Sleepiness and Industrial Accidents

Safety is compromised.

- 100,000 sleep-related crashes per year; 1,500 fatalities and 71,000 injuries
- 51% of adults report driving drowsy; 17% dozed off at the wheel
- 27% report being sleepy at work at least 2 days/week
- 19% of adults report making errors at work; 2% injured

Would you work on an aircraft after drinking beer? Being awake for extended periods also *degrades* your performance.

- One pint  = .05 BAC = 12 hours awake
- Two pints  = .08 BAC = 18 hours awake
- Three pints  = .10 BAC = 24 hours awake
- Equivalent mental alertness and reaction time –

Drew Dawson, U. South Australia.

A Contributing Factor - Fatigued Cockpit Crew

- Pilot fatigue and the resulting diminished judgment were given part of the blame for the 1999 American Airlines crash in Little Rock, Arkansas.

Fatigue: a hidden epidemic

- Just after midnight on March 24, 1989, the Exxon Valdez, a floating behemoth laden with 53 million gallons of crude oil, was sailing the dark, icy waters off the southern coast of Alaska. The ships captain, Joe Hazelwood had drank more then his share of vodka and had retired to his cabin.
- Filling in for the captain, Third Mate G. Cousins knew they were approaching Bligh Reef but failed to notice that the tanker was on autopilot and thus not responding to his call for a change of course. The NTSB attributed the accident to the fact that Cousins, who had been awake for 18 hours prior to taking the helm of the Valdez, failed to properly maneuver the vessel because of fatigue and excessive workload.

The Toll

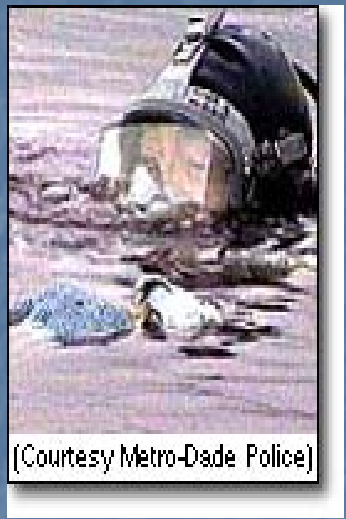
> 10–million gallon oil slick

> 250,000 seabirds, 2,800 sea otters, 300 harbor seals, 250 bald eagles, 22 killer whales and billions of salmon and herring as well as fouling 1,300 miles of heretofore pristine coastline.

> 2.5 billion cost for clean up.

ValuJet: Technicians working in a fatigued state


An oxygen canister


(Courtesy Metro-Dade Police)

The NTSB Report

- ValuJet Accident: (May 11, 1996). Just prior to the accident three ValuJet DC-9's were in Miami at an MRO facility for various modification and maintenance functions. The MRO technicians were R/R the oxygen canisters from two aircraft due to expiration due dates. The technicians were under a great deal of pressure to complete the work on time. The technicians were working 12 hour shifts, 7 days a week. Technicians were working in a fatigued state.
- NTSB report AAR 97/06: Conclusion # 30 The Maintenance duty time limitations 14CF121.377 may not be consistent with the current state of scientific knowledge about factors contributing to fatigue among personnel working in safety sensitive transport jobs.
- Recommendation: Review the issue of personnel fatigue in aviation maintenance; then establish duty time limitations consistent with current state of scientific knowledge for personnel who perform maintenance on air carrier aircraft (A-97-71)

Fatigue: Proud Member of the Dirty Dozen

Why Fatigue/Alertness Management Is Important

- On July 26, 2002, B727 crashed on landing in Tallahassee, Florida because of flight crew performance failures. Probable Cause: failure of captain and first officer to establish and maintain a proper glide path during the night visual approach to landing. Contributing to the accident was a combination of the captain's and first officer's fatigue and.....

- On August 6, 1997 a B747 crashed into a mountain top 3 miles from the airport (CFIT). Probable Cause: captain's failure to adequately brief and execute the non-precision approach. Contributing to this failure was the captain's fatigue and the airline's inadequate flight crew training.

Midnight Shift Disasters

- Bhopal India: 1984 in the early morning hours a Union Carbide pesticide plant releases a cloud of deadly gas into the atmosphere. Approximately 3,200 died.

Russia: A nuclear explosion of enormous magnitude occurred at 1:35 A.M. on April 26, 1986 in the town of Chernobyl.

The crash of a Douglas Dc-8-61 freighter operated by American International Airways in Aug. 18, 1993 on approach to the U.S. Naval Air Station, Guantanamo Bay Cuba. The NTSB indicated the ***probable cause*** of this accident were the impaired judgment, decision-making, and flying abilities of the captain and flight crew due to the effects of fatigue. The Safety Board's examination of the flight and duty time revealed the captain had been awake 23.5 hours at the time of the accident, the F/O for 19 hours and the F/E for 21 hours. The accident occurred at 1650 hrs, at the end of the afternoon circadian low period.

The three crew members were seriously injured in this accident.

What happen when critical decisions are made in a fatigued state.

In the Challenger disaster key NASA officials made the ill-fated go-ahead decision after working twenty four hours straight after only two to three hours of sleep the night before.

Please go to the National Sleep Foundations website and sign up for the Great American Sleep Challenge.

So many people are counting on you to be alert. You just witnessed the toll that fatigue takes on our world. Only you can change your sleep habits. Partner with the NSF. Be a change maker!