



### Safety Research Report No.1

**Reporting of Road Traffic Accidents in London:  
Matching Police STATS 19 records with Hospital Accident  
and Emergency Department Data.**

July 2003  
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#### Abstract

This Safety Research Report summarises a research project carried out for Transport for London (TfL) by TRL/University College London. Researchers matched hospital accident and emergency (A&E) department records of people injured on the roads around three representative hospitals in London (outer, inner and central) with police STATS 19 records of reported personal injury accidents. The study provides an estimate of the proportion of people injured who report their injury accident to the police and gives a series of baseline reporting rates for different classes of road user or severity against which to measure the effect of future initiatives on casualty occurrence. The report raises the point that the reporting rate figure is imprecise and recommends that values for Central London are treated with caution until a better estimate is available. The full report is available on request from the London Road Safety Unit.

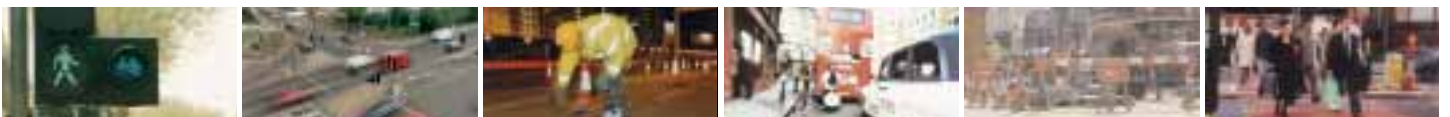
#### Objective

To estimate the level of reporting to the Police of accidents in London in order to provide:

- better understanding of the extent of the accident and casualty problem
- better and more robust information on the reporting of the severity of injuries
- a base-line against which the effect of policy initiatives, including publicity campaigns, road safety engineering programmes, and congestion charging, can be properly assessed, given that the level of reporting might be influenced and change over time,
- to engender better working relationships and co-operation with Health Authorities and Hospitals.

#### Reporting rate background

If all road traffic injuries were reported to the police, the official national accident record of personal injury accidents occurring on the public highway, (STATS19 records) would be an accurate indication of the size of the casualty problem.



Not all injury accidents are reported because there are people who do not know they should report injury accidents or, for other reasons, decide not to do so. However, there are circumstances in which the accident does not need to be reported (e.g. if details are exchanged between involved parties, even if there is personal injury involved).

The hypothesis underlying work to match police and hospital records is that it is unlikely that an injured person's decision to attend hospital for treatment is affected by knowledge or experience of road safety initiatives. However, such initiatives may influence their decision to report their accident to the police.

Earlier work, (Gloucester Safety City Project) has indicated that reporting rates can increase relative to 'control' areas. As a consequence of higher reporting rates, expected safety improvements can be apparently lost and the benefit of safety programmes underestimated.

The alternatives to attending a hospital A & E department after a road accident are:

- receiving treatment at the roadside
- treating injuries at home
- a visit to a GP, who may treat the injury at the surgery or refer to a clinic.

This means there may be injured people who appear in police records but do not appear in hospital records.

Clearly, information about people who

are injured and do not go to hospital or report their accident to the police is not available. Therefore, this is a group whose size and composition cannot be ascertained in this study.

## How the reporting rate was estimated

Electronic records were requested from three London hospitals out of a total of 31 hospitals with full time A&E Departments. They were chosen to represent Central (St Mary's Hospital, Paddington), Inner (King's College Hospital, Camberwell) and Outer London (Barnet General Hospital, Barnet). These records were used to supplement police STATS 19 records and allow estimation of the proportion of people injured who report their injury accident to the police and also improved estimation of the level of injury in London.

The reporting rate used in this study can be described as all casualties known to the police divided by all known casualties. Previous work has indicated that the levels of reporting in free-standing English towns is of the order of 52-60%.

Police STATS19 records have Ordnance Survey Grid References but A&E records do not and the description of the location is often imprecise, e.g. 'Oxford Street', 'Edgware Road'. To enable the definition of sets of police and hospital data from comparable areas around each hospital, London Ambulance Service information was used to guide the study

team as to where to draw an artificial boundary around each hospital. This allowed TfL to provide police STATS19 data for a defined polygon around each hospital and for the study team to manually assign each hospital record to one of four categories:

1. definitely in the area
2. definitely not in the area
3. on a road that passes through the area and continues outside it, or on a road that starts (or finishes) in the area and crosses the boundary
4. unknown location (no location information).

Because hospital accident location information is imprecise, it was not possible to locate where casualties were injured on roads that were only partially within the area. This is category 3 above. A procedure for assigning such casualties to within or outside of the area was developed. Because of uncertainties about location, a matching procedure was used to produce three estimates of the reporting rate based on:

1. hospital data for inside the area only
2. all hospital data for inside and cross border casualties
3. hospital data for inside and adjusted unmatched cross border casualties.

The first, using hospital data for inside the area only gives the highest reporting rate and is an overestimation because only a proportion of the 'true' hospital data-set is being used. This is shown in table 1, in the column headed Upper Estimate.

The second set of estimates gives the lowest reporting rate and is an underestimation because all the hospital data that lie on boundary roads is included in the 'true' data-set, and in reality only some of these will be in the area. This is shown in table 1 as the Lower Estimate.

The Best Estimate of reporting rate lies between these two figures and is given in the final column of the table. Using a scaled adjustment, an attempt has been made to guide the reader approximately as to where this reporting rate might lie within the range. Until further work is done on refining this process this is currently considered the best estimate.

Table 1 gives these lower, upper and best estimates for each hospital and for the major road user groups.

## The current best estimated rate

The 'current best estimates' shown are considerably higher than those observed in previous studies in free-standing towns, which vary between 50% and 60%. The rates estimated for the areas surrounding King's College Hospital (Inner London) and Barnet General Hospital (Outer London) are similar at 71% and 70% respectively of all known casualties being reported to the police. St Mary's Hospital (Central London) is considerably higher at 87%. The study team was not confident that this represents the reporting rate in Central London and would like to reserve judgement until further investigations are carried out.

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One issue is that there are, unusually compared to earlier studies, more casualties known to the police than to the hospital, suggesting the idea that the St Mary's data may not be complete or that casualties may have been taken to other central London hospitals.

## Different road user groups

The level of reporting of pedestrian injuries is in line with previous studies, with a best estimate of about 70%. The rate for pedal cycles at about 66-70% is also in line with other studies.

The reporting rate for two wheeled motor vehicles (TWMVs) is unusually high, (73-85%), but in London there are many couriers and others who use their motor cycles and scooters for work purposes. The rate for car occupants is also higher than reported elsewhere and a similar hypothesis may be put forward, i.e. that it is the high proportion of business users, coupled with a strong police presence in London that contribute to the higher reporting rates. A high motivation to report injuries for insurance and organisational reasons coupled with fast response times for police in London, may explain the higher reporting rates measured in this study.

## Age groups

Rates for different age groups are not shown in table 1, but are calculated and shown in Section 4 of the full report. These were close to the average reporting rate of 70% but with the

reporting rate for children aged 0-15 years in Barnet being considerably below this at 58%. There is no difference in the reporting rates between males and females, (all ages taken together) in any of the hospital areas.

## Severity of injury

In each area the reporting rate for serious injury was lower than for slight injury. Only about two thirds of serious injuries are recorded by the police. This could be because police officers are untrained medically and may systematically underestimate the severity of injuries especially where internal or head injuries are not immediately apparent.

## To conclude

If 70% is used as a very rough reporting rate, and it is applied to the number of casualties reported to the police in 2001 (44,500), it can be estimated that there may have been about 63,500 injured on the roads of London.

Further work is needed to refine this figure. More work is also needed to refine the estimates of the number of hospital casualties injured on roads in the cordon area given the imprecise nature of the location descriptions at the hospitals.

This study has estimated the number of people injured on the roads around three representative hospitals in London. It has provided an estimate of reporting in London and gives a series of baseline

reporting rates for different classes of road user or severity against which to measure the effect of future initiatives on casualty occurrence.

The reporting rate is not a precise figure and the values for Central London need to be treated with caution until a better estimate is available.

**TABLE 1**

Estimates of the headline reporting rates to the police for each hospital area together with percentage of records matched.

Rate = All casualties known to police/All casualties.

Road User Class	Hospital	Area in London	Lower estimate <sup>1</sup> (%)	Upper estimate <sup>2</sup> (%)	Current best estimate <sup>3</sup> (%)
All casualties	King's	Inner	66	80	71
	Barnet	Outer	61	75	70
	St Mary's	Central	77	91	87
Pedestrian casualties	King's	Inner	62	78	67
	Barnet	Outer	72	78	77
	St Mary's	Central	66	84	78
Pedal cyclist casualties	King's	Inner	61	75	66
	Barnet	Outer	60	75	69
	St Mary's	Central	89	98	96
TWMV <sup>4</sup> casualties	King's	Inner	74	87	78
	Barnet	Outer	65	80	73
	St Mary's	Central	74	92	85
Car occupant casualties	King's	Inner	67	78	72
	Barnet	Outer	58	73	68
	St Mary's	Central	82	92	90

1. Casualties identified as being in the area only for police data and all those that are in the area and on cross border roads for the hospital
2. Casualties identified as being in the area only for hospital and police data
3. Casualties identified as being in the area only for police data and all those that are in the area plus adjusted number for those on cross border roads for the hospital
4. TWMV - Two Wheeled Motor Vehicle