

Crisis Resource Management Training with Simulation

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What I want from you

- Ideas for next steps to make an Interprofessional CRM course?
- Who in other BU schools might feel this concept is worth the effort?
- How do we make this work?
- Need an IPE person in FCOM (Tracy Replacement – Not Me)

Learning Objectives

- Define Crisis Resource Management (CRM) in Healthcare

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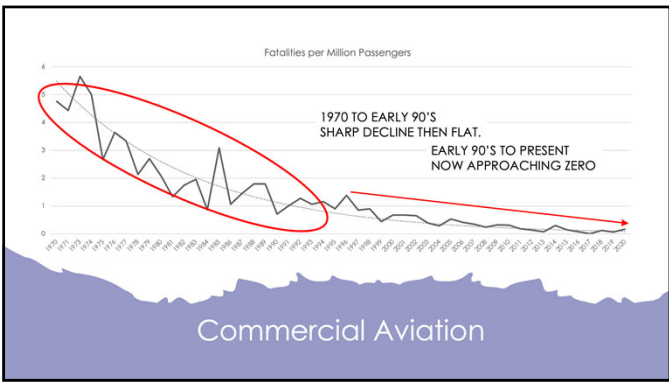
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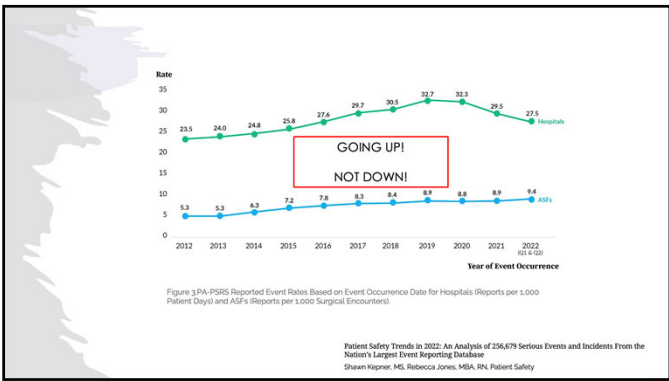
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- Understand Team-Based CRM behaviors are best incorporated into daily behavior by **simulated training** as a team

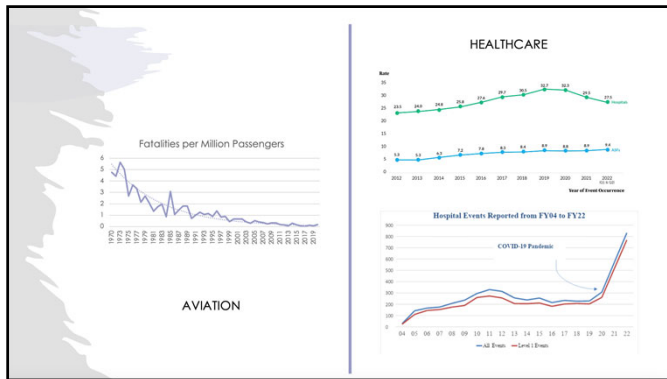
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- Get you all to see the value in SIM-Augmented CRM and train it in your institutions









THEM (AVIATION)

1970's to 90's.....emphasis on safety

- System(s) Improvements
- Training Improvements
- Crew Resource Management (CRM) and Simulation Requirement
- Avionics (technology)
- Human Factors

First CRM in aviation was united 1981

CRM

AVIATION

- CREW RESOURCE MANAGEMENT

HEALTHCARE

- CRISIS RESOURCE MANAGEMENT
- CONCEPTS OF RESOURCE MANAGEMENT

CRM - Definition

Crisis Resource Management (CRM) in healthcare refers to a set of principles and strategies designed to **optimize the performance of healthcare teams** during high-pressure, emergency situations. It focuses on the effective use of all available resources—human, equipment, and information—to **enhance patient safety and outcomes**.

CRM in healthcare emphasizes teamwork, communication, situational awareness, decision-making, and leadership. **Simulation brings CRM to life.**

The primary purpose of CRM is to provide a team-based approach to averting and mitigating medical crises.

CRM Skills are Behavioral Skills

- Know the environment
- Anticipate problems
- Plan for contingencies
- Call for help early
- Exercise Leadership
- Exercise Followership
- Mobilize available resources
- Communicate Effectively
- Use available information
- Management of disruptions
- Cross (double) check
- Use cognitive aids (checklists)
- Repeatedly re-evaluate
- Use good teamwork
- Allocate attention wisely
- Triage and prioritization
- Workload distribution
- Situational awareness
- Decision making
- Stress management

Stack interested in CRM? Why Now?

- Belmont starting a medical school
- Finished a childhood desire
- Opportunity in simulation at Belmont
- Met an anesthesiologist passionate about CRM
- CRM is what we do in EM, but we can do better
 - **Explicit teaching** of CRM
 - **Simulation-based interdisciplinary team practice**



US (HEALTHCARE)

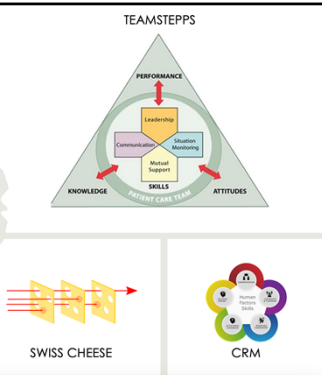
- System improvements
- Reporting improvements
- Human factor improvements
- Technology Improvements
- **Very little CRM**
- **Some Team training**
- **Simulation is not a requirement**

HEALTHCARE

LOT'S OF TALK AND PRETTY ILLUSTRATIONS

BUT

IMPLEMENTATION IS POOR AND NON-STANDARD

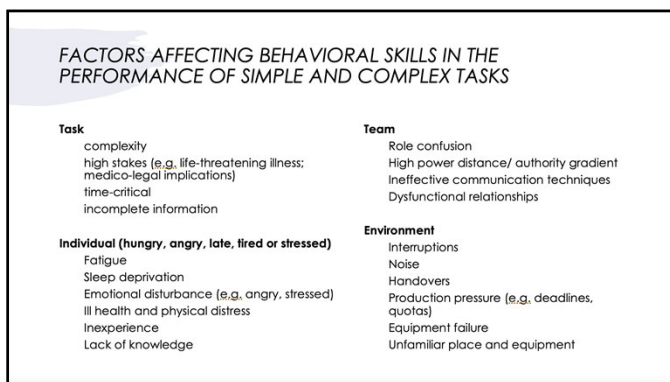


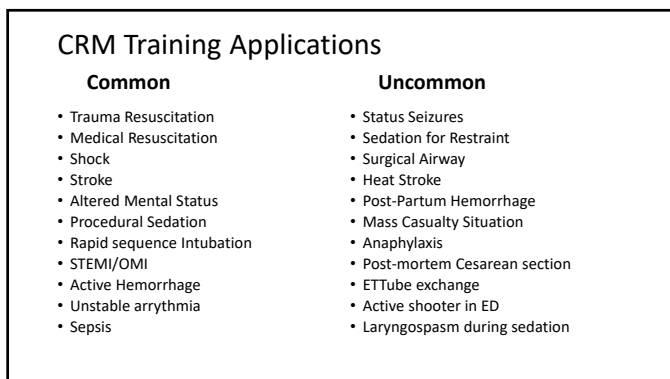
THREE SKILL DOMAINS

- TECHNICAL
- COGNITIVE
- BEHAVIORAL









CRM Training Applications

Common

- Intraosseous placement
- Unstable Toxic Ingestion
- Opioid overdose
- ECMO initiation
- Severe scalp hemorrhage
- Tourniquet placement
- Pediatric intubation
- Acute Closure Glaucoma
- Ocular Chemical Exposure

Uncommon

- Tet Spell management
- Precipitous delivery
- Malignant hyperthermia
- REBOA placement
- Escharotomy
- Lateral canthotomy/cantholysis
- ED thoracotomy
- Pericardiocentesis
- Burr hole for Epidural Hematoma
- Delirium Tremens
- Esophageal Balloon Tamponade
- Needle decompression of the bladder

OB Emergencies

- Nuchal Cord
- Shoulder dystocia
- Post-partum hemorrhage
- Perimortem Cesarean section
- ED Delivery
- Placental Abruptio
- Air embolism
- Pulmonary Embolism
- Post-partum cardiomyopathy
- Eclampsia
- Preeclampsia
- Breech Vaginal Delivery
- Umbilical Cord Prolapse

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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)

Russian Planning “Hunt for Red October”



Plan. Anticipate Contingencies. Brief

- 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

Lead and Follow Effectively

- 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



Clarify Team Roles

- Allocate team roles
- If team roles are changed during a task, ensure there is explicit handover (e.g. "Jennifer 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

To be clear is to be kind

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?")

CRM Curriculum Development Principles

- One size does not fit all
- First conduct needs assessment – identify teamwork competencies
- Multidisciplinary, multiprofessional approach to teamwork
- Identify learner needs
- Develop learning objectives
- Learning objectives create a framework for feedback and debriefing
- Select correct clinical context for scenario crafting

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)

Workload Distribution...Monitor 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

"We have become interchangeable"

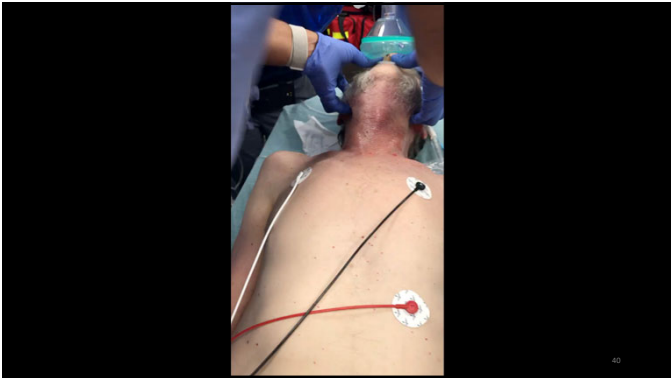


Decision Making from ARGO



"I chose the least bad option"





Curriculum Development Steps

- Problem identification
- Targeted needs assessment
- Goals and objectives
- Educational strategies
- Implementation
- Evaluation and Feedback

INDIVIDUAL SKILLS THAT OVERLAP ACROSS PROFESSIONS

