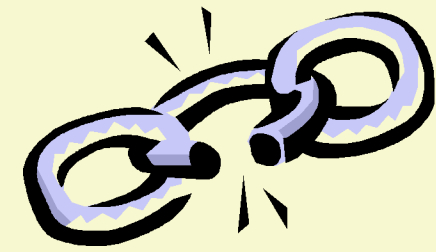


Crew Resource Management for Improved Command, Control, and Firefighter Safety



Human Factors of Fireground
Injuries and Fatalities



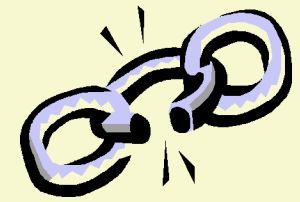
Is there a parallel between safe Fire & Emergency operations and the safe operation of commercial airliners?



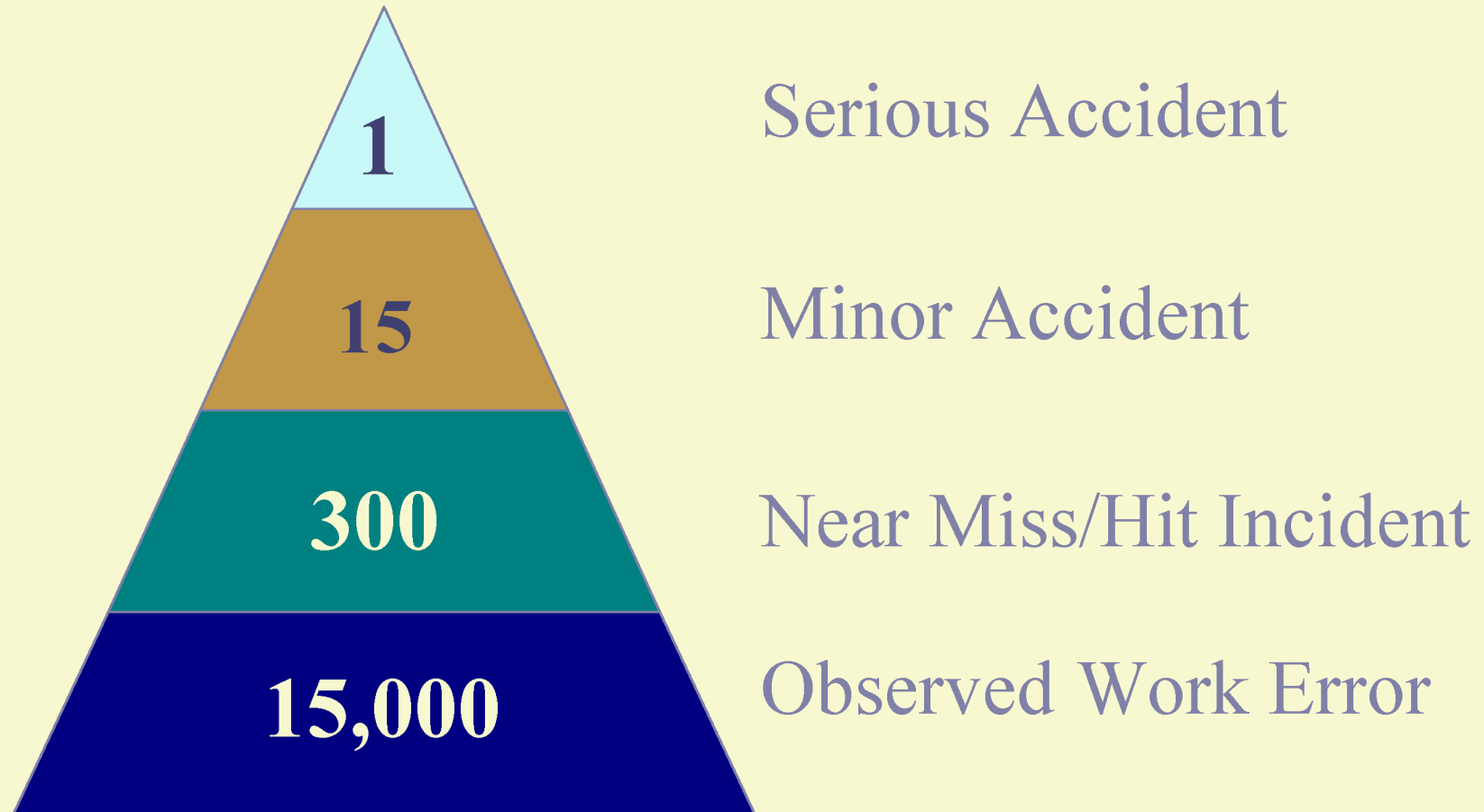
If so, we must look for ways to improve how we manage incidents . . .



. . .to improve firefighter safety outcomes.



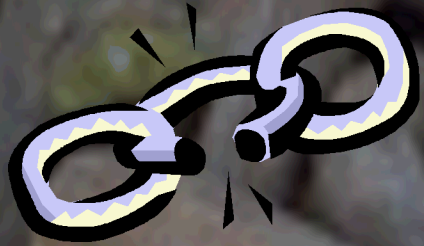
The “Heinrich Pyramid”





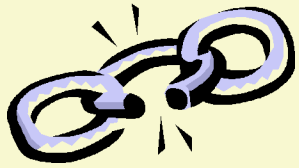
**Engineering &
Administrative
controls have been
added to the Fire &
Emergency services
industry over the
past 25 years . . .**

- **NFPA 1500**
- **ICS**
- **NFPA 1561**
- **PASS Devices**
- **Annual
Physicals**
- **SCBA
Improvements**



**And
continues
today . . .**

- **Nomex Hoods**
- **Seat Belts**
- **Improved
Tactics**
- **Thermal
Imaging**
- **Accountability
Systems**

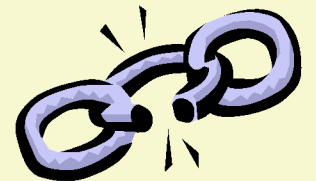


Serious injuries and fatalities are nearly always the result of a series of events . . .

Incidents occurring as a result of a single overpowering cause are rare!

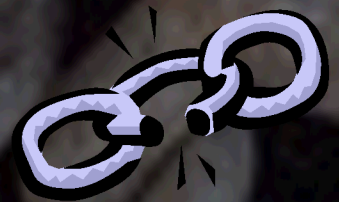
In more than 50 firefighter fatalities reviewed . . .

- ✓ Fewest factors – Four
- ✓ Average No. factors - Seven



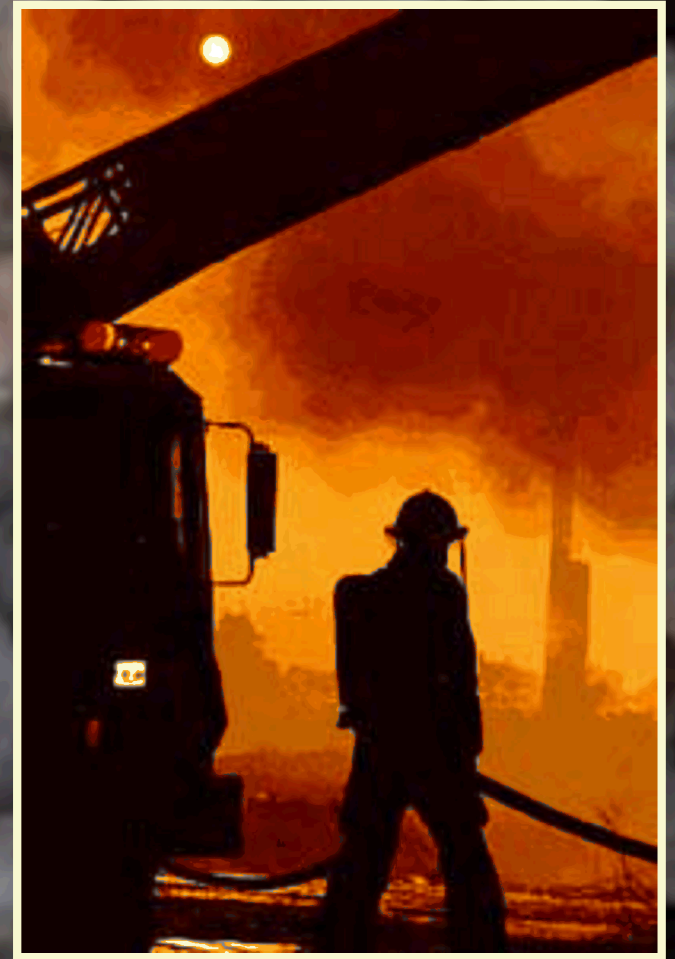
At least 12 “Clues” . . .

- ✓ Operational factors
- ✓ Human behavior factors



Operational Factors:

1. Failure to meet benchmarks or targets in a timely manner
2. Use of undocumented or unauthorized procedures
3. Departure from Standard Operating Procedure
4. Violating limitations (equipment, regulations)
5. No one in command / freelancing
6. No one aware of the overall operating environment (tunnel vision)



Human Factors:

7. Incomplete communication/information
8. Ambiguity of information
9. Unresolved discrepancies
10. Pre-occupation or distraction
11. Confusion, anxiety, or empty feeling
12. Belief of invulnerability





Six additional “environmental” factors play a role in the quality of decision making at an incident . . .

Environmental Factors:

1. Training
2. Experience
3. Attitude
4. Complacency
5. Health
6. Peer pressure
(organizational
culture)





**Technology cannot
overcome bad fireground
management practices.**





The “BAD” Chain . . .

BAD decisions lead to . . .

BAD actions that result in . . .

BAD outcomes !



Recognition of the presence of an “*error chain*” provides fireground crews with the single most important tool in managing risk.



Questions ? ? ?