Trauma Team Leadership

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Culture of Safety

- Aviation
- Military
- Nuclear Energy

- High stakes, high risk occupations, requiring real-time decisions with potentially limited information. Error prevention is a key tenet of standard procedures.

Culture of Safety

1979 NASA conference on causes of air transport accidents:

Failures of :

- Interpersonal communication
- Decision making
- Leadership

Human Error in Aviation and Medicine

70% commercial aviation accidents due to human error.

Helmreich RL. Managing Human Error in Aviation. Sci Am 1997 May;276(5):62-67.

"Pilot error accounted for 68% of all fatal aircraft accidents."

Kumar U. Analysis of fatal human error aircraft accidents in IAF. IJASM 2003;47(1) 30-36.

30% "human error."

Leape et al The nature of adverse events in hospitalized patients. Results of the Harvard Medical Practice Study II New England Journal of Medicine. 324(6): 377-84,1991 Feb 7.

Types of error similar

Communication
Decision making
Conflict resolution

Clinician Attitudes About Teamwork

- Operating Room (Sexton JB et al. BMJ. 320(7237):745-9, 2000 Mar 18.)
  - -Only 55% of consultant surgeons rejected steep hierarchies
  - -Minority of Anesthesia and Nursing reported high levels of teamwork
- Critical Care (Thomas EJ et al. Crit Care Med. 2003 Mar;31(3):992-3)
  - -Discrepant attitudes between physician and nurses about teamwork
    - 73% physicians “High” or “Very High”
    - 33% nurses “High” or “Very High”

CHANGING ATTITUDES AND BELIEFS

Attitudes / Beliefs	Old	New
Human Performance	I am perfect	Humans are fallible
Care Delivery	I work alone	I work with others
Error Origin	Individual caregiver failure	Teamwork failure
Peer Monitoring	Monitoring offends me	Monitoring protects me and my patients
Skills Requirements	Clinical skills	Clinical skills & team coordination skills

“The Sharp End”

- James Reason, 1990

Pilots, Operating Room Staff:

-Decision makers

-Frontline for large institutions

-Supported versus hampered by institutional attitudes toward safety.

Behaviors at the “Sharp End”

Helmreich et al., 1994. Fifty-two accidents/incidents due to human performance were reviewed:

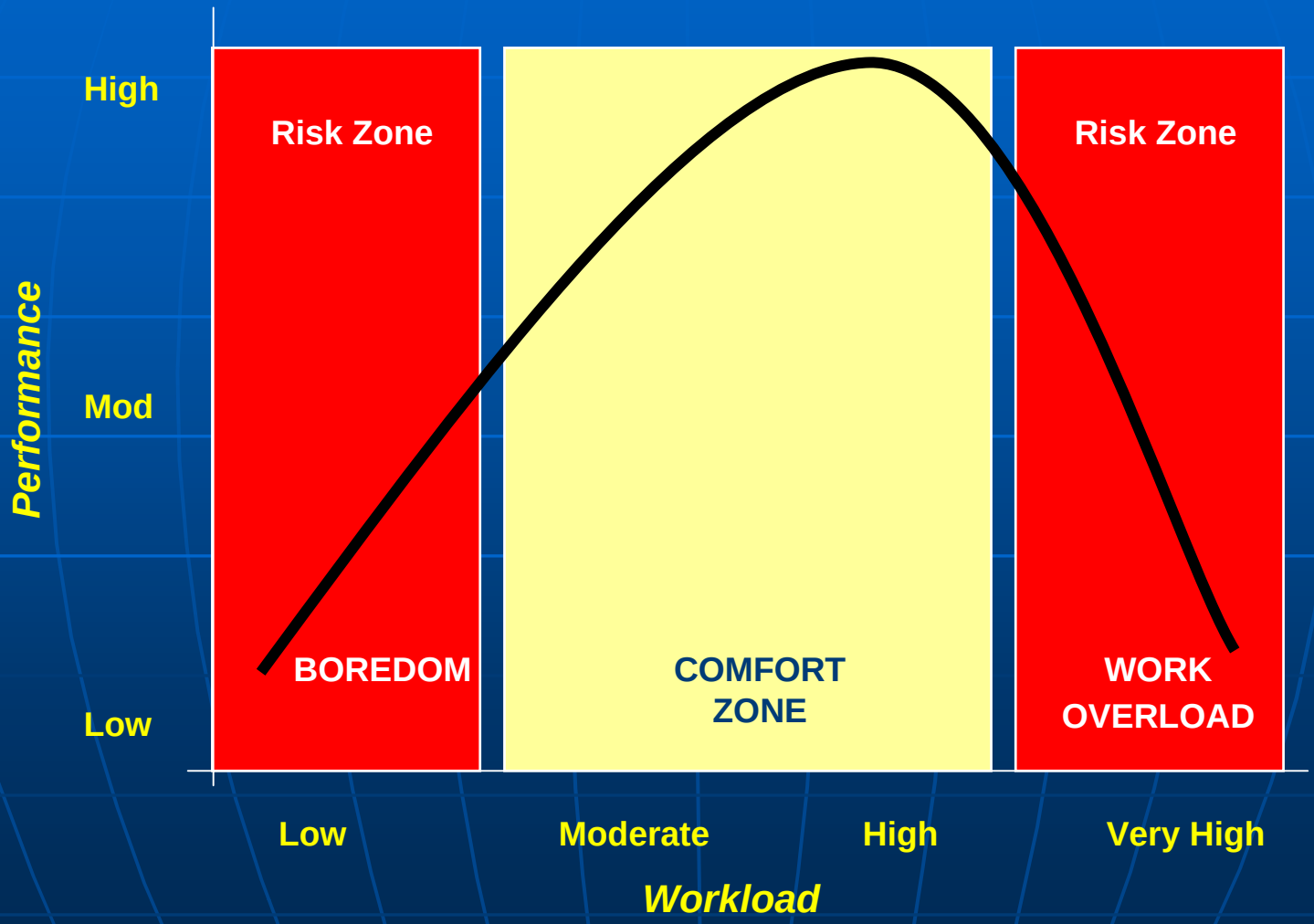
- Behavioral Markers:
  - -Captain failing to establish balance between authority and crew participation in decision making.
  - -Failure to establish open communications
  - -No team concept
  - -Lack of contingency planning
  - -Lack of junior crew members’ assertiveness.

Human Limits (Defined by the human genome):

- Vision
- Perception
- Cognitive Capacity
- Memory
- Attention
- Fatigue
- External Stressors

  Interestingly, at very low volume workloads, the error rate also increases.

WORKLOAD COMFORT AND PERFORMANCE



Reproduced with permission (DRC). Emergency Team Coordination Course- Student Guide. Locke A (Ed.). Andover MA: Dynamics Research Corporation, 1997, p4-6.

Trauma Team Leadership

Leadership Strategies

- Communication
- Delegation
- Control of Environment
- Error Management
- Communication

KEY TEAMWORK ACTIONS

-Establish the leader

-Assemble the team

-Designate roles and responsibilities

-Communicate essential team information.

-Acknowledge the contributions of team members.

-Demonstrate mutual respect in all communication.

-Hold each other accountable for team outcomes.

-Address professional concerns directly.

-Resolve conflicts constructively.

Establish Team and Leader

- Identify yourself to nursing.

- Verbally clarify others' roles:
  - -Nursing: lines, meds, documentation.
  - -MD's: Airway, primary/secondary survey, left-sided vs right-sided procedures.

  - -Trauma room staffing levels and rosters are dynamic. Different from the operating room or the TICU, team structure and communication lines must be established <u>each time</u>.

Delegate Tasks

Helmreich, 1998: low vs high-complexity flights:

- During high-complexity flights, when the 1st officer, and not the captain, was piloting the plane, increased leadership and overall crew effectiveness were noted.

- Leader must maintain “situational awareness” in order to:

  -Solicit information for decision-making.

  -Avoid Cognitive Overload.

Situational Awareness

Example:

In 1972, an Eastern Airlines Lockheed Tristar approached Miami International Airport. A warning light indicated the landing gear had not deployed properly. The pilot circled, attempting to establish whether the landing gear was in fact deployed. The plane ran out of fuel and crashed during an attempted emergency landing. No one survived.

Post-crash analysis revealed the landing gear had deployed. The warning light was faulty.

Control the Room

- Assign roles.
- Delegate tasks.
- Strategic position to view patient, monitor, and room.
- Take on a procedure only if necessary; regain control of room after procedure.
- Request information (uphill flow).

Effective Point Communication

Give specific orders to a specific person:

- Use their name.
- Point.
- Make eye contact.
  - -Ensures you know they heard you.
  - -Provides opportunity for “check-back.”
  - -Easier to alter routine (e.g. mannitol 25g instead of 50 g).

Communication

Example:

Nursing is accustomed to giving mannitol, 50g. Surgical resident requests 25g mannitol and leaves room without confirming order (check-back). Nursing coverage changes, and order is passed along as “patient needs to get mannitol.” Patient receives 50g of mannitol and becomes hypotensive.

- Issues:
  - -Deviating from routine without clarifying.
  - -No check-back.
  - -Order incorrectly passed to next caregiver.

Effective Communication

- Silence unnecessary chatter.

- Speak under the noise.

- Avoid shouting to the air.
  - -A task assigned will be performed sooner.
  - -If you’re shouting, you’re not in control.
  - -Calm exudes confidence.

- Request data.

Patient Exam and Plan

- Call out physical findings (data).
  Ensure room is quiet.

- Announce plan to the room (converse of assigning task directly).
  - Decreases confusion
  - Increases cooperation
  - Increases speed and efficiency
    e.g.“We are going to CT in 5 minutes.”

EVENT-DRIVEN DECISION MAKING: THE TEAM'S ROLE

- Acquire and communicate information rapidly (e.g., history and physical exam).

- Monitor the developing situation, alert others to new information, and report the effects of earlier interventions.

- Be alert to changes in courses of action as solution alternatives become better defined.

- Provide feedback to the decision maker on the progress of the selected course of action.

The Team's Responsibility

- All team members are expected to notify the team if they perceive an error or a potential error.

- Failure to notify the team permits error propagation.

- If a team member feels their concern is not adequately addressed, after raising the issue twice, it is not only permissible but expected they will immediately raise the issue with the next level of authority.

Leadership and Error Management

"Everyone makes mistakes. Experts recover faster."

- Avoidance
- Trapping
- Mitigation
- Exacerbation

Five Precepts for Error Management

(Helmreich and Meritt, Culture at Work in Aviation and Medicine)

- Human Error is inevitable in complex systems.
- Cognitive capabilities impose the limitation of human performance.
- High workload and stress increase error.
- Safety is a universal value but there is a continuum. How much safety we want and what can can we afford?
- High Risk Organizations must develop a safety culture to make individuals and teams responsible.

Leadership and Error Management

- The goal is patient safety.

- If the situation has changed, address the situation, not your ego.
  - -Assess problem.
  - -Obtain required information.
  - -Fix problem.
  - -Prevent recurrence.

Error Management

- Debrief team member appropriately.
  - -Goal is to minimize effect and prevent recurrence.

    “Incompetent! Weak!”

    “If you see X, do Y.”

    “Conditions A and B are a setup for Z…”

    “For this procedure, the experienced surgeon will…” (anticipatory guidance).

Leadership and Error Management

- Leadership is a continuum; how you handle an episode now influences later episodes.

- Fearful team members may withhold information:
  - -Inhibits error avoidance.
  - -Prevents error trapping.
  - -Prevents error mitigation.
  - -Fosters error exacerbation.

Trauma Room Leadership Summary

- Well developed concept in other high performance, high risk industries. Medicine is beginning to acknowledge it.

- Communication driven:
  - -Identify and Assign Roles.
  - -Delegate Tasks.
  - -Assign Orders to Individuals.
  - -Request Information (e.g. Phys Exam).
  - -Announce Plan.
  - -Insist on timely error notification.
  - -Manage Error: Clarify, Fix, Prevent.

References

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