

# Observations from US NCAP's Out of Position Side Air Bag Testing

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# Overview of SAB OOP in NCAP

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- Background
- Manufacturer Submissions & Test Selection Process
- Test Matrices
- Manufacturer Data & Testing Observations
- MY 2005 Testing Plans

# Background

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# Side Airbag (SAB) Out-of-Position (OOP) Technical Working Group (TWG)

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- Encouraged by NHTSA Administrator in 1999
- Joint project of
  - Alliance of Automobile Manufacturers
  - Association of International Automobile Manufacturers (AIAM)
  - Automotive Occupant Restraints Council (AORC)
  - Insurance Institute for Highway Safety (IIHS)

# TWG Procedures

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- Created occupant positions to assess injury risks
  - Used both child dummies, and small female side impact dummy
- During development, NHTSA conducted research using these procedures
  - Capable of discriminating between SAB systems

# Why SAB OOP Under NCAP?

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- Provide consumers with more information about vehicle SABs
  - Especially for children
- Website & *Buying a Safer Car*
  - Consumers made aware which vehicles meet TWG test positions

# SAB OOP Under NCAP (cont'd.)

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- Verify *some* manufacturer responses via a “spot check”
- Previously crashed vehicle selection
  - Tested under NCAP that model year (MY)
    - Frontal vehicles
    - Non-struck side of side impact vehicles
  - Standard SABs
    - Attempt to gain experience with a wide variety of SAB types
  - “M” vehicles chosen when possible

# Manufacturer Submissions & Test Selection Process

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# Program Development

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- 2003
  - NCAP requests manufacturer data
    - Inconsistent information received
  - No mention of TWG in BSC or website
- 2004 - Present
  - Standard format
  - Vehicles that meet IARV's for all TWG tests receive an "M" on website & in BSC brochure

# Testing Matrix

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- Only child dummies used
  - HIII-3YO produces highest injury values
  - HIII-6YO used with curtain SABs
- Airbags only fired once
  - Re-install difficult & expensive
- No multiple tests in vehicle

# SAB OOP Test Matrices

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# Testing by Mount & Dummy

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	<b>3YO Tests</b>	<b>6YO Tests</b>	<b>Total</b>
<b>Seat-Mounted</b>	<b>12</b>	<b>4</b>	<b>16</b>
<b>Door-Mounted</b>	<b>3</b>	<b>0</b>	<b>3</b>
<b>Roof-Mounted</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>Seat &amp; Roof-Mounted</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>Door &amp; Roof-Mounted</b>	<b>0</b>	<b>1</b>	<b>1</b>

# 3YO Forward Facing, Seat Mount



<b>3.3.3.1</b>		
<b>Bag Type</b>	<b>2003</b>	<b>2004</b>
Head/Torso	2	2
Torso	2	1
<b>TOTAL = 7</b>	<b>4</b>	<b>3</b>

# 3YO Rear Facing, Seat Mount



<b>3.3.3.2</b>		
<b>Bag Type</b>	<b>2003</b>	<b>2004</b>
Head/Torso	0	2
Torso	1	3
<b>TOTAL = 6</b>	<b>1</b>	<b>5</b>

# 3YO Outboard & Inboard Facing, Door Mount



**3.3.4.1**

Bag Type	2003	2004
Torso	0	1



**3.3.4.2**

Bag Type	2003	2004
Torso	1	0

# 3YO Lying Down, Door Mount

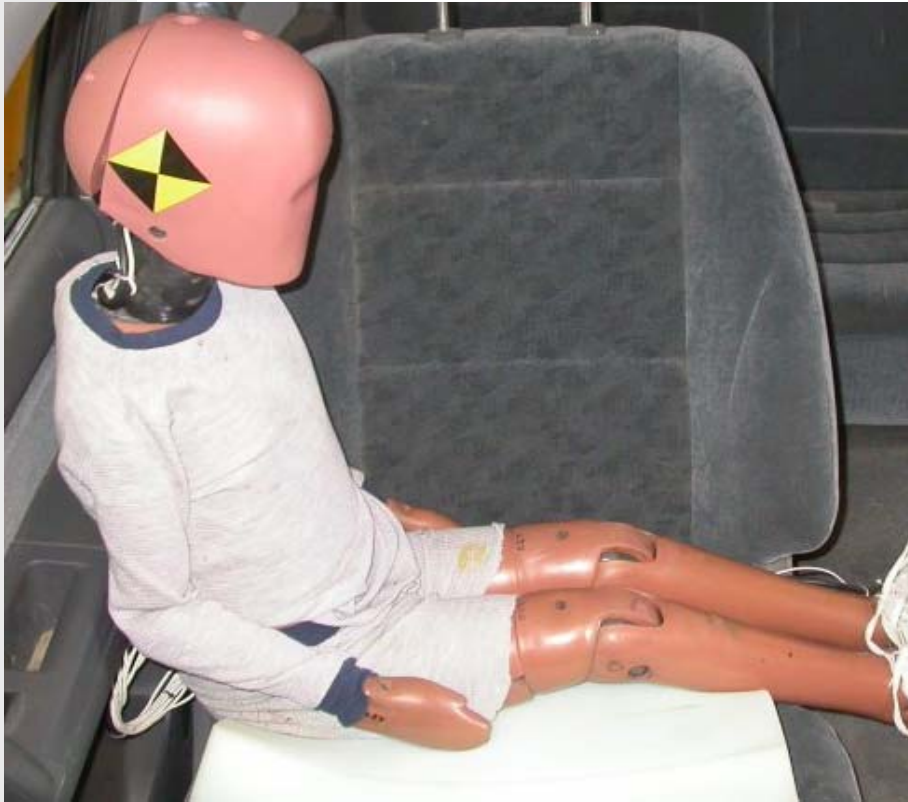


## 3.3.4.3

Bag Type	2003	2004
Torso	1	0



# 6YO Inboard Facing, Seat & Roof Mount



<b>3.3.5.1</b>		
<b>Bag Type</b>	<b>2003</b>	<b>2004</b>
Curtain	2	0
Torso & Curtain	0	1
Torso	0	1
<b>TOTAL = 4</b>	<b>2</b>	<b>2</b>

# 6YO Inboard Facing, Door & Roof Mount



<b>3.3.4.2</b>		
<b>Bag Type</b>	<b>2003</b>	<b>2004</b>
Torso & Head	1	0

# 6YO Forward Facing, Seat Mount



<b>3.3.3.5</b>		
<b>Bag Type</b>	<b>2003</b>	<b>2004</b>
Torso	1	2
<b>TOTAL = 3</b>	<b>1</b>	<b>2</b>

# Summary of Manufacturer Data & Test Results

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# Manufacturer Data

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- 19 manufacturers with eligible vehicles
  - All participated
- 254 vehicle models with SABs
  - 161 (63%) submitted complete information, received "M"
  - Remaining 37% indicated they did not meet or were incomplete

# Overview of NCAP Testing

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- 23 vehicles Tested
  - 13 granted “M’s”
- Initial results indicate these tests are in good agreement with previous NHTSA research & TWG procedures
- Using crashed vehicles seems promising

# Testing Observations

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- Further specification of TWG procedures may be necessary
  - Variation among vehicle interiors in the fleet
  - Some points subject to interpretation
  - Standard measurements may be needed

# 2005 SAB OOP Testing in NCAP

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# 2005 MY Plans

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- Test 3YO with all standalone seat & door SABs
- Only "M" vehicles
- Perform MY 2005 testing in order to analyze data and publish findings

# 2005 Sample Testing Matrix

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Test Number	3YO Tests	6YO or SID-IIs Tests	
	Torso	Curtain	Torso-Curtain
3.3.3.1	2	0	0
3.3.3.2	1	0	0
3.3.3.5	0	1	5
3.3.51	0	1	4
<b>TOTAL = 14</b>	<b>3</b>	<b>2</b>	<b>9</b>

# Questions?

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*Thank you for your attention.*

