Crisis Resource Management

Sri Lanka College of Paediatricians

Course Goals –

- ✓ Establishing and maintaining role clarity
- ✓ Communicating effectively with a team
- ✓ Optimizing personal support
- ✓ Utilizing available resources
- ✓ Maintaining appropriate focuss while assessing the big picture

Crisis Resource Management

Definition of crisis
"A time of difficulty or danger which involves non-routine circumstances, leading to an increase in workload, speed and complexity".

It is the turning point of a disease when important changes take place, indicating either recovery or death.

What happen in Crisis?
As a result of a crisis, such as a cardiac arrest, task gets neglected and there could be a loss of situational awareness. Situational awareness allows one to predict what might happen next or to see the "big picture". The increased speed and complexity seen in a crisis may lead to confusion and lack of coordination and errors. These are often errors of fixation and omissions. For a example a blood pressure cuff not able to record BP might actually represent hypotension, not malfunction.

What is Resource Management?
Management of the medical crisis often requires effective performance of multiple simultaneous tasks. It requires pooling of cognitive resource of multiple people, from several disciplines than an individual. The optimal team possesses a shared awareness of the situation and a shared decision-making process to prevent errors related to the time-critical environment.

Traditional medical education has focused on individual learning and has not focused on importance of team work and development of safe system. Most medical errors occur due to system failure than individual error. Behaviors and actions result in under performance.

The evidence show that ICUs with a "team-oriented culture" have shorter lengths of stay, lower nursing turnover and higher quality of care and can better meet family members needs.

The Essence of CRM
Teaches us necessary non-technical skills so that, during critical care event, we are able to translate knowledge of what needs to be done into effective real world activity.

Lessons Learn from Aviation Industry

The concept of CRM-based culture changes by the use of team training exercise from scenario is delivered from aviation simulation expertise. Up to 1977 aviation industry could be classified as a professional centered, hierarchic working environment. This all changed with the Tenerife disaster. A KLM Boeing 747 crash-later revealed that human factors contributed to the deadliest mishap in aviation history that claimed 583 lives. As part of the solution to prevent this from happening ever again, a compulsory Human Factor training for all aircrew personal was developed in 1979 in a workshop (CRM) sponsored by NASA.

In aviation, non-technical skills, a blame-free environment and Team Situational Awareness (SA) are considered CRM core competencies. Team SA is defined as the ability to identify, process, and comprehend the critical elements of information about what is happening to the team with regards to the mission.

What are the non-technical skills (NTS)?

NTS or human factors (rather than equipment failure) were found to be the most common cause of serious accidents in aviation industries. Suboptimal performance among highly trained pilots was not always the result of lack of knowledge or deficiency in technical ability, but often due to short comings in communication, leadership, situational awareness, decision making and teamwork.

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These so called "non-technical skills" became a key component of pilot training and everyday operations with the introduction of "cockpit resource management" (CRM). Training in NTS was subsequently introduced into numerous other industries, and the word "cockpit" in CRM was replaced with "crisis" Crisis Resource management.

The importance of NTS in health care recognized by anaesthetists, who developed the first formal medical NTS training course piloted in 1990. The TS model has subsequently been adapted to emergency situation in other branches of health care.

Crisis Resource Management & Teamwork dynamics

Teaches us necessary non-technical skills so that, during critical care event, we are able to translate knowledge of what needs to be done into effective real world activity.

Stages of Medical Simulation

First level of medical simulation training mainly focuses on technical skills, and level two simulation training focuses on Crisis Resource Management. CRM helps participants to develop greater awareness of importance of effective communication, team work, situation awareness and management of resource during crisis. It is found to be both beneficial and enjoyable by participants and allows the opportunity for team building.

To be able to provide the best care to patients, there must be effective interdisciplinary team work between nurses, doctors and other healthcare providers. This team work must be maximized during a crisis situation for the patient to receive the best care.

To successfully manage a crisis, several things, need to happen simultaneously. We need to make a timely diagnosis, declare a crisis, mobilize resources and initiate appropriate medical managements.

Factors associated with Crisis:

Factors that cannot be changed include
- Patient issues
- Disease process
- Circumstances of the crisis situation

Paradigm Shift to a Team System Approach

From Individual	**To TEAM**
• Single focus (clinical skills)	• Dual focus (clinical and team skills)
• Individual performance	• Team performance
• Under-informed decision making	• Informed decision-making
• Loose concept of teamwork	• Clear understanding of teamwork
• Unbalanced workload	• Managed workload
• Having information	• Sharing information
• Self-advocacy	• Mutual support
• Self-improvement	• Team improvement
• Individual efficiency	• Team efficiency

Crisis Resource Management Principles

- Know the environment, personnel & equipment

- **Anticipate & plan**

- Call for help early

- **Exercise leadership & followership***

- Distribute the workload

- **Mobilize all available resources**

- Communicate effectively*

- **Use all available information**

- Prevent & manage fixation errors*

- **Cross & double check (NEVER assume anything)**

- Use cognitive aids –Databases;   Hotlines;   Check Lists;   Calculators etc…..

- **Re-evaluate repeatedly**

- Use good teamwork**

- **Allocate attention wisely** –'Triage' different tasks required and all Information received

- Set priorities dynamically - Re-evaluation → definition of new priorities/Goals

Human Performance and Patient Safety; Miller's   Anaesthesia; 2005 edition; pp3021-72

OVERVIEW

- Crisis Resource Management (CRM) refers to the non-technical skills required for effective teamwork in a crisis situation
- In addition to the nature of the task itself, numerous factors affect the performance of complex tasks at the level of the individual, team and the environment
- CRM originated with Crew (or 'Cockpit') Resource Management training developed by the aviation industry in the 1970s following the realisation that 70% of airline crashes were due to human error resulting from teamwork failure
- CRM training improves performance and reduces errors (settings include the emergency department, trauma teams and rapid response teams)

FACTORS AFFECTING THE PERFORMANCE OF COMPLEX TASKS

Task
- complexity
- high stakes (e.g. life-threatening illness; medico-legal implications)
- time-critical
- incomplete information

Individual (e.g. HALTS – hungry, angry, late, tired or stressed)

- Fatigue
- Sleep deprivation
- Emotional disturbance (e.g. angry, stressed)
- Ill health and physical distress
- Inexperience
- Lack of knowledge

Team

- Role confusion
- High power distance/ authority gradient
- Ineffective communication techniques
- Dysfunctional relationships

Environment

- Interruptions
- Noise
- Handovers
- Production pressure (e.g. deadlines, quotas)
- Equipment failure
- Unfamiliar place and equipment

- Rall and Gaba (2005) have identified the followed 15 key principles:

1. Know the environment
2. Anticipate and plan
3. Call for help early
4. Exercise leadership and followership
5. Distribute the workload
6. Mobilise all available resources
7. Communicate effectively
8. Use all available information
9. Prevent and manage fixation errors
10. Cross (double) check
11. Use cognitive aids
12. Re-evaluate repeatedly
13. Use good teamwork
14. Allocate attention wisely
15. Set priorities dynamically

However, the above key principles can be categorized under the following headings:

1. Know your environment
2. Anticipate, share and review the plan
3. Provide effective leadership
4. Ensure role clarity and good teamwork
5. Communicate effectively
6. Call for help early
7. Allocate attention wisely – avoid fixation
8. Distribute the workload – monitor and support team members

KNOW YOUR ENVIRONMENT

- Know the location and function of equipment, especially for time-critical procedures
- Logically structured, well-labelled environment
- Use cognitive aids, e.g. equipment maps
- Regular training
- Know the role and level of experience of team members (role confusion is common in the resus room setting)

ANTICIPATE, SHARE AND REVIEW THE PLAN

- Think ahead and plan for all contingencies
- Set priorities dynamically
- Re-evaluate periodically
- Anticipate delays

- Use call-and-respond checklists
- Share the plan with others – sharing the mental model facilitates effective action towards a common goal
- Think out loud and provide periodic briefings to verbalise priorities, goals and clinical findings as they change
- Encourage team members to share relevant thoughts and plans
- Continually review the plan based on observations and response to treatment

PROVIDE EFFECTIVE LEADERSHIP

- Employ the least confrontational approach consistent with the goal
- Participative decision making improves team buy in
- Use a direct, authoritative approach when necessary (e.g. time critical situations)
- Establish behavioural and performance expectations of team members
- Establish and maintain the team's shared mental model of what is happening and the team's goals
- Monitor the external and internal environments of the team to avoid being caught off guard
- Leader provides debriefing after the crisis

ENSURE ROLE CLARITY AND GOOD TEAMWORK

- Allocate team roles
- If team roles are changed during a task, ensure there is explicit handover (e.g. "Joanna will take over as team leader, while I help with the difficult airway")
- Team members should show good followership and be active – each observes and monitors events and advocates or asserts corrective actions
- Team members including the Leader need to be able to recognise when they are affected by stress, and develop appropriate self-care behaviours
- All team members – Leaders and Followers – are equally responsible for ensuring good patient outcomes

COMMUNICATE EFFECTIVELY

- Distribute needed information to team members and update the shared mental model
- Use closed loop communication
- Be assertive, not aggressive or submissive
- Avoid personal attacks
- Resolve conflict
- Maintain relationships
- Facilitate collaborative efforts working towards a common goal
- Cross (double) check with team members
- Avoid unnecessary mitigating language ('whimperatives', e.g. "if possible, would you mind attempting an IV cannula, if that is not too much trouble?)

CALL FOR HELP EARLY

- Be aware of barriers to asking for help (e.g. fear of criticism or losing face)
- Set predefined criteria for asking for help
- Call for help early
- Mobilize all available resources

ALLOCATE ATTENTION WISELY – AVOID FIXATION

- Be aware of 'fixation error' that reduces situational awareness
- Prioritize tasks and focus on the most important task at hand
- Delegate tasks to others
- Use all available information
- Ensure monitors are continually observed and assessments repeated periodically (e.g. blood pressure cuff set to auto-cycle every 2 minutes)

DISTRIBUTE THE WORKLOAD – MONITOR AND SUPPORT TEAM MEMBERS

- Team Leader is 'hands off' — stands back whenever possible to maintain situational awareness and oversee the team
- Assign tasks according to the defined roles of the team
- Team Leader supports team members in their tasks
- Reallocate roles as tasks are completed or evolve in complexity

**Strategies and Tools to Enhance Performance and Patient Safety
Team STEPPS**
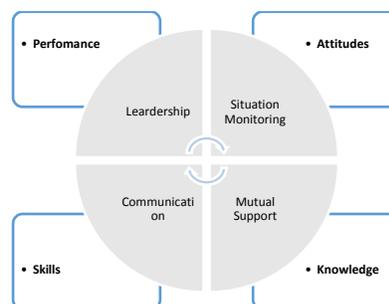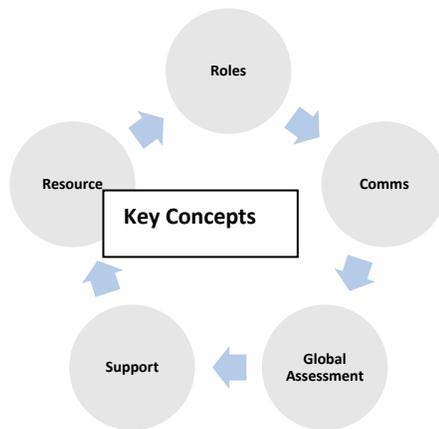
Key Concepts

Concepts of Non-Technical Skills

1. **Team Performance**

2. **Leadership**

3. **Allocation of Roles**

4. **Situational Monitoring**

5. **Decision making**

6. **Global Assistance**

7. **Fixation Errors**

8. **Mutual Support**

9. **Task Assistance & Conflict Resolutions**

10. **Communication**

11. **Advocacy**

12. **Assertiveness**

1. **Team Performance**

Barriers to Team Performance

- Conflicts
- Conflict resolved with power differences
- Distractions
- Egos
- Fatigue
- Impolite – no please and thank you
- Inconsistency in team membership
- Lack of Coordination
- Lack of information sharing
- Lack of role clarity / Role confusion
- Lack of times
- Misinterpretation of cues
- Names not used
- Overt Hierarchy -(inhibiting free communication).
- People yelling over each other / Varying communication styles
- Tasks neglected and doubled
- Workload

High-reliability organizations - Teams that perform well:
- Accountability
- Always aim to optimize   performance outcomes
- Briefing - Debriefing - Feedback
- Checklists
- Create mechanisms to cooperate and coordinate
- Develop a strong sense   of collective trust and confidence
- Have a clear, valued & shared vision
- Have clear roles and responsibilities
- Have strong team leadership Engage in a regular discipline of feedback
- Hold shared mental models
- Measurement – benchmark performance (Develop a strong   sense of collective trust and confidence)
- Optimize and utilize all available resources
- Simulation (strong team leadership Engage in a regular discipline of feedback)
- Speaking up for safety
- Team members feel safe and supported (Create mechanisms to cooperate and coordinate)
- Team members know how to respond to challenging situations (Optimize and utilize all available resources, clear roles and responsibilities)
- Team members know what to do in standard situations(Hold shared mental models, Always aim to optimize performance outcomes)

2. Leadership

What attributes are inherent to a good team 'leader'?
- Articulate clear goals
- Attentive listening
- Body language
- Calm, not too loud, clear
- Clearly states priorities
- Closed loop communication
- Delegation of tasks
- Empower members to speak up and challenge, when appropriate
- Facilitate & Promote good teamwork
- Facilitates participative decision making
- Maintains situational awareness
- Make hard decisions through collective input of members
- Organize the team - Team leader "hands off"
- Professionalism and politeness
- Resolve conflict artfully
- Resource management
- Supports and validates team members concerns/suggestions
- To assign tasks according to people's skills
- To look for overloads, performance failures & then make the necessary changes to ensure effective functioning of the entire team
- To remain free to watch situation & direct team

Leadership Tools
- Briefs   –Planning
- Huddles – Problem solving
- Debrief   – Process improvement

Briefs – Planning; Briefing Checklist
- Who is on core team?
- All members understand and agree upon goals?
- Roles and responsibilities understood?
- Plan of care?
- Staff availability?
- Workload?
- Available resources?

Huddles –A Problem Solving Strategy
- Hold ad hoc, "touch-base" meetings to regain situation awareness
- Discuss critical issues and emerging events
- Anticipate outcomes and likely contingencies
- Assign resources
- Express concerns

Debrief - Process of Improvement;
- Brief, Informal information exchange and feedback sessions
- Occurs after an event or shift
- Designed to improve teamwork skills
- Designed to improve outcome skills
    - Accurate reconstruction of key events
    - Analysis of why the event has occurred
    - What should be done differently next time

CRM Debrief Checklist
- Communication clear?
- Roles and responsibilities understood?
- Situation awareness maintained?
- Workload distribution?
- Did we ask for or offer assistance?
- Were errors made or avoided?
- What went well, what should change, what can improve?

Good Team Members
- Clarify areas of expertise and limitations of practice
- Performs defined role to best of abilities
- Stays within role unless directed
- Clearly communicates through team leader important points
    - Assessment
    - Management
    - Suggestions
    - Support required
    - Offers of support
    - Good Team members support all Team members

1. **Allocation of Roles – Roles assumed by the 'follower'?**

    - Assumes assigned responsibility with diligence
    - "Owns" delegated problems
    - Feeds back event management data
    - Provides task and cognitive support, as needed
    - Must be flexible and adaptive – ie. Individual roles may be interchanged in a fluid manner
    - Promote good teamwork

Team Actions – A basic 'To Do' List

- ✓ **Assemble a team**

- ✓ **Establish a leader**

- ✓ **Identify the team's goals, direction and vision**

- ✓ **Assign roles and responsibilities**

- ✓ **Hold team members accountable**

- ✓ **Actively share information among team members**

- ✓ **Provide feedback**

SUMMARY Effective Team Members

- Understand their roles and responsibilities
- Are better able to predict the needs of other team members
- Provide quality information and feedback
- Engage in higher level decision-making
- Manage conflict art fully
- Reduce stress on the team as a whole through better team performance & enhanced team dynamics

"Achievement of a preset mutual goal through interdependent and adaptive actions"

4. Situational Monitoring

➢ **Situation Monitoring**
➢ **Situation Awareness**
➢ **Cross Monitoring**

Situation Monitoring & Awareness – STEP
- Know your personnel & equipment
- Understand the infrastructure
- Know how support systems work
- Know your institutions procedures & protocols
- Prepare for anticipated needs
- Mobilize all available resources, as needed
- Use all available information
- Use cognitive aids, to expedite/ facilitate processes
- Promote internal and external thinking ie. "thinking outside the box" to solve difficult problems
- Disposition Theatre, ICU, HDU, Ward

Situation Monitoring
Process of actively scanning behaviors and actions to assess elements of the situation or environment
- Fosters mutual respect and team accountability
- Provides safety net for team and patient
- Includes cross monitoring

Four main components of situation monitoring
- S – Status of the patient
- T – Team Members
- E – Environment
- P – Progress toward goal

What Conditions can Undermine Situation Awareness?

Failure to --

- Share information with the team
- Request information from others
- Includes involving patient or family in the communication process
- Utilize or recognize the availability of resources fully

Cross Monitoring is

- Process of monitoring the actions of other team members for the purpose of sharing the workload and reducing or avoiding errors
- Mechanism to help maintain accurate situation awareness
- Way of "watching each other's back"
- Ability of team members to monitor each other's task execution and give feedback during task execution
- Mutual performance monitoring has been shown to be an important team competency. (McIntyre and Salas, 1995)

Desired Outcomes

- Individuals with situational awareness
- Team with a shared mental model
- Avoidance of fixation errors

Concepts of Non-Technical Skills

2. **Team Performance**

3. **Leadership**

4. **Allocation of Roles**

5. **Situational Monitoring**

6. **Decision making**

7. **Global Assistance**

8. **Fixation Errors**

9. **Mutual Support**

10. **Task Assistance & Conflict Resolutions**

11. **Communication**

12. **Advocacy**

13. **Assertiveness**

Decision making

I'M SAFE CHECK LIST
ILLESNESS – Do you have any symptoms?
MEDICATION – Have I been taking prescription or over the counter drugs?
Stress – Am I under psychological pressure from the job? Worried about financial matters, health problems, or family discord?
ALCOHOL – Have I been drinking within 8 hours or 24 hours?
FATIGUE – Am I tired or not adequately rested
Eating – Am I adequately nourished?

Common pitfalls in decision making
- Jumping to conclusions -incl. Fixation Errors
- Not communicating (As we become more stressed, we devote less energy to communication,   so others have less opportunity to correct our errors
- Unwilling to challenge experts (High PDI)
- Complacency
- Assuming shortage of time –ie. Rushed decision making
- Failure to consult (aka 'asking for help/guidance')
- Failure to review

Crew resource management is no accident Captain A.J. Walters 2002

Desired Outcomes:
1. Individuals with situational awareness
2. Teamwith a shared mental model
3. Avoidance of fixation errors

- Fixation Errors
  "This and ONLY This" Failure to revise plan or diagnosis despite evidence to the contrary
  Counter measure Accept the possibility   that first impressions may be wrong.

- "Everything But This"
  Failure to commit to definitive treatment of a potentially major problem
  Countermeasure Always rule out the worst case scenario

- "Everything's OK"
  Belief there is no problem in spite of evidence to the contrary
  Countermeasure Assume that artifacts are the very last explanation for changes in critical values.

The 10 seconds – for – 10 minutes principles

- **Diagnosis**
- **Feel stuck?**

- Team
- **STOP**
- 10 seconds

Problem ?
Opinions?
Facts?
Plans ?
Distribute?
Check?

Communication, Advocacy, Assertiveness

Communications; What features constitute 'Good' Communication?

- Address people directly -(NB: Introduce yourself)
- **Declare an emergency calmly -(ie. Inject urgency, without panic)**
- Establish your communication   paths early
- **Use nonjudgmental comments**
- Close the loop –ie. Utilize Closed Loop Communications –("Call-Out &Check-Back")
- **Do not use mitigated speech**
- Give appropriate feedback –Right time, Constructive &   Sensitively delivered

Close Loop Communication
- Meant is not said
- Said is not heard
- Herd is not understood
- Understood is not done

Close loop communication Call out is ……..
A strategy used to communicate important or critical information
- It informs all team members simultaneously during emergency situations
- It helps team members anticipate next steps

Close loop communication Check Back is ……..
A strategy used to communicate important or critical information
- Sender initiate the message
- Receiver accept the message & provide a feedback conformation
- Sender verify the message was received
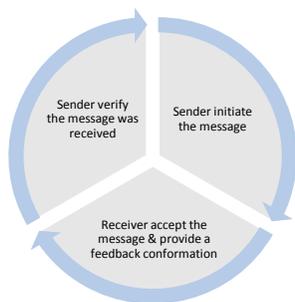
Mitigated speech – Do not use Mitigated speech
There are 6 degrees of mitigation with which we make suggestions to an authority figure:

- **Command**–"Strategy X is going to be implemented"
- **Team Obligation Statement** –"We need to try strategy X"
- **Team Suggestion** –"Why don't we try strategy X?"
- **Query**–"Do you think strategy X would help us in this situation?"
- **Preference**–"Perhaps we should take a look at one of these Y alternatives"
- **Hint–**"I wonder if we could run into any roadblocks on our current course"

Good Communication is synonymous with Good Teams

Leader must direct communication paths
- Too many people talking at once? – ask for silence
- State your requests clearly & succinctly in a language & manner that everyone understands
- Avoid making statements 'into thin air'
- Listen to what people say regardless of job description or status–ie. Respect, value and trust the judgment & contributions of the individuals in your team

SBAR
A framework for team members to effectively communicate critical information succinctly with one another.
- Situation — Introduce, What is going on with the patient?
- Background — What is the clinical background or context?
- Assessment — What do I think the problem is?
- Recommendation — What would I recommend?

Leader sets the tone
The leader must Communicate Intention Clearly
- Here's what I think we face   (SITUATION   FACTS)
- Here's what I think we should do (MANAGEMENT STRATEGY)
- Here's why we should do it (REASON FOR MX CHOSEN)
- Here's what we should keep our eye on   (PITFALLS)
- Now, Lets get to it & PLEASE TALK TO ME (CALL FOR ACTION & PLSE LET ME KNOW WHATS GOING ON)

Effective Communication
- Professionalism
- Closed loop communication
- Politeness
- Updates - Shared mental model – ABCDE
- Rrelationships - Prevent and Resolve conflict
- Maintain Common goal
- Avoid mitigating language
- Graded assertiveness

Two-Challenge Rule
- Invoked when an initial assertion is ignored…
- It is your responsibility to assertively voice your concern at least two times to ensure that it has been heard
- The member being challenged must acknowledge
- If the outcome is still not acceptable
- Take a stronger course of action including 'stopping the line'
- Use supervisor or chain of command

DESC script
A Constructive approach of handling and managing personal conflict.
The DESC script helps unit teams resolve these disputes
- Describe the specific situation
- Express your concerns about the action
- Suggest other alternatives
- Consensus should be stated

Team Leader
- Facilitator of good mutual support
- Steps back: physically and mentally

- DELEGATES tasks   (ie. So, he/she can view the 'whole picture')
- CAUTION: He/she must not get 'sucked into' doing too many tasks

Concepts of Non-Technical Skills					
Team performance					
Leadership					
Allocation of Roles					
Situational Monitoring					
Decision making					
Global Assistance					
Fixation Errors					
Mutual Support					
Task assistance					
Conflict resolution					
Communication,					
Advocacy					
Assertiveness					

CRM workshop – Concepts of Non-Technical Skills					
Name					
Leadership, Allocation of roles & Team performance					
Leadership					
Know your colleagues by name & job & Allocation of Roles					
Know the competencies of members					
Team performance					
Situational Monitoring & Awareness					
Weight checked or calculated					
Crash cart checked					
Where the Equipment are placed					
Equipment checked					
Know where the drugs are					
Drugs infusion and dose sheet available					
Prepare the drug and equipment for the patient					
Call for help early					
Call for specific help					
Global assessment & Cross Monitoring Step back and do a global assessment					
Roles Activated and pleasant					
Roles Pleasant and deactivated					
Roles Deactivated and unpleasant					
Roles Unpleasant and activated					
Decision making					
F – Facts What is the problem?					
O – Options What options do we have?					
R – Risk vs Benefits What the pros and cons of each option?					
D – Decision That is what we will do					
E – Execution Who will do what and					

when?					
C – Check Is the decision still correct?					
Leader – Stressed					
Leader – angry					
Leader – feel stuck?					
Jumping to conclusions – Fixation errors					
Fixation errors - Persistent failure to revise a diagnosis / plan, despite mounting evidence to the contrary					
Fixation errors - Repeating the same action					
Fixation errors - Persistent belief that there is no danger despite mounting evidence to the contrary Taking no actions at all					
Getting more stressed – less time for communication – less opportunities for correction our errors					
Unwilling to challenge hierarchy					
Assuming shortage of time – rushed decision making					
Failure to follow check list					
	Communication				
Close loop Communications – Call out & Call back principles					
Open Communication					
Use of Mitigated speech					
SBAR or ISBAR					
Too many people talking at once? – ask for silence					
State your requests clearly & succinctly in a language & manner that everyone understands					
Avoid making statements 'into thin air'					
Listen to what people say regardless of job description or status–ie					

	Mutual Support, Task assistance & Conflict resolution				
Conflict Resolution - what is right for the patient rather than on, who is right					
Advocacy and Assertion - Assert a corrective action in a firm and respectful manner - Two-Challenge Rule					
CUS Words I am concerned I am uncomfortable There is a safety issue					
Personal Conflict (Hostile and harassing behavior) – DESC script Describe a specific situation Express your concern about the action Consensus should be stated Suggest other alternatives					

Activity – 1

- Medical errors still occur despite guidelines, protocols and rules
- In small groups identify the medical errors and discuss strategies for embedding a "Safety Culture" in your PICU