

# **Crew Resource Management in EMS Operations**

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# Objectives:

- Review Critical Thinking
- Discuss Crew Resource Management
- Introduce Culture of Safety
- Discuss Operations Applications

# Critical Thinking

**The process of determining the authenticity, accuracy and value of something; characterized by the ability to seek reasons and alternatives, perceive the total situation and change one's view based on evidence.**

# Mistakes We Make

- EMS education focuses on manual skills by algorithmic protocols
- We should focus on
  - Honing our Assessment
  - Clinical Reasoning
  - Critical Thinking

# **“Pre-Loss” Strategies**

**Things we can do before a loss  
occurs.**

# Heuristics

- Rules that explain how people make decisions, come to judgments, and solve problem
- Can predispose a specific response to certain situations.

The goal is to unmask  
cognitive errors in the  
patient assessment  
process for the  
development of  
debiasing techniques.

# Confirmation Bias

- “Cherry Picking”
- Look for evidence that confirms the assessment we’ve made
- We fail to consider persuasive evidence that changes that assessment.



# Decision Momentum

The attached a label  
tends to stick—  
Even if it's  
erroneous.

# Anchoring

The tendency to lock  
onto the initial  
impression

# Overconfidence Bias:

The tendency  
to believe we  
know more  
than we  
actually do.

# Search Satisfying

The tendency to call off a search  
once something is found  
(comes from not being methodical)

# Reducing Errors

- Recognize our biases
- Work with the insight gained.
- Always consider alternatives.
- Ask what else might be going on.
- Learn to step back.

# Reducing Errors

- Scenario-based training
- Simulations
- Focus less on algorithmic protocols
- Focus more on critical thinking and reasoning skills

# Crew Resource Management

Training system for industries where human error can have devastating errors that focuses interpersonal communication, leadership, and decision making.

# United Flight 173



# CRM – What is the Goal?

*To achieve  
Optimal  
Performance  
from a team  
executing  
multiple,  
complex tasks.*

**GOAL: OPTIMAL PERFORMANCE**

**Error Management is the  
“What”**

**CRM is the  
“How”**

You Can Not Engage In Human  
Activity Without Introducing  
Human Error

So, Can We Reach The Goal of  
CRM Without Eliminating Error?

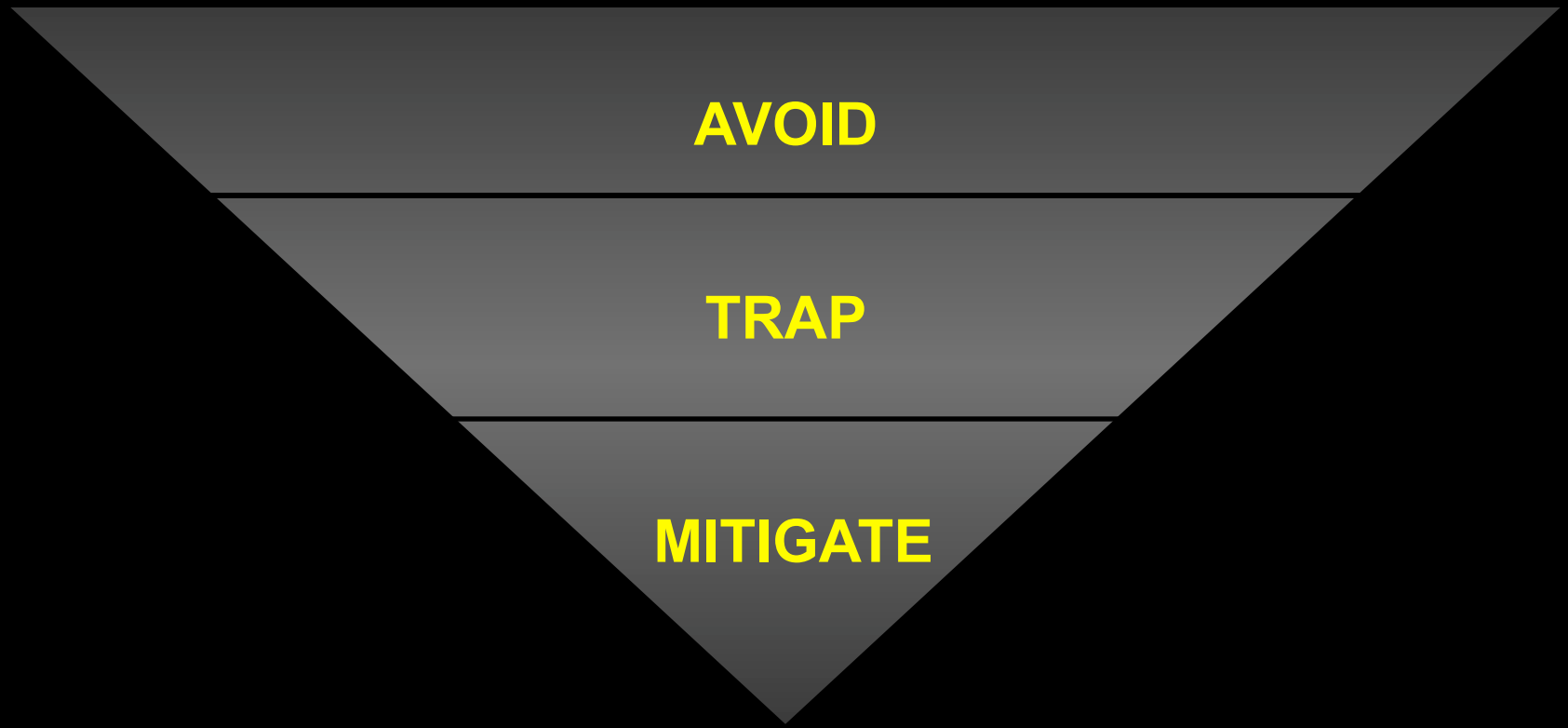
# Human Factor Error Causes

## Gordon Dupont's "Dirty Dozen"

- Lack of Communication
- Complacency
- Lack of Knowledge
- Distraction
- Lack of Teamwork
- Fatigue
- Lack of Resources
- Pressure
- Lack of Assertiveness
- Stress
- Lack of Awareness
- Norms

# **Error Management**

## **Helmreich's Error Management Model**



# Where Error Lives

- LATENT – *present but not visible...*  
hidden in the things we do routinely
- ACTIVE – *present, in use...*  
individual error

*“In the ten years it will take CRM to be introduced nationally, we will attend 1000 firefighter funerals...*

*I can't get that out of my mind.”*

Gary Briese,  
Executive Director  
IAFC

# Multiple Perspectives

- Origin from Military Aviation 30 years
- Integrated to Commercial Aviation 20 years
- Discussed as a tool in medicine 10 years
- Fire Service text from 2004



# Basic Premises

- Technology minimizes “Tool Error”.
- Human Factors primary cause for errors
- Rigid, hierarchal organizations prone to failure

# Basic Elements

- Adaptability / Flexibility
- Assertiveness
- Communication
- Decision Making
- Leadership
- Mission Analysis
- Situational Awareness

# **ADAPTABILITY**

The ability to alter a course of action  
when new information becomes  
available

**EMT:** "Hey, Bob. The patient doesn't look well. His skin is turning blue. Are you sure that tube is in the trachea?"

**Paramedic:** "I saw it pass through the cords."

**EMT:** "Well, we've carried him down the stairs since then. What do you say we re-assess breath sounds and apply an ETCO2 detector?"

**Paramedic:** "Good idea, Jill. Let's do that."

# Assertiveness

- The willingness/readiness to actively participate,
- state and maintain a position, until convinced by the facts that other options are better”

Requires the initiative and the courage to act.

# Risk Homeostasis

Comfort level is the degree to which you feel comfortable with what is happening, while taking into account that flying a mission can be dangerous and demanding.

Whenever comfort level is exceeded, "Speak Up".

# BEHAVIOR CONTINUUM

- Passive
- Assertive
- Over Aggressive

# Passive

- Overly courteous
- "Beats around the bush"
- Avoids Conflicts
- "Along for the ride."



# ASSERTIVE

- Active Involvement
- Readiness to take action
- Provide useful information
- Makes suggestions

# OVER AGGRESSIVE

- Domination
- Intimidation
- Abusive / Hostile

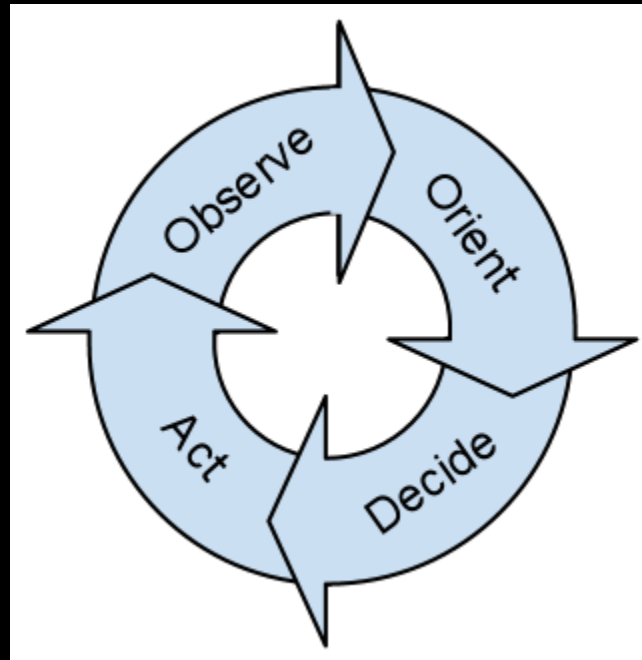
Communication is the clear and accurate sending and receiving of information, instructions, or commands, and providing useful feedback.

# Decision Making

Effective decision making refers to the ability to use logical and sound judgment to make decisions based on available information

# John Boyd's *OODA Loop*

- Observe
- Orientate
- Decide
- Act



# Barriers to Good Decision Making

- Time
- Inaccurate / Ambiguous information
- Pressure to perform
- Rank Difference

# Promote Good Decision Making

- Teamwork
- Time to decision
- Alert crew members
- Decision strategies and experience

# Key to Success

- Good decisions optimize risk management and minimize errors
- Poor decision making is a leading cause of mishaps
- Each decision affects future options



# You are on the scene

- *FF/EMT Webb continues to open the spreader on the front hinge in spite of obvious indications that he is endangering the patient.*

# WHAT IS LEADERSHIP?

The ability to direct and coordinate the activities of other crew members and to encourage the crew to work together as a team.

# Types of Leadership

- Designated
  - Appointed Leader
  - Typical Design
  - FDM
- Functional
  - Leadership by Knowledge or Experience
  - Occurs when need arises

# RESPONSIBILITIES OF LEADERSHIP

- Crew Performance
- Direct Actions
- Ask for Assistance

# Traits of Effective Leaders

- Respected
  - Builds Team Spirit
- Decisive
  - Open to Suggestions
- Delegates Tasks
- Provides Feedback
- Leads by Example
- Keeps Crew Informed

Mission Analysis refers to the ability to develop short term, long-term and contingency plans, as well as to coordinate, allocate and monitor crew and resources.

# Mission Preparation

- Before
- During
- After

Situational Awareness refers  
to the degree of accuracy  
by which one's perception of  
his / her current environment  
mirrors reality



# PERCEPTION vs REALITY

- View of Situation
- Incoming Information
- Expectations and Biases
- Incoming Information vs Expectations

**How does this relate to us?**

# EMS Examples

- Insufficient Communication
- Fatigue/Stress
- Task Overload
- Task Underload
- Group Mindset
- “Press on Regardless”
- Degraded Operating Conditions

# Situational Awareness

Point where perception and reality collide

- Reality always wins
- Beware of loss factors
  - Ambiguity
  - Distraction
  - Fixation
  - Overload
  - Complacency
  - Unresolved discrepancy

# Good Situational Awareness

- Good crew coordination
- Proper task completion
- Understanding
- Appropriate communication
- *Use of checklists*

# Checklists (example)

## First Responder Cardiac Arrest Checklist:

- Pt moved to adequate working area
- Communications advised CPR in progress
- Pit crew positions identified
- Continuous compressions being performed
- BVM is attached to oxygen and flowing
- AED / Defibrillator applied
- Sufficient personnel or additional requested

# Checklists (example)

## ALS Cardiac Arrest Checklist:

- Pit crew positions identified
- Continuous compressions being performed
- BVM is attached to oxygen and flowing
- Monitor visible and in paddles mode
- Code Commander is identified and positioned at the monitor
- ETCO<sub>2</sub> waveform is present and being monitored
- IV/IO access has been obtained
- Gastric distention has been considered/addressed
- Family is receiving care and is at the patient's side

# Preventing Loss of SA

## Crew mental joggers

- “What do we have ?”
- “What’ s going on ?”
- “How are we doing?”
- “Does this look right?”



# Preventing loss of SA

- Personal mental joggers
  - “What do I know that they need to know?”
  - “What do they know that I need to know?”
  - “What do we all need to know?”

**The Principle of CRM is  
Communication.**

**Say what you Mean and Mean  
what you Say.**

# CRM Evolved

Crew Resource Management  
For  
Fire / EMS

# Safety Culture

- “Not another program!”
- Individual Responsibility
- Non-Punitive Culture and Policy

# Culture of Safety

- [EMScultureofsafety.org](http://EMScultureofsafety.org)
- National Directive
- Change “Culture”

# Roadblocks to CRM

- Negative human factors
- Ingrained habits
- Personal attitudes
- 4 ft 8 ½ in

# Roadblocks to CRM

- **NORMS: Unwritten Rules**
- **ODD MAN OUT: Ignore input from a particular member**
- **HIDDEN AGENDA: Intentionally withholding information about intentions or plans from the rest of the crew.**

**A Near Miss is simply  
an Incident Not Yet  
Occurred.**



*“Mandatory refresher training wastes the instructor’s time, the firefighter’s time and the citizen’s dollars. Saving “a problem” for refresher training is a disservice to our firefighters and the public we protect.”*

# Reporting Programs

- Self Reporting
- Anonymous
- Operations Feedback
- Rewarded for Ideas

# Vehicle Operations

- Call Prioritization
- Response Mode
- Transport Mode
- Quality Improvement
  - Road Safety
  - Black Box

# Response / Scene Times

- No Evidence
- Load and Go
  - Time Sensitive
  - What to do?
- Public Perception

# Stretcher Operations

- Lifting
- Securing Patient
- Transporting
- Loading/Unloading

# Crew Safety

- Ambulance Operations
- Safety Designs
  - KKK Specs
- Restraint Devices
- Transporting Modes

**Questions in Life are  
Guaranteed.**

**Answers Aren't**

[jeffbeeson.com](http://jeffbeeson.com)