

# Monitoring Brief

Monitoring Brief 1/2011  
5 January 2011

## ***Proposals to improve the reporting of road casualties***

In March 2010 the House of Commons Transport Committee invited the UK Statistics Authority to investigate the extent to which the Department for Transport had sought an explanation for the divergence between the number of people killed in road traffic accidents and those seriously injured.<sup>1</sup> The Authority's report to the Committee is attached.

The Committee's request followed a statutory Assessment by the Statistics Authority of the statistics covered in the Department for Transport's publication *Road Casualties Statistics*<sup>2</sup>. The Assessment report identified various steps that needed to be taken, including: the development of a best approximation of the total numbers of casualties (based on research into the under-counting associated with the road accident reporting system); publication of plans to improve the reporting of data by police forces; and bringing together as much relevant data as possible at the time the statistics are released to explain the weaknesses in the statistics derived from police records.

A further Assessment Report *Statistics on Transport in Scotland* was published in October 2010<sup>3</sup>, and a similar report in respect of road casualty statistics produced by the Welsh Assembly Government will be published in the coming months.

In its report to the Transport Committee, the Statistics Authority makes a number of suggestions to improve the published statistics:

1. More explanation should be given, in accessible terms, of the findings of relevant research. More of this research could be reported or referred to in *Reported Road Casualties Great Britain* to help explain and contextualise changes in trends.
2. Further analysis should be undertaken of the dataset created by matching records from the Hospital Episode Statistics (HES) and the police statistics.
3. Consideration should be given to more analytical work to improve understanding of:
  - the serious / slight / no injury boundaries, and the impact of any changes in these
  - regional differences in reporting and coding by police.
  - subpopulation trends, such as age, sex, region, or deprivation.

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<sup>1</sup> House of Commons Transport Committee *Ending the scandal of complacency: road safety beyond 2010*, Eleventh Report of Session 2007-08, 29 October 2008, HC 460

<http://www.publications.parliament.uk/pa/cm200708/cmselect/cmtran/460/460.pdf>

<sup>2</sup> UK Statistics Authority *Assessment Report 4 – Road Casualty Statistics (Department for Transport)* (July 2009)

<http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-4---road-casualty-statistics--27-july-2009.pdf>

<sup>3</sup> UK Statistics Authority *Assessment Report 61 – Statistics on Transport in Scotland (Scottish Government)* (October 2010)

<http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-61---statistics-on-transport-in-scotland.pdf>

4. Consideration should be given to the type of information that might be gleaned from the pilots of the new police system for recording details of accidents using mobile devices at the accident scene, to help estimate the effects of the discontinuities that are likely to arise in the reported road casualties statistics when the new technology is introduced across the country.
5. The Department of Transport should work with ACPO, the Home Office, and police forces to develop a strategy for communicating to police forces the use and value of road casualty data and the importance of the quality of the data that police officers gather.

More generally, the Authority's reviews of road casualty statistics identified a wide variety of ways in which these figures are used, including the development and monitoring of road safety policy at the local and national level; the development and evaluation of legislative changes; the targeting of road safety publicity; and the identification of public health issues relating to road safety. Under the Code of Practice for Official Statistics, it is a requirement that the bodies that produce the statistics include with the published figures commentary on their quality and reliability in relation to the range of potential uses and analysis that aids interpretation. The suggestions noted in this Brief are intended further to strengthen the reporting of the statistics in those regards.

## UK STATISTICS AUTHORITY

### REPORT TO THE HOUSE OF COMMONS TRANSPORT COMMITTEE

#### *Department for Transport's explanation of the divergence in trends in numbers killed and seriously injured in road traffic accidents*

#### 1 Introduction

- 1.1 In March 2010 the House of Commons Transport Committee invited the UK Statistics Authority to investigate the extent to which the Department for Transport had sought an explanation for the divergence between the number of people killed in road traffic accidents and those seriously injured. This report is submitted in response to that invitation.
- 1.2 The Transport Committee published its own report *Ending the Scandal of Complacency: road safety beyond 2010* in October 2008.<sup>1</sup> The report examined the progress made in reducing road fatalities and injuries, and in reducing danger to vulnerable road users, in the context of the Government's 2000 road safety strategy. The Committee drew attention to what it saw as the poor progress in reducing road deaths in recent years in contrast to the rapid reduction in serious casualties. The Committee noted concerns that the diverging trends between deaths and serious injuries might be due to changes in reporting. It called for monitoring to be based on multiple data sources, including a new British road safety survey and for more independent scrutiny of progress towards targets.
- 1.3 The Government responded to the Committee's recommendations, in January<sup>2</sup> and April 2009.<sup>3</sup> It contended that the body of evidence referred to in the Committee's report 'depends largely on misleading comparisons (of road casualties recorded by the police) with hospital admissions'. Hospital data had been 'affected by administrative changes over time' and were 'not suitable for trend analysis'. The Government confirmed that it would continue to try to achieve the linkage of police and hospital data at a national level to assist research, and that a further review of the STATS19 system was currently taking place. Questions on road safety had been added to the National Travel Survey in 2007, and over time 'these data will provide useful extra information on trends to supplement STATS19'. It was also noted that the Department would work with the National Policing Improvement Agency on Project CRASH to 'enable road accident details to be captured electronically by police officers'. It was hoped that this would 'improve the quality and consistency of accident data' as well as 'reducing the burden of reporting' road accidents.
- 1.4 In the light of the Committee's report, the UK Statistics Authority brought forward its statutory Assessment of the statistics covered in the Department for Transport's publication *Road Casualties Statistics*. The Assessment Report was

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<sup>1</sup> House of Commons Transport Committee *Ending the scandal of complacency: road safety beyond 2010*, Eleventh Report of Session 2007-08, 29 October 2008, HC 460  
<http://www.publications.parliament.uk/pa/cm200708/cmselect/cmtran/460/460.pdf>

<sup>2</sup> House of Commons Transport Committee *Ending the scandal of complacency: road safety beyond 2010: Government response to the Committee's Eleventh Report of Session 2007-08*, First Special Report of Session 2008-09, 19 January 2009, HC 136  
<http://www.publications.parliament.uk/pa/cm200809/cmselect/cmtran/136/136.pdf>

<sup>3</sup> House of Commons Transport Committee *Ending the scandal of complacency: road safety beyond 2010: Government response to the Committee's Eleventh Report of Session 2007-08*, Second Special Report of Session 2008-09, 27 April 2009, HC 422  
<http://www.publications.parliament.uk/pa/cm200809/cmselect/cmtran/422/422.pdf>

published in July 2009. As part of that report, the Authority placed a number of requirements on the Department.<sup>4</sup> These included requirements to:

- Develop a best approximation of the numbers of casualties based on research into the under-counting associated with STATS19;
- Publish plans to improve the reporting of data by police forces;
- Bring together as much relevant data as possible at the time the statistics are released in order to explain the weaknesses in the STATS19 data; and
- Change the title of future publications to, for example, 'police recorded road casualty statistics', and change statistical commentary and tables to reflect that the statistics are derived from information reported to the police.

1.5 Following the publication of the Statistics Authority's Assessment Report, the Head of Assessment gave oral evidence in November 2009 as part of the Committee's inquiry into the *Performance of the Department for Transport*.<sup>5</sup> In December 2009, the Department responded to the Authority's Assessment outlining the actions that the Department intended to take to meet the Authority's recommendations. The Authority subsequently confirmed the Road Casualties statistical series as National Statistics.<sup>6</sup>

1.6 Although the Committee noted improvements in STATS19 reporting procedures, it remained concerned about the Department's statistics; in particular, what the Committee saw as reluctance to adopt a sufficiently critical approach to possible weaknesses in the reported casualty statistics. In its report into the *Performance of the Department for Transport*, published in March 2010, the Committee observed:

As a result of our Report in 2008 on road safety, the UK Statistics Authority brought forward its statutory independent assessment of the Department for Transport's road casualty statistics. We welcome the UK Statistics Authority's responsiveness in this regard. The UK Statistics Authority made seven requirements of the Department, to be implemented by November 2009. In February, the Department for Transport published a summary of the action it is taking to meet these requirements. We welcome the measures proposed by the Department for Transport to improve the accuracy of road casualty statistics. We call on the Department to implement the actions fully and to make use of the wider sources of casualty data in future statements and reports.

1.7 The Committee also invited the Statistics Authority to undertake further investigatory work in the area of divergence between the number of road casualty fatalities and seriously injured:

The UK Statistics Authority assessed the overall adequacy of the Department for Transport's casualty statistics. We invite the UK Statistics Authority to now undertake a specific investigation into the extent to which the Department for Transport has sought an explanation for the unexpected divergence between the number of people killed and those seriously injured.<sup>7</sup>

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<sup>4</sup> UK Statistics Authority *Assessment Report 4 – Road Casualty Statistics (Department for Transport)* (July 2009)

<http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-4---road-casualty-statistics--27-july-2009.pdf>

<sup>5</sup> House of Commons Transport Committee *Update on Road Safety – UK Statistics Authority: Oral Evidence from Richard Alldritt, Head of Assessment*, 4 November 2009, HC 1086

<http://www.publications.parliament.uk/pa/cm200809/cmselect/cmtran/1086/091104.pdf>

<sup>6</sup> <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/confirmation-of-designation-letters/letter-of-confirmation-as-national-statistics---assessment-report-4.pdf>

<sup>7</sup> House of Commons Transport Committee *Performance of the Department for Transport*, Fourth Report of Session 2009-10, 4 March 2010, HC 76

<http://www.publications.parliament.uk/pa/cm200910/cmselect/cmtran/76/76.pdf>

- 1.8 Sir Michael Scholar, Chair of the UK Statistics Authority, wrote to the Chairman of the Committee on 18 March 2010 confirming that the Authority would prepare a report.<sup>8</sup>
- 1.9 The Monitoring and Assessment Team of the Statistics Authority has since reviewed the relevant statistics and available documents, held meetings with statisticians in the Department for Transport, obtained further written evidence and consulted experts. We have reviewed again the information provided in relation to the Authority's Assessment Report<sup>9</sup>, as well as the evidence submitted to the Transport Committee.

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<sup>8</sup> <http://www.statisticsauthority.gov.uk/reports---correspondence/correspondence/letter-from-sir-michael-scholar-to-louise-ellman-mp-160310.pdf>

<sup>9</sup> UK Statistics Authority *Assessment Report 4 – Road Casualty Statistics (Department for Transport)* (July 2009)  
<http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-4---road-casualty-statistics--27-july-2009.pdf>

## 2 Statistics Authority conclusions

- 2.1 The Transport Committee's remit to the Authority was to consider the extent to which the Department has sought an explanation for the divergence between the number of people killed and those seriously injured. The Authority has looked at this question in the round but focused particularly on whether the available statistical evidence has been fully explored. To reach a conclusion on this point, we have looked at the main parts of the evidence afresh and much of this report summarises our perspective on the statistical evidence and how much interpretation it will bear.
- 2.2 Our main conclusion is that a considerable body of research has been undertaken, and the Department has probably taken the *historical* statistical analysis as far as it can.
- 2.3 There are parts of the historical picture that cannot be observed clearly enough, nor inferred with sufficient confidence, to answer the outstanding questions about whether the trends seen are partly due to changes in reporting (by the public) or recording (by the police) over the years. The evidence thus remains inconclusive and we believe that further analysis of statistical sources is unlikely to throw much more light on it. Different authors will interpret the available material differently but we do not see a realistic prospect of conclusive evidence emerging.
- 2.4 The Committee's request to the Authority related to the divergence in trends in more recent years (Chart 1 below), though we have looked at the statistics over a longer period in order to set the recent trends in context. As the sections below explain, this longer term analysis is revealing in some respects and offers a different perspective on the more recent patterns. Whilst we think, in the light of this, that it is likely that the number of serious injuries has indeed declined, following a path similar to, or a little more rapid than, that for deaths, there are such large unknowns that even this conclusion must be seen as tentative.
- 2.5 The Department has made improvements to both the production of road casualty statistics and their presentation in statistical publications, including some important steps taken in response to the Authority's Assessment Report. However, these improvements will only enhance the quality of information about the present and future, not about what has happened in the past.
- 2.6 Taking all the available evidence together, it does show some things fairly clearly. In particular, it indicates that many injuries in road accidents, including many defined as serious, are not reported to the police by the public. Hospital data and other sources throw some light on these darker areas of the picture, but we cannot be sure that they do so consistently over time; indeed it is likely that hospital data are, themselves, subject to recording improvements and other effects. So these alternative sources raise some questions about the validity of the trends observed in the police figures but they do not go very far in terms of answering those questions.
- 2.7 This suggests that the best strategy now would be to focus on improving the *consistency* of recording of road casualty data for the future. If past trends continue within an improved recording system then that will lend weight to their past credibility. The Department is, in practice, pursuing this agenda and the Statistics Authority endorses that approach.
- 2.8 Bearing all these cautionary comments in mind, the steady downward trend in serious injuries since the mid 1960s (Chart 2) is nonetheless remarkable in

statistical terms. Throughout a period of very rapid growth in road traffic, and big changes in regulation, accident prevention, targeting and technology, the number of serious injuries recorded each year has fallen steadily from the mid 1960s to the present day, with little major divergence from that linear trend. Viewed with the benefit of historical perspective, the *trend* in the number of serious injuries over the last ten years seems to have been much the same as the *trend* in the 1970s and all decades in between. This is a striking and unusual pattern. If this trend were to continue for just another 12 years or so, there would be no serious injuries being recorded by the police at all. Thus some 'levelling off' seems likely now and the historical trend will inevitably change.

- 2.9 Looking at the way the annual figures fluctuate around the trend, there is little evidence of the kind of sudden step-changes in the numbers that might be associated with a change in police practice, or which might follow from the introduction of new targets. It is worth noting that the casualty reduction targets were not Home Office targets and, as such, the police may not have had the same 'incentive' to meet them.<sup>10</sup> There may appear to be an acceleration of the fall in serious injuries after the 1987 target was introduced (see Annex D), but, even if that was associated with the targets, the annual figures were back close to the long term trend by 1993.
- 2.10 The slightly greater year-to-year volatility of the figures for deaths should not obscure the fact that they too have followed a linear trend since the mid-1960s. The figures for deaths are widely accepted as being accurate. This does lend some credibility to the similar trend in serious injuries. That the downward trend for serious injuries has been a little steeper than the trend in deaths is notable but not necessarily implausible. A range of hypotheses to explain such a difference can be found without invoking inconsistency in reporting or recording.
- 2.11 Comparison between the police data on serious injuries and hospital admissions, for a broadly similar range of injuries, suggests that *something* has changed (Chart 3). We see stable, or slightly rising hospital admissions whilst the police figures for serious injuries continue their steady decline. However, it is not clear whether it is the practice of hospitals, the police or the victims, or something else that is driving this divergence. This chart is important but it could tend to mislead. The similarity in numbers for the police statistics and hospital admissions may be partly down to chance. As the statistical report from which this chart is taken says "many of those admitted to hospital will not appear in the STATS19 data, and vice versa". This is because cases that the police may record as 'serious' may not result in a hospital admission; conversely some hospital admissions will relate to cases not recorded by the police. So the chart may appear to tell a more compelling story than it really does. The two lines on it are only partial views of a bigger picture, much of which we cannot see. This is illustrated in Chart 4.
- 2.12 Drawing together the Authority's conclusions:
- i. Whilst a considerable body of research has been undertaken, the evidence remains inconclusive on the question of what lies behind the divergence in the trends between deaths and serious injuries in the period of concern to the Committee. This is likely to remain the case and further analysis of statistical sources is unlikely to throw much more light on it. The most persuasive element in the evidence is the steady nature of the downward trends in deaths and serious injuries since the mid 1960s. Accepting the

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<sup>10</sup> House of Commons Transport Committee *Ending the scandal of complacency: road safety beyond 2010*, Eleventh Report of Session 2007-08, 29 October 2008, HC 460, para. 32 and Ev. 29

trend in deaths as genuine, the long term trend in recorded serious injuries looks credible, although a lack of evidence means we cannot say much about the larger picture of *unrecorded* injuries.

- ii. The Department has closely examined a lot of evidence and published much of it, including various alternative hypotheses to explain the trends seen. It has been suggested elsewhere that the Department may have been reluctant to contemplate these hypotheses in the past. However, in the light of the reports from the Transport Committee and the Statistics Authority, the Department has drawn attention, in recent publications, to possible alternative explanations and brought together much of the relevant data. It has also published a best approximation of the true number of casualties through a synthesis of available data. This is welcomed by the Authority. There is scope to further improve the presentation of the material but a big step has been taken.
- iii. The Department has funded a programme of research to help understand the causes and scale of traffic accidents, including work to better understand the divergence between serious injuries and deaths. While this research was never likely to offer a definitive account of the 'true' historical trends, and much of it focussed on looking for reasons why fatalities had not been declining rather than the question of why serious injuries had, it has contributed to an understanding of the nature and scale of what is unknown.
- iv. The Department has begun to implement plans to improve its statistical systems, so that better information on road casualties will be available in the future. This includes developing an improved police system for recording road casualties, and more accurate estimates of unreported casualties from the National Travel Survey (NTS). The experts we spoke to were optimistic about the improvements these systems are expected to bring, but emphasised the importance of close working between the Department, police forces, the Home Office and the Association of Chief Police Officers (ACPO).

**The remaining sections of this report are structured as follows:**

Section 3: Discussion of the historical trends

Section 4: Possible explanations for the divergence

Section 5: The Department's response

Annex A: Research reports

Annex B: Data sources

Annex C: Trends in deaths and serious injuries for main road user groups

Annex D: Road safety targets

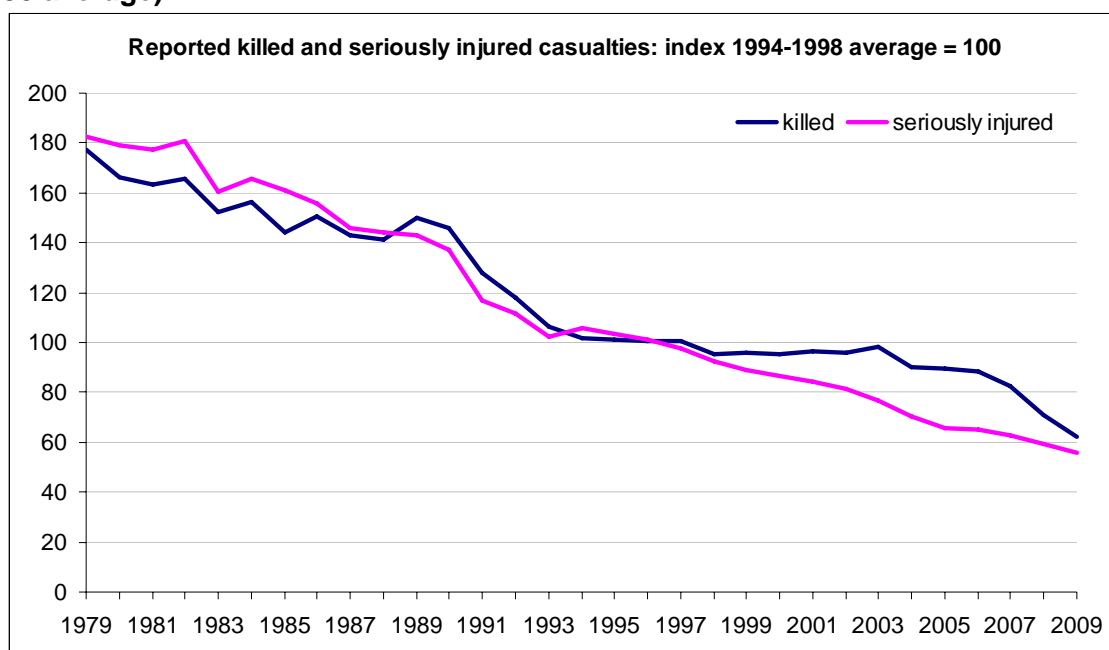
### 3 Discussion of the historical trends

- 3.1 The recording of a road accident by a police officer on a 'STATS19' form requires judgements to be made, including about the severity of any injuries. This introduces potential for inconsistency between police officers, police forces and from one year to the next. But there is a bigger source of uncertainty: the STATS19 form can only be completed if the police are informed about the accident in the first place. Rough estimates, published in *Reported Road Casualties, Great Britain 2008*, suggest that even among serious injuries perhaps only one in three are reported to the police. The report says that "studies of hospital data have suggested that the true number of seriously injured casualties that attend hospital is up to three times the number recorded in Stats 19". If this is right, there is - and we assume always has been - a much larger pool of serious injuries occurring than are recorded by the police, and there is no robust way of knowing whether the proportion that the police manage to record might have been drifting up or drifting down. To be sure about this, we would need to know with confidence the number of unrecorded and unreported casualties and, by definition, we do not. It is only in more recent years that any evidence on this has become available and it is, in itself, uncertain.
- 3.2 Estimates of under-recording can now also be derived from the NTS and these suggest an even bigger difference - as many as 8 serious injuries occurring for every one recorded by the police. But it is quite possible that some of the respondents to the survey describe the injuries they sustained in ways that put them in the serious injury category when the police might have correctly judged them to be less serious. The exact extent of under-reporting is not the main consideration. Whether it is two-thirds or some larger proportion that do not get reported, the dark part of the picture is big enough to leave serious questions about the true trend.
- 3.3 Preliminary results from a follow-up study of NTS respondents who reported that they were injured in a road accident in the last three years<sup>11</sup> do suggest that NTS estimates are inflated, although it is also possible that some other respondents failed to mention injuries that would properly be recorded as serious.
- 3.4 Between 1998 and 2003, the police statistics showed a 3% rise in deaths and a 17% fall in serious injuries, prompting some commentators to question - in the light of what is known about under-recording - whether the recorded fall in serious injuries was genuine. The Transport Committee looked in particular at the trend between the 1994-98 average and 2006, the period which preceded its road safety inquiry. Chart 1 illustrates the divergence in the trends for reported deaths and serious injuries from 1979 onwards.

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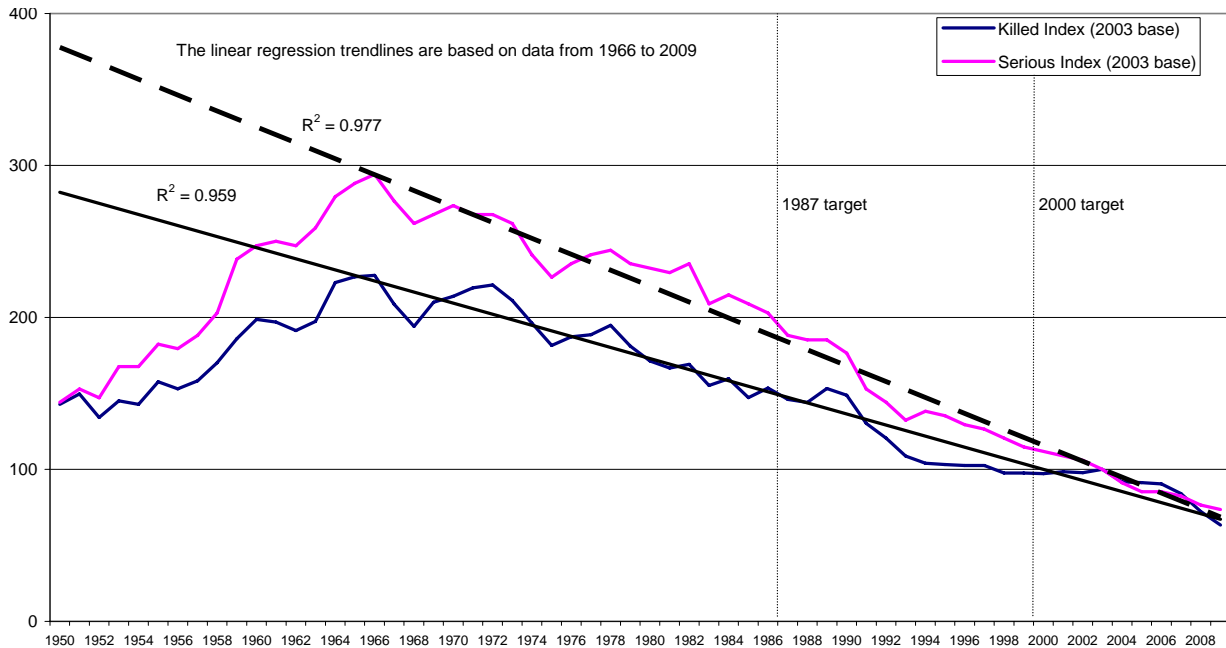
<sup>11</sup> Department for Transport *Recorded Road Casualties Great Britain: 2008*, (2009) chapter 5  
<http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesgbar/>

**Chart 1: Trends in deaths and serious injuries in Great Britain (indexed to 1994-98 average)**



- 3.5 Chart 1 appears to suggest that something changed after 1998 that caused the number of recorded serious injuries to fall, while the number of fatalities remained stable. The more detailed charts at Annex C show that this only affected injuries to car occupants. The trends for motorcyclists, pedestrians and pedal cyclists did not show this divergence. However, we are wary about putting any specific interpretation on this point. It is instructive to review the figures over a much longer time period.
- 3.6 Chart 2 shows that since the mid 1960s the downward trend in recorded serious injuries has been remarkably steady. It also shows that this trend was slightly steeper for serious injuries than for the recorded deaths. The trend in deaths was also fairly stable over the period, but subject to greater fluctuations possibly due simply to the smaller numbers involved. Between 1998 and 2006, the trends in deaths and serious injuries appeared to diverge, and then reverse sharply between 2007 and 2009.
- 3.7 Viewed in this longer time frame and allowing for a certain amount of fluctuation in the figures, the statistics for 1998 to 2009 look to be a continuation of the long term trends and the odd shape of the graph for numbers killed looks like a relatively short deviation from the trend which then returned to its former path. It is not obvious why serious injury numbers should be falling more quickly (over the long term) than deaths, but neither is this pattern, of itself, suggestive of a series of changes in police recording practice.

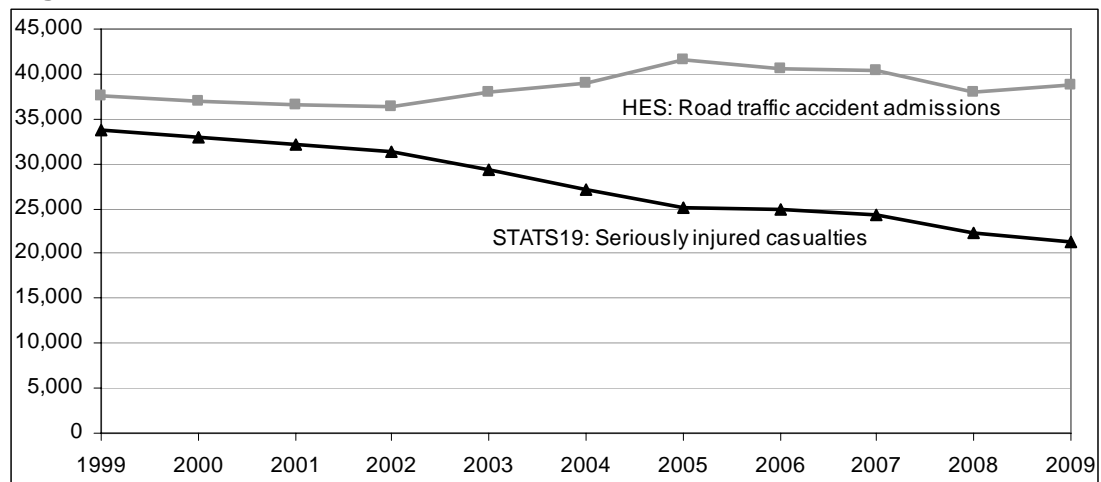
**Chart 2: Trends in deaths and serious injuries in Great Britain (indexed to 2003) - 1950-2009**



3.8 Chart 2 is presented in a simple index form (2003 = 100) in order to show the comparison in the trends clearly. Both the straight 'lines of best fit' have a very good fit with the observed data. This can be interpreted to mean that whilst there is some volatility in the annual data, it has been following the same linear downward trend over a very long period.

3.9 Chart 3 compares the STATS19 serious injury figures with broadly comparable data from hospital admissions (note that it is only broadly comparable – for example, hospital data include admissions following falls from pedal cycles which are not generally reported to the police). Here there is apparent evidence of a more substantial divergence in trend. When we compare 2009 with ten years earlier, it would appear that about the same number of serious injury cases are being admitted to hospital whilst fewer are being recorded by the police. But there are other possible explanations. One possibility is that the recording of 'hospital episodes' has improved and more are being associated with road accidents. Another is that fewer serious injuries are being reported to the police by the public. So, this divergence in trend is not necessarily indicative of a change in police practice, although that remains one possible explanation.

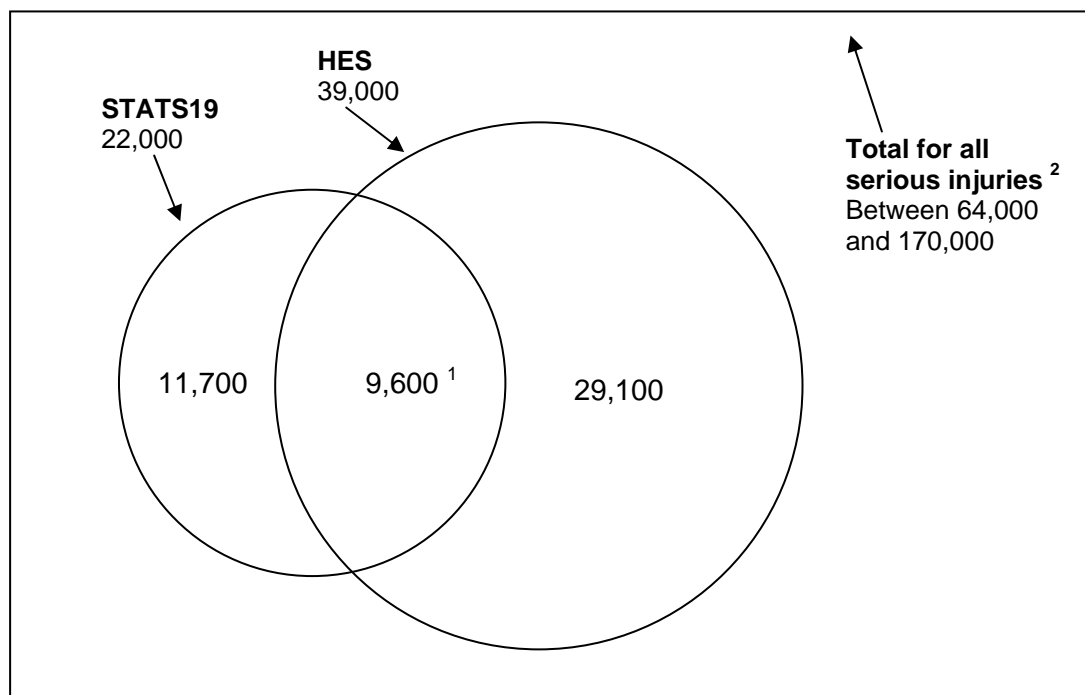
**Chart 3: STATS19 serious injuries and HES road traffic accident admissions in England 1999- 2009**



Note 1: 2009 HES data are provisional (Source: DfT, *RRCGB: 2009* (2010))

3.10 As noted in para 2.11, it would be wrong to attach too much significance to the fact that the *number* of hospital admissions is higher than the *number* of serious injuries recorded by the police. Chart 4 illustrates that both sets of figures are missing a substantial proportion of injuries.

**Chart 4: Comparison of STATS19 and HES estimates for serious injuries in England (2009)**



Note 1: The estimate of overlap is based on results of linking STATS19 and HES data. For serious injuries, 45 per cent of records for STATS19 were matched with HES records. The matching was carried out on 2007 data. Matching should be treated with caution, as linking data depends on the quality of the records.

Note 2: Estimates of the total number of serious injuries vary. Results from the NTS suggest there may be up to 170,000 thousand serious injuries per year (8 times that recorded by STATS19), but this is could be an overestimate (see para 3.3). Other research<sup>12</sup> into hospital records indicates the true number of serious injuries may be closer to three times those recorded in STATS19.

Note 3: 2009 HES data are provisional.

<sup>12</sup>[http://www.trl.co.uk/online\\_store/reports\\_publications/trl\\_reports/cat\\_road\\_user\\_safety/report\\_comparison\\_of\\_hospital\\_and\\_police\\_casualty\\_data\\_a\\_national\\_study.htm](http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/report_comparison_of_hospital_and_police_casualty_data_a_national_study.htm)

## 4 Possible explanations for the divergence

- 4.1 There are a range of possible hypotheses to explain the observed divergence in trends for deaths and serious injuries in the period 1998 to 2006 but there are perhaps four leading candidates. The extent to which these have been researched is described in further detail in Annex A.

### **A: Fewer serious injuries being reported to the police**

The number of more severe serious injuries has declined more slowly than that of less severe serious injuries<sup>13</sup>; it has been suggested that this would be consistent with a reduction in reporting. However, whilst there is evidence of under-reporting of road accidents, there is little conclusive evidence that *rates* of reporting declined during the period. The Department has ongoing work in hand to compare the police figures with various other data sources. This is discussed further in Road Casualties Great Britain, 2008<sup>14</sup>. The other sources include: Hospital Episode Statistics<sup>15</sup>, DWP compensation claims, Death Registrations and National Travel Survey<sup>16</sup> data. However, we do not think it likely that this will reveal strong evidence for or against the hypothesis. Too much of the historical picture is unknowable. This hypothesis must remain a possibility but there is little other than conjecture to support it.

### **B: Fewer serious injuries being recorded by the police**

In addition to the possibility that the public are reporting fewer accidents, it may be that the police are attending fewer accidents and so recording fewer. Giving evidence to the Transport Committee in 2008, the Chairman of the Police Federation of England and Wales stated:

Just from our experience, you will only ever get the records of those events that we attend so, therefore, with less road policing officers on the roads we are not recording as many things as we probably did before.<sup>17</sup>

The number of dedicated roads policing officers was reduced substantially during the period as greater emphasis was placed on technology such as speed cameras or laser speed measurement.<sup>18</sup> As with hypothesis A, there is little direct evidence that *rates* of under-recording have changed. As explained earlier, the steady long term linear trend does not have the appearance of changes in recording practice although such changes might still be part of the explanation. We are not aware of any research that has been conducted to specifically investigate this possibility.

### **C: A change in the way police classify the severity of injuries**

Again, there is no firm evidence that there has been a change in the way police code injury severity although, as noted above, the more severe serious injuries declined more slowly than the less severe serious injuries which might be due to reporting changes. There is also some evidence that different police forces adopt different practice which does raise the possibility that there might have been some change over time. Giving evidence to the Transport Committee in

<sup>13</sup> <http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme5/fatalinjuriescar77.pdf>

<sup>14</sup> <http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesmr/rcgbmainresults2008>

<sup>15</sup> <http://www.ic.nhs.uk/statistics-and-data-collections/hospital-care/hospital-activity-hospital-episode-statistics--hes>

<sup>16</sup> <http://www.dft.gov.uk/pgr/statistics/datatablespublications/nts/>

<sup>17</sup> House of Commons Transport Committee *Ending the scandal of complacency: road safety beyond 2010: Government response to the Committee's Eleventh Report of Session 2007-08*, First Special Report of Session 2008-09, 19 January 2009, HC 136, Ev 29

<sup>18</sup> House of Commons Transport Committee *Ending the scandal of complacency: road safety beyond 2010*, Eleventh Report of Session 2007-08, 29 October 2008, HC 460, Ev 33-4

2008, the Head of Road Safety at the Royal Society for the Prevention of Accidents stated:

There is a written definition [for the distinction between ‘serious’ and ‘minor’ injuries on the STATS19]... but an officer at the scene may not necessarily put them in the right category, and to some extent that is probably inevitable.<sup>19</sup>

Further analysis of the matched HES / STATS19 dataset may be helpful here (see Annex A and para 3.9). For the moment, this hypothesis remains possible but again there is little reason to suppose there has been a *progressive* change in classification practice over 40 years or more, which would be necessary to explain the trend in Chart 1.

**D: A genuinely faster fall in serious injuries than deaths**

The studies listed in Annex A offer some evidence to suggest that the more rapid decline in serious injuries may be associated with certain contributory factors such as the mix of vehicles on the road. Combined with a generally downward trend, such effects could result in deaths falling more slowly than serious injuries. Another possible explanation might be that improved car design (including safety enhancements such as airbags, laminated glass windscreens, advanced braking systems etc) has been better at preventing some types of injuries than others and this beneficial effect had a progressive effect as the mix of cars on the road changed over time. On balance, we find this hypothesis credible though far from conclusively proven.

- 4.2 Leaving aside the difficulty of proving or disproving these hypotheses, we note that it is possible that more than one of them – indeed, potentially all of them – is genuine. Thus there are potential ‘interaction’ effects.

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<sup>19</sup> House of Commons Transport Committee *Ending the scandal of complacency: road safety beyond 2010*, Eleventh Report of Session 2007-08, 29 October 2008, HC 460, Ev 30.

## 5 The Department's response

### Communicating an explanation for the divergence

- 5.1 There is a question over how well the Department has presented the trends, and whether it has favoured a particular hypothesis over others without good evidence.
- 5.2 In preparing this report, we did not seek to assess each statement made by the Department in relation to this matter. However, we note that others (including the Transport Committee, and the experts we spoke to) have suggested that the Department may, in the past, have been reluctant to contemplate that the evidence might imply some fluctuations in police recording practice. Our own view is that any statements made which strongly favoured a particular hypothesis and dismissed others would have been unjustified, on the basis of the evidence that we have considered.
- 5.3 We have reviewed the way the Department has presented the issues surrounding the divergence in its recent annual releases of *Reported Road Casualties Great Britain*. Chapter 5 of the 2008 edition was dedicated to a comparative analysis of police data on road accidents and other sources. This included summaries of the strengths and limitations of each source, and, for the first time, a 'best approximation' for the true number of road accident casualties. We welcome this as a good example of communicating a complicated statistical picture.
- 5.4 While there are a range of informative research reports available which address, to varying extents, the divergence in the statistical trends, these reports have not been drawn together or summarised for the lay reader. We suggest that the Department should do more to explain the findings of the research they commission, and relevant research by others, in accessible terms. More of this research could be reported or referred to in *Reported Road Casualties Great Britain* to help explain and contextualise changes in trends.

### Research into the historical trends

- 5.5 The view amongst the experts we spoke to was that the problems with STATS19 data had not, in the past, been given the attention they deserved but that the Department was now doing more. Several streams of research are being pursued in an effort to better understand the strengths and weaknesses of the different data sources and what they tell us about trends and other aspects of the statistics.
- 5.6 The Department funds a programme of research to help understand the causes and scale of traffic accidents and to better understand changes in the trends and patterns in Great Britain. It estimates that since 2004/05 approximately £750,000 has been spent on research related to measurement issues and to understanding trends in road casualty statistics. Much of this research in recent years has sought to determine why road deaths have fallen relatively slowly. Some studies have directly investigated the divergence in fatal and serious accident numbers to see if this reflects a real change, or is the result of changes in reporting and recording patterns or changes in the classification of injury severity. However, the Department has concluded that the different data sets are not yet comparable. There are several streams of research into the way that the STATS19 form is used and into alternative data sources.
- 5.7 In 2007, the Department commissioned ONS to match records from HES and STATS19 and to produce a dataset that would enable direct comparison between the two data sources. The Department has since undertaken further

matching to include more recent data. Limited analysis of the matched data has been undertaken and the results published in Reported Road Casualties Great Britain 2008 and 2009. There is potentially more that could be done to promote the analysis of this dataset.

- 5.8 The Department has commissioned a study which aims to give statisticians a better understanding of the quality of the data from the NTS. The study aims to understand the level of reporting and misclassification of injuries, so that more accurate estimates of the total number of injuries – including those not reported to the police – can be made.
- 5.9 The experts we spoke to felt that there were several areas that needed to be further explored. These included:
- More work to understand and estimate under-reporting and misclassification in STATS19, for example using the matched HES and STATS19 data.
  - Better understanding of HES and other potential sources of data leading to the development of a multi-source dataset (although it was recognised that it is difficult for the Department to get access to data for matching and comparisons).
  - More work on the serious / slight / no injury boundaries and the impact of any changes in these.
  - Better understanding of regional differences in reporting and coding by police.
  - More work on subpopulation trends, such as age, sex, region, or deprivation.

*Better information for the future*

- 5.10 Part of the Department's work has been the co-funding of the development of a new police data collection system for road casualty statistics - Collision Recording and Sharing (CRASH). The Department believes that this system, discussed further in Annex B, will make the recording of road casualty statistics easier and will improve the quality and consistency of future data. While there was optimism amongst the experts we spoke to about improvement once CRASH is in place, the need for increased training of, and closer working with, police forces was emphasised. This would help to ensure that the introduction of CRASH realises the anticipated improvements in data quality. The Authority notes, however, that the introduction of CRASH is likely to lead to discontinuities in the police data; we would encourage the Department to consider what information might be gleaned from its pilots so that the effects of the discontinuities can be estimated.
- 5.11 A closer working relationship between the Home Office, Association of Chief Police Officers, police forces, and the Department was also seen as important. It was suggested that the Department needed to develop a strategy for communicating to police forces the use and value of road casualty data and the importance of the quality of the data that police officers gather.

## **ANNEX A: Research commissioned or conducted by the Department for Transport (DfT)**

Much research has been written which has relevance to the subject of this review. We have considered some of the recent reports below, but this is not an exhaustive literature review. Many of the studies detailed here do not directly investigate possible changes in reporting rates. Rather, they investigate hypotheses to explain the slow reduction in deaths; a subtle but important distinction.

### **1) Car Occupant and Motorcycle Deaths 1994-2002**

*Transport Research Laboratory, Report 629, 2005*<sup>20</sup>

This paper discussed different trends in the deaths of car occupants and motorcyclists. It explored the contributory factors to deaths recorded by STATS19, and concluded that the reason the number of deaths failed to decline was a decline in driving standards amongst car drivers alongside an increase in the size of motorcycles and the distance travelled.

There was an implicit assumption in this research that the fall in serious injuries is genuine. Therefore, the conclusions focused on attempting to explain why the number killed had not also fallen. The report was an exploration of risk factors associated with fatalities, rather than an attempt to explain why the trends diverge. Thus, this research does not provide evidence for any of the four hypotheses outlined at Section 4.

### **2) Under-reporting of Road Casualties - Phase 1**

*DfT Road Safety Research Report, No. 69, 2006*<sup>21</sup>

This report was commissioned following concerns that the trends in the serious road traffic injuries as recorded in STATS19 may not be an altogether accurate reflection of the true situation. It aimed to match police data with hospital data to assess the level of under-reporting and misclassification of road traffic casualties. In particular, it aimed to uncover whether any changes to reporting or recording practices led to a change in the trends.

The report concluded that the number of serious injuries could be up to twice the STATS19 figure. However, there was insufficient data to support the supposition that reporting rates or classification accuracy had changed over time.<sup>22</sup>

While useful in highlighting the deficiencies of STATS19, this research does not provide evidence for any of the four hypotheses outlined at Section 4.

### **3) Trends in fatal car accidents: Analysis of CCIS data**

*Transport Research Laboratory, Report 172, 2007*<sup>23</sup>

This study used data from the Co-operative Crash Injury Study (CCIS) – a large study of car occupant injury causation in which professional investigators record data for a sample of accidents each year – with the objective of improving crash

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<sup>20</sup> [http://www.trl.co.uk/online\\_store/reports\\_publications/trl\\_reports/cat\\_road\\_user\\_safety/report\\_car\\_occupant\\_and\\_motorcyclist\\_deaths\\_1994-2002.htm](http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/report_car_occupant_and_motorcyclist_deaths_1994-2002.htm)

<sup>21</sup> <http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme5/underreportingofroadcasual.pdf>

<sup>22</sup> A second phase of the research was originally planned. However, DfT stated in their written response to our questions that this was not carried out. This was because it was judged that the recommendations of phase one for future data collection were not practical as the data concerned (A&E, HES etc) were outside the responsibility of DfT.

<sup>23</sup> [http://www.trl.co.uk/online\\_store/reports\\_publications/trl\\_reports/cat\\_road\\_user\\_safety/report\\_trends\\_in\\_fatal\\_car\\_accidents\\_analyses\\_of\\_ccis\\_data.htm](http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/report_trends_in_fatal_car_accidents_analyses_of_ccis_data.htm)

performance by identifying future priorities for vehicle safety design. The paper focused on two main issues: seatbelt wearing, and the concept of 'un-survivable' accidents.

The study concluded that there was no evidence that seatbelt wearing rates changed between 1994 and 2004 in a way that would help explain the divergence in fatal and serious casualty trends. It also found no significant change in the proportion of un-survivable accidents.

The study concluded that the divergence in the number of people killed or seriously injured between 1994 and 2002 could not be explained in terms of the number of un-survivable accidents, or seatbelt wearing rates. The research did not explore alternative hypotheses for the trends, such as reporting or recording changes.

This research provides a measure of evidence against hypothesis D at Section 4, in the sense that it eliminates two possible reasons for a genuinely faster fall in serious injuries than deaths. However, because there are many other potential factors that might contribute to a genuinely faster fall – such as a change in the mix of cars on the road – this evidence is not in itself conclusive.

#### **4) Trends in fatal car-occupant accidents**

*DfT Road Safety Research Report, No. 76, 2007<sup>24</sup>*

Multiple data sources (STATS19, HES, CCIS, On The Spot<sup>25</sup> etc) were used in this study to try to identify factors that could explain “the slowing and flattening of the previously downward trend in accidents leading to fatalities among car occupants”.

The study concluded that there were four areas in which upward trends could be detected in driver behaviour, or vehicle design:

- drink drive deaths;
- loss of control in accidents (a fall in driving standards);
- an aggressiveness of newer vehicles, both in terms of mass within broad vehicle types and the increased proportion in the fleet of the largest types of car; and
- the diversity of mass with greater proportions of the smallest and the largest vehicles.

A weakness of this study, in the present context, is the narrow focus of its research question, which aimed to address “to what extent can trends be explained in terms of accident circumstances; survivability of crashes; health care after injury; and deprivation”. The possibility that the trends may be a result of changes to reporting or recording practices was not considered.

The conclusions could appear to lend some support to hypothesis D at Section 4. However, upward trends in 'negative' aspects of driver behaviour or vehicle design do not explain why serious injuries should fall while fatalities increase or stay the same. Therefore, the conclusions do not explain the divergence between the two trends.

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<sup>24</sup> <http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme5/trendsfatalcar76.pdf>

<sup>25</sup> <http://www.ukots.org>

**5) Monitoring progress towards the 2010 casualty reduction target**

Transport Research Laboratory, Report 643, 2005<sup>26</sup>

and

**6) Monitoring progress towards the 2010 casualty reduction target - 2007 data**

Transport Research Laboratory, Report 671, 2009<sup>27</sup>

These two reports discussed progress towards the 2010 government casualty reductions targets. The 2005 report includes analysis for data from 1999 to 2003 while the 2009 report updates the first report with data up to 2007.

The earlier report concluded that the increase in the ratio of deaths to serious injuries was genuine, and not the result of change in reporting levels. The authors argued that the fact that the severity proportion (the proportion of fatalities against those seriously injured) had increased with reasonable regularity since 1994 was important, because it showed that the main cause or causes for the slower reduction in deaths must have acted progressively between 1994 and 2003, rather than over a year or two (as would be expected if the shift was the result of the introduction of a target).

The later report recognised that it was possible that the level of reporting of serious accidents may have fallen, but concluded that analyses have provided few indications that this may have occurred. It concluded that the increase in the severity proportion is largely genuine, although declines in the reporting level for serious accidents may have contributed to recent increases.

These reports provide some evidence in support of hypothesis D at Section 4. However they recognise that other factors (relating to the other three hypotheses) may also explain the divergence.

**7) Review of Police Road Casualty Injury Classification - A feasibility study**

DfT Road Safety Research Report, No. 119, 2010<sup>28</sup>

This research was commissioned in response to a requirement in the Authority's Assessment report of Road Casualty Statistics<sup>29</sup> in July 2009 in which DfT was required, *inter alia*, to improve the reporting of data by police forces. One of its aims was to understand how the police currently assign injury severity.

It concluded that the classification of injury is not necessarily consistent within or between police forces. There was a lack of clarity among police officers about the definitions of slight and serious, the STATS20<sup>30</sup> guidance was not followed by all forces, and officers were no longer formally trained how to fill out accident reports.

This research provides some support for hypotheses B and C at Section 4, in the sense that it confirms a lack of consistency in recording and classification practice. However, a lack of consistency alone does not explain why there would be a *progressive* change in classification practice, which would be necessary to fully explain the divergence in the trends.

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<sup>26</sup> [http://www.trl.co.uk/online\\_store/reports\\_publications/trl\\_reports/cat\\_road\\_user\\_safety/report\\_monitoring\\_progress\\_towards\\_the\\_2010\\_casualty\\_reduction\\_target.htm](http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/report_monitoring_progress_towards_the_2010_casualty_reduction_target.htm)

<sup>27</sup> [http://www.trl.co.uk/online\\_store/reports\\_publications/trl\\_reports/cat\\_road\\_user\\_safety/report\\_monitoring\\_progress\\_towards\\_the\\_2010\\_casualty\\_reduction\\_target\\_2007\\_data.htm](http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/report_monitoring_progress_towards_the_2010_casualty_reduction_target_2007_data.htm)

<sup>28</sup> <http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme5/rs-rep119/>

<sup>29</sup> <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-4---road-casualty-statistics--27-july-2009.pdf>

<sup>30</sup> STATS20 is the set of instructions for the completion of road accident reports

## **ANNEX B: Data sources**

1. There are a number of sources of statistical data that relate to road casualties and these are being developed in ways that may help shed further light on the observed trends.

### **STATS19**

2. STATS19 is the form that police officers complete when they attend traffic accidents. Some injury accidents are later reported at police stations and may be recorded on the STATS19 form at that stage.
3. STATS19 provides a time series from 1949 that includes information on vehicle type (car, HGV, LGV, motorcycle, bicycle and pedestrian), age, sex and severity of injury - fatal, serious or slight.
4. The current STATS19 system has been in place since 1979 and subject to regular reviews - approximately every 5 years - since then. Following a National Statistics Quality review in 2002<sup>31</sup>, several changes were made to the system in 2005, including the introduction of new data items, additional 'contributory factors', coding and definitional changes, and the integration of the police accident reporting form and the STATS19 form.
5. The most recent review and consultation exercise was undertaken in 2008<sup>32</sup>. This review, carried out by a sub group of the Standing Committee on Road Accident Statistics (SCRAS)<sup>33</sup>, focused on ensuring that the system is still necessary, confirming the information needs of users, and assessing whether the current system fulfils requirements. It aimed to consolidate what was currently collected and ensure that the data collection burden on police was not increased.
6. Responses to the consultation exercise confirmed that STATS19 was the best individual source of data on road accident casualties and that no other single source would fulfil users needs as well. Changes to STATS19 as a result of this review will be rolled out with the introduction of the Collision Recording and Sharing (CRASH)<sup>34</sup> system starting with a pilot in 2011. All forces should implement the changes from 2013.

### **Development of the CRASH system**

7. CRASH is an electronic system for police road accident reporting which should make reporting easier for the police. The new system will enable the collection of STATS19 and police road traffic accident information electronically at the accident site. As a result of the introduction of CRASH, DfT hopes to have access to additional police information about traffic accidents which will enable more detailed analysis of accident statistics. As part of the development of CRASH, DfT commissioned research to investigate how the police currently classify injury severity and to make recommendations for ways to improve this (See *Road Safety Research Report, No. 119, 2010*<sup>35</sup>). This research found inconsistency both within and between police forces in levels of training, the types of accidents that must be reported and the interpretation of what constitutes a serious injury.

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<sup>31</sup><http://www.ons.gov.uk/about-statistics/methodology-and-quality/quality/nat-stats-qual-revs/qual-revs-by-theme/travel-and-transport/nsqr-series-report-no-45---review-of-road-accident-statistics.pdf>

<sup>32</sup><http://www.dft.gov.uk/pgr/statistics/committeesusergroups/scras/2008reviewstats19/reviewreport.pdf>

<sup>33</sup><http://www.dft.gov.uk/pgr/statistics/committeesusergroups/scras/>

<sup>34</sup><http://www.nipa.police.uk/en/10513.htm>

<sup>35</sup><http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme5/rs-rep119/>

### **National Travel Survey<sup>36</sup>**

8. Additional questions were added to the National Travel Survey (NTS) in 2007 with the aim of providing an alternative source of data to monitor long term trends in road casualties at a national level. These questions asked about involvement in traffic accidents, seriousness of injury, and whether the accident was reported to the police. A follow-up study, begun in 2010, aims to give statisticians a better understanding of the quality of the data from the NTS.
9. The *Reported Road Casualties Great Britain 2008* report included results from the first two years of data collection on traffic accidents from the NTS. The data have enabled DfT to gain more understanding of the possible levels of underreporting in STATS19 and to produce an estimate of the total number of road casualties. The 2009 edition of *Reported Road Casualties Great Britain* contains updated figures. DfT intends to publish an estimate of under-recording based on STATS19 and NTS data each year.

### **British Crime Survey<sup>37</sup>**

10. The additional NTS questions were also added to the British Crime Survey (BCS) in 2009. DfT plans to use the results to help calculate a more accurate estimate of the number of serious injuries. However, these questions may not be repeated in future years because of pressures on BCS interview length.

### **Hospital Episode Statistics<sup>38</sup>**

11. Hospital Episode Statistics give detailed information on the numbers of people treated in NHS hospitals as inpatients (data available since 1989-90) or outpatients (available since 2003-04). They provide information on the injury sustained and the cause of the injury (but not all the sub-categories of road accidents included in STATS19). Many more serious and slight injuries are attributed to road accidents in HES than in STATS19. However, they lack much of the detail related to the vehicles involved, the cause and location of the accident.
12. HES data have been compared with STATS19 in an effort to understand more about the accuracy of the classification of injury severity in STATS19. They have also been used to help estimate the level of under-recording in STATS19. Estimates from regional matching studies suggest that up to one fifth of casualties reported to the police are not recorded in STATS19.<sup>39</sup>

### **Matched HES and STATS19 records**

13. In 2007, DfT commissioned the Office for National Statistics to produce a dataset of matched HES and STATS19 records<sup>40</sup> with the aim of using this to increase understanding of reporting and recording rates, and the injury severity classification. Data from 1996 to 2004 were matched and some 78,000 individual records produced – between 10,500 and 14,800 for each year. Although this work was completed in mid 2008, only initial analysis of the resulting dataset has been undertaken. DfT has recently updated the linkage to include 2007 data. Preliminary analysis was included in the 2009 edition of *Reported Road Casualties Great Britain*, although the full potential of this dataset has yet to be realised.

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<sup>36</sup> <http://www.dft.gov.uk/pgr/statistics/datatablespublications/nts/>

<sup>37</sup> <http://rds.homeoffice.gov.uk/rds/bcs1.html>

<sup>38</sup> <http://www.ic.nhs.uk/statistics-and-data-collections/hospital-care/hospital-activity-hospital-episode-statistics--hes>

<sup>39</sup> [http://www.trl.co.uk/online\\_store/reports\\_publications/trl\\_reports/cat\\_road\\_user\\_safety/report\\_comparison\\_of\\_hospital\\_and\\_police\\_casualty\\_data\\_a\\_national\\_study.htm](http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/report_comparison_of_hospital_and_police_casualty_data_a_national_study.htm)

<sup>40</sup> [http://cenex-isad.istat.it/dokeos/document/document.php?openDir=/CENEX-ISAD\\_workshop,\\_Vienna\\_29-30\\_May\\_2008](http://cenex-isad.istat.it/dokeos/document/document.php?openDir=/CENEX-ISAD_workshop,_Vienna_29-30_May_2008)

**On The Spot<sup>41</sup>**

14. On The Spot (OTS) is a research database of a representative sample of 4,500 road accidents. It was developed to increase understanding of the cause of traffic accidents and the injuries sustained, and to help in the development of solutions.

**Co-operative Crash Injury Study<sup>42</sup>**

15. This used data from a large study of car occupant injury causation in which professional investigators record data for a sample of accidents each year. The data are used in detailed research to investigate and understand the causes of accidents.

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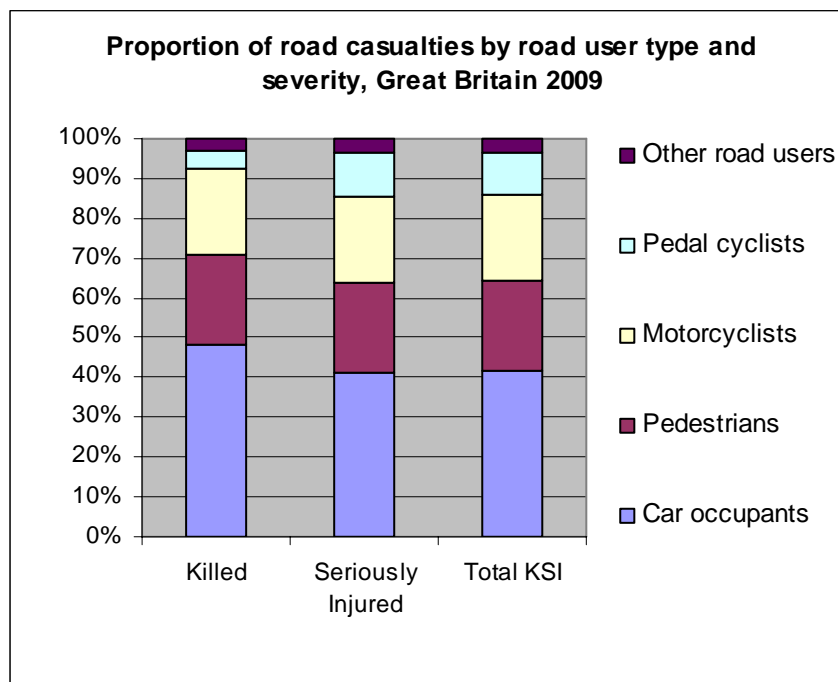
<sup>41</sup> <http://www.ukots.org>

<sup>42</sup> <http://www.ukccis.org>

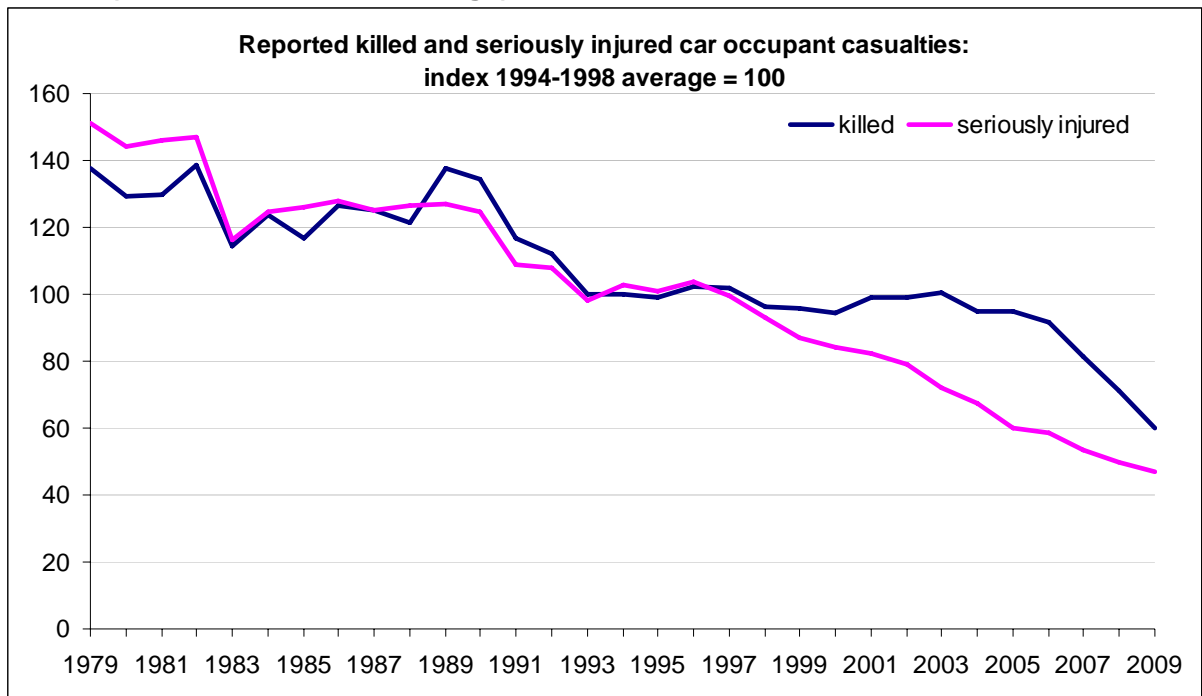
### ANNEX C: Trends in deaths and serious injuries for main road user groups

1. Chart 1 in Section 3 of this report appeared to suggest that after 1998 the number of recorded serious injuries fell while the number of fatalities remained stable. This annex provides more information about trends during this period for different groups of road users.
2. Chart C1 sets the scene – it gives an indication of the contribution that each category of road user makes to the overall numbers, for 2009 (see Table C1 for detailed statistics from 1979 to 2009).
3. Charts C2 to C5 show the trends in deaths and serious injuries, indexed to the 1994-98 average (i.e. equivalent to Chart 1). The charts show that the trend referred to at paragraph 1 above was a particular feature for car occupants only, and was not apparent for motorcyclists, pedestrians or pedal cyclists.

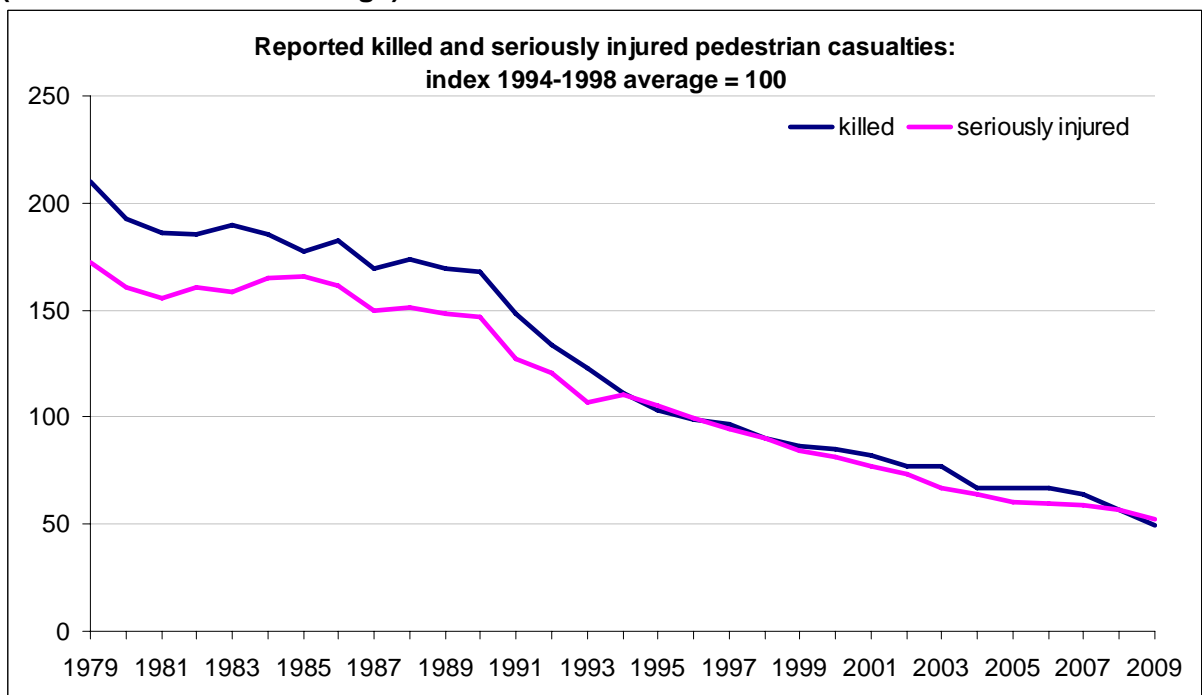
**Chart C1: Proportion of road casualties by road user type and severity, Great Britain 2009**



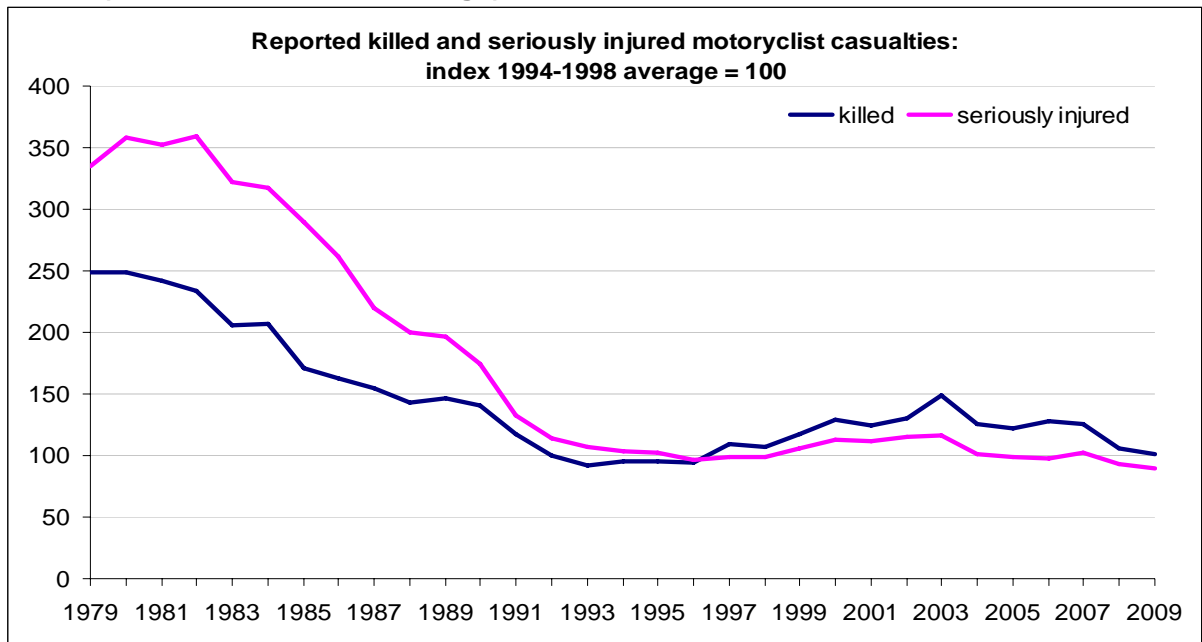
**Chart C2: Trends in deaths and serious injuries for car occupants in Great Britain, (indexed to 1994-98 average)**



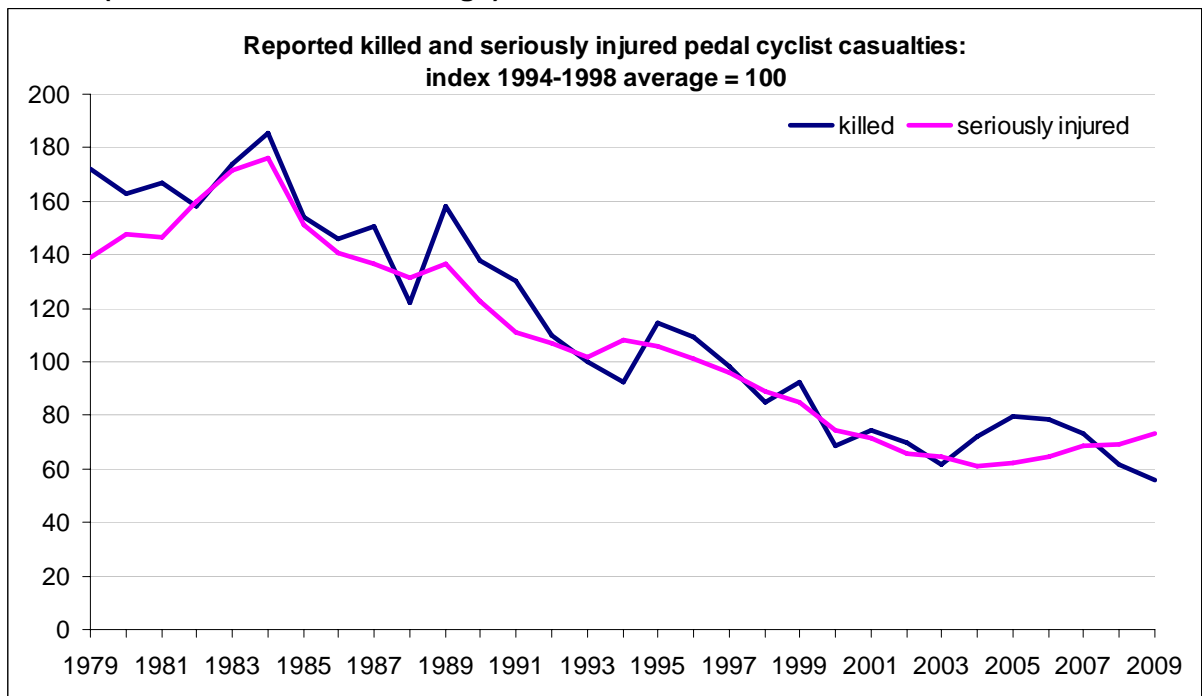
**Chart C3: Trends in deaths and serious injuries for pedestrians in Great Britain (indexed to 1994-98 average)**



**Chart C4: Trends in deaths and serious injuries for motorcyclists in Great Britain (indexed to 1994-98 average)**



**Chart C5: Trends in deaths and serious injuries for pedal cyclists in Great Britain (indexed to 1994-98 average)**



**Table C1: Killed or seriously injured road casualties, by road user type, Great Britain, 1979 to 2009**

Year	Car Occupant		Pedestrian		Motorcycle Rider/Passenger		Pedal Cyclist	
	Killed	Seriously Injured	Killed	Seriously Injured	Killed	Seriously Injured	Killed	Seriously Injured
1979	2,429	32,534	2,118	18,329	1,160	20,117	320	4,920
1980	2,278	30,963	1,941	17,094	1,163	21,534	302	5,234
1981	2,287	31,338	1,874	16,613	1,131	21,198	310	5,194
1982	2,443	31,544	1,869	17,095	1,091	21,598	294	5,674
1983	2,019	25,027	1,914	16,865	963	19,354	323	6,073
1984	2,179	26,818	1,868	17,593	967	19,042	345	6,250
1985	2,061	27,046	1,789	17,681	796	17,377	286	5,366
1986	2,233	27,457	1,841	17,217	762	15,705	271	4,981
1987	2,206	26,880	1,703	15,957	723	13,173	280	4,851
1988	2,142	27,204	1,753	16,127	670	11,984	227	4,652
1989	2,426	27,258	1,706	15,768	683	11,805	294	4,836
1990	2,371	26,749	1,694	15,666	659	10,462	256	4,344
1991	2,053	23,342	1,496	13,528	548	7,954	242	3,947
1992	1,978	23,146	1,347	12,848	469	6,869	204	3,788
1993	1,760	21,073	1,241	11,422	427	6,455	186	3,611
1994	1,764	22,128	1,124	11,806	444	6,222	172	3,829
1995	1,749	21,712	1,038	11,259	445	6,170	213	3,754
1996	1,806	22,242	997	10,615	440	5,768	203	3,586
1997	1,795	21,396	973	10,053	509	5,937	183	3,409
1998	1,696	19,980	906	9,575	498	5,944	158	3,154
1999	1,687	18,681	870	8,955	547	6,361	172	3,004
2000	1,665	18,054	857	8,641	605	6,769	127	2,643
2001	1,749	17,675	826	8,238	583	6,722	138	2,540
2002	1,747	16,981	775	7,856	609	6,891	130	2,320
2003	1,769	15,522	774	7,159	693	6,959	114	2,297
2004	1,671	14,473	671	6,807	585	6,063	134	2,174
2005	1,675	12,942	671	6,458	569	5,939	148	2,212
2006	1,612	12,642	675	6,376	599	5,885	146	2,296
2007	1,432	11,535	646	6,278	588	6,149	136	2,428
2008	1,257	10,711	572	6,070	493	5,556	115	2,450
2009	1,059	10,053	500	5,545	472	5,350	104	2,606

Source: Department for Transport

## ANNEX D: Road Safety Targets

1. In 1987, a target was set to reduce the annual number of casualties by the year 2000 by one third compared with the average for 1981-85. The target attracted strong commitment from many agencies working for road safety, and by 1996 it was clearly likely to be exceeded in terms of the numbers killed or seriously injured (KSI), but not be met in relation to the numbers slightly injured.
2. In 2000, the Government published several targets for reduction in road casualties<sup>43</sup>. By 2010, the aim was to achieve, compared with the average for 1994-98:
  - a 40% reduction in the number of people killed or seriously injured (KSI) in road accidents;
  - a 50% reduction in the number of children killed or seriously injured; and
  - a 10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle kilometres.
3. Data for 2009<sup>44</sup> show that compared with the 1994-98 average:
  - there was a 44% reduction in the number of people killed or seriously injured in road accidents;
  - the number of children killed or seriously injured fell by 61%; and
  - the slight casualty rate was 37% lower.
4. Whilst statisticians often suspect that the introduction of targets creates an incentive to change recording practices – to accelerate progress towards the target – the absence of any change in the long term trend in recorded serious injuries either side of 2000 suggests that any such effect would have been minor.

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<sup>43</sup><http://www.ukroads.org/ukroadsafety/articlespapers/tomorrowsroadssaferforeveryone.pdf>

<sup>44</sup><http://www.dft.gov.uk/adobepdf/162469/221412/221549/227755/rrcgb2009.pdf>