Safety and Occupational Health
Aspects of Human Systems Integration

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Safety & Health in Human Systems Integration

- Mission failure
- Mishaps ("safety & occupational health")
- Death, injury, illness

- Mission success
- Optimal system performance

Human Performance
80% of Mishaps Result from Human Error, Cost DoD Billions, and Reduce Combat Readiness

FY2015: $3.1 Billion

271 Military Fatalities
- PMV: 158 (PMV-2: 66; PMV-4: 74; Ped: 18; Bicycle: 0)
  - GVO: 13; GMV: 4; Afloat: 2;
  - Aviation: 28; Ground: 62; Weapons: 4

19 Civilian Fatalities
- $552M in DoD FECA Costs
- $202M in DoD FECA Cost savings compared to Gov-Wide FECA Cost increases since FY02

776,661 Military Medical Injury Cases
- 193,319 cases with duty limitations
- 24,922 hospitalization / quarters cases resulting in 65,767 days lost
- Estimated cost of medical treatment = $0.6B

22 Aircraft Destroyed
- Class A Aviation Accident Rate at 1.44
- Total Class A Aircraft Losses = $0.8B

Direct Cost ($Billions)

Non-Aviation Mishaps
- $0.6B

Workers’ Compensation
- $0.6B

Military Injury Treatment
- $0.6B

Aviation Mishaps
- $1.3B

Workers’ Compensation

Military Service Safety Center mishap data effective November 30, 2015.

Overall DoD Costs include the Military Services and “Other DoD”
FECA Charge-back year: July 1, 2014-June 30, 2015

Military Injury data reported through July 31, 2015
The count of Class A mishaps / the number of flight hours estimated by the Services (per 100,000 flight hours)
Army Aviation Accident Causes

- Lack of Crew Coordination
- Complacency
- Distraction
- Exceeding Your Limitations/Abilities
- Indiscipline
- Fatigue
- Stress
- Peer Pressure
- Lack of Knowledge
- Lack of Training
- Lack of Leader Involvement
- Lack of Pre-mission Planning
Safety and Health Initiatives in Human Factors

- Controlled Flight Into Terrain (CFIT) was the #1 killer of fighter pilots
- Auto-Ground Collision Avoidance System (AGCAS, software) recovers an aircraft at the last second to prevent ground collision, even if the pilot is incapacitated
- AGCAS saved three F-16 pilots and aircraft in the first year of operational use
Safety and Health Initiatives in Human Factors

• Helicopter Terrain, Weather, & Traffic awareness devices enhance pilot capabilities

• Provides awareness of:
  – Terrain (Global Data Base)
  – Obstacles (North American & Western European Data Base)
  – Weather
  – Traffic (Interrogates all transponder equipped aircraft)
Safety and Health Initiatives in Human Factors

• Preventing Airborne Ankle Injuries
• Pilot program at Airborne School used commercially developed reinforced ankle brace to stabilize jumper’s ankle during Parachute Landing Falls (PLFs) reducing the potential for ankle injury
• Resulted in a 50% injury reduction
• Evaluated over 102,000 jumps and did not cause other injuries or entanglements
Safety and Health Collaboration

• Joint Human Systems Integration Steering Committee
• Acquisition ES OH Integrated Process Team

A Strategic View