



National Highway Traffic
Safety Administration

NHTSA Program Evaluations

Joseph S. Carra

**Associate Administrator
National Center for Statistics and Analysis**



National Highway Traffic
Safety Administration

Outline

We will discuss:

- 1. Electronic Stability Control (Completed)**
- 2. Life Saving Technology (Completed)**
- 3. Redesigned Air Bags (Underway)**
- 4. State Motorcycle Programs (Planned)**



National Highway Traffic
Safety Administration

Electronic Stability Control Evaluation

(Completed)

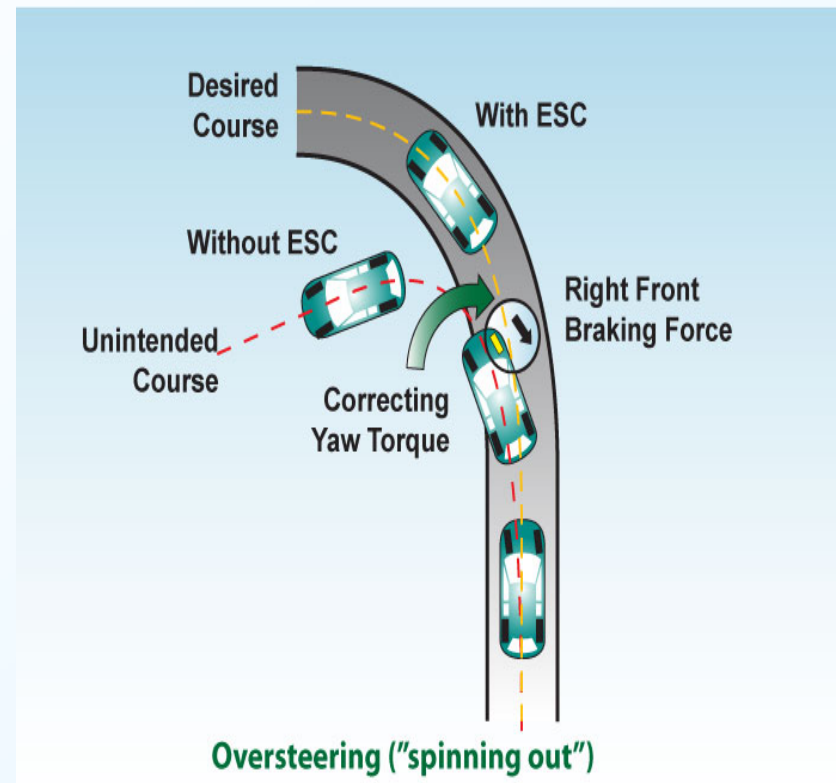
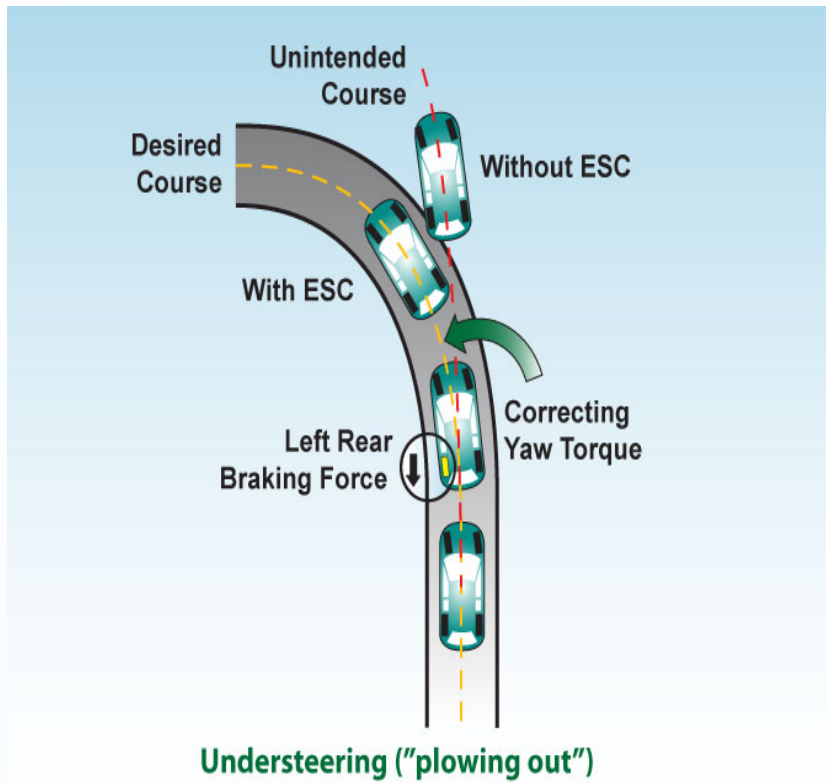


National Highway Traffic
Safety Administration

Electronic Stability Control

- **Anticipates dangerous situations**
- **Automatically intervenes**
- **Brakes one wheel**
- **Corrects oversteer and understeer**
- **Prevents skids, spins**
- **Reduces situations leading to run-off-road and rollovers**

How ESC Works



Analysis Method

- **U.S. fatal crashes, 1997-2003**
- **All crashes in 5 States, 1997-2002**
- **Ratio of single-vehicle to multi-vehicle (control group) crash involvements**
- **Reduction in this ratio with ESC vs. the same make-models without ESC**

2004 Crash Data Analysis

	Passenger Cars	Sport Utility Vehicles
Fatal single vehicle crash reduction	30%	63%
All single vehicle crash reduction	35%	67%



National Highway Traffic
Safety Administration

Life Saving Technology Evaluation

(Completed)



National Highway Traffic
Safety Administration

Lives Saved by Vehicle Safety Technologies, 1960-2002

Goal: lives saved by the agency's vehicle regulations & voluntary technologies

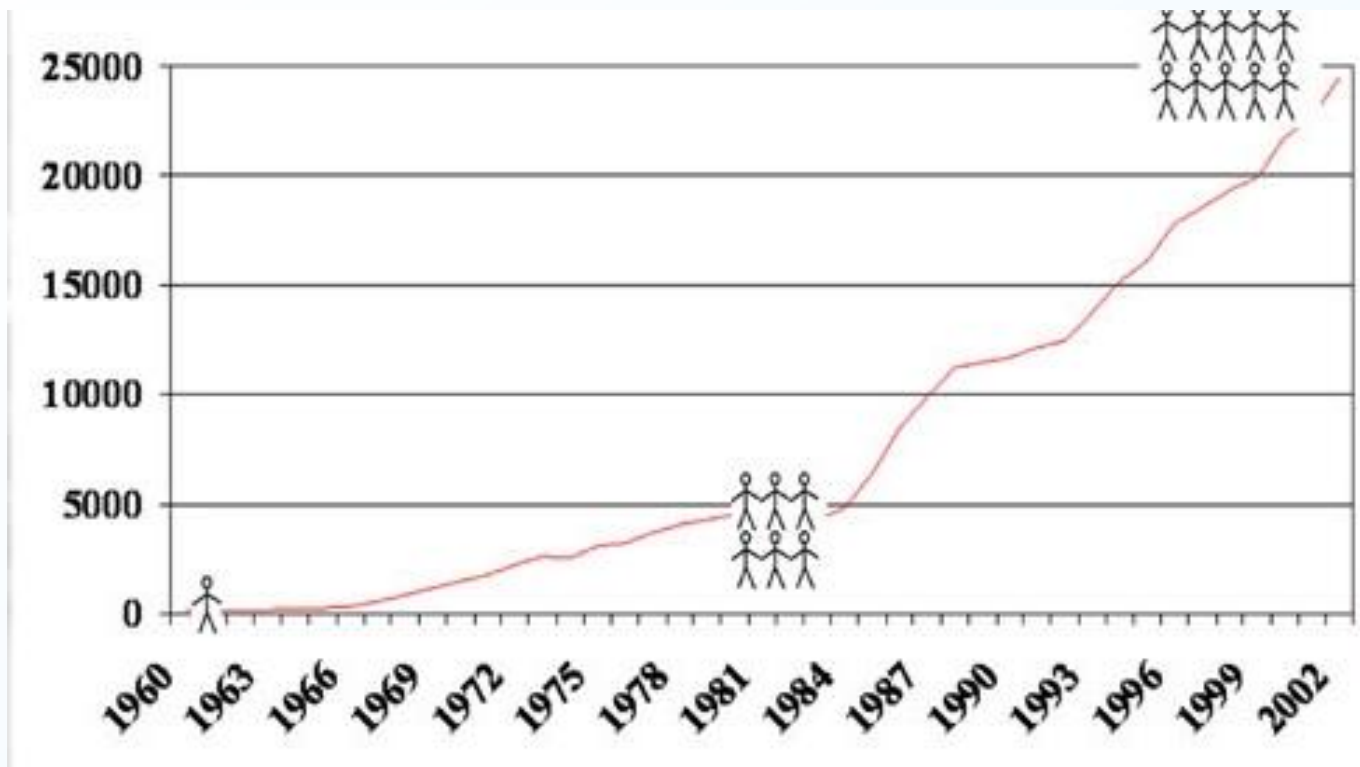
Method

- **Evaluate the individual safety technologies one-by-one**
- **Review actual fatalities since 1960**
- **Estimate how many additional fatalities without the technologies**



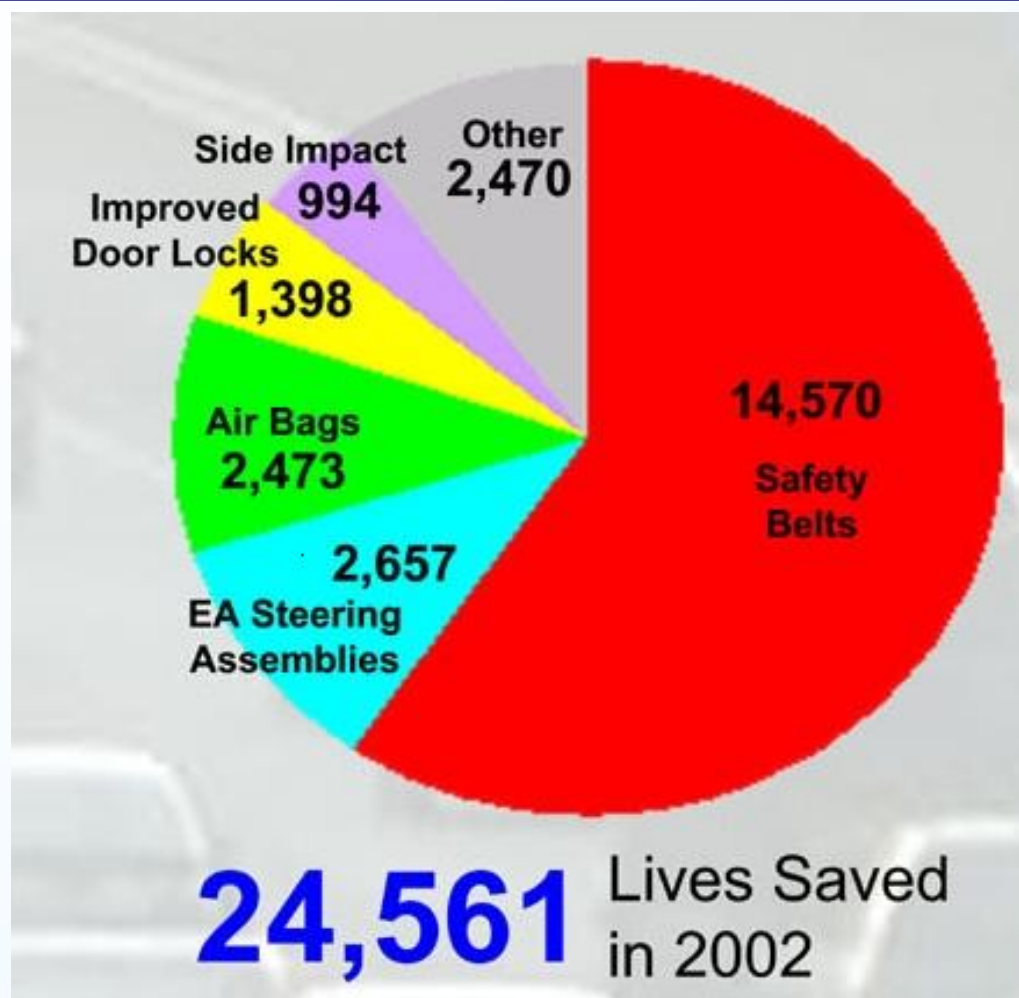
National Highway Traffic
Safety Administration

328,551 Lives Saved in 1960-2002



115 lives saved in 1960, 24,561 saved in 2002

Lives Saved in 2002





National Highway Traffic
Safety Administration

Cost of the Vehicle Safety Standards, 1968-2001

**Goal: consumer's cost per vehicle added
by the agency's safety regulations**

**Method: evaluate cost of the individual
safety standards one-by-one by:**

- Disassembling safety equipment to its
smallest components**
- Estimating cost of materials, labor,
tooling, assembly, overhead & mark-ups**

Cost per new car in 2001: \$839





National Highway Traffic
Safety Administration

Redesigned Airbag Evaluation (Underway)

Redesigned Air Bags, 1998

Safety Problem

- **Air bags harmed out-of-position children and some adults**

Regulatory Remedy

- **Modify test requirements to allow air bags that deploy less forcefully**

Redesigned Air Bags, 1998

Evaluation Questions

1. **Have they reduced harm to children and out-of-position adults?**
2. **Have they preserved the life-saving benefits of air bags for other adults?**

Analysis Method

- **U.S. fatal crashes, NHTSA special investigations and U.S. vehicle registrations, 1990-2004**
- **Redesigned air bags vs. same make-models with original air bags**
- **Measure change in**
 - ◆ **Frontal fatalities/million vehicle years**
 - ◆ **Frontal fatalities/non-frontal fatalities**



National Highway Traffic
Safety Administration

State Motorcycle Program Evaluation

(Planned)

State Motorcycle Programs

Motorcyclist fatality rates have increased each year since 1997, while car fatality rates decreased

◆ 8% increase from 2003 to 2004

Motorcyclist injuries have increased each year since 1998

◆ 14 % increase from 2003 to 2004



National Highway Traffic
Safety Administration

Evaluation of State Motorcycle Programs

Concentrates on

- Impaired driving
- Helmet use
- Non-compliant helmets
- Rider licensing
- Rider education
- Conspicuity