves can be extremely expensive both in terms of purchase and maintenance. In addition, simulation-based training is faculty intensive and as such costs associated with having sufficient trained educators must also be considered. There is also resource costs associated with practising skills in the form of consumables.

- Manikin fidelity issues. Although simulators have come a long way in development, there are still some issues of fidelity which have not yet been solved e.g. skin colour doesn't change as it does in a real patient (Good, 2003).

- Technical expertise required to run simulators. The more sophisticated the simulator the more technical support required by educators to conduct the simulation-based education. They may be required to gain this technical expertise themselves or to purchase technical support time (Good, 2003).

- Evidence of transfer of learning from the simulation environment to the clinical environment is not conclusive. There is also some concern of the potential for negative learning and "abnormal risk taking behaviours being adopted by learners if their simulated experience, which is risk and harm free, is not tempered with the need for them to recognise their own limitations and to call for help in difficult situations" (Ker and Bradley, 2007). Ker and Bradley (2003) also discuss the need to provide opportunity in the simulation-based education for discussion about the generalisation of learning to the workplace to promote transference of learning.

Despite these limitations, simulation provides an important adjunct to learning "on the job". As with any educational intervention, careful planning, consideration of the learning objectives and context in which the learning will take place are necessary to ensuring a positive learning experience for the learner.

References

Adamo & Dent, Chapter 8: Teaching in the clinical skills centre, p. 66. In Dent, J., & Harden, R. (2005). *A practical Guide for Medical Teachers.* London: Elsevier Churchill Livingstone.

Beaubien, J. & Baker, D. (2004). The use of simulation for training teamwork skills in health care: how low can you go? *Quality and Safety in Health Care*. 13, 51-58.

Bradley, P. (2006). History of Simulation in medical education and possible future directions. *Medical Education*. 40, 254-262.

Cantillon, P., Hutchinson, L., & Wood, D. (2003). *ABC of Learning and Teaching in Medicine.* London: BMJ Publishing Group.

Good, M. (2003). Patient simulation for training basic and advanced clinical skills. *Medical Education*. 37 (Supp1), 14-21.

Harden, R. & Crosby, J. (2000). AMEE Guide No.20: The good teacher is more than a lecturer – the twelve roles of the teacher. *Medical Teacher*. 22, 334-347.

Issenberg, S., McGaghie, W., Petrusa, E., Gordon, D. & Scalese, R. (2005). Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review. *Medical Teacher*. 27, (2), 10-28.

Issenberg, S. (2006). The scope of simulation-based healthcare education. *Simulation in Healthcare*. 1, 203-208.

Issenberg, S. & Scalese, R. (2007). Best evidence on high-fidelity simulation: what clinical teachers need to know? *The Clinical Teacher*. 4, 73-77.

Issenberg, S., Gordon, M., Gordon, D., Safford, R. & Hart, I. (2001). Simulation and new learning technologies. *Medical Teacher*. 23, 16-23.

Ker, J. & Bradley, P. (2007). Simulation in Medical Education. Association for the Study of Medical Education. Edinburgh: ASME.

Kneebone, R., Scott, W., Darzi, A. & Horrocks, M. (2004). Simulation and clinical practice: strengthening the relationship. *Medical Education*. 38, 1095-1102.

Kneebone, R., Nestel, D., Moorthy, K., Taylor, P., Bann, S., Munz, Y. & Darzi, A. (2003). Learning the skills of flexible sigmoidoscopy - the wider perspective. *Medical Education*. 37, (Supp 1), 50-58.

Kneebone, R. (2003). Simulation in surgical training: educational issues and practical implications. *Medical Education*. 37, 267-277.

References

Kolb, D. (1984). *Experiential Learning*. Englewood Cliffs, NJ: Prentice Hall.

Maran, N. & Glavin, R. (2003). Low- to high-fidelity simulation – a continuum of medical education? *Medical Education*. 37(Supp 1), 22-28.

Peteani, L. (2004). Enhancing Clinical Practice and Education with High-fidelity Human Patient Simulators. *Nurse Educator*. 29, 25-30.

Salas, E. & Burke, C. (2002). Simulation for training is effective when… *Quality and Safety in Health Care*. 11,119-120.

Schon, D. (1987). Educating the Reflective Practitioner. San Francisco: Jossey-Bass.

Wallin, C., Meurling, L., Hedman, L., Hedegard, J. & Fellander-Tsai, L. (2007). Target focused medical emergency team training using a human patient simulator: effects on behaviour and attitude. *Medical Education*. 41, 173-180.

Ziv, A. (2005). Chapter 23: Simulators and simulation-based medical education. In Dent, J., & Harden. R. (2005). *A Practical Guide for Medical Teachers.* London: Elsevier Churchill Livingstone.

Ziv, A., Wolpe, P., Small, S. & Glick, S. (2006). Simulation-based Medical Education: An ethical imperative. *Simulation in Healthcare*. 1, 252-256.

Notes

Chapter 2. Crisis Resource Management Principles

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Crisis Resource Management (CRM) has become a valuable tool to medicine in providing a training structure for individuals and teams aimed at improving performance.

The aim of this chapter is to define CRM and its use in simulation through discussion of:

- Background to CRM and its adaptation from aviation into health care
- The principles of CRM
- Error in Healthcare and Human factors
- Teamwork
- Significance of CRM to the interdisciplinary teams
- Considerations when incorporating CRM into simulations

2.1 Definition

Crisis Resource Management (CRM) is the medical adaptation by David Gaba 1989, of Crew Resource Management or Cockpit Resource Management from the aviation industry. There are many definitions of both the aviation and medical equivalents in the literature however they generally fall into 2 categories depending if it is an operational or educational definition.

Operationally Crew Resource Management is defined as the use and organisation of all available resources, including; personnel, equipment, skills, abilities and attitudes, in order to achieve a safe and efficient flight (Pizzi *et.al,*2001).

Crisis Resource Management in a medical sense has been identified by Rall and Dieckmann (2005) to mean coordination of all available resources in order to protect a patient, either in a crisis or in a pre crisis situation.

The difference between the two definitions is that Crew Resource Management does not imply a crisis .Rather that Crew Resource Management in the aviation sense is the normal behaviour a flight crew adopts to ensure safe flight operations. In the medical adaptation, a crisis is assumed as the focus as to why a team need to behave or change behaviour in order to bring about the best outcome for patient safety.

Educationally the definitions of both the aviation and medical equivalents share a consensus, as CRM and Crew Resource Management are described as training strategies developed to help both individuals and teams improve performance in high risk situation (Salas *et.al* 1999). However, the educational focus for CRM in health care has been centred on teams working in medical crisis environment. CRM and Crew Resource Management programs aim to develop an understanding of human factor limitations in high stress, high risk environments, through the use of simulation and teamwork activities (Pizzi *et.al,* 2001).

The aviation and medical programs share common content areas including;

- Communication
- Situational awareness
- Problem solving / decision making / judgment
- Leadership and followership
- Stress management
- Interpersonal Skills
- Error recognition and management
- Critique (pre, intra and post event)

(CAA 2002)

It is important to note that both the aviation and medical literature identify that CRM programs are not standardised but tend to be tailored to the discipline that requires this type of training. (Pizzi *et. al* 2001, Sundar *et.al* 2007, Salas *et.al* 2001).

2.2 Background

2.2.1 Aviation

Crew Resource Management was first developed in 1979, in response to a National Aeronautic Space Administration (NASA) working group investigating the involvement of human error in aviation accidents. The program that was developed focused on team training and debriefing, and attempted to measure improvements in flight crew behaviour (Hunt *et.al* 2007, Pizzi *et.al* 2001).

Over the last 20 years Crew Resource Management has evolved through 5 stages of development, notably moving from a psychological testing perspective to the latest incarnation of Threat Error Management. (See table 1). These changes reflect the changing nature of the aviation industry as new technology and crew interfaces are explored and developed (Salas *et al* 2001).

Evidence as to the effectiveness of Crew Resource Management in aviation is limited. There is no evidence at this time that Crew Resource Management has lead to a reduction in the number of hull losses or improved safety. Salas (et al 2001) notes that this is in part due to lack of significant accidents preventing a strong correlation. However, Salas et al 2001 identify that there is evidence of enhanced learning, positive reactions and promotion of desired behavioural changes in flight crews. This evidence is weak due in part to the lack of standardisation of Crew Resource Management courses caused by the fact that carriers are allowed to modify and adapt courses to meet their needs (Salas *et al*, 2001).

Table 1 : Development phases of Crew Resource Management

Stage	Emphasis	Teaching Focus	Tools/ Methods/ Notes	Dates
Stage 1 CRM	Changing personal styles	Correcting deficiencies in personal behaviour	Heavy focus on psychological testing	2 decades
Stage 2 CRM	Cockpit group dynamics	Specific aviation concepts related to flight operations	Modular approach	
Stage 3 CRM	Broadening the scope	Taking into account characteristics of aviation systems in which crews function	Expanded program to consider things outside the cockpit	
Stage 4 CRM	Integration and proceduralisation	CRM – integrated with technical training + LOFT (Line orientated flight training)	Training started to be tailored to organizational needs, but required carries to provided both CRM and LOFT	
Stage 5 CRM	Awareness that human error is inevitable and can provided a great deal of information	Focus on training teamwork skills to promote a) Error avoidance b) Early detection c) Minimization of consequence from CRM errors	Programs moving beyond error management to focus on threat recognition and management	

(Salas, Burke, Bowers, & Wilson, 2001, p. 642)

2.2.2 Medicine

The adaptation of Crew Resource Management from aviation to Crisis Resource Management (CRM) in medicine was led by Dr David Gaba and his team at AV Palo Alto and Stanford universities during the late 1980's.

The motivation to adapt Crew Resource Management to medicine was in response to a perceived educational shortfall in training anaesthetists. They identified there was no overt skills training or education addressing dynamic decision making and team management.

Gaba, suggests that there was an assumption that these skills where gained by an anaesthetist through experience alone. However in the aviation industry it was thought that these skills required overt training and attention, in order for flight crews to incorporate these skills into their normal practise.

What resulted form the Palo Alto/Stanford teams' adaptation was Anaesthesia Crisis Resource Management (ACRM).

Anaesthesia Crisis Resource Management (ACRM) Principles

- Know your environment
- Anticipate and plan
- Call for help early
- Exercise leadership and followership
- Distribute workload
- Mobilise all available resources
- Communicate effectively
- Use all available information
- Prevent and manage fixation error
- Cross – (Double) check
- Use cognitive aids
- Use good team work
- Allocate attention wisely
- Set priorities dynamically (Gaba, 2004)

ACRM programs aim to develop specific skills not only in the management of high risk medical conditions but also crisis management skills and their application to multidisciplinary teams that occur in the clinical environment. In the case of anaesthetic environments other team members include; surgeons, nurses and technicians.

CRM principles are developed though a combination of theory and practical activities which develop technical, cognitive and behavioural skills required for crisis management within a specific context for a discipline.

2.3 Crisis Resource Management Principles

In the past 10 years, CRM training has been incorporated into other health professional disciplines and specialty areas. The wider Medical and Nursing communities have rapidly developed programs for specialty areas such as emergency, intensive care, and radiology. Programs have also been developed for general practice clinics and remote area care providers. Paramedic professionals are also developing programs to be applied in the pre hospital environment.

Most simulation centres have a list of CRM principles displayed in their debrief rooms or simulation laboratories. These are usually an abbreviated version of the ACRM set.

This does not mean that issues such as fixation error as mentioned in ACRM is less important, but that this standardised list covers the main areas that any team will need to work through in order to manage a medical crisis.

Any application of these principles should be contextualised to the discipline's needs and the specific environment.

CRM Principle

- **Know your environment**
- **Anticipate and plan**
- **Call for help early**
- **Exercise leadership**
- **Communicate clearly**
- **Use all available information and allocate attention wisely**
- **Distribute workload evenly**

The application of these principles varies from course to course as there is no standardised program. However there are common points raised under each of the principles that help create a mental model as to the application of these principles by an individual or team in the work place.

2.3.1 Common points discussed when applying CRM principles to practice

Know your environment

- Workplace domain.
- Geographical layout.
- Equipment location and operation.
- Staff present.
- Patient population in that environment.
- Specific policy or practise for emergency situation (Workplace culture).

Anticipate and plan

- Proactive planning.
- Consider expected outcomes.
- Consider contingencies prior to events occurring outside the norm.

Call for help early

- If you are unsure or uneasy, ask for help.
- Calling codes.
- Calling senior staff.

Exercise leadership

- Role allocation or assignment.
- Leader should remain free from tasks to oversight management.
- Maintain the big picture view of the event.
- Be aware of personal leadership styles.
- Maintain the team's focus.

Communicate clearly

- Use people's names where possible.
- Use eye contact when speaking to someone to ensure their personal attention.
- Close communication loops to guarantee understanding and instruction completion.
- Remain clam.
- Remain polite.

Use all available information and allocate attention wisely

- Attention is a limited resource.
- Determine the focus of the crisis.
- Avoid fixation error. (Fixated on a point to the detriment of other issues)
- Cognitive desktop and its limitations (the amount of information that an individual can keep track of).
- Stepping back (taking a look at the whole situation).
- Prioritisation of incoming information.

Distribute workload evenly

- Identify human resources available.
- Allocate tasks relevant to team members discipline and practice scope.
- Delegate specifically for a given request.
- Don't over allocate to any one individual.
- Situational awareness (The ability to perceive element of a situation, comprehend their meaning and predict the stats of these elements in the future) (Small 2007).

2.4 Error in Healthcare and Human factors

The report "To Err is Human: building a safer health system" released in 2000 raised an uncomfortable truth about the level of impact, caused by medical error in the American medical industry. However, it also served to identify how complex modern day health care delivery has become. More importantly, that this complexity leads health professionals into compromised situations where error can occur.

An Institute of Medicine recommendation was to incorporate aviation style team training into the curriculum for health professional education (Sunders, *et al* 2007).

The motivation to incorporate aviation style training may also be linked to the fact that aviation like medicine is also a high risk industry. However the literature identifies that aviation aims to be a high reliability organisation (HRO) where threats and error are addressed with proactive measures not only to avoid such error in the future but also as a lesson to learn from (Cooper 2004).

There are two predominant theories that address accident theory in industry:

1. **Normal Accident Theory (NAT)**

NAT describes organisations that are at risk of error and possible catastrophic failure, as those with increased levels of complexity and are "tightly coupled". Tightly coupled, means that there are few redundancies within the system, so that if one point fails, the error is more likely to propagate throughout the system with limited ability to regain control of events.

2. **High Reliability Organisations (HRO)**

Simulation literature embraces HRO theory as a way to minimise patient risk within complex health care systems.

The HRO model describes organisational characteristics that help to minimise complex, high risk industry failure rates.

These characteristics are;

- Placing safety as the highest priority (even above profit).
- Preoccupation with failure.
- Open environment when discussing error.
- Communication that permits and encourages those in a command hierarchy, "speaking up" about safety issues.
- Rewards safe actions.
- Reliance on training for hazardous situations.

(Copper 2007)

Copper (2007) explains that HRO's are not perfect and that error still occurs. The error however is handled in such a way that the organisation learns from it.

2.4.1 Types of Error

The actions of individuals who make up the systems that become an organisation are important considerations in error. Rall and Dieckmann (2007) identify failures, errors and violations as areas where individual action can threaten patient safety.

- **Failures** are seen to occur when the right action has been taken, and the individual is doing nothing wrong, but the result was the objective not being achieved.

- **Errors -** There are three types of error, Rule based, Skill based and Knowledge based. Rall and Dieckmann (2007) point out that any of these errors can occur during the planning or implementation phases of a given action.

- **Violations -** The error occurs when an individual who knows what and how to do something, but disregards this in preference for a different way. The reasons for a violation error can be difficult to determine as the individual might have a disregard for safety, a lack of knowledge or developed a quicker way of completing the task. As such, a violation may occur with the best of intensions for an intended action to be performed with less risk than the current policy allows for.

This raises an important issue. Health professional environments are complex systems that may in turn lead to unintended errors, as individuals attempt to do the best job possible.

2.4.2 Human Factors

Small (2007) defines ergonomics (or human factors) as a science concerned with human interactions between each other, environments, systems and the design of how best to optimise “well being” through these interactions and systems.

We all come to work with a range of attitudes, experience, professional culture, that can be influenced either positively or negatively, from issues both inside and outside of work, that can either promote or diminish our ability to perform at an optimal level where the risk of error is minimised. In short, the environments we live and work in contain a range of threats that can affect our ability to perform depending on their influence.

Figure 1 Human Factors that can affect personal performance

External Threats to Performance

Environment

- Noise
- Production pressure
- Interruption

Team

- Experience levels
- Workload
- Culture

Patients

- Primary illness
- Undiagnosed conditions
- Risk factors
- Atypical response
- Ongoing management

System – level

- National Culture
- Health care policy
- Regulation
- Service Coverage

Institutional

- Institutional Culture
- Scheduling & staffing
- Experience levels
- Equipment issues

= Personal Performance

Intrinsic Threats to Performance

Negative Life Events

- Illness or death in family
- Personal Illness
- Threat to family well being

Situational Stress

- Task related anxiety
- Increased stress beyond tolerance will diminish performance
- Emergency Code

Hazardous Attitudes

- Anti – Authority
- Impulsive
- Invulnerability
- Macho
- Resignation

Drug Use

- Illicit
- Legal

Fatigue

- Tired on arrival to work
- New child at home
- Workplace fatigue due to workload

Adapted from the ACME manual 2006

This diagram identifies the relationship between extrinsic and intrinsic threats that many health professionals deal with on a daily basis. The combination of and interaction between these factors, will ultimately influence a person's performance in a given situation.

2.4.3 Relevance of Error and Human Factors to CRM training

The inclusion of Error and Human factors within a discussion of CRM is important in order to develop a broad understanding of why we are using CRM in heath professional education.

As instructors we need to develop realistic scenarios that accurately represent the clinical environment that individuals work in. CRM as a teaching strategy should be coupled with an understanding of human factors relevant for that particular team. Care should be taken to identify these factors, as developing an understanding of them during the course of a CRM program may greatly aid transference of these lessons back into the work place.

Gaba (2007) suggests that it is very important to be very overt about what threat the simulation session is identifying and the relevant countermeasures suggested for employment.

It is also import to understand that participants arrive at the simulation centre with the same baggage as they do at work. The consequences are also similar in terms of negative performance, particularly as high fidelity programs can be quite stressful. Debriefing with knowledge of human factors greatly aids discussion and develops group insight as they view and discuss individual and group performance.

2.5 Teamwork

Hunt *et.al* (2007) identifies that no one individual can expertly care for a patient independently. As such effective patient care requires a team; the healthcare team is always a multidisciplinary team, that is there is more than one discipline of health professional within each team.

The definition of a team is a group of individuals that need to work together in order to perform a common goal (Hunt *et.al,* 2007). A successful team should be able to complete more than one individual can, in an efficient, safe and reliable manner (Hunt *et.al,* 2007). By contrast a poorly preforming team is likely to be antagonistic and ultimately ineffective at achieving a common task.

Gaba, as part of the ACRM course identifies teams in individual disciplines, called “crews” who then work together to become a team (Gaba, 2002).

Obviously teams are a complex set of interactions between individuals and as such teams require training in order to perform at an optimum level. There is no better example of this than the military in the lead up to an enemy engagement.

The purpose of team training is getting every one working off the “same page” to develop a “shared mental model” of the objective, and each individual’s role in that mental model (Hunt *et.al* , Sundar *et. al* 2007). Often training within healthcare is unidisciplinary. Team training is one area where it is crucial to undertake interdisciplinary training.

Sundar *et.al* (2007 p 284) describe mental models as “*knowledge and mechanisms that can leveraged to describe, explain and predict events.”*

CRM is an example of mental model training, both in aviation and medicine.

There is extensive literature describing the characteristic of highly functioning teams and the requirements of individuals within these teams. Sundar et.al (2007) identifies that individuals need to process, knowledge, attitudes and skills such as team

monitoring, knowledge of other team member's responsibilities and supportive attitudes toward team environments.

As for the teams themselves, Sundar *et.al* (2007) noted the work of Salas in generating a list of characteristic of effective teams:

- **Team Leadership**
- **Backup behaviour**
- **Mutual performance monitoring**
- **Communication**
- **Adaptability**
- **Shared metal models**
- **Mutual Trust**
- **Team orientation**

Hunt *et.al* (2007) in a literature review examining the characteristics of high performance teams, identified the following themes:

- **Situational Awareness**
- **Leadership**
- **Followership**
- **Closed Loop Communication**
- **Critical language and Standardised Practises**
- **Assertive Communication**
- **Adaptive Behaviours**
- **Workload management**
- **Debriefing**

Simulation activities with specific attention to team characteristics have become an important strategy to improving patient safety (Hunt *et.al* 2007). It is interdisciplinary teams that will depend on each other in a crisis and using simulation to train these teams will ensure commonality in thinking and approach to the critical event

2.6 Integrating CRM and Human Factors into Simulation Scenarios

As educators, simulation instructors need to plan their scenarios and determine what learning outcomes they desire. These learning outcomes may be technical in nature with specific clinical knowledge and skills. Alternatively they may be behavioural. From a team perspective, simulation scenarios need to be planned with CRM and human factors in mind.

Although there are many methods to introduce CRM and Human Factors into your scenarios, the following guide is provided for consideration.

Planning

It is important in the planning stage that educators identify how the clinical scenario would occur in real life.

- What factors would affect the outcome of the scenario
- What is the normal environment for this situation?
    - Patient population.
    - Staff and discipline represented.
    - Equipment.

- Policy and procedures used.
- Emergency protocols.
- Geographical layout of clinical environment.
- Issues that commonly arise in practice (for example a code blue often attracts too many people at the scene making it difficult to manage).
- Communication between the team.
- What stressors occur if any in this clinical environment?
- What can go wrong?
- What errors can and do occur in this environment?

With these factors in mind, the designing of the scenario needs to represent the issues of interest in clinical practice and team behaviour that you want to concentrate on. As a guide, we would not recommend recreating every potential error or stressor that can occur. Limit the scenarios so that it can be achieved in the allotted time without participants feeling overwhelmed.

Pre Course

It is important to test a scenario before it is conducted for the first time with participants, in order to gauge how effectively it will run, and what issues arise that may de-validate it as a learning experience. If the procedure is unable to be recreated with accuracy and the scenario is based on the producer, participants will not accept it.

Another issue is making sure the error situations you have created (for example-stressors such as oxygen failure) can be achieved.

The scenario test also provides an important opportunity for the scenario actors to rehearse their role so that they are believable and create the environment required for the participants to produce CRM behaviours.

As the simulation trainer, you want to have confidence in the scenario to provide all attending with a credible environment that promotes team engagement, both in the scenario and debriefing.

Implementing

During the introduction it is important to discuss the CRM principles with participants. A common activity is to ask the group to consider what makes up their clinical environment. This can be achieved through discussion or with the aid of a Power Point presentation or a photo of their clinical environment.

The discussion can then work through from the simple identification of resources in the environment to the more complex environmental considerations that influence their decision making. In this way the CRM principles can be related to their own situation. Another option is to present a more formal presentation on the CRM and Human Factor issues and then develop through discussion how these relate to the participants.

Debriefing

During the debriefing phase, it is important to reflect on the use of CRM or how CRM could have been used during the scenario. From experience, this is where participants develop a personal understanding of CRM and consider how they will implement these principles in practice.

The debriefing phase is also an important opportunity for the trainer to discuss the relevant human factors seen in the scenario. As a result it is important that the Human Factor issues have been considered and tested in the pre course phase. Groups can be very inexperienced with the Human Factors theory and will rely on instructors' knowledge and examples identified in the debriefing or review to develop their understanding.

Post Course

A handout with each of the CRM principles listed and relevant notes is an excellent adjunct to the simulation training. These have been known to appear on the notice boards of departments that attend CRM training.

In summary, the topics of CRM, Team and Human Factors are indeed complex. This author's personal experience has been to develop confidence with these topics over time, and not try to cover everything in every simulation course. The reference list provided is an excellent starting point to achieve a good understanding of these topics and to assist educators to think about designing courses with these factors in mind.

Good luck!

References:

Belbin RM. (1981). *Management teams – why they succeed or fail.* Oxford: Butterworth Heinmann.

Benne K, Sheats P. (1948). Functional roles of group members. *Journal of Social Issues, 4,* 41-49.

Borchers T. (1999). http://www.abacon.com/commstudies/groups/definition.html

Bovier C. Situational Awareness, Key Component of Safe Flight. *Industry CRM Developers - Flying Careers SA Article January 1997 issue.*

Cooper JB. Are simulation and didactic crisis resource management (CRM) training synergistic? *http://qhc.bmj.com on 30 August 2007.*

Dunn WF. Simulators in Critical Care and Beyond. *Society of Critical Care Medicine 2004 ISBN: 0-936145-15-3.*

Gaba D, Howard S, Fish K, Smith B, Sowb Y. Simulation-based training in anaesthesia crisis resource management (ACRM*): A decade of experience, Simulation & Gaming 32 (2), June 2001, 175-193.*

Helmreich RL, Chidester TRH, Foushee C, Gregorich S, Wilhelm JA. How effective is Cockpit Resource Management Training*? Flight Safety Foundation, Flight Safety Digest, (May 1990).*

Hunt E, Shilkofski N, Stavroudis T, Nelson K. Simulation: Translation to improved team performance. *Anesthesiology Clinics, (2007)* 25; 301 – 319.

Issenberg SB, McGaghie WC, Petrusa ER, Gordon DL, Scalese RJ. Features and uses of high-fidelity medical simulations that lead to effective learning a BEME systematic review. *Medical Teacher, Vol 27, No. 1 2005 pp. 10-28.*

Murray W, Bosseau MD, Foster PA. Crisis Resource Management Among Strangers: Principles of Organizing a Multidisciplinary Group for Crisis Resource Management. *Journal of Clinical Anesthesia Vol.12:633-638, 2000.*

Noonan CH, Pittinsky TL, & Zhu W. Measuring and Efficacy of Leaders to Assess Information and Make Decisions in a Crisis: The C-LEAD Scale. *KSG Faculty Research Working Paper Series August 2007 RWP07-035.*

Pizzi L, Goldfarb N, Nash DB. Chapter 44. Crew Resource Management and its Applications in Medicine. *A Critical Analysis of Patient Safety Practices. July 2001.*

Rall M, Dieckmann P. Safety culture and crisis resource management in airway management: General principles to enhance patient safety in critical airway situations. *Best Practice & Research Clinical Anaesthesiology. Vol 19. No. 4 pp. 539-557, 2005 online at http://www.sciencedirect.com*

Rochlin GI, La Porte TR, Roberts KH. The Self-Designing High-Reliability Organization: Aircraft Carrier Flight Operations at Sea. *Newport Papers from Our Autumn 1987 Issue.*

Salas E, Shawn BC, Bowers CA, Wilson KA. Team Training in the Skies; Does Crew Resource Management (CRM) Training Work? *Human Factors Vol 43,No. 4. Winter 2001, pp 641-674.*

Sales E, Fowlkes JE, Stout RJ, Milanovich DM, Prince C. Does CRM training improve teamwork skills in the cockpit? Two evaluation studies (crew resource management*). Human Factors 41.2 (June 1999): p326 (1).*

Small SD, Simulation Applications for Human Factors and Systems Evaluation*. Anesthesiology Clinics 2007, 25; 237-259.*

Sundar E, Sundar S, Pawlowski J, Blum R, Feinstein D, Pratt S. Crew Resource Management and Team Training. *Anesthesiology Clinics 2007, 25: 283-300.*

CAP 720. Flight Crew Training: Cockpit Resource Management (CRM) and Line-Oriented Flight Training (LOFT). Previously *ICAO 1989 Circular number 217-AN/132.Human Factors Digest No. 2.*

Chapter 3. Debriefing in the context of simulation

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A critical component for learning in high fidelity simulation training is the 'debrief' session (Beaubien and Baker, 2004). The debrief occurs after the simulation scenario and affords the participants the opportunity to reflect on their performance, receive facilitator and peer feedback and to reinforce or plan changes in performance for a subsequent encounter of a similar clinical scenario. Debriefing requires a specific set of skills for the simulator instructor.

This chapter outlines why debriefing should occur, models of debriefing and tips for those new to this skill.

3.1 What is debriefing?

Historically in medicine debriefing was primarily used for emergency workers involved in handling traumatic situations (Mitchell, 1983; Dyregrov 1998; Armstrong et al 1991).

Friedman (2000a) describes psychological debriefing as an intervention conducted by trained professionals shortly after an incident that allows victim's to talk about their experiences and to receive information on 'normalising" types of reactions to such an event.

Debriefing can be described as a group meeting to review the impressions and reactions that participants experience during or following a critical incident.

In the context of medical simulation debriefing, an environment is created to allow participants to experience a portrayal of a real event for the purpose of learning, rehearsal, teaching or to gain an understanding of how the human interactive system works in a simulated environment.

Debriefing allows for a reflective practice that provides an opportunity to reflect, self scrutinise, assimilate information and examine assumptions.

3.2 Why do it?

Debriefing can be a useful process for providing a mechanism for discussion, reflection, questioning, education and feedback to participant's behavioural, technical and psychological responses.

Ultimately debriefing in the context of medical simulation helps to develop crisis resource management principles, clinical and reflective skills (Rudolph et al 2007).

When creating a debriefing environment it is necessary to consider providing both a psychologically safe, yet intellectually and behaviourally challenging environment (Rudolph et al 2007).

3.3 Debriefing Objectives.

Debriefing can provide for exploration of skill performance and /or evaluation.

Debriefing has both an educational and a behavioural function:

- The educational debriefing objective looks to review, teach and assess knowledge and skills relevant to the scenario experienced.

- The behavioural debriefing objective focuses on increasing awareness regarding interpersonal and group communication styles and allows for rehearsal, education and reviewing of resource management. In addition, the debriefers can expose and challenge ingrained behaviours and allow for analysis and change of these behaviours.

3.4 Models of simulation

There are several methods of psychological debriefing and most research regards debriefing as a single-session, semi-structured crisis intervention designed to reduce or prevent adverse psychological reactions and responses to traumatic events (Bisson et al 2000)

Three current and popular models of group debriefing used in medical simulation are described:

1. Mitchell's (1993) critical incident stress debriefing (CISD)
2. Rudolph's good judgment model (2006).
3. Novella's Three Stage Model

Although there are differences between the models the generic term "psychological debriefing" will be used to describe all models.

Mitchell's model

Mitchell (1993) describes his model as a group process of seven distinct phases.

1. Introduction/Rules - The first phase is the introductory and rules based phase. Confidentiality is explained, group conduct rules and the outline of the CISD is explained.

2. Facts - The second phase is concerned with the gathering of information or facts related to the incident. Pointed questions such as "what was your role', "who arrived first" are asked. Emotions are acknowledged and feelings are regarded as normal but there is no further exploration in this phase.

3. Thoughts - This phase urges participants to talk although it also emphasises that participants will not be forced to talk about things that are uncomfortable to do so.

4. Reactions - The fourth phase is a discussion of the reactions. Questions such as " What was the most difficult thing about the event for you ?" and "What would you have liked to happen?" are asked. This phase elicits the most emotional responses encouraging participants to speak openly and freely about their emotions, focusing on extreme feelings that may have been experienced.

5. Symptoms - The fifth phase is concerned with symptoms of distress and questions such as “How have you been since the incident?” will be asked and symptoms that have occurred will be reviewed.

6. Teaching - The sixth phase is concerned with teaching. General information and education regarding the identified stress reactions such as mood, distraction, introspection, sleep disturbance, temporary change in appetite and effects on relationships are discussed.

7. Re-entry - The seventh and last phase is concerned with closing the debriefing. A summary of what has happened during the session is given and any remaining questions are answered.

Rudolph’s good judgment model

This model of debriefing takes the position that sharing critical judgments is an essential part of learning in simulation and debriefing (Rudolph et al 2006).

The model postures that there is no such thing as “nonjudgmental” debriefing and promotes the premise that debriefing should be done with “good judgment”.

Fundamental to this model is the concept of “rigorous reflection” which refers to a debriefing process that brings to the surface and helps to resolve the clinical and behavioural dilemmas and areas raised by the simulation and the judgment of the instructor. It emphasises the importance of the instructor disclosing his or her judgments and eliciting trainee’s responses about the situation and their reasons for acting as they did (Rudolph et al 2006)

The approach is based on a 35 year research program on improving professional effectiveness in the business world through ‘reflective practice’ (Rudolph et al 2007).

The “debriefing with good judgment” (Rudolph et al 2006) approach has three primary components.

1. A conceptual framework that states that the trainees “frames” or “beliefs” or “meanings” are comprised of things such as knowledge, assumptions and feelings that drive their actions. The actions in turn produce clinical results in a scenario. In the debriefing process, the instructor is able to uncover these “frames” and help guide them to reframe their internal assumptions and feelings and take action to achieve better results in the future.

2. The second component is concerned with taking the stance of genuine curiosity about the participant’s actions. The instructor is questioning the action/behaviour in order to uncover the frames. The instructor acts as a kind of “cognitive detective” who tries to discover through inquiry, what those frames are. A “stance of curiosity” allows for the trainees’ mistakes to present as “puzzles” to be solved rather than as errors.

3. The third component adopts a conversational technique pairing advocacy and enquiry:

    a. Advocacy includes an objective observation, assertion, or statement about the participants’ actions.

    b. Inquiry is a genuinely curious question that attempts to illuminate the participants’ frame in relation to the action taken.

e.g." given my view it seems problematic what I am missing here….help me understand", "I am concerned that you did not attempt to intubate this unconscious patient, I'm wondering why you didn't?"

Rudolph et al 2006, believe that this approach helps instructors manage the tension between sharing critical, evaluative judgments while maintaining a trusting relationship with participants.

This model can be used as a tool for specific debriefing points, and can be integrated into your debriefing template. It is especially helpful when a participant behaves unusually or performs in a negative way.

An example of how this model can be used as a 3 step approach within a debrief is given here:

Step 1 – get in touch with your judgment

- Note an unusual or poorly performed skill/behaviour. Observe your own initial response – "why is he doing that?"

Step 2 – set your stance

- Assume that the trainee meant to do the right thing
- Observe and be informed by your emotions, don't overreact

Step 3 – advocacy and enquiry

- State your concern; ask a question to find out why

- "I noticed that you did not attempt to call for assistance, I'm curious as to why?"

Novella's Three stage model

This model was originally used for psychological counseling and has been adapted for simulation debriefing. It relies on adaptations of other psychological models including Mitchell's model, aimed at making debriefing accessible to the novice. This adapted model has been used extensively for training high fidelity debriefers in the safe debriefing of complex scenarios.

Stage 1 – The Facts

Concerned with building up the story

- Thoughts: "What was going through your mind?"

- Action: "What did you do at that point?"

- Impressions: "What was your impression of what was going on around you?"

- Descriptions: "What was your assessment of the patient's breathing?"

- Happenings: "What happened next?"

- Check the facts throughout the debrief:
- Before: “What was happening before the arrest?”
- During: “What was your recollection during the incident?”
- After: “What happened after this?”

Stage 2 - Reactions.

The debriefer’s role is to use the information obtained in the debriefing session to help the participants to identify and acknowledge their emotional and physical reactions. It is also the debriefer and co-debriefer’s role to facilitate further discussion if it is evident that participants want to express more and to allow all participants regardless of their level of involvement in the scenario, an opportunity to speak.

- Sensory Impressions
    - Sights, sounds, smells, touch, taste
    - “What did the skin colour look like?”
- Emotions – Feelings
    - “What were you feeling at the time?”
    - e.g., helpless, frustrated, anxious, confidant, excited.
- Reactions - Physical
    - “What physical reactions were you experiencing?”
    - e.g., palpitations, sweatiness, shakiness.

Ending the Reaction stage

The debriefer gives a summary of the scenario and its effects as expressed by the individual and the wider group. State positive reactions and lessons that have emerged state the “normalcy” of these and ask for further questions or comments.

- Summarise the objectives that have been met.
- Summarise medical/ technical issues covered, e.g., protocols etc.
- Summarise behavioural issues covered, e.g., CRM Principles.

Stage 3 – The Future

The debriefer helps the participants to return to the present by asking them to state what they thought worked well and what they would do differently next time.

- Normalisation - Debriefer helps the participant to see that their reactions are normal.
- Information - Debriefer or Co-briefer gives information about possible immediate or short term thoughts and reactions that participants may experience.
    - e.g. “You may find yourselves thinking about today’s scenario.”

- Support - People resources for future access.
    - e.g., Skills centre staff, mentors, departmental directors, cohorts, organisational supports (CISM teams), College, external support.

Ending the debriefing

The debriefer ends the debriefing session using their own language. e.g., “It’s time to wrap up the debriefing session.”

- Ask for further questions or comments
- Thank participants for taking part and their contributions
- Offer support, immediate and ongoing
- Offer refreshments

3.5 How to structure a debrief

3.5.1 BEFORE THE DEBRIEF – PLANNING

Debriefing can be conducted by a sole facilitator or by two facilitators (co-debriefing).

Co-debriefing has advantages in providing ‘two pairs of eyes’ to ensure that everything happening in the room is noted. This avoids overlooking the quiet participant that is withdrawing from the debrief.

The co-debriefer’s role is not simply a second in command position but it is to act as an observer, facilitator and interpreter. Gain agreement on how communication will occur during the debrief. This communication can be verbal (“I might let you handle this point”), or non verbal (hand signal, gestures).

The debriefer and co-debriefer need to clarify their roles, expectations of each other and level of shared facilitation before entering the debrief.

The debriefing team must also anticipate that at some time it is possible that some participants may demonstrate aberrant behaviours in response to negative reactions to the simulated scenario and or to the debriefing session.

These behaviours could include withdrawal, crying and leaving the debriefing room before the debrief has ended. It is important for the debriefer to use empathy and careful questioning about how the participant is feeling. Do not presume to know the reason for their reaction. The debriefer needs to allow the participant to communicate if they are able to.

If the participant is distressed ask them if they would like to continue to debrief in the larger group or if they would prefer to have individual debriefing. If they prefer individual debriefing the co-debriefer could provide this immediately or the debriefing team could conduct the debrief immediately after the group debrief. You may need to make a judgment as to whether to continue with the debrief session or break and deal with an emotional crisis. Persisting “for the sake of the group” when one participant is clearly upset may be detrimental to both dealing with a distressed participant and gaining any productive group learning.

It is imperative that aberrant behaviours are not ignored as this can lead to a confirmation to the participant that there really is something wrong with them or that they are problematic. This assumption will further add to the distress and difficulty already experienced by the participant. Generalising the issue if possible and garnering support from the group may be useful in normalising the response.

Normalising the fact through empathic enquiry can help to defuse this situation.

These issues will be covered in the Difficult Debrief Chapter 4.

3.5.2 GETTING STARTED

A. The introduction.

The purpose of the introduction is to state what is expected of both the participants and the debriefing team. This will help to provide a platform for active participation, and allows an opportunity to provide a rationale for the debriefing.

Introduction - Debriefer/co-debriefer introduce themselves

- Ground rules-. The ground rules (everything from expected participant behaviour, to debriefing roles and expectations) for simulation and debrief must be covered at the start of the simulation aspect of the course. They can then be referred to and reinforced throughout the immediate preamble and during the debrief itself.

- Purpose - Debriefer explains the purpose and aims of the debriefing session. Explain what will be debriefed, e.g. the scenario, questions comments re medical/technical & behavioural (eg.CRM) aspects.

- Discuss confidentiality - state clearly that confidentiality must be maintained at all times. This is with reference to the entire process including the detail of the simulated scenario, participants' identity and the debriefing process. (See Chapter 4).

- Procedure - Debriefer outlines the debriefing format, e.g., roles, protocols.

B. Clarifying roles and expectations:

To avoid confusion and risking the psychological safety of participants it is essential to clarify the context in which the debriefing will take place. For example define what the principal objective of the debriefing process. Is it to evaluate or to allow for reflection on skill performance?

This allows an opportunity to:

- Explain the role of the debriefer and to introduce the co-debriefer.

- Outline the process and help establish an agenda; albeit a very loose one.

- To state what will occur and what is expected of the participants -Ground Rules. E.g. Confidentiality, Respect of each other, one participant to talk at one time, no interrupting etc.

- To tell the participants the expected length and format of the debriefing e.g., setting an agenda, use of video, invited observers etc.

C. The Debriefing format

A primary debriefing objective is for discussion to be participant-centred. As a debriefer your role is critical in helping participants develop a structure for their discussion and ensuring that important issues that arose in the scenario are covered.

Outlining the debriefing format or structure provides an opportunity to:

- help participants identify topics and for the debriefer to facilitate discussion.
- assist participants identify reactions and feelings and for the debriefer to facilitate discussion.
- keep discussion participant- centred rather than debriefer- centred.
- ensure the training objectives are met.
- provide empathic analysis for the situations encountered.
- analyse the impact of how situations were managed and to create improved frames for the participants to engage.
- evaluate how the simulated scenario outcomes went.
- discuss what went well and what, if anything, they would do differently next time.
- encourage group participation and sharing of observations, encounters and assessment of the situation.

3.6 Debriefing Do's and Don'ts

Do's:

- Face the speaker
- Maintain eye contact
- Use inclusive seating arrangements
- Encourage others to speak
- Be open in physical positioning
- Dress appropriately
- Use behavioural communication cues
- Prompting - Verbal and non-verbal encouragement
- Mirroring - Use similar words to feedback
- Paraphrasing - Use different words to feedback the meaning
- Reflecting - Feedback the participant's expressed feelings, thoughts and reactions
- Be aware and mindful of the diversity of the group

Don’ts:

- Use shame and blame tactics
- Criticise the speaker
- Be sarcastic, condescending or show anger
- Be judgmental
- Interrupt

3.7 Use of Audiovisual (AV) in debriefing

The use of audiovisual technology in the medical simulation and in particular with regard to teaching skills or simulation can be a highly effective learning tool.

- Use AV effectively by noting incidents for review.
- Focus on 2- 4 segments and use AV as a springboard for discussion.
- Avoid using the tape/DVD to shame a participant by “proving them wrong.”

The uses of AV are discussed in detail in Chapter 4 of this manual.

References:

Armstrong,B., O'Callahan, W. and Marmar, CR. (1991) *Red Cross disaster personnel: the Multiple Stressor Debriefer Model.* Journal of Traumatic Stress,4(4):581-93.

Beaubien, J. & Baker, D. (2004). The use of simulation for training teamwork skills in health care: how low can you go? *Quality and Safety in Health Care*.13, 51-58.

Bisson,J., McFarlane, A.C., and Ross,S. (2000) *Psychological Debriefing* in E.B.Foa, T.M.Keane and M.J.Friedman(eds) Effective treatments for PTSD. New York:Guildford Press.

Dyregrov,A. (1998) *Psychological debriefing-an effective method?* Traumatology,4(2).

Friedman,M.J.(2000a) *Post traumatic Stress Disorder-Latest Assessment and Treatment Strategies.* Kansas City, K.S: Compact Clinicals.

Mitchell,J. (1983) *Guidelines for Psychological Debriefing emergency management course manual.*Emmitsburg,MD:Federal Emergency Management Agency, Emergency Management Institute.

Parkinson, F. (1997) *Critical Incident Debriefing. Understanding and Dealing with Trauma.* London. Souvenir Press

Raphael, B. (1986) *When Disaster Strikes: A Handbook for Caring Professionals.* London: Hutchinson.

Rudolph, J.W., Simon, R., Rivard, P., Dufresne,R.L. and Raemer, D.B. (2006) *There's no such thing as "Nonjudgmental" Debriefing: A Theory and Method for Debriefing with Good Judgment.* Simulation in Healthcare: The Journal of The Society for Medical Simulation.1(1) 49-55

Rudolph, J.W., Simon, R., Rivard, P., Dufresne,R.L. and Raemer, D.B. (2007) *Debriefing with Good Judgment: Combining Rigorous Feedback with Genuine Enquiry.* Anaesthesiology Clinics, 25 361-376

Tehrani, T. (2004) *Workplace Trauma. Concepts, Assessment and Interventions.*Brunner-Routledge, East Sussex, Great Britain.

Novella, A. (2002). Communication Skills for Debriefers Workshop. *Unpublished paper presented at Simulation workshops conducted at St Vincent's Health Melbourne.*

Notes

Chapter 4. The Difficult Debrief

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A fundamental assumption in medical debriefing is that participants are intelligent, knowledgeable and well trained. Another assumption is that they are reasonable people and willing participants who care about doing their best in their practice and who will also support and respect all of those actively participating in the simulated scenarios, and subsequent debriefs, to do their best.

For the most part these assumptions are true. Sometimes however they are not entirely founded.

This chapter discusses behaviours that can occur which make the debrief more difficult or challenging for the facilitators. In addition, potential strategies are explored to assist educators to address these situations.

4.1 Why Problems can occur

Individuals within debriefing groups as well as specific cohort groups, can have their own personalities that reveal weaknesses in working in groups or working in a highly transparent and high pressure simulated environment. In addition, participating in debriefing can prove personally excruciating or volatile to participants.

Inter-group member dynamics can contribute to participants exhibiting difficult or aberrant behaviours. These dynamics include participant to participant, participant to debriefer and debriefer to co debriefer.

The unpredictable nature and reaction seeking process of the debrief can result in a number of varying reactions and behavioural actions from participants. In discussing the problems that can occur it may be useful to look at the definitions of two typical behavioural presentations in order to set a context for how to handle difficult situations that can occur in debriefing.

4.2 Reasonable and difficult behaviours- What is the difference?

A useful clarification in managing difficult behaviours is to make the distinction between reasonable and difficult behaviours.

4.2.1 Reasonable Behaviours

Reasonable behaviours can result when people become upset, teary, withdrawn, shy or embarrassed. They may even have momentary lapses of being unreasonable, but are basically rational and reasonable people. It is reasonable in debriefing that participants may exhibit behaviours such as those noted in response to the simulated scenario and or to the debrief.

It is imperative that the debriefing team prepare for this primarily by accepting the normality of such responses.

4.2.2 Difficult Behaviours

Difficult behaviours can have a psychological basis. These behaviours are usually exhibited when people need to get a lot of attention, have a need to be argumentative, negative and disruptive and are often associated with unreasonable people.

Difficult behavioral presentations are the most challenging to manage. The psychological rewards for these participants are very strong and there are limitations as to the range of managing strategies that can be easily utilised.

Often these personalities may complain that their expectations have not been met and use the debriefing session to argue their complaint.

They may be upset with how the scenario has unfolded and unhappy with either their own or individuals' or the group's responses to various aspects of the simulated scenario and or debrief.

In addition they may feel that their integrity has been questioned simply by virtue of their own expectations of their behaviour.

4.3 Difficult situations and potential solutions

4.3.1 Preventative Strategies

Useful to any debrief is the verbal reminder to oneself and the debriefing team regarding what the previously established debriefing objectives and ground rules are. See Chapter 3.3 Defining objectives and 3.5.2 Getting started.

Specific examples of how to handle both the reasonable and difficult behaviours follows.

Co-debriefers may be familiar with each other and their debriefing styles or they may be new to debriefing together. Regardless, the debriefing leadership team needs to discuss how they will support each other to handle situations that may arise. The debriefer and co-debriefer need to sort out logistical questions (such as the possible need to accommodate a distressed participant and who will accompany the participant and where they will take them). These are useful procedures to consider before the debrief takes place.

Discussion regarding whether the leading debriefer wants the co debriefer to either diffuse or intervene or whether the leading debriefer wants to "go it alone" during a difficult debrief also needs to be ascertained before the debrief occurs.

In preparing for the debriefing session, it is also important to consider a pre debriefing planning session. Provide time, an environment and an opportunity to get to know your participants. This may occur early in the day during the preamble to the simulated scenario. Together, the debriefing leadership team can observe participants with the view to placing certain individuals with others, for example: to mix confident with less confident participants, separate friends and co- workers or take some time to consider what combination of participants will work best.

4.3.2 Examples of Difficult Situations that may arise

4.3.2.1 The participant that is excessively critical of their own performance.

- Help the participant to normalise his or her experience by reminding the participant and the group that the simulated environment is a difficult environment for all participants and that although the fidelity is high, so is the expected pressure and stress that participants may experience.

- Remind the participant that the simulated scenario looks to all of the participants' roles, actions and responses and that he or she has not been singularly targeted.

- Focus and explore with the participant what they did in the scenario. Try and draw out what happened in the scenario rather than how they felt about their performance. e.g. "I noticed that you are not happy with your performance. What I would like to do is look at what you did and why you did it. We will then see what we can learn from this."

- Stay with factual enquiry and encourage the comments about the facts.

- Acknowledge what you thought worked well. It is often at this point that other group members also contribute positively to what their memories and experiences were of the participant's behaviours. This group support can often be triggered by a generalising question e.g. "has anyone else felt pressured to perform tasks in a crisis that they were inexperienced in?"

- Reiterate the objectives of the debrief, e.g. looking at a number of factors, including medical/technical, behavioural, team etc. Highlight examples of where the participant was able to demonstrate good judgment.

- Be aware that the reaction may be founded in wider non- scenario based (i.e. personal) issues. Ask the participant if they would like to continue with the group debrief or to have an individual debrief.

4.3.2.2 The participant that is excessively critical of someone else's performance.

- This is a very difficult situation as the motivation for the behaviour is not always clear, e.g. personality conflict, malevolence, poor team player etc. Recognise that there are real limitations.

- Ask the participant to discuss the behaviours that he/she is criticising rather than focusing on the individual. e.g." What did you find unacceptable about what John did?" Rather than "So you think that John is incompetent?"

- If the participant is offensive and acrimonious in his/her manner, refer the participant to the Ground Rules of debriefing. Ground Rules should include not being personally critical, maybe also 'Demonstrate good will' 'Treat your co-participants with respect.'
- Acknowledge that the participant has a right to voice his/her criticisms but that they need to be constructively expressed in the context of a learning environment rather than a punitive one. Reclarify the goal of the debrief – "John, what we are looking for is constructive comments so that we can all improve our performance. Do you have any suggestions as to our options when presented with a difficult airway?"

4.3.5 The crying participant.

- Do not ignore the crying participant. This will only confirm their self belief that they are being inappropriate when in fact they may be having a 'reasonable' response to anxiety, self judgment or the simulation process.

- Stay with the participant by acknowledging the difficult nature of the exercise and using empathic enquiry to find out what is going on for the participant. This can be helpful in supporting the participant to return 'mentally' back to task.

- Ask the participant if they would like to continue with the group debrief or to have an individual debrief.

- Provide the former by deciding who will lead this and ensure that there is an appropriate room available to conduct this debrief. (see Chapter 3.5.1). In the privacy of a separate room, offer some refreshment and ask the participant if they would like to talk about what has caused them to cry. This process can be a diffusing of concerns or emotions for the participant and an opportunity to debrief on the current situation or to disclose other concerns. Be empathic and listen. If it is clear that the participant is unrealistic in terms of his her performance during the debrief, offer support and feedback. At the end of the session, encourage the participant to rejoin the group or next simulated scenario. If they refuse or are incapable of continuing with the day, offer an alternative time for them to come back to the centre to resume their program and advise them that you will be in telephone contact in the next day to enquire how they are going. Offer your contact details as well as that of the Simulation Centre.

4.3.6 The participant that does not think that they have done anything wrong but who in your opinion has been unsafe.

- Use empathic enquiry to draw out the facts of what the participant believed happened during the simulated scenario.

- Help the participant then identify what they actually did in the scenario by reflecting what your observations were of his/her behaviour.

- Use reflective questioning. e.g." I noticed that you did not check the drug ampule before you administered it to the patient. Many ampules look similar, was there a reason as to why you didn't check?"

- If the participant is argumentative, in the first instance, keep your emotions under control by focusing on the behaviour and not the person.

- Listen for any valuable information and validate that information.

- Use the participant's name to bring them to task or to even interrupt them.

- Using "I" language state clearly what you think a safer action would have been.

- If this is a "grey area" do not try to be the expert, recruit the group to assess options with a goal of coming up with the "best and safest" option.

- If a "black and white" clear break of accepted practice occurs, this is where widely accepted guidelines are useful (institutional, national, international etc.) "The drug checking protocols are in place to protect you. There is abundant evidence showing the high rates of adverse drug events when they are not followed."

4.3.7 The participant who laughs at the whole experience as hasn't seen it as real.

- Remind the participant about the objectives of medical simulation and the debriefing session. Remind them also of their responsibility to their fellow group members.

- Be clear in maintaining the position that this is a serious process and that the assumption is that all participants who agree to engage in it will regard it as serious and as an opportunity to explore skill performance in a high fidelity environment.

- If it is the debriefing leadership's opinion that the participant is unable to engage in the experience acknowledge this to the participant and check to see if this is in fact the case.

- If it is and the participant is not disruptive move on to debriefing other participants.

- If the participant is disruptive and unwilling to engage advise them that they have the option of sitting the debrief out and provide counselling for the participant immediately after the group debrief.

- If the participant is willing to re-engage continue with the debriefing process.

Conclusion

Most debriefs are conducted without difficulty. Participants are usually eager to discuss their performance and to learn from the simulation they have engaged in. However as a debriefer there is a duty of care to the participants and it is important to be aware of potential aberrant behaviours and to have strategies ready to address these. Centres should have back up plans to manage participants that there are ongoing concerns about. This may include post session follow up by facilitators, or access/referral to an external psychologist. It is useful to have a policy developed to address this potential situation. See Chapter 6, Appendix 3.

Notes

Chapter 5. Using Audiovisual Equipment in Clinical Skills and Simulation Education

Author: Debbie Paltridge

Audiovisual (AV) equipment is seen as a crucial element of simulation-based education. There is a growing interest in its use for clinical skills training, particularly with the advent of the combination of teaching communication and procedural skills simultaneously (Kneebone et al, 2002). Audiovisual recording can occur within the clinical skills or simulation laboratory, or in the workplace within a clinical environment.

This chapter aims to outline some of the uses of audiovisual equipment in the context of teaching clinical skills and simulation, the advantages and limitations and some of the considerations for use within laboratory or mobile situations.

5.1 Uses of Audiovisual Recordings

There are numerous potential uses for audiovisual recordings in the simulation/clinical skills context. These include:

- To record a learner's performance so as to provide feedback.
- To pre-record examples of 'correct' vs. 'incorrect' performance. These can be simulations in themselves and used as a:

  - Stimulus for discussion and/or,

  - Demonstration for the novice learner.
- Faculty development – used to illustrate specific events which occur within simulation scenarios.
- Scenario refinement – to observe how a scenario functions and critically appraise so as to refine for future use.
- To debrief after a simulation – not all debriefing needs to be done with an audiovisual recording, and nor should the AV recording be relied upon. However, an AV recording can be a useful tool to use within the debrief in order to illustrate a particular behaviour or action in order to provide the learner with feedback.
- To allow the learner to reflect on their performance and self assess against standards or criteria.
- As introductory material at the start of a course to:

  - Provide an overview or context to the learning,

  - Stimulate interest and motivation to learn, or

  - Provide background information.

- As an independent learning aid – audiovisual recordings can be made of an expert performing a skill with or without narrative. This recording could model individual components of a skill or the skill in its entirety. This can then be used by learners as an independent learning exercise before attending the clinical skills laboratory for instruction.

- As a link for other learners not involved directly in a simulation scenario. Simulation facilities often beam live AV feed from the simulation laboratory into another room for additional learners to view. As part of a commitment to providing a safe learning environment, only learners that are part of the overall group from the commencement of the course and who will be involved in the debriefing, should be allowed to watch others as they perform in a scenario.

- As a record for research and later analysis. Many studies are now using AV recordings of simulations to be analysed subsequently by experts with validated checklists. This allows analysis to be retrospective. Consent from participants must be gained at the time of the simulation.

- For training simulated patients.

Audiovisual recording has been particularly useful in the teaching and learning of skills requiring communication. For example, taking a history from a patient, providing patient education and breaking bad news etc. It is less successful with fine motor procedural skills unless the AV equipment is sophisticated enough to capture the subtleties.

5.2 Advantages of AV Recording

The Audiovisual recording provides educators with a number of advantages including:

- Ability for the simulation control room to watch action from multiple angles. (Seropian, 2003).

- The ability to watch a learning experience on multiple occasions.

- The ability to stop and start a learning experience during review.

- The ability for a learner to watch independently without needing the educator to be present.

- No need to rely on memory of events.

- Can be done in the laboratory or real life setting.

- Able to see change in performance over time, where multiple recordings are used.

- The ability to provide feedback on not only verbal communication performance but the more subtle non verbal communication used.

5.3 Limitations

The limitations of AV recording include:

- It can be intimidating to some learners so that their performance is affected, particularly the behaviours they exhibit. Multiple use of AV recording can reduce the effect of this as learners become more familiar and less anxious.

- There is a need to maintain confidentiality on behalf of the learners and as such the security of recordings once taken is an important consideration. If using DVD or VHS a secure cabinet is required for storage. However modern systems are moving to hard disc storage options and security issues will need to be considered in this context. Centres should also have a clear policy on discard and usage of recordings (see Chapter 6).

- Technical expertise is required particularly where more high tech AV equipment is being used.

- Technical problems can lead to lost opportunities particularly in the real world setting e.g. audio not captured, lighting not adequate or lighting too bright. Trial runs prior to the real recording can minimise these issues.

5.4 Considerations for effective use of AV

The following considerations are given to assist in maximising the effectiveness of the use of AV recordings. In both settings the ease of use needs to be considered as not all users will be highly skilled AV technicians (Seropian, 2003). In addition, systems should be analysed to determine if they are both robust and reliable.

1. In the laboratory setting

    a. Cameras – consideration should be given to the;

        i. Positioning - need to be able to see the entire room in a simulation.

        ii. Ability to zoom in and out to capture fine procedural tasks or subtle changes in the simulator e.g. depth of breathing, heart rate etc.

        iii. Wiring – if possible wiring should be concealed for safety reasons and also for fidelity issues.

    b. Audio – consideration should be given to the;

        i. Ability to record conversations.

        ii. Avoidance of background interference ‘noise’ e.g. footsteps on a lino floor.

        iii. Use of lapel microphones to better isolate individual conversations. Need to be careful that these are not interfered with e.g. a stethoscope around a neck can cause loud banging noises to be recorded.

iv. Overhead audio – this will be necessary to mimic emergency calls as within a hospital setting, or to provide participants with information about the manikin, where fidelity is lacking, to assist with their diagnosis e.g. “patient is sweating profusely”.

Also in the Laboratory setting consideration should be given to the linkage with monitors so that patient vital signs can be simultaneously recorded (Seropian, 2003). This adds a valuable resource when giving feedback and exploring participant clinical reasoning.

2. In the clinical setting, consideration should be given to:

    a. Patient consent – real patients need to give informed consent to be videotaped. Also other staff in the vicinity that may be taped even inadvertently should give consent. Educators should discuss with their local communication manager the facilities policy on AV recording prior to undertaking this venture. The communication manager may be able to assist in developing an appropriate legal form.

    b. Type of equipment to purchase. The AV equipment chosen for portable use needs to be lightweight, sturdy and yet able to produce a recording of sufficient quality for the intended use. There is nothing more frustrating to a learner than an inferior recording with poor sound or visual quality. This will severely affect the efficacy of feedback with this recording. The audio is often the major issue in portable equipment and advice on additional audio aids is recommended, in particular lapel microphones.

    c. Transport of equipment – AV recording equipment should be transported to the clinical setting with care. Mobile trolleys can assist to address both care of the equipment and staff occupational health and safety (OH &S) requirements.

    d. Extension cords – often forgotten accessory that may be required in a portable situation.

Seropian (2003) suggests that the objectives of any AV system should be to:

- “Record audio and visual fact and context accurately,
- View and record multiple viewpoints,
- Provide reliable, durable, and easy to use equipment, and
- Store recorded material easily and safely”

Where possible it is strongly recommended that educators seek expert advice prior to purchase.

References

Dent, J., & Harden, R. (2005). *A practical Guide for Medical Teachers.* London: Elsevier Churchill Livingstone.

Kneebone, R., Kidd, J., Nestel, D., Asvall, S., Paraskeva, P., and Darzi, A. (2002). An innovative model for teaching and learning clinical procedures. *Medical Education*. 36 (7); 628-634.

Newble, D., & Cannon, R. (2001) *A handbook for medical teachers* (4th ed.). Netherlands: Kluwer Academic Publications.

Peyton, J. (1988). *Teaching and learning in medical practice.* Great Britain: Manticore Europe Ltd.

Seropian, M. (2003). General Concepts in Full Scale Simulation: Getting Started. *Anesthesiology and Analgesia*. 97, 1695-1705.

Wallin, C., Meurling, L., Hedman, L., Hedegard, J. & Fellander-Tsai, L. (2007). Target focused medical emergency team training using a human patient simulator: effects on behaviour and attitude. *Medical Education*. 41, 173-180.

Notes

Chapter 6. Policies and Procedures

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One of the features required for effective simulations is a safe learning environment. In order to create this safe learning environment, simulation educators need to consider the policies and procedures which will facilitate this. Policies and procedures need to be developed so that they are applicable to the educator's own local setting. However there are some generalities that may assist an educator to create their own. Policies and procedures should be developed to protect participants and educators alike. This chapter provides suggestions and examples of policies and procedures aimed at creating a safe environment.

6.1 Confidentiality

Simulation Centres need to have a policy on maintaining confidentiality for two reasons:

1. To prevent participants/learners from discussing each other's performances. It is important to create an environment where people can learn from their mistakes, discuss their performance openly and self appraise without fear of ridicule. This is partly achieved by the opening induction procedure to the centre, however is formalised by getting participants/learners to sign a confidentiality form which states this implicitly.

2. Simulation scenarios take a long time to create, test and refine and as such educators will not want participants/learners to discuss the specifics of scenarios outside the centre. This allows the educators to reuse scenarios with other participants without affecting their unique simulation learning experience.

A sample confidentiality form is included in Appendix 1 of this chapter.

6.2 Induction/Orientation

Participants new to simulation will require an induction or orientation to the course and the facility so that they understand what will be happening, what the expectations are on them as learners and who to go to if they have concerns. A sample induction procedure is found in Appendix 2. Suggested inclusions in an orientation procedure are:

1. Facility Orientation

    a. Physical Features e.g. location of skills rooms, debrief room, simulation room, lunch room.

    b. Occupational health and safety considerations e.g. fire safety procedure, escape routes, sharps disposal, use of gloves etc.

2. Faculty Orientation

    a. Introduction to staff and their roles.

    b. Introduction of fellow participants/learners.

3. Group Rules

    a. Use of mobile phones.

    b. Talking whilst others are talking.

    c. Respect for others opinions/observations.

    d. Conduct of role plays (see later in the chapter for detail).

    e. Policy regarding contacting participants after the course.

6.3 Familiarisation Procedure

All learners should be familiarised with the manikin prior to participating in a simulation. This is necessary to:

1. Ensure safety of participants. Participants need to know any safety procedures necessary with use of manikins e.g. location of sharps container.

2. Ensure safety of the manikin/s. Participants need to know what they can and can't do to the manikin. For example can they insert a needle into the chest to decompress a pneumothorax? Or can they insert a tracheostomy into the manikin?

3. Allow full participation in scenarios and improved immersion by understanding limitations of the manikins. E.g. where do you listen for breath sounds? How do you find out if the patient is sweating or changing colour if the manikin doesn't do so – e.g. overhead voice.

Familiarisation can be done in the simulation laboratory with the manikin, or alternatively some centres provide participants with a handout or show a DVD outlining these features.

6.4 Role Play Policy

Role plays are important components of many simulations. They are used to:

- Assist in achieving objectives of a scenario,
- Increase realism of the scenario, or
- Increase the complexity of a scenario.

However the role plays, as with other components of a simulation, need to be carefully considered and scripted or educators run the risk of derailing the simulation experience and not achieving the desired objectives.

Role plays can be performed by other educators/faculty or by participants. Either require careful briefing to ensure that they:

1. Stay within role – expanding outside the role can affect the effectiveness of the simulation. For example if you want someone to play an inexperienced nurse, who is there to provide assistance as guided but not to offer opinion or to take a lead role. If this person goes outside their role and starts to suggest treatment options etc, the participants will not be implementing the intended clinical reasoning processes themselves.

2. Avoid overacting – this can detract from the realism of the simulation and potentially make the situation appear a farce.

Careful choice of role players is necessary to make sure that they have the required knowledge and skills for a role. For example, using a lay person to play the role of a nurse is unrealistic as they will not know the correct terminology, let alone have the required skills. This will detract from the realism of the simulation.

In addition, role players may need to be in contact with the control room so that they can respond to the unfolding situation appropriately. Therefore within the policy on role plays consideration should be given to whether or not those playing a role need to have audiovisual linkage with the lead educator.

A written policy can assist everyone to feel comfortable with what a role play is and the expected behaviour. A sample role play policy is attached in Appendix 3 of this chapter.

6.5 Faculty/Educator Behaviour

Part of providing a safe learning environment for participants/learners is ensuring that all faculty/educators act in a professional manner. At times amusing situations occur within simulations. These situations are not always related to what a learner is doing, but could be an unanticipated event with the simulator e.g. a hand falls off the manikin. Faculty need to know that laughter heard by participants either during or immediately after the simulation, can be emotionally damaging even if that laughter is not directed at them. Participants will be feeling a certain element of vulnerability by performing in front of peers, educators and being videotaped. As such, faculty need to be aware of this and act accordingly.

A faculty code of conduct can assist new members of staff to understand the facilities expectations of them and may include statements regarding:

- Respect for participants,
- Behaviour before, during and after a simulation,
- What to do if a participant becomes distressed, and
- Staff support mechanisms available for them.

6.6 Faculty/Educator Feedback

Quality improvement of simulation courses involves evaluation and one such evaluation is made by the educators themselves. Post course faculty debriefing is a valuable source of information which can assist in refining courses for their next iterations. However, centres should also consider a policy/procedure for providing their faculty/educators with feedback on their performance. This will assist to:

1. Motivate educators - by feeling that their needs are being addresses as well as the learners.

2. Identify learning needs or areas for improvement required. This in turn may highlight staff development requirements and allow centre management to plan ways to address these needs.

3. Standardise approaches to debriefing.

4. Mentor inexperienced staff.

6.7 Storage of AV recordings

A policy should be made regarding the storage and subsequent disposal of audiovisual recordings. The use of AV is covered in Chapter 5; however it is important to note that the recordings require careful management to maintain confidentiality for the learner and again to provide that safe learning environment. There may be occasions when you wish to use recordings, for example to advertise your courses, for staff training or as a stimulus for discussion by another group of participants. As such, you will need a policy for gaining written consent for use of the recordings.

Recordings should be kept for a defined period of time to allow participants the opportunity of reviewing if desired. Sometimes learners reflect on their performance after they leave the centre and wish to revisit an element of their simulation experience at a later date. They can be allowed to do this independently or with an educator on request.

Once recordings are no longer required they can be destroyed or taped over.

Recordings of individual learners for skill acquisition or practice can be given to them as a record of their performance and be used for comparison, however recordings of teams are not as easily distributed to individuals without prior consent of all those in the recording.

As stated at the beginning of this section, policies and procedures need to be developed to suit the local environment and needs of the educators and learners. However formal structure around these issues can assist in creating and providing a safer learning environment.

Appendix 1 – Sample Confidentiality Form

Print Name: _____ Date: _____

CONFIDENTIALITY OF INFORMATION

During your participation in courses at the St. Vincent's Hospital Education Centre, you will likely be an observer of the performance of other individuals in managing medical events. As a participant in these activities in whatever role, you are asked to maintain and hold confidential all information regarding the performance of specific individuals and the details of specific scenarios.

By signing below, you acknowledge to having read and understood this statement and agree to maintain the strictest confidentiality about any observations you may make about the performance of individuals.

In addition, we ask that you refrain from discussing details of the scenarios you have participated in and/or witnessed. These scenarios take considerable time and expertise to develop and will be used in future training sessions. As such, it is important that future participants remain unaware of specific details relating to the scenarios, so that their training/learning is not compromised. We appreciate your support regarding this issue.

Signature: _____

Appendix 2 – Sample Induction Procedure

Induction Process for Simulation Centre Courses

It is important that the principal trainer completes the following process prior to each simulation course.

1. Provide a welcome to St Vincent's and the Simulation Centre
2. Introduce all staff present on the day
3. Encourage participants to introduce themselves to the group, briefly including current work, past simulation experience etc
4. Discuss the layout of the simulation centre including:
    a. Toilet facilities
    b. Fire equipment
    c. Fire stairs
5. Discuss the program and how it will run.
    a. The objectives of the session
    b. An acknowledgement that the situation can be stressful and that participants may feel stress as part of participating in the scenarios. Whilst we try to minimise this stress as much as possible some stress is inevitable. If the trainers are concerned about a participant they will approach him/her to offer some support and on occasion may follow up a participant after a course.
6. Discuss the importance of Confidentiality – both of other participants and scenarios
7. Discuss safety for participants at the centre
    a. Sharps disposal
    b. Cords from monitor near the simulator e.g. anti trip
8. Discuss Simulator Safety
    a. No invasive procedures on the simulator unless specified by the trainer e.g. IV insertion.
    b. Airway – e.g. bougies can only be inserted just pass vocal cords.

Appendix 3 – Sample Role Play Policy

Role-playing in High Fidelity Simulation Scenarios

Role-playing in the High Fidelity Simulation Scenarios is an important component in regards to:

1. Ensuring fidelity of a certain situation, and
2. Controlling the learning environment so as to ensure learning objectives can be met.

As such, a person's assigned roles should be fully briefed by the principal trainer prior to the start of the scenario. This should include:

1. The purpose of the scenario – i.e. the learning objectives
2. The role to be played
3. Specifics about the role, e.g. level of emotion, distracters etc

At this time, the role player should ask for clarification if required and/or make suggestions regarding the role. However, NO VARIATION to the role should occur during the scenario, without the express instructions from the principal trainer. The person role-playing should stay "in role" until the end of the scenario is announced by the principal instructor.

Role players should not comment on the scenario at the end of the session. They should assist participants to remove microphones and make their way to the debrief room, but they should NOT offer comments as this can undermine the debriefing process.

The Scenarios are serious, scripted events with specific objectives. Occasionally, a funny incident may occur during the simulation. Laughter however is NOT appropriate. Role players should be aware that participants can interpret this as having their performance "made fun of". Obviously this is not what we would like to see happen.

Notes

Chapter 7. Resources

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Resource requirements for simulation and scenario based skills training are very dependent on the purpose of the training, the location available, the target population and the number of participants. These factors should all be taken into consideration before the initial purchase of any equipment and when gathering together resources.

This chapter looks at resource and equipment issues that could be considered when utilising an established clinical skills area or for those considering setting up a new area within an organisation.

7.1 Purpose

What is the overall aim of the sessions offered by the skills area? What range of skills training is to be conducted within the context of curricular outcomes?

- Communication skills
- Clinical reasoning skills
- Documentation skills
- Patient assessment
- Procedural technical skills
- Team training and leadership skills

7.2 Location

Will the facility offer a flexible environment to maximise opportunities to facilitate different teaching/ learning strategies e.g. small group work, role play, facilitated discussions, clinical skills teaching or conducting medium to high simulation scenarios? If so what resources are needed to assist in this flexibility?

- Mobile wall dividers
- Stackable chairs
- Trolleys for manikins/ part task trainers
- AV considerations
- Change rooms/ locker facilities
- Tables on wheels
- Portable white boards
- Flexible catering area
- IT infrastructure

Is the location accessible to the users? Are the users only from the facility or are there external users? Educators also need to consider issues such as:

- Map with location and car parking – is the facility easy to find?

- Opening hours - when are courses to be conducted. If courses are conducted out of hours is special security access required?

- Booking procedures - is anyone allowed to use the facility or do they need to have a facility staff member present.

7. 3 Target Audience and Numbers

Who are the potential users? The target audience and number of participants are significant in terms of resourses available for different types of programs.

- Undergraduates – generally are larger in number. May require more part task trainers, or reconsider arrangement of group size or the teaching strategies used.

- Postgraduates – tend to be smaller groups utilising a combination of clinical skills teaching and simulation scenarios.

- Continuing education groups – may utilize more team based and leadership training.

- Interprofessional groups – utilise sharing of resources.

7.4 Training Resources

7.4.1 Equipment

The technology of simulators is evolving constantly and as such the range of models and manikins available for clinical skills training and simulation is rapidly increasing. The equipment required will depend once again on target groups, aims and costs.

The range of equipment includes:

- simple anatomical models,

- examination equipment e.g. ophthalmoscopes, ECG machines, neurological examination equipment, neurodynamic, passive and active assessment tools,

- part task trainers e.g. IV arm, tracheostomy, torso and airway trainers,

- computer based simulators,

- surgical trainers, and

- full body simulators e.g. METI Human Patient Simulator, Laerdal Sim Man.

7.4.2 Storage, Labelling and Handling

Appropriate storage and maintenance will benefit the life of the equipment.

OH&S issues must be considered in regards to storage locations for staff to access the equipment. Guidelines should be followed for the prevention, identification, assessment and control of risks arising from manual handling activities in the workplace. Victorian Workplace Authority Occupation Health & Safety Act (1985) Manual Handling (Code of Practice No.25, 2000)

The cleaning and decontamination of equipment should comply with guidelines and Australian Standards AS4187 -2003.

Effective labelling of equipment and an accurate record of usage will aid in planning for future purchases. Depreciation of equipment should be factored into yearly budget planning. Use of an equipment data base that records both stock and usage will help guide in planning for maintenance and replacement.

It also can be used as an audit tool to help towards the reporting requirements currently required by Victorian Department of Human Services (DHS) on funded clinical skills equipment usage.

Example of Record of Use Log

Clinical Skills Equipment Record of Usage								
Item Name	**Code**	**Program name**	**Course Duration (hrs)**	**Profession Undergrad Post grad or CPD**	**Number of Participants**	**Internal or External**	**Sign out Contact details**	**Sign in**
IV arms	IV 3,4 & 5	IV Insertion	2.5 hrs	Nursing Post Grad 2	9	Internal	xxxxx	
Airway model	A1	Suctioning	2 hrs	Physio Post Grads	6	Internal	xxxxxx	
Torso Models	T 2 & 3	Femoral line insertion	1.5 hrs	Medical PGY2s & 3 s	4	Internal	xxxxxx	

7.4.3 Consumables

As stated in the Chapter 1, there are costs associated with practicing many skills in particular the consumables. When purchasing part task trainers the cost of replaceable parts, type of manikin used, and depth of application should be considered. For example:

- Does the IV arm require new replacement pads or can one be purchased with multiple use skins?

- Is purchasing an Intra osseous manikin with multiple replacement parts as cost effective as using chicken thighs? How does this choice effect the learning outcomes – i.e. are they as effective. This may require input from clinicians to determine the method with the greatest clinical fidelity.

- Can an airway manikin be used by more than one discipline thus maximising its cost effectiveness?

There is an ongoing concern regarding the effect of negative learning within the clinical skills setting. If a skill is practiced incorrectly in the skills centre what happens when the learner returns to the workplace. For example if there is a need to reuse sharps to reduce the cost of consumables within the skills laboratory, will participants discard sharps incorrectly when back in the workplace? There is strong support to suggest that there is a need to practice what is appropriate workplace behaviour so that the link between what is taught in the clinical skills laboratory and what is to be experienced in the workplace should be made explicit in an attempt to counteract the effect (Heaven, 2006). e.g. all sharps to be discarded in the sharps bin, not into a container to be used later. Therefore full infection control procedures and OH&S guidelines should be followed.

A great source of consumables can be within your own institution. A “donation” box placed in various departments will help gather resources such as:

- Pharmacy – for expired stock e.g. IV fluid bags, N/Saline, ampoules and drug packaging (May need to be stored in locked cupboard according to local regulations).

- Radiology/ Cardiac catheter labs- for unused guide wires.

- Anaesthetics/ Theatre – unused opened giving sets/ gowns/ gloves and old instruments.

- ICU for unused but opened central lines or swan ganz catheter sets.

- The general wards for expired general stock and replaced equipment etc.

- IT Department / Bioengineering – for old computers and decommissioned stock as props. e.g. defibrillator able to read rhythm but shock delivery capability has been disconnected. ECG machines, ventilators and syringe pumps will also help add fidelity to the environment.

Re labelling of IV Fluid bags and drug ampoules with various size sticky labels typed with relevant details provides great flexibility to use donated stock. A purchase of a commercially available crimper – to reseal drug vials could be a cost effective investment if using large amounts of limited supply drugs. e.g. Dantrolene can be substituted with Orange Tang powder or castor sugar for antibiotics.

7.4.4 Support Resources

Again for fidelity issues it is important to provide support resources that the participants are familiar with, such as correct documentation including; patient history chart, observation charts, ambulance handover documentation and various pathology and x-ray ordering forms.

7.4.5 Moulage

Moulage kits for trauma make up and imitation wounds are available commercially. Fancy dress/ costume shops also offer an array of makeup and prosthetics.

Commercially made products are available which may have a longer shelf life.

The following are a few examples of homemade recipes that are cost effective, however can only be used once as they will deteriorate if stored for too long:

- Fake blood - Chocolate topping/ golden syrup/ red food colouring/ pink food colouring/ yellow food colouring.
- Vomit- Winter vegetable soup +/- beer added. Tea with yellow dish soap and coffee grounds.
- Maelena – combination of betadine, red food colouring and cornflour for consistency.
- Glass fragments – silicone or gelatine or clear toffee broken into pieces.
- Urine – tea (degree of strength depending on required concentration).

7.4.6 Costumes

Dressing of the manikins or role play staff enhances the fidelity of the scenarios.

This can be achieved economically through donations or a visit to the local opportunity shop for the purchase of wigs, hats, handbags, sunglasses, various sporting outfits, full female and male outfits and pyjamas etc.

Scrubs and theatre apparel should be sourced through hospital linen supply.

7.4.7 Audio-Visual Resources

The AV equipment list provided is aimed at those centres developing a basic but highly functional mobile AV system for multiple uses. This list does not provide for centres wanting to develop a stand alone built in system.

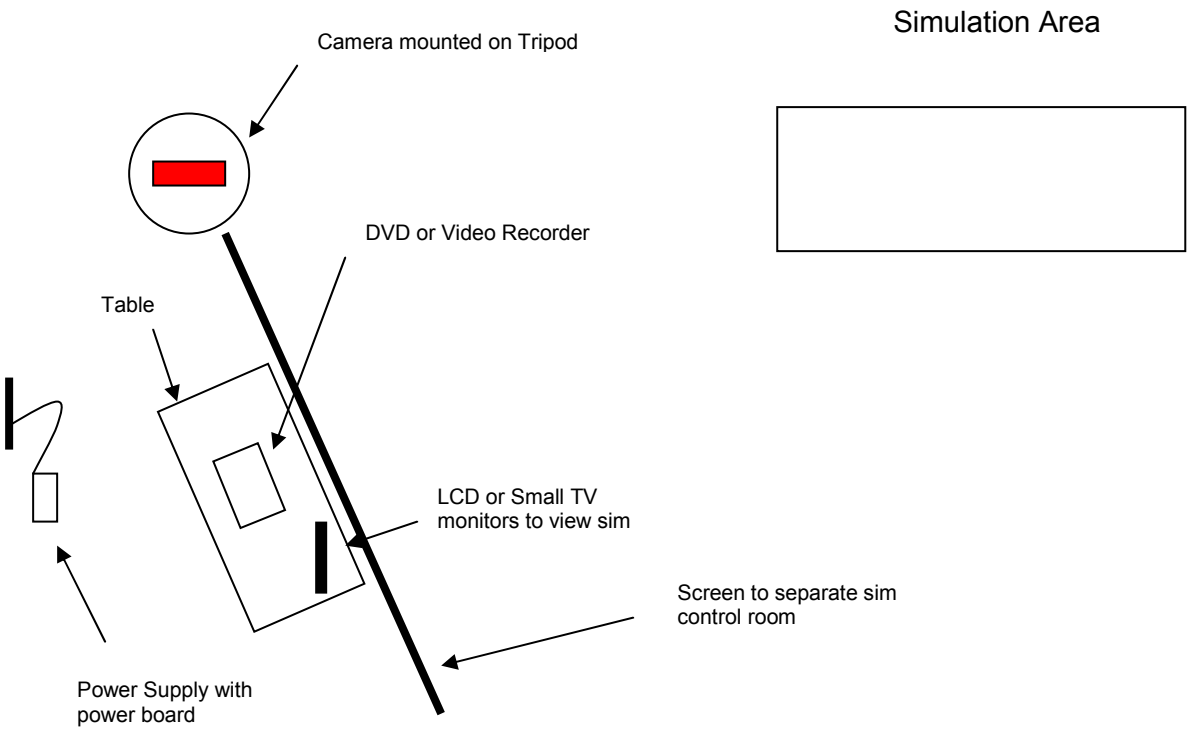
Equipment	Type	Advantages / Comments	Cost Guide
Video Camera or Camcorders	Hard Disk Drive (HDD) digital camcorder.	• Digital recording that can be transferred while filming to either a recordable DVD or video system • Instant play back from camera to TV or computer monitor • Systems generally have high quality audio recording	$500 - $2000

		system inbuilt • Supplied with computer software for editing • Camcorders can take still photos, although not as high quality a digital camera • Can film effectively in poorly lit rooms • Need to consider hard disk size, nothing smaller then 30 Gigabyte • Good optical zooming capabilities, generally up to 25x (will require tripod mount when filming at zooms 10x or greater) • Image stabilisation features for hand held filming • Come supplied with a range or cords to connect to computers and DVD's, TV's or videos • Some cameras are supplied with a remote control. Quite handy if camera is placed out of reach for wide angle view of scenario room • Easy to use	
Recordable DVD Recorder	DVD recorders that can record on: • Hard Disk • Direct to RW DVD disks • SD memory cards	Although initially expensive, recordable DVD's provides a wide range of useful features. • DVD disks are generally very cheap compared to videos cassettes • Ability to adjust the recording quality to increase length of recording times • Able to connect recording devises directly into system and record while filming. This is an important feature when you require a DVD disk by the end of the scenario to debrief from. • Play back can select exact image of interest much quicker than on video • Images can be sent to a separate monitor while recording from camera is taking place. This is a very import feature if you are making a control room with no direct view of the simulation environment.	$800 - $1500
Video Recorder	Standard Video Recorder	• Cheap • Able to support a wide range or direct recording from recording devises. (Although check the camera / video recorder compatibility before purchase)	$ 200+

		• Video tape is less easy to cut to images of importance	
TV monitor or Computer Monitor	LCD Computer Monitor Small Preview TV	This is an important piece of equipment to allow you to view a scenario while in a separated area. • A 19 – 20 inch LDC monitor is great for this application and easy to transport. Most connect directly into a DVD or video system. • Most TV monitors will connect directly into DVD or Video systems. However their weight is often an issue	LCD Monitor $500 - $1000 TV (Small) $250 - $500
Tripod	A tripod that will extend to 164 cm or higher	• A tripod is important to load the camera as high above the action as possible. The higher the camera the greater the view of the simulation area below. • Most Tripods extend to about 150 – 164 cm. • Tripods should be placed and secured (taped to tables to extend the height if required) • Tripod camera fitting should be compatible with Camcorder. This is the screw that connects the camera to mounting plate and connects to the tripod. • Tripods should provide a wide range of movement on the horizontal and vertical planes. Some will enable the camera to tilt from side to side.	$150 - $200+

Power Board and Extension cords		Best to provide these times with the kit rather then rely on another area to supply.
		• 2 extension cords and power boards
		  • 1 for the AV equipment
		  • 1 for the Simulation system	

Below is an example of how the components described can be arranged to film simulations while separated from the sim room.



References

Heaven, C., Clegg, J., & Maguire, P. (2006). Transfer of communication skills training from workshop to workplace: the impact of clinical supervision. *Patient Education and Counseling. 60*, 313-325.

Victorian Workplace Authority Occupation Health & Safety Act (1985) Manual Handling (Code of Practice No.25, 2000) Date First Published: 15 March 2007 http://www.worksafe.vic.gov.au/wps/wcm/connect/WorkSafe/Home/Forms+and+Publications/Publications retrieved September 28, 2007.

Notes