

ROBUS Road Barrier Upgrade of Standards

Collection of Statistical Data on Single Vehicle Incidents

Method of Approach and Work completed

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APPROACH

- **Scoping study distributed in early April 2004**
- **Replies received from:**
 - **Norwegian Public Roads Administration (NPRA), Norway**
 - **Politecnico di Milano, Italy**
 - **Autostrade, Italy**
 - **Centre for Automotive Research and Development (CIDAUT), Spain**
 - **European Union Road Federation (ERF), Belgium**
 - **Volkman & Rossbach GmbH & Co., Germany**

APPROACH

- **Two documents were distributed in early May 2004 for the collection of incident data:**
 - **A Table (for completion)**
 - **Guidance for completing the Table (for continuity)**
- **Coding used to aid analysis**
- **Different driving legislation**
- **Incident data for:**
 - **Single vehicle incidents**
 - **Incidents on ALL roads**
 - **Incidents in which a VRS has been hit**
 - **Only incidents FROM 1st Jan 1990**

DATA COLLECTION TABLE

- **General incident information (date, road type, speed limit)**
- **Details of the vehicle (make, model, weight)**
- **Movement and damage to the vehicle**
- **Severity and location of injury to the occupant(s)**
- **Type of VRS**
- **Impact speed and angle**
- **Data source(s)**

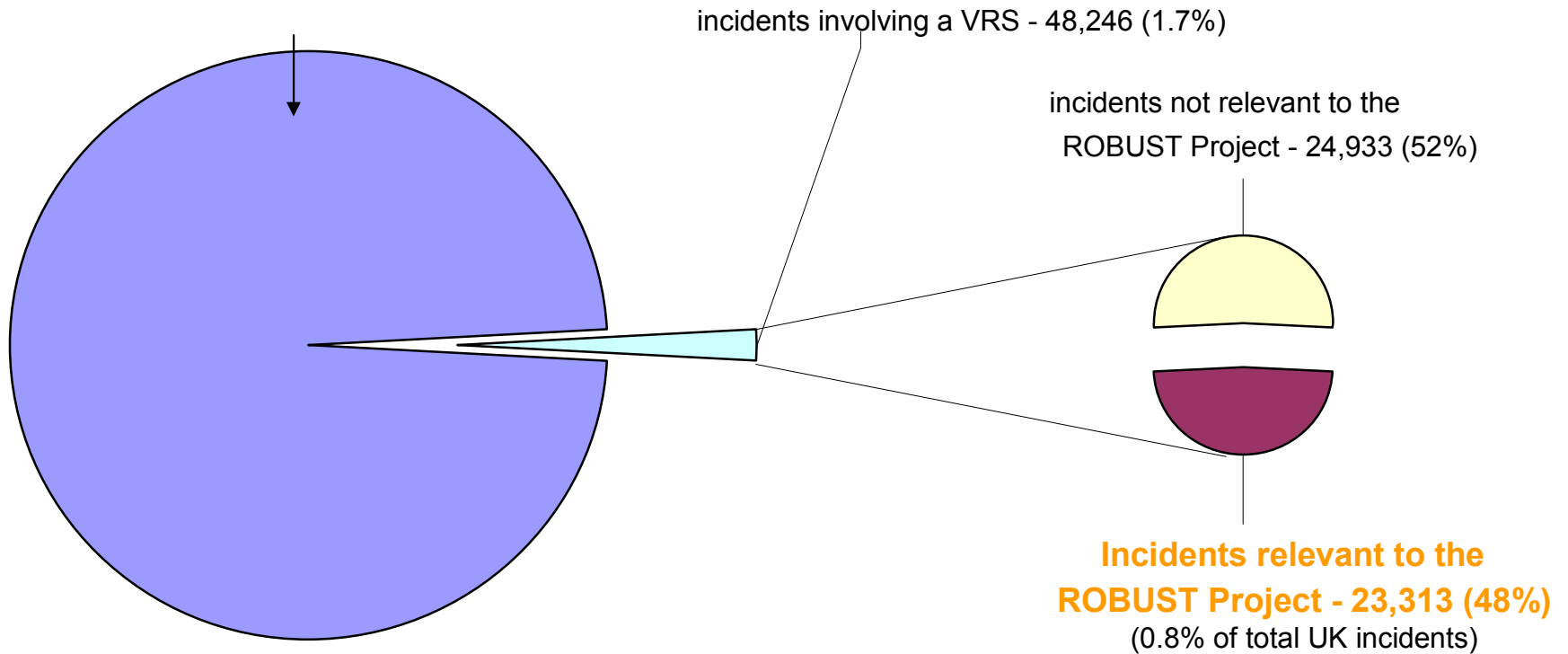
RESULTS

- **TWO main contributions:**
 - **TRL**
(23,313 incidents - basic data, 1990-02)
 - **Politecnico di Milano**
(70 incidents - very detailed data, 2000-03)

The results of the analysis and subsequent conclusions are therefore based only on the two sets of data provided from the UK and Italy

TRL DATA (1990-2000)

Total Number of UK Incidents 1990 to 2000 – 2,815,900



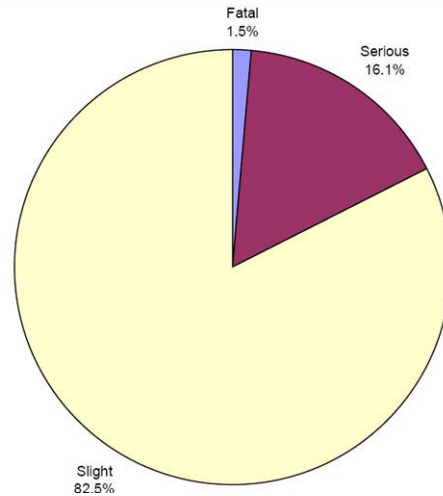
Robust. GRD1-2002-70021



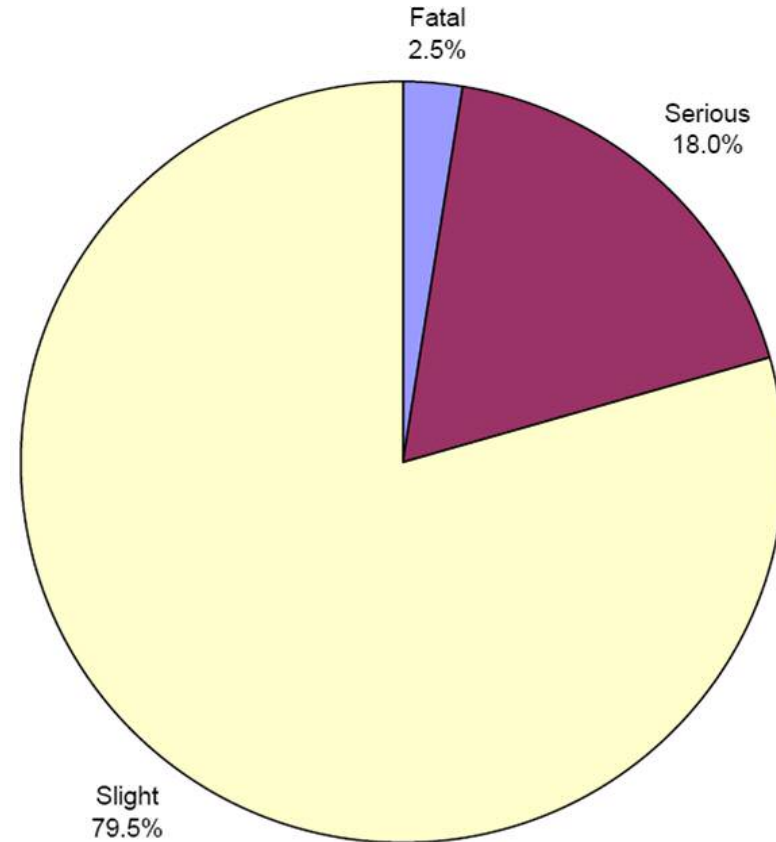
TRL DATA (1990-2000)

Incidents Severity:

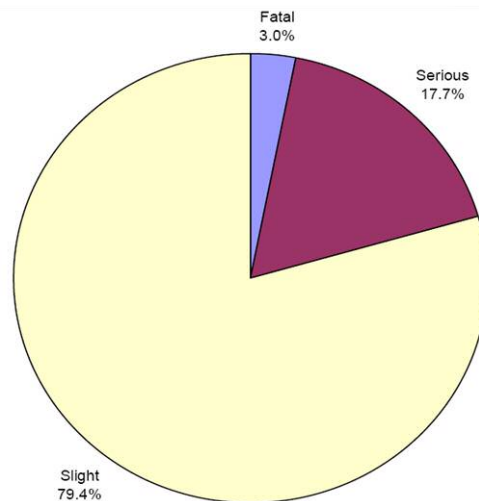
1. All UK Incidents



'ROBUST' Incidents



2. All UK VRS Incidents



Robust. GRD1-2002-70021

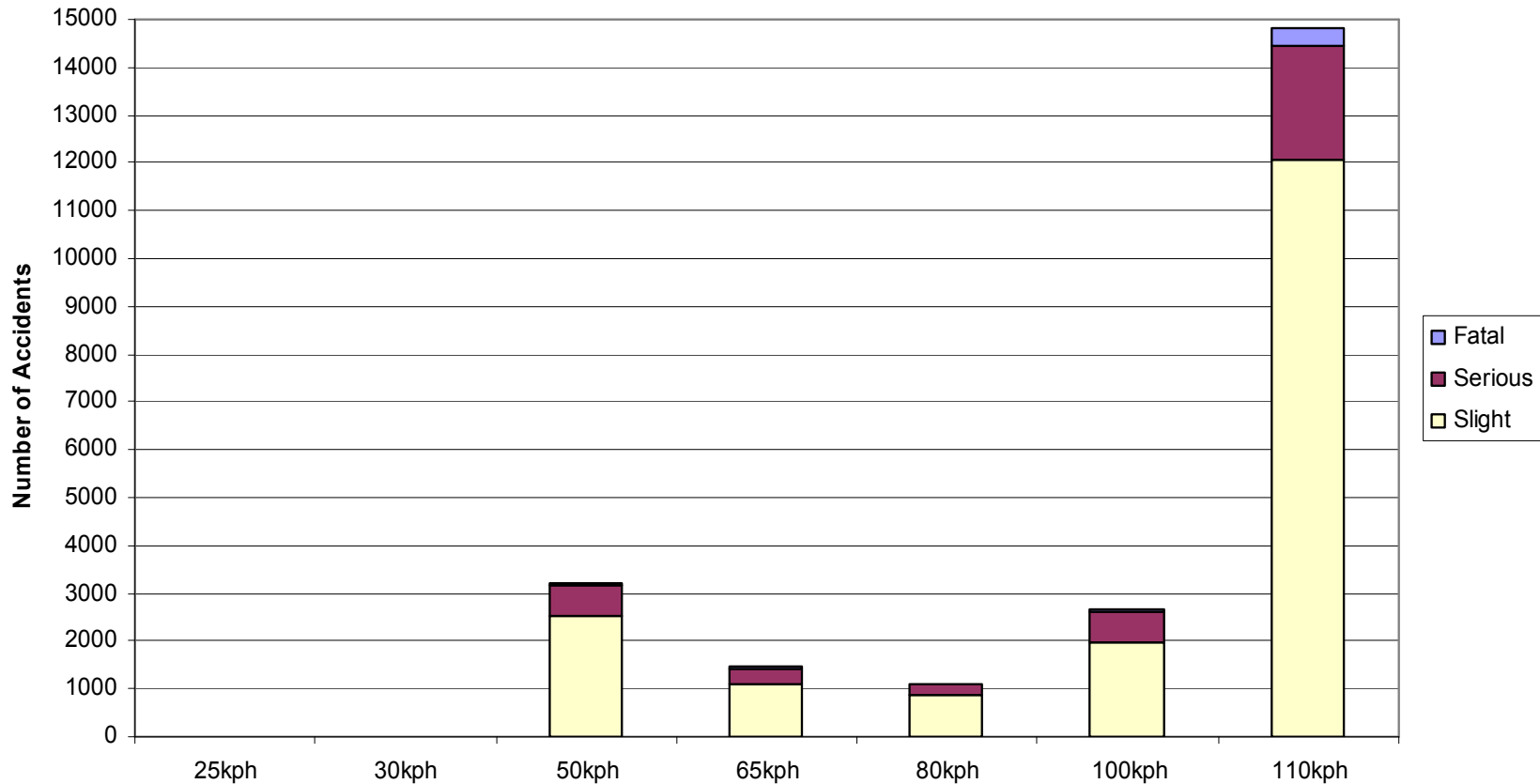


TRL DATA (1990-2000)

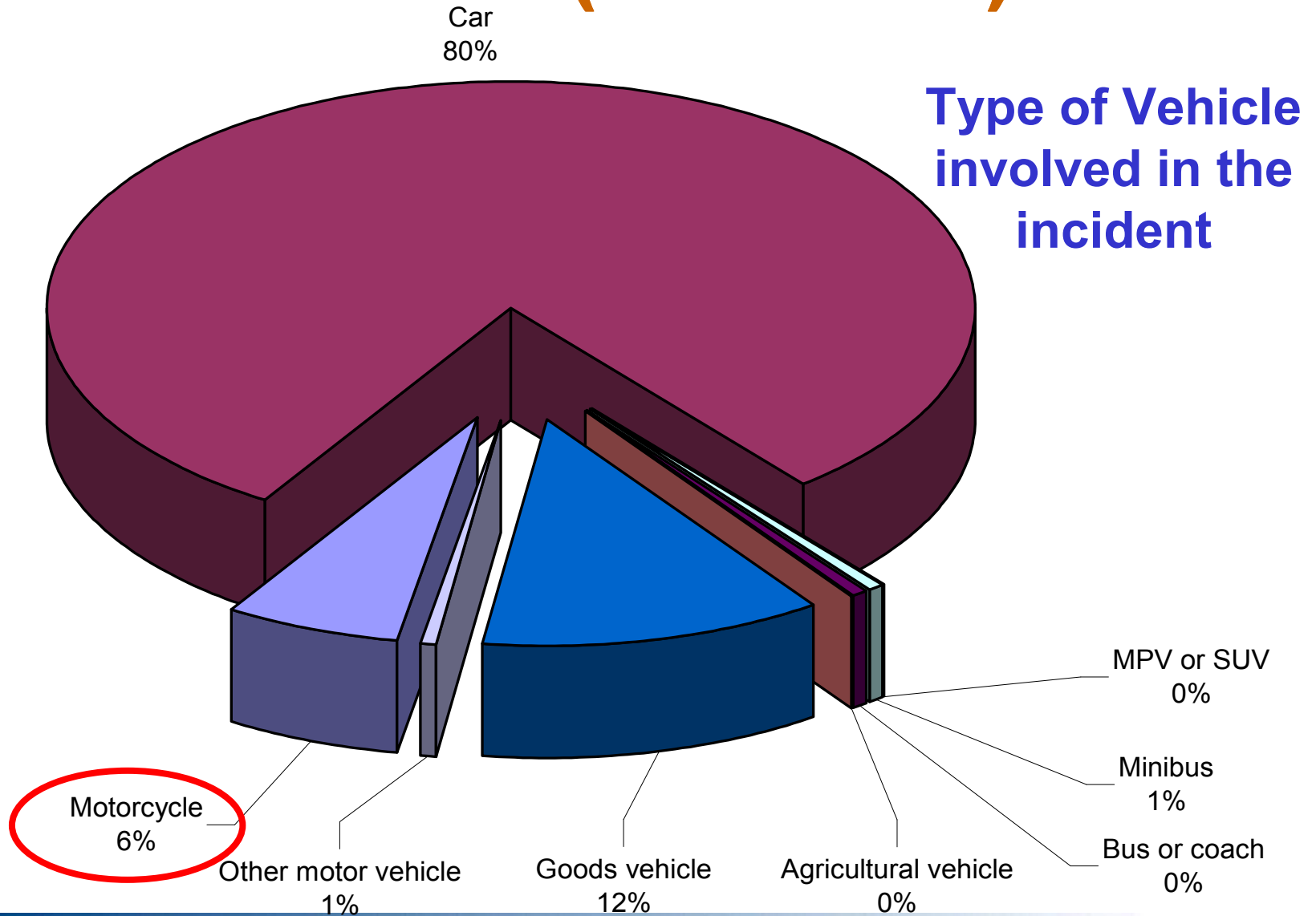
- **Vehicle Movement:**
 - **Vehicle Left the Carriageway to the right: 47.6%**
 - **Vehicle Left the Carriageway to the left: 40.7%**
- **Road Type:**
 - **Dual Carriageway 3+ lanes: 36.3%**
 - **Dual Carriageway 2 lanes: 38.16%**

TRL DATA (1990-2000)

Location of VRS Incidents (by speed of road)



TRL DATA (1990-2000)

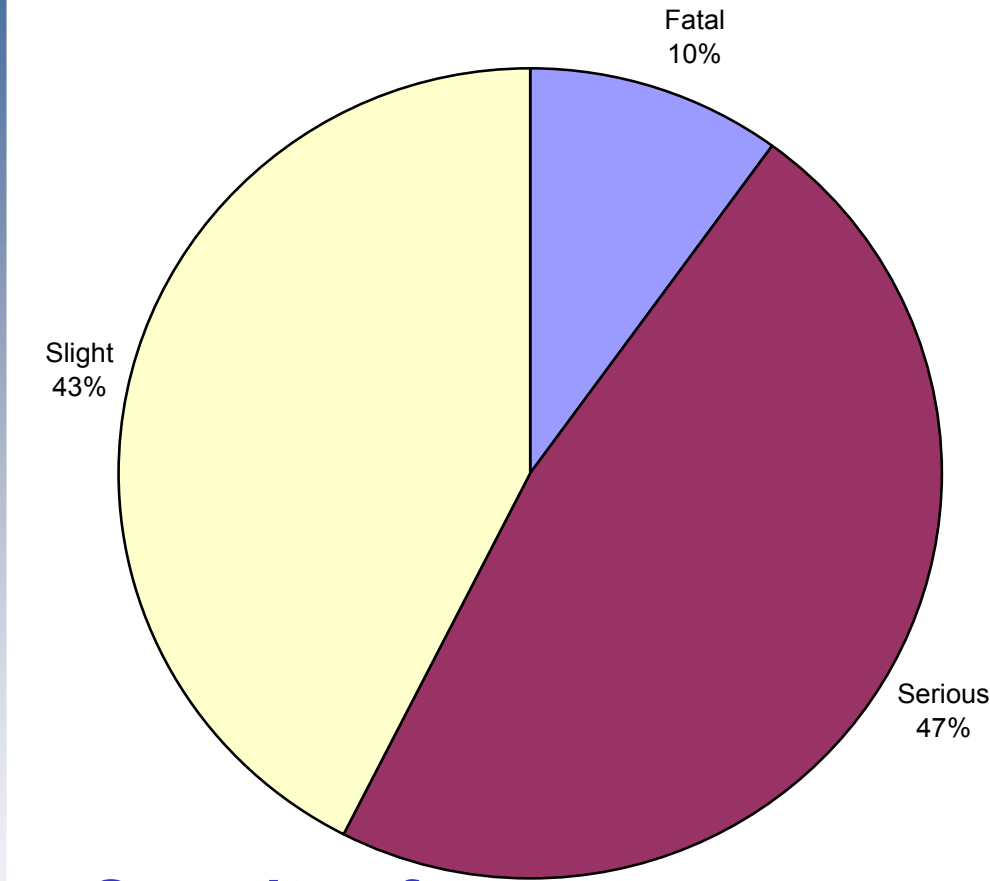


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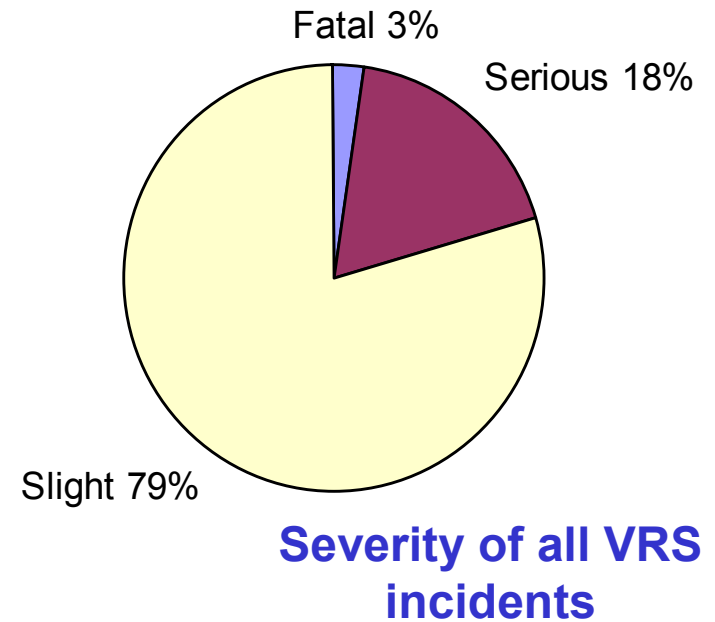


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TRL DATA (1990-2000)



Severity of Motorcycle/VRS incidents



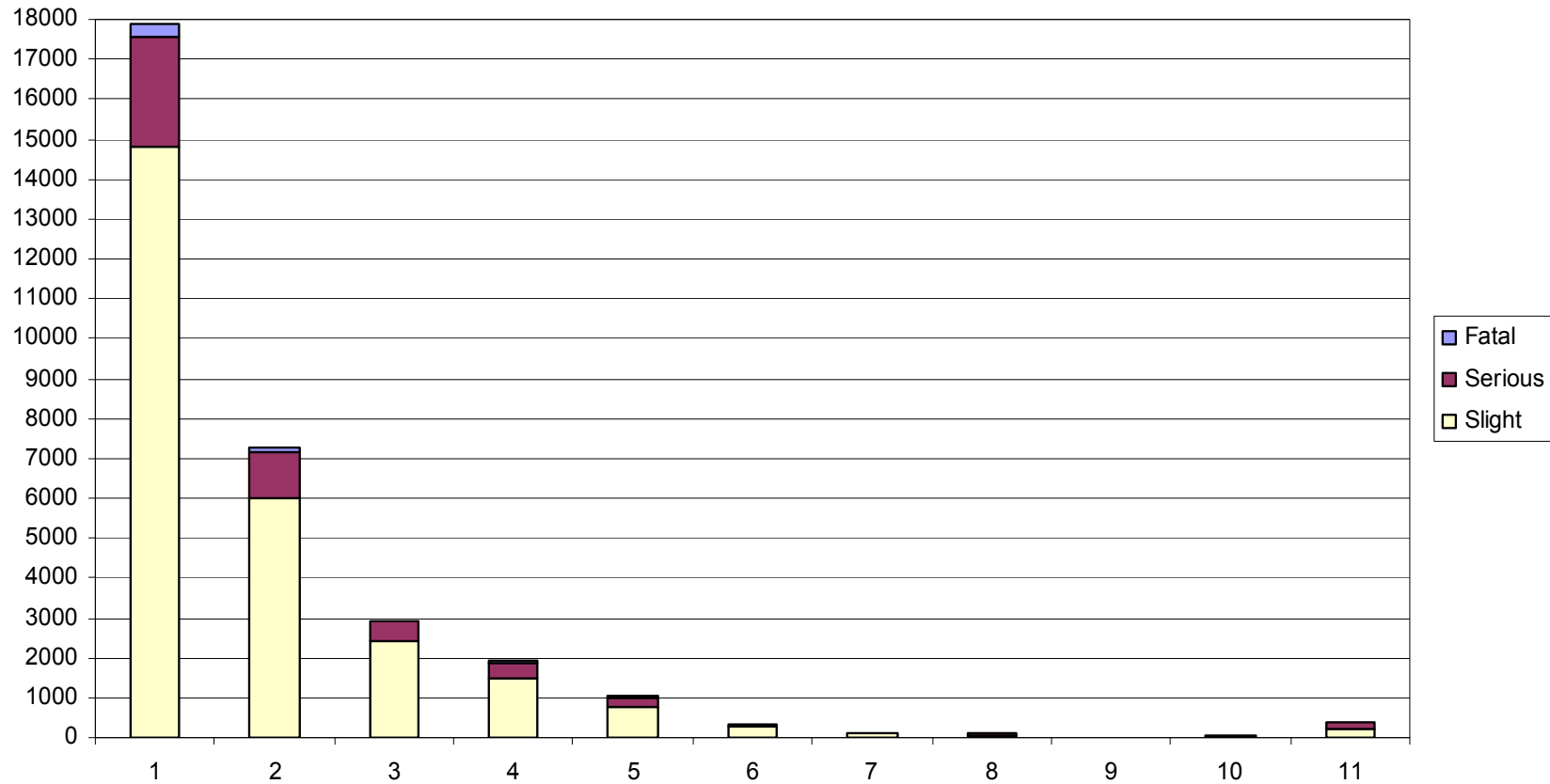
Severity of all VRS incidents

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TRL DATA (1990-2000)

Number of Casualties per Incident



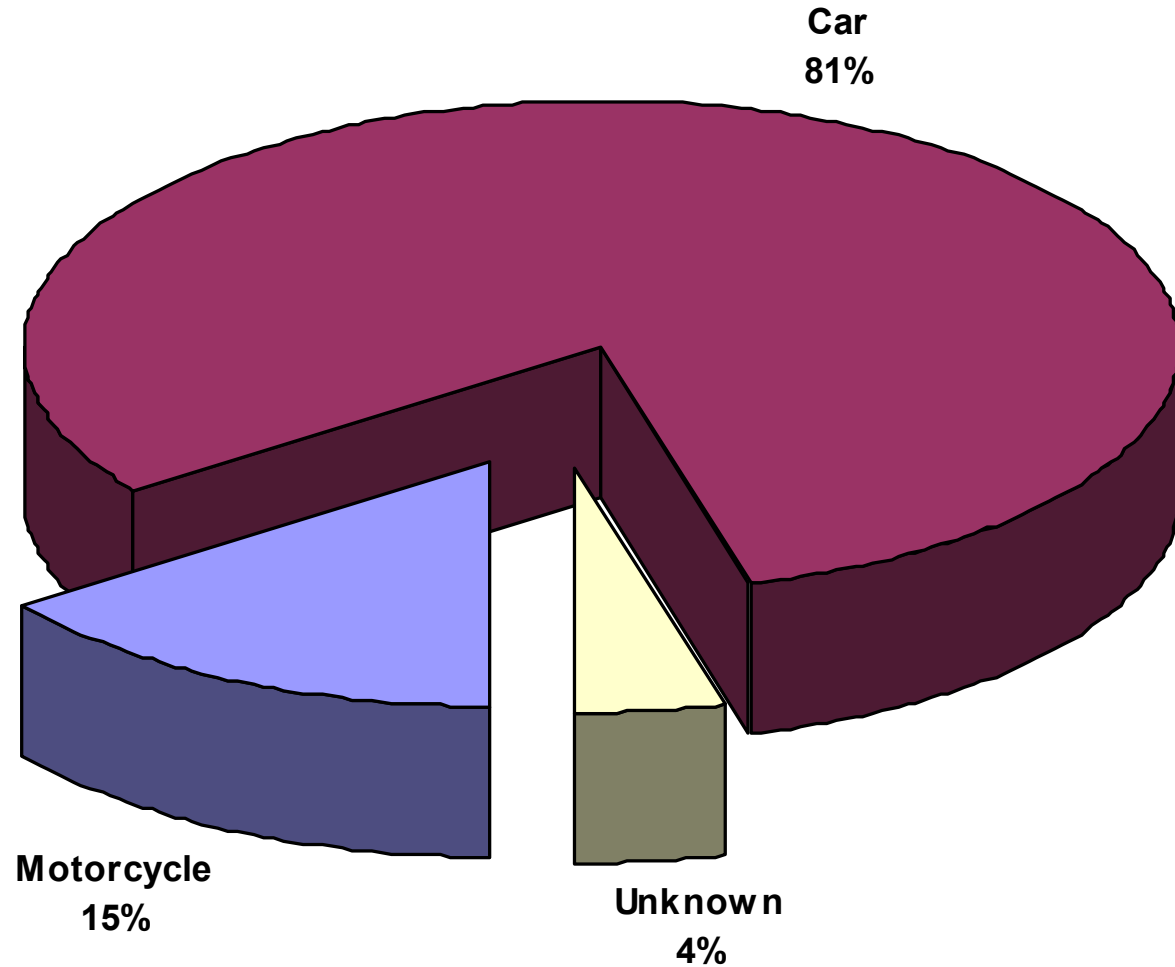
Average of 1.37 casualties per incident

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PDM DATA (2000-2003)

Total
Number of
Detailed
Data Sets:
70



PDM DATA (2000-2003)

Car Weight (kgs)	Number of Incidents	% age less than 5 years old
735 – 859	11 (19%)	45%
860 – 940	7 (12%)	86%

EN1317-1 Vehicle Weight Requirement

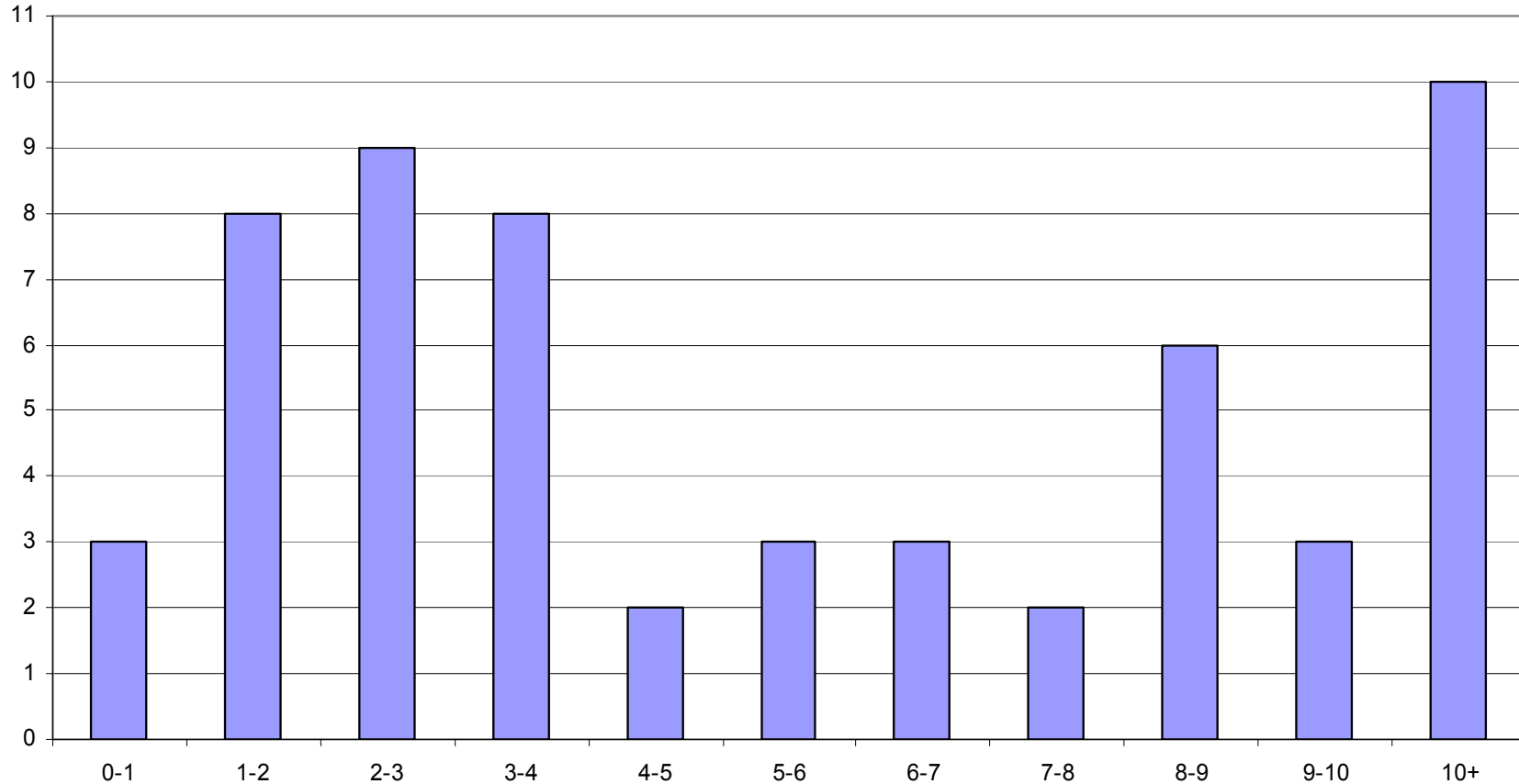
15 Incidents within current EN1317-1 requirements

30 Incidents outside current EN1317-1 requirements

1576 – 1890	2 (3%)	100%
Not recorded	14 (24%)	-
TOTAL	59 (100%)	

PDM DATA (2000-2003)

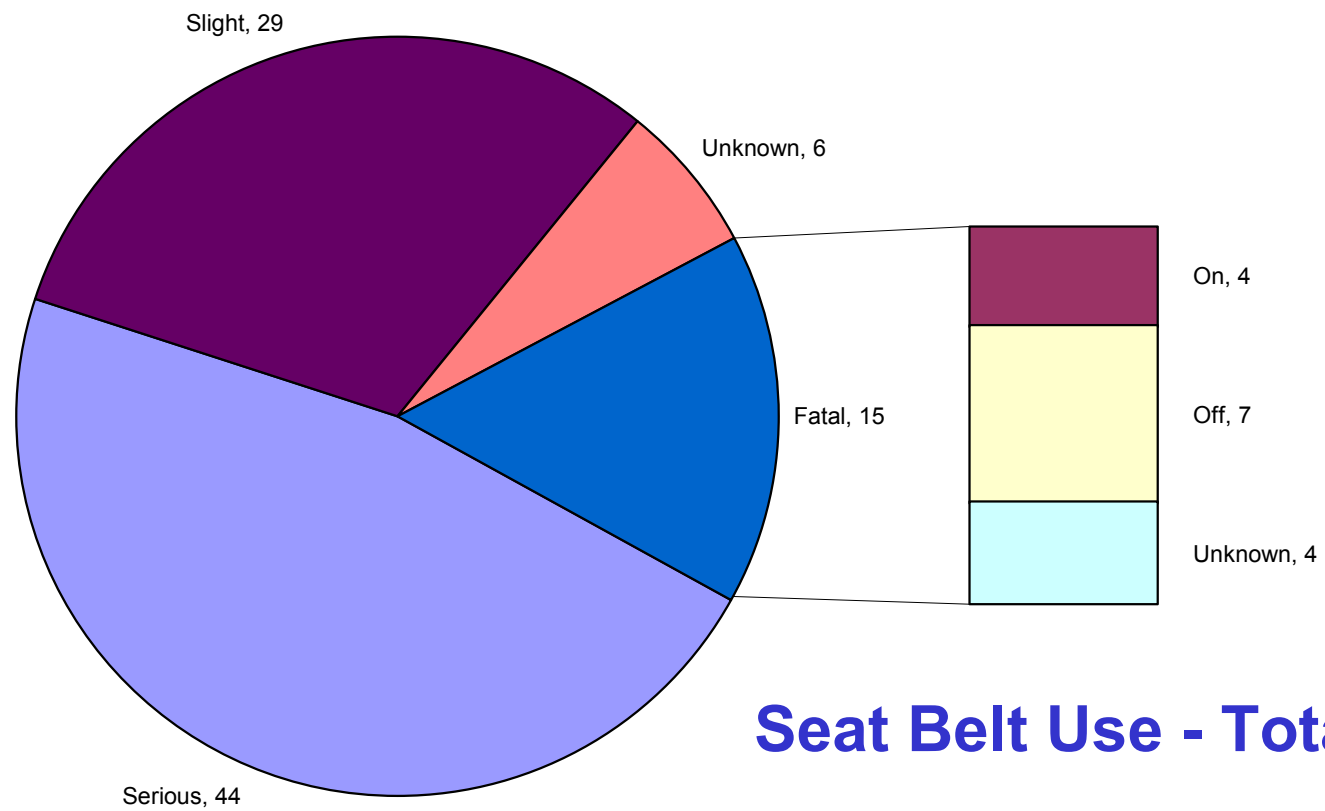
Age of the Vehicle at the Time of the Incident



Robust. GRD1-2002-70021

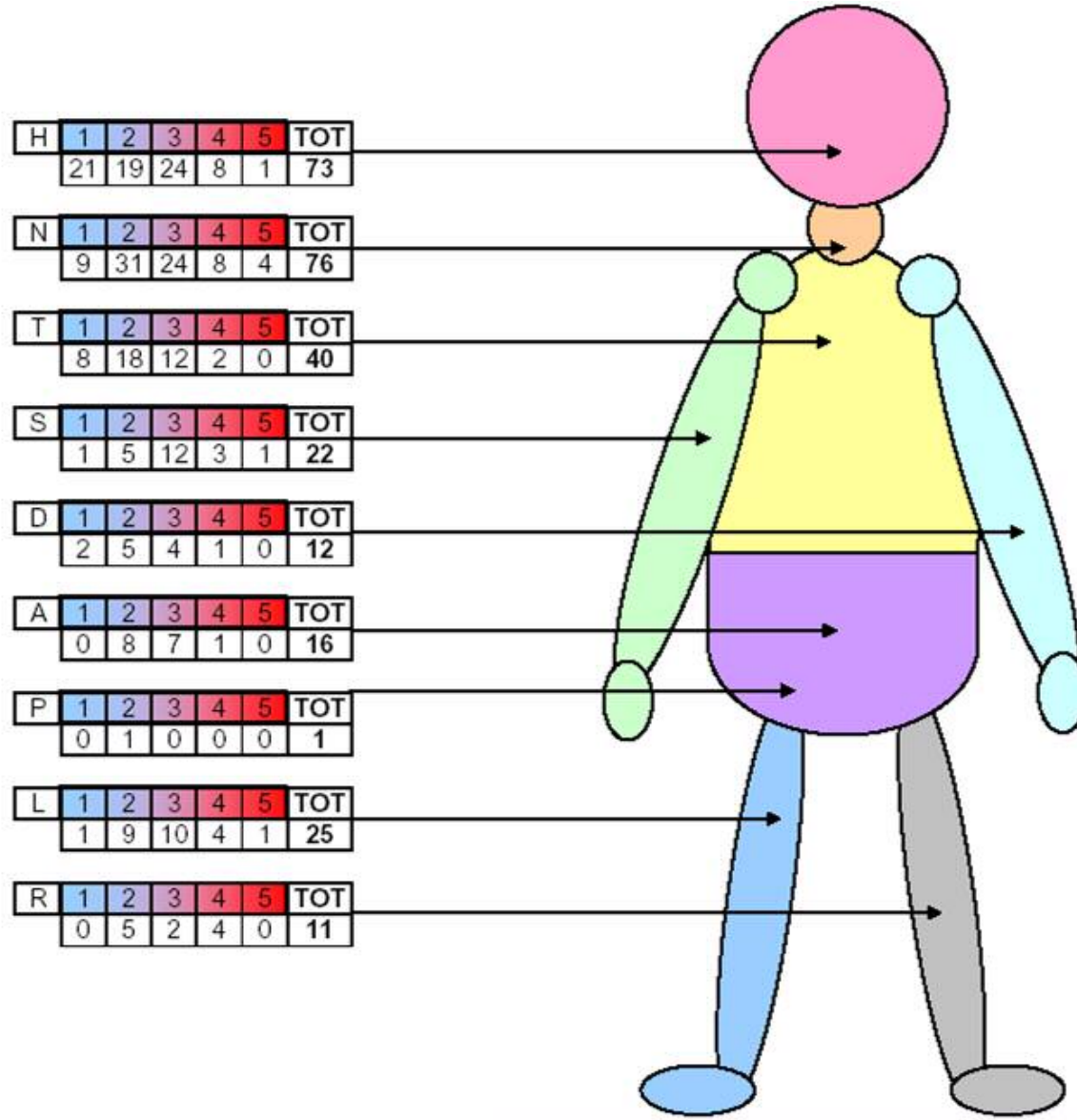


PDM DATA (2000-2003)



Seat Belt Use - Total

PDM DATA (2000-2003)



RECOMMENDATIONS

- **For all impact testing with cars, an impact speed of 110kph is recommended for all testing;**
- **The impact angle for cars remains at twenty degrees;**
- **The number of registered motorcycles be recorded, and the occurrence of such incidents analysed in future years;**
- **It is recommended that the weight specified for the small car test (currently referred to as TB11) should be changed so as to be 950±50kg;**

RECOMMENDATIONS

- **It is recommended that the vehicles used for the testing of VRS are no more than 5 years old;**
- **The data have shown that one dummy (either instrumented or un-instrumented) should be seated in the vehicle during all testing between cars and VRS;**
- **It is further recommended that the dummy should be placed on the driver's side of the vehicle;**
- **It is recommended that, any dummy installed in a vehicle during VRS testing should be restrained by a seat belt.**

RECOMMENDATIONS

- **An additional task has examined incidents occurring on UK roads;**
- **It has been found that there is little information currently collected regarding the VRS at incident scenes;**
- **It is recommended that this information is collected to aid future analysis and research.**