Human Factors and Teamwork

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An Example

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Scenario One “Reality”

One physician stays with patient taking the history. A witnessed cardiac arrest occurs after 2 minutes

After the onset of cardiac arrest, two further physicians are summoned to help

Scenario Two “All Present”

All 3 stay with the patient taking the history. A cardiac arrest occurs after 2 minutes

After the onset of cardiac arrest, the pre-existing team performs cardiopulmonary resuscitation
Study Conclusions

- Teams that were able to form prior to the cardiac arrest performed significantly better than teams that had to form during the cardiac arrest.

- The process of teambuilding is associated with a significant delay in crucial measures in cardiopulmonary resuscitation.
An Observed “Marsch” Scenario

- The single physician present called for assistance after witnessing the cardiac arrest
- The two further physicians attended
- No one took charge
- Two physicians fully absorbed in the intervention
- Patient was ignored while physicians studied the monitors
- The patient was put at risk by actions of the physicians
- Participants reported their own performance as adequate
An Aviation Example

- Explosive engine failure during climb, well handled by flight crew
- Information sought from cabin crew about the engine and airframe
- Management and briefing of passengers managed through the ISD
- Pilots assessed threat to the aircraft as worse than originally thought
- Decision to “Brace” the passengers for landing not adequately communicated
- Most crew and all passengers surprised by “Brace” call on landing
Summary

- Teams Perform Better in an Environment Where:
  - Plans are Briefed
  - Team Members are able to suggest and challenge

- Vital to take time to set Team Environment

- Lack of a Plan and Delegation of Roles will hinder the competent functioning of even the best team
Human Factors and Teamwork

- Definition of Teamwork
- Forming Teams
- Challenges
- Authority Gradient
- Risks
- Benefits
- NASA Research
- Examples
Human Factors and Teamwork

- DEFINITION OF TEAMWORK
  "Combined Effort; Organized Co-operation"

- SUCCESSFUL TEAMS
  All Blacks
  Silver Ferns
  Americas Cup
  Apollo 13
  ....
Forming Teams

- Classical Theory

- Requires time
  - Assumes stable team membership
  - Assumes clear team structure
  - Assumes well defined roles

- Performing
Challenges to Teams in Aviation

- Transient Crew Members
- Situation (Game Plan)
  - Normal
  - Anticipated
  - Unusual
  - Emergency

- Who Has Control?
Authority Gradient

Subordinate perception of the authority that the Boss holds over them

- Legal Authority
- Status
- Power
- Experience

The “Boss” Subordinates
Risks to Good Teamwork

- Time
- Communications
- Knowledge
- Team Leader Styles
- Team Member Styles
- "Group Think"
- Who Has Control?
Benefits of Good Teamwork

- Collective Outcome is Greater than the Sum of the Individual Member skills
- Sharing Workload
- Addition of Expertise
- Range of Options and Knowledge
NASA Recommendations

- The Most Critical Behaviour for the Team Leader is:
  - BRIEFINGS

- The Most Critical Behaviors for Team Members are:
  - INQUIRY
  - ADVOCACY
  - ASSERTION