How Did an Air Bag Get into My Steering Wheel?
A Case Study in Injury Prevention Policy

Shannon Frattaroli, PhD, MPH
Johns Hopkins University
Introduction

■ Overview
  − Apply Bardach’s framework to the U.S. motor vehicle injury problem
  − Review air bag policy history
  − Analyze the political, policy, and legal ramifications for pursuing mandatory air bag policy in the U.S.
Section A

Motor Vehicle Injuries as a Public Health Issue
Injury is a leading cause of death and disability
Motor vehicle injuries are the leading cause of injury mortality
Motor vehicle injuries are the leading cause of death for people 4–33 years old
Over 90 percent of transportation fatalities are traffic related
Motor vehicle crashes caused more than 40,000 deaths and more than 3 million nonfatal injuries in 2001

The Problem

- Too many people die and are seriously injured as a result of motor vehicle crashes
- Technology is available to protect motor vehicle occupants from “secondary crash”
  - How best to bring that technology to the market is a subject of debate
Mortality

- During the 1980s, approximately 45,000 died annually as a result of motor vehicle injuries
- Motor vehicle–related deaths are the largest source of injury deaths
- About one-third of motor vehicle deaths occurred among 15–24 year olds

Source: WISQARS.
The Evidence II

- Epidemiology of car crashes
  - Multiple risks factors have been linked to crash risk and injury severity
    - Road conditions, driver factors, vehicle characteristics
The Evidence III

- Epidemiology of car crashes
  - More than 60 percent of motor vehicle fatalities involve front-end or front-corner collisions; in comparison, less than 5 percent of rear and rear-corner impact crashes result in death to the occupants

Economics

- Motor vehicle injuries were estimated to cost approximately $49 billion in lifetime costs in 1985

Section B

Continuing with the Policy Analysis Procedure
Air Bag Policy in the U.S.—Alternatives

- Air bags
- Safety belts
- Driver education
- Enhanced enforcement of existing drinking and driving laws
The Criteria

- Reduce deaths
- Reduce severity of injuries
- Easy to use
- Ready to implement
- Universally applicable
- Affordable
- Easy to maintain
## Air Bag Policy in the U.S.—Projected Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Air bags</th>
<th>Safety belts</th>
<th>Driver education</th>
<th>Enforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce deaths</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce injury</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ready to implement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy to maintain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Projected Outcomes II

<table>
<thead>
<tr>
<th></th>
<th>Air bags</th>
<th>Safety belts</th>
<th>Driver education</th>
<th>Enforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce deaths</td>
<td>++</td>
<td>++</td>
<td>0</td>
<td>+</td>
</tr>
<tr>
<td>Reduce injury</td>
<td>++</td>
<td>++</td>
<td>0</td>
<td>+</td>
</tr>
<tr>
<td>Ease of use</td>
<td>+++</td>
<td>+</td>
<td>0</td>
<td>+</td>
</tr>
<tr>
<td>Ready to implement</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Universal</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Affordable</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Easy to maintain</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>++</td>
</tr>
</tbody>
</table>
## Projected Outcomes II

<table>
<thead>
<tr>
<th></th>
<th>Air bags</th>
<th>Safety belts</th>
<th>Driver education</th>
<th>Enforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce deaths</td>
<td>++</td>
<td>++</td>
<td>0</td>
<td>+</td>
</tr>
<tr>
<td>Reduce injury</td>
<td>++</td>
<td>++</td>
<td>0</td>
<td>+</td>
</tr>
<tr>
<td>Ease of use</td>
<td>+++</td>
<td>+</td>
<td>0</td>
<td>+</td>
</tr>
<tr>
<td>Ready to implement</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Universal</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Affordable</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Easy to maintain</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>++</td>
</tr>
</tbody>
</table>
Projected Outcomes III

- Post-assessment policy alternatives
  - Air bags
  - Safety belts
Projected Outcomes IV

- Government and industry projections on effectiveness of air bags
- Controversy between pro-regulatory community and auto industry
Projected Outcomes IV

- Government and industry projections on effectiveness of air bags
- Controversy between pro-regulatory community and auto industry
Air Bag Policy in the U.S.—Trade-offs

- Considering the public’s health
  - From a public health perspective, we are interested in the secondary crash, or the collision that occurs inside the involved cars in response to crash forces

- Maximizing resources
Decide

- Mandatory air bag policy
Air Bag Policy in the U.S.—Story

- Elements of a story in support of mandatory air bag policy
  - A motor vehicle death that could have been prevented with an air bag
  - Emphasize the magnitude of the problem
  - Emphasize the preventability of the problem
  - Need for government intervention to assure minimum safety standards; don’t want technology differentially applied
  - Passive protection and low seat belt usage
  - Universal impact—everyone spends time in a car
Section C

What Really Happened with Air Bag Policy?
Air Bag Policy in the U.S.—Part Two

- How air bag policy happened
  - Beyond Bardach
- Policy analysis skills—analyzing political, policy, and legal ramifications of the decision
Policy Analysis and Practice I

- Chronology of air bag policy
  - Setting
  - Innovation
  - Action
Chronology of air bag policy
- Resistance
- Inaction
- Response
Chronology of air bag policy
- Resistance
- Inaction
- Response
■ Chronology of air bag policy
  − Final rule
  − Standard 208
Section D

Role of Regulation, Legislation, and Litigation in the Policy Process
Air Bag Policy in the U.S.—Overview of Policy Tools

- Regulation
- Legislation
- Litigation
Examples of Regulatory Actions

- Government interest
- Department of Transportation role in standards regarding air bags
- Consideration of industry petitions for delay
- Consideration and negotiation of voluntary action by industry
- Research
Litigation

- Auto industry vs. government
- Insurance industry vs. government
- Individuals vs. industry
Litigation

- Auto industry vs. government
- Insurance industry vs. government
- Individuals vs. industry
Examples of Legislative Actions

- Amend and create legislation providing regulatory authority
- Commission GAO reports
- Respond to use of regulatory authority
- Pass laws specifying standards
Section E

Update and Lessons Learned
Air Bag Policy in the U.S.—Post-mandate

- Ongoing debate and new technology
  - Children and small-stature adults
    - On-off switch
    - De-powered air bags
    - Smart air bags
  - Side impact air bags
Air Bag Policy in the U.S.—Post-mandate

- Ongoing debate and new technology
  - Children and small-stature adults
    - On-off switch
    - De-powered air bags
    - Smart air bags
  - Side impact air bags
Lessons for Public Health Policy

- Role of multiple strategies and perspectives to accomplish this aim
- Relationship between industry and advocacy
  - Costs and benefits of adversarial relationships?
- Policy is not a finite process (Beyond Bardach)
  - Implementation
  - Revision
Lessons for Public Health Policy

- Role of multiple strategies and perspectives to accomplish this aim
- Relationship between industry and advocacy
  - Costs and benefits of adversarial relationships?
- Policy is not a finite process (Beyond Bardach)
  - Implementation
  - Revision
Lessons for Public Health Policy

- Science and statistics
  - Different standards of proof
  - Difficulty in predicting future impact
  - Range of estimates and power of assumptions
Message to Future Policy Professionals

- Patience
- Persistence
- Flexibility
- Perspective