

Preventing Crashes

Driver Safety through
Human Factors Science

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American Psychological Association

THE FEDERATION OF
BEHAVIORAL, PSYCHOLOGICAL,
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Human Factors and
Ergonomics Society

Highway Crashes

- Nearly 43,000 fatalities
- More than 2.5 million injuries
- Most common cause of death for individuals ages 4 to 34 years
- 94% of all transportation fatalities and 99% of all transportation injuries
- Leading cause of job-related fatalities across industries

Causes of Highway Crashes

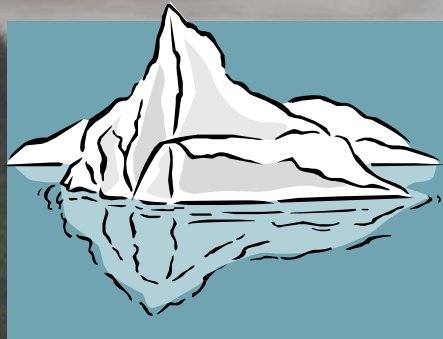
“Driver error” is frequently cited:

- as the cause of 45% to 75% of all roadway crashes
- as a contributing factor in up to 90% of all crashes

However...

Causes of Highway Crashes

**Only 10% of the iceberg
is visible at the surface**

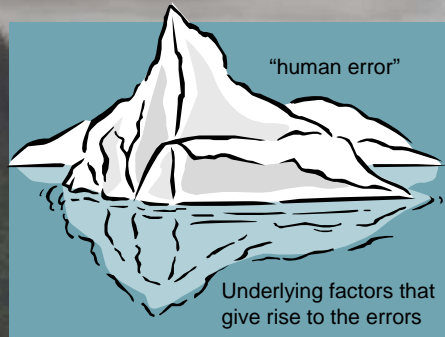


Crashes occur when the *momentary demands* of the driving situation exceed the available capacity of the driver

- Distraction
- Cognitive overload
- Violated expectancies
- Fatigue and drowsiness
- Sensory and psychomotor limits
- Incompatibility/mismatch

Prevention of Highway Crashes

**Only 10% of the iceberg
is visible at the surface**



As we can improve
our understanding of
the factors *beneath
the surface...*

...we improve our
ability to develop the
countermeasures that can prevent
crashes

Prevention of Highway Crashes

- If up to 90% of crashes are caused or at least influenced by drivers' actions
- Up to 90% of crashes may be preventable
- Human Factors research holds the key for prevention