

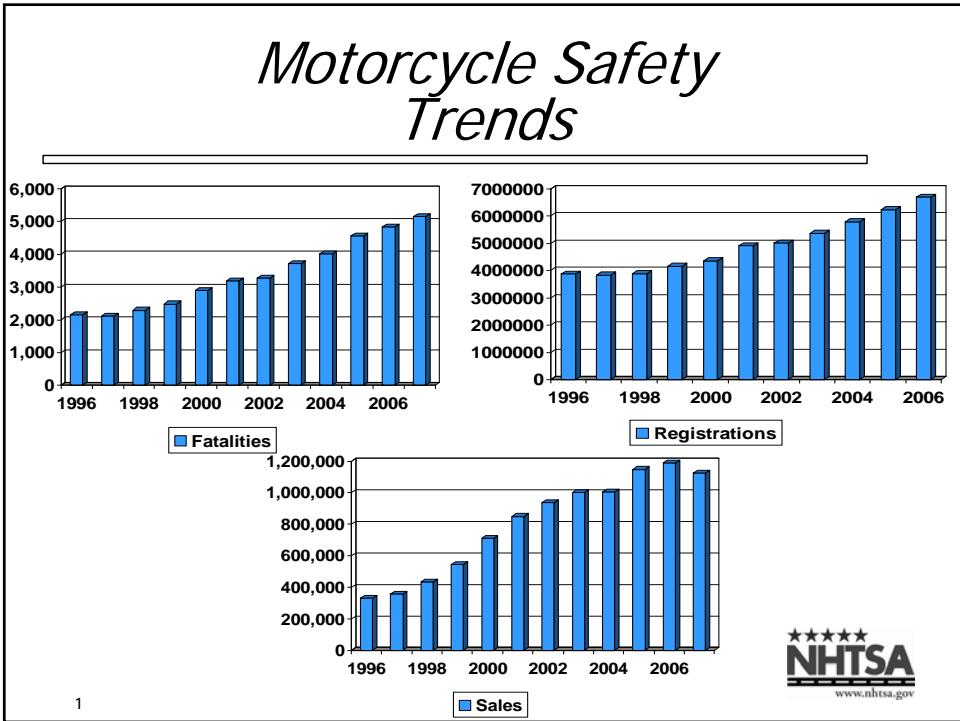
# Proposed Changes to FMVSS 218 Motorcycle Helmets

Lifesavers 2009  
Strengthening Motorcycle Helmet Safety  
Regulations

Diane Wigle  
NHTSA

To obtain metric equivalents in centimeters, multiply each figure by 2.54.

**NHTSA**  
www.nhtsa.gov



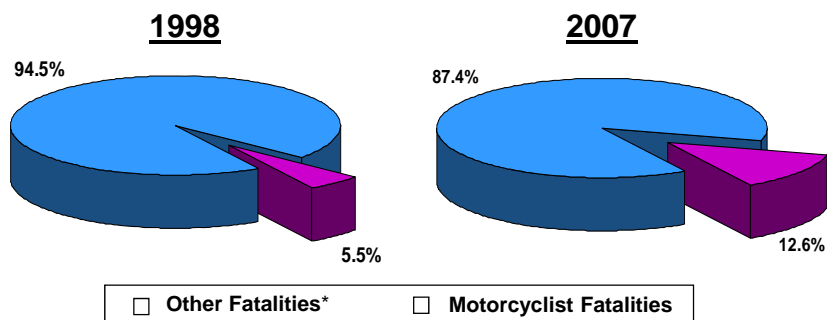
## 2007 Data Shows...

- **Motorcyclist fatalities increased for the 10<sup>th</sup> year in a row**
  - **Accounted for 12.6% of total traffic fatalities**
  - **Highest number since 1975**
    - **Previous highest in 1980 - 5,144**
  - **Over the last ten years**
    - **fatalities increased 125%**
    - **Registration increased by 84%**
    - **VMT increased by 32%**



## Proportion of Total Fatalities, by Role and Year

**Motorcyclist fatalities increased to 12.6% of all motor vehicle traffic crash fatalities compared to 5.5% in 1998**



\* Passenger Vehicle Occupants, Other occupants and Nonoccupants

Source: 2007 FARS



## Where the Increases are

- **10-Year Trend by Age Group Shows**
  - ❑ **71-percent increase in under-30 group**
  - ❑ **70-percent increase in 30-39 age group**
  - ❑ **234-percent increase in 40+ age group**
    - **380-percent increase in 50+ age group**

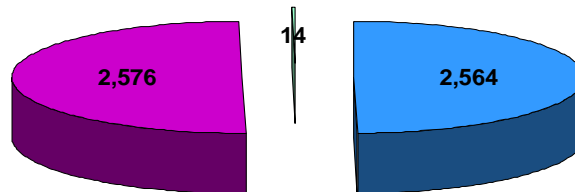
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Source: 2007 FARS



## Motorcyclist Fatalities by Day of Week

Based on the number of hours, there were nearly twice as many motorcyclist fatalities during weekends than during weekdays (19.8 vs. 11.0)



■ Weekday ■ Weekend ■ Unknown

**Weekday** = 6 a.m. Monday through 5:59 p.m. Friday  
**Weekend** = 6 p.m. Friday through 5:59 a.m. Monday

Source: 2007 FARS



Lwd1

## *Motorcycle Operator Licensing*

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- *One out of four motorcycle riders (26%) involved in fatal crashes had an invalid license.*
- *Motorcycle riders involved in fatal traffic crashes were 1.3 times more likely than passenger vehicle drivers to have a previous license suspension or revocation (18% and 14%).*



Source: 2007 FARS

## *Motorcycle Operator Alcohol*

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- *Twenty-eight percent of all fatally injured motorcycle riders were alcohol impaired (BAC of .08 or higher).*
- *The percentage with BAC .08 g/dl or above was highest for fatally injured motorcycle riders among two age groups, 45-49 (41%) and 40-44 (37%) followed by ages 35-39 (35%).*



7

**Slide 7**

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**Lwd1** Ldaniels, 1/26/2009

## *Motorcycle Operator Alcohol*

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- **Forty-one percent** of the 2,182 motorcycle riders who died in **single-vehicle crashes** in 2007 had **BAC levels of .08 g/dL or higher. 65% weekend nights.**
- Motorcycle riders killed in traffic crashes at night were nearly 4 times more likely to have BAC levels of .08 g/dL or higher than those killed during the day (44% and 12% respectively).



8

## *Motorcycle Operator Single Vehicle vs. Multi-Vehicle Crashes*

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- About 45 percent of fatal motorcycle crashes were single vehicle crashes versus 55 percent multi-vehicle crashes.
- In three-fourths of the multi-vehicle crashes the motorcycle was the striking vehicle.
- Eighty-six percent of two vehicle fatal motorcycle crashes were with passenger vehicles



9

## *Motorcycle Operator Helmets*

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- In 2007, 57 percent of the fatally injured motorcyclists used helmets.
- About two-thirds (63%) of the fatally injured motorcyclists were not wearing helmets in States without universal helmet laws compared to 14% in States with universal helmet laws.
- Helmets are estimated to be 37% effective in preventing fatal injuries to motorcyclists.
- In 2007, 1,784 lives were saved by helmet use. 800 additional lives would have been saved if all motorcyclists had worn helmets.



10

## *Motorcycle Operator Helmets*

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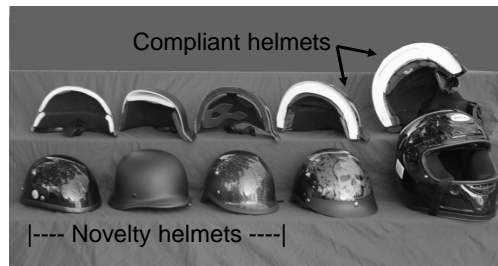
- **Helmet use**
  - ❑ Overall effectiveness of 37% in preventing fatalities
  - ❑ Helmeted riders → 35% who died had head injury
  - ❑ Non-users → 51% who died had head injury
- **Helmets required in 20 States + D.C. and PR**
  - ❑ 68% usage of 218 compliant helmets
  - ❑ 15% usage of novelty helmets
  - ❑ 17% non-use
- **30 States with partial or no helmet use laws**
  - ❑ 37% usage of 218 compliant helmets
  - ❑ 13% usage of novelty helmets
  - ❑ 50% non-use
- ➔ **Significant novelty helmet usage**



11

## Novelty Helmets

- Not compliant with FMVSS No. 218
- Lack qualities to protect users
- Manufacturers often claim not intended for:
  - ❑ Highway use
  - ❑ Injury prevention
- 2007 OVSC testing → all failed performance requirements\*



\*National Highway Traffic Safety Administration. Traffic Safety Facts Research Note: Summary of Novelty Helmet Performance Testing (DOT HS 810 752). Washington, D.C.: Office of Behavioral Safety Research, National Highway Traffic Safety Administration (Apr. 2007). Available at: [http://www.nhtsa.gov/portal/nhtsa\\_static\\_file\\_downloader.jsp?file=/staticfiles/DOT/NHTSA/Traffic%20Injury%20Control/Studies%208%20Reports/Associated%20Files/Novelty\\_Helmets\\_TSF.pdf](http://www.nhtsa.gov/portal/nhtsa_static_file_downloader.jsp?file=/staticfiles/DOT/NHTSA/Traffic%20Injury%20Control/Studies%208%20Reports/Associated%20Files/Novelty_Helmets_TSF.pdf).

12



## FMVSS 218

- **Federal Motor Vehicle Safety Standard No. 218 established the minimum safety all motorcycle helmets sold in U.S. must meet.**
- **October 2, 2008, NHTSA proposed amendments to std.**
- **Assist law enforcement's ability to detect novelty helmets**
  - ❑ NHTSA inquiry on misleading "DOT" labeling problems
- **Aid NHTSA in enforcing the standard by specifying**
  - ❑ **Impact attenuation tests: specifying impact velocity and tolerances**
  - ❑ **Retention system test: specifying quasi-static load application rate**
  - ❑ **Helmet Conditioning: specify temperature tolerance**
  - ❑ **Impact Site: Define "identical impact site"**
  - ❑ **Location of Certification Label**

13



## *Current vs. Proposed "DOT" Certification Label*

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- **Current requirement**
  - ❑ "DOT" symbol on helmet outer surface
    - 3/8 inch high @ rear centerline
- **Proposed upgrades**
  - ❑ Clear coating over decal
  - ❑ Manufacturer's name and model above "DOT" symbol
  - ❑ Word "certified" beneath "DOT" symbol
  - ❑ Inner label must be within 3 inches of bottom of helmet and include the discreet size.



14

## *Current "DOT" Certification Label*

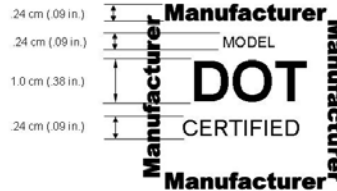
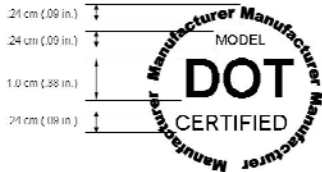
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15

## Proposed Label Design Examples

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16

## Current Test Procedures in Standard

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- **Impact attenuation comprises two “identical impacts” from a minimum drop height**
  - ❑ 5.2 m/s from 54.5 inches for hemispherical anvil
  - ❑ 6.0 m/s from 72 inches for flat anvil
- **Helmet conditioning:**
  - ❑ Ambient condition: 70°F with 50% relative humidity for 12 hours
  - ❑ Low temperature condition: 14°F for 12 hours
  - ❑ High temperature condition: 122°F for 12 hours
  - ❑ Water immersed condition: 77°F for 12 hours
- **Retention System Test: Static test with no specified rate of loading**



17

## *Proposed Modifications to Test Procedures*

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- **Impact attenuation test velocity: 5.2 ±0.4 m/s for hemispherical anvil and 6.0 ±0.4 m/s for flat anvil**
  - ❑ Remove drop height requirement
- **Retention system test defined as 'quasi-static' and a load application rate specified as 0.4 to 1.2 in/min**
- **Helmet conditioning tolerances with minimum duration of 12 hours**
  - ❑ Ambient condition: 61-79°F with 30-70% relative humidity
  - ❑ Low temperature condition: 5-23°F
  - ❑ High temperature condition: 113-131°F
  - ❑ Water immersed condition: 68-86°F
- **"Identical Impact Site" defined as to within  $\frac{3}{4}$  inch**



18

## *Public Comments*

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- Comment period closed December 1, 2008
- 165 comments to the docket.
  - ❑ 10 Industry comments
  - ❑ 155 comments mostly from motorcyclists and interested consumers
- Current Status of Rulemaking Action
  - ❑ NHTSA is reviewing and responding to the comments



19

## *Contact Information*

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20



21