UNIVERSITY OF LEEDS
Institute for Transport Studies

ITS Working Paper 376 *ISSN 0142-8942*

October 1992

THE USE OF ROAD SAFETY DATA IN HIGHWAY AUTHORITIES

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This work was sponsored by the Science and Engineering Research Council Research Studentship with the assistance of Humberside County Council.

CONTENTS

ABSTRACT

AUSTIN, K (1992). The use of road safety data in highway authorities. *ITS Working Paper* **376**, Institute for Transport Studies, University of Leeds, Leeds.

The Road Safety Code of Good Practice (1989) suggested that highway authorities should collect supplementary information in addition to STATS 19 records and that there should be moves towards developing coordinated strategies for road safety planning. It finds that traffic flows, letters from the public, population statistics, police reported damage-only accidents and highway and land development sources are used most often. Shire Counties tend to collect more sources of data than other authorities. All have meetings with the Police, but the Shire Counties and the Non-English Authorities have more meetings with the hospitals compared to the Metropolitan Authorities and the London Boroughs. Only twenty-two Authorities had any evidence of under-reporting, of which only six provided any figures. The location of accidents was the STATS 19 variable considered to have the most number of errors.

KEY-WORDS: *author to supply*

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THE USE OF ROAD SAFETY DATA IN HIGHWAY AUTHORITIES

1.INTRODUCTION

The basic source of data used for safety studies is STATS 19 data. This is the form filled in by the police for every injury accident that is reported to them. It contains information on the location of the accident, environmental factors and driver and casualty details. For Great Britain as a whole there were 235,798 of these forms completed in 1991.

The Road Safety Code of Good Practice, Local Authorities Association, (1989) stipulated that Highway Authorities should collect a greater range of information relating to road safety rather than just STATS 19 data. This should aid the selection and design of engineering, education and enforcement measures.

The document also stressed a greater degree of co-operation between Highway Authorities and outside bodies, such as the police and hospitals. This they hoped, would result in an acknowledgement of the level of under-reporting and errors in the police reports, which should lead to a more accurate identification of the areas of concern.

It has been three years since the production of the document and so the purpose of this report is to highlight the extent to which the Highway Authorities have fulfilled the objectives concerning data collection and co-operation with the outside bodies.

This report details the results of a questionnaire sent to all Highway Authorities in Great Britain. It will investigate the sources of data in addition to STATS 19 data that are used by the Highway Authorities and the uses to which each source is put. It will specify the most important sources, which should be those that would be included in any subsequent integrated safety model and will show the average number of sources used by each Highway Authority type.

This report will investigate the degree of co-operation between the Highway Authority and the police and hospitals, that is, whether they meet and the frequency that these meetings occur. It will identify those authorities have calculated under-reporting figures and will also estimate which items are considered to be most inaccurately reported on the STAT 19 form. This will hopefully lead to developing a system that will reduce the level of under-reporting and the number of errors.

2.THE QUESTIONNAIRE

The questionnaire (see Appendix 1) was distributed to all Highway Authorities in Great Britain. The first distribution was through the Standing Advisory Group on Accident Reduction (SAGAR) whereby the representative from each region distributed it amongst the region's members who would return the completed questionnaire to Leeds. This was sent out in the first week of May 1992. A reminder questionnaire was sent directly to those members who had not replied to the first questionnaire. Highway Authorities were asked to complete the questionnaire rather than joint data teams because it would be

these authorities who would undertake the safety schemes. The response rate by administrative type are shown in Table 1.*

Table 1:Questionnaire replies by Highway Authority type

Type	Sent out	Replied	% replied
Shire counties	39	35	89.7
London boroughs	32	24	75.0
Metropolitan districts (outside London)	36	21	58.4
Scottish regions	12	11	91.7
Welsh authorities	8	5	62.5
Northern Ireland	1	1	100.0
Total	128	97	75.8

The overall response rate of 75.8% enabled a satisfactory assessment of the data. For the purposes of obtaining useful and confidential data the Scottish, Welsh and Northern Ireland data were combined into one group, the non-English authorities. The low response from the metropolitan districts may be because the data is handled and preliminary sites investigated by joint data teams, so the ones that did not reply may have little to do with site investigation work. But the London boroughs also obtain their information from a Joint Data Team, the London Accident Analysis Unit. It may be the effort on their part which led to a greater number of replies from the authorities covering their region. The Welsh authorities had a low return rate but this may be due to the small overall number of authorities.

3.DATA SOURCES

The Road Safety Code of Good Practice, Local Authorities Association, (1989) stated that certain main elements in a road safety inventory should be included, these are:

a)Personal injury road accident data.

b)Information relating to unreported personal injury accidents and non-injury accidents. This could include information from hospitals, G.P's, insurance companies and police reported damage only accidents.

c)Coordinated road traffic data.

d)Information concerning relative exposure to risk of road user categories.

e)Information concerning the relative involvement in accidents of local and non-local road users.

f)Demographic information relating to population distribution and age related trends.

g)Records of highway and development modifications that have significant implications for traffic distribution or road user behaviour.

* Three Authorities returned their forms too late to be included for analysis, but they are included in this table.

h)Monitoring accidents at treated sites.

They add that although the information contained in many of these sources will be detailed, much of the information will be easily available within Highway Authority records.

The Road Safety Code of Good Practice, Local Authorities Association, (1989) placed a great importance on the collection of these extra data sources. Those sources of data that are collected are shown in Figure 1.

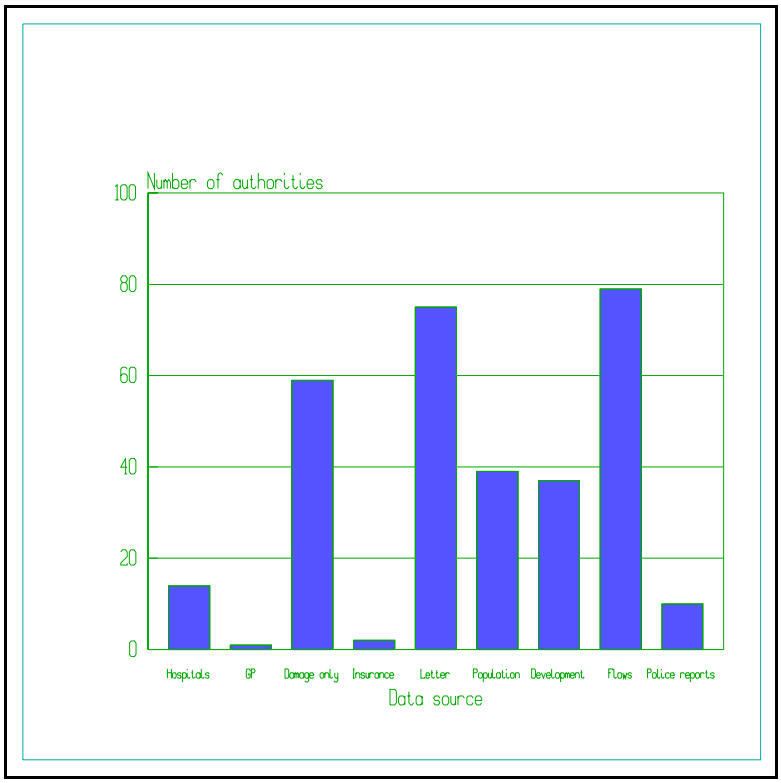

Figure 1: Additional sources of data used by Highway Authorities.

The items of data can be subdivided by authority type, to identify which ones use a particular source more than the others. The sources shown in Figure 1 in addition to the extra ones not included in the questionnaire are shown in Table 2.

The sources of traffic flows, letters, damage only accidents, population and highway and land development are the sources that are used the most. Each source will be investigated in detail in the following sections.

Table 2:The use of additional data sources by Highway Authority type

	Shire	Metropolitan	London	Non English
Hospital	26.5	10.0	4.2	12.5
General Practitioner	2.9	0.0	0.0	0.0
Damage only	73.5	55.0	45.8	75.0
Insurance	5.9	0	0.0	0.0
Letter	73.5	75.0	87.5	87.5
Population	61.8	30.0	20.8	43.8
Development	50.0	50.0	25.0	25.0
Flows	88.2	90.0	79.2	75.0
Police report	2.9	20.0	12.5	12.5
Schools	0.0	0.0	8.3	6.3
Street furniture	2.9	0.0	4.2	6.3
SCRIM	8.8	0.0	0.0	0.0
Report cards	5.9	0.0	0.0	0.0

3.1HOSPITAL

The *Road Safety Code of Good Practice* states that:

"Road accident data derived from police records of injury accidents may be incomplete particularly in respect of cycling and pedestrian accidents; therefore, Highway Authorities should consider obtaining supplementary information from local hospital records." Local Authorities Assocation, (p15).

The use of hospital data is therefore an important item of road safety data.

For the shire counties the uses to which the data were put are shown below. The number in parentheses corresponds to the number of authorities stating that as the intended use.

- Give a measure of under-reporting, and enhance casualty statistics to give a better direction to engineering, enforcement and education and to reduce hospital bed days. (1)
- To study vulnerable road user group such as pedestrians and cyclists. (3)
- Unspecific under-reporting studies. (2)
- A specific unnamed project. (2)
- In the process of setting up these links with a view to assessing the levels of under-reporting. (2)

For the metropolitan authorities the uses are as follows:

・Investigation of child and cycle accidents. (1)
・A specific unnamed project. (2)

A further two authorities would like to set this link up, although one of these cannot do so, since the hospital system is not computerised yet. The other would use it to assess under-reporting.

The uses to which the London boroughs define are:

・To use the ambulance service data rather than hospital data to assess the level of under-reporting. (1)

A further two authorities have proposed links which would be to supplement STATS 19 data and to be used in under-reporting studies.

For the non-English authorities the results are:

・The development of a local health strategy. (1)
・Under-reporting of child casualties in a one-off study. (1)
・In the process of setting up links with the hospitals to look at the under-reporting of accidents especially children and pedal cyclists. (3)

Those authorities that are in the process of setting up links with hospitals and those that currently have links are shown in Table 3.

Table 3:Proposed and actual links to hospitals by Highway Authority type.

	Actual	Proposed	% total
Shire	9	2	32.4
Metropolitan	2	0	10.0
London	1	2	12.5
Non-English	2	3	31.3

The shire counties and the non-English authorities were merged together as were the metropolitan districts and London boroughs. It was found that the difference between these two groups was significant at the 5% level, with $X^2 = 5.7$ with 1 df. This difference may be because the shire counties and the non-English authorities are larger and so the hospitals studied may cover the whole of the authority area. In contrast hospitals in metropolitan authorities and the London boroughs may cover more than one authority and so it would be difficult to know if casualties relate to one authority or another. If this is the case then these authorities may not consider the collection of this data source particularly useful.

3.2GENERAL PRACTITIONER DATA

Only one shire county has used general practitioner (GP) data. It is used occasionally in devising Education, Training and Publicity (ETP) campaigns directed at the elderly. One other shire county hopes to set up a link to GP's to provide information on under-reporting.

3.3INSURANCE

Only two shire counties have any links with insurance companies, and one of these obtained the information from the county insurer detailing claims made against the council.

3.4POLICE REPORTED DAMAGE ONLY ACCIDENTS

Both the shire counties and the non-English authorities use damage only accidents more than the Metropolitan authorities and the London boroughs. This difference is significant at the 5% level of significance, with $X^2 = 5.77$ with 1 df. This could be attributed to the fact that these areas would often have large amount of rural areas compared to the metropolitan authorities and London boroughs and so damage only accidents may be needed to supplement the data when personal injury accident data is scarce.

For shire counties this concept seems to be upheld since the uses are:

- To supplement injury accident data. (13)
- To obtain information when personal injury accident data are scarce, which is similar to that above. (5)
- When there is concern or a special request has been made about the site. (2)
- Where surface polishing sites have been identified. (1)

For the non-English authorities the uses to which police reported damage only accidents are put are:

- Blackspot investigation to establish the pattern of accidents at a location. (4)
- To obtain information when personal injury accident data are scarce. (3)
- Obtain data from the police as a matter of course. (2)
- Respond to councillors and members of the public. (1)

For the Metropolitan authorities the uses are:

- To supplement injury accident data. (6)
- To check STATS 19 reports. (3)
- To check the accuracy of press reports. (1)
- For the preparation of reports. (1)

For the London boroughs the uses to which the data are put are defined as:

- To supplement injury accident data. (2)
- When STATS 19 data is not conclusive. (1)
- To obtain information when personal injury accidents data are scarce. (1)

- When the police consider a problem exists at a site. (2)
- Used in specific instances eg; when there is damage to highway structures. (1)

For the shire counties and the non-English authorities twenty five use damage only data to supplement injury accident data, and four for other reasons. A further two have reasons that could not be categorised into either category. For the London boroughs and the metropolitan districts ten use it to add data and seven do not. The difference between these two authority groupings is significant at the 5% level with a $X^2 = 4.42$ with 1 df This statistic upholds the idea that the shire counties and The non-English authorities need to use this data to supplement scarce STATS 19 data for rural sites not be present in the metropolitan authorities and the London boroughs.

3.5LETTERS FROM THE PUBLIC

All authorities take into account letters from the public which reflects their role as public servants, since they are obliged to acknowledge receipt of a letter at the very least. One would have thought that the smaller authorities would take this more into consideration because they are in more of a direct contact with the public, although this does not seem to be so.

For shire counties the uses were:

- To aid in the identification of sites. (10)
- To provide additional data on residents views. (5)
- To aid in the prioritising of sites. (3)

For the metropolitan districts purposes of the data were:

- To aid the identification of sites. (5)
- To supplement STATS 19 data on residents views. (4)
- To aid in the prioritising of sites. (1)
- To give useful information on pedestrian flows and the sources of traffic generation, which assists with the determination of traffic causes. (1)

For London boroughs letters are:

- Used for unreported damage only accidents. (4)
- Used for the local knowledge aspect of problem location. (3)
- Used to assess local feelings on an issue. (3)
- Used to give additional information, eg; in assisting the dominant cause at selected sites. (2)
- Used for consultation. (1)

For the non-English authorities letters are:

- Used as assessment measures of local concern. (5)
- To aid in the identification of problem sites. (4)

In overall terms the most important reason for using this factor is to help identify sites, that is, the public may report that a site is dangerous and this site will then be investigated by the Highway Authority using accident data. The next most important

reason is to give additional information on current sites, and then to gauge local concern at certain sites.

3.6TRAFFIC FLOWS

Most authorities use traffic flows in addition to their injury accident data.

For shire counties the uses to which traffic flows are put are:

- To assess accident rates. (12)
- To assess accident trends. (4)
- For the preparation of road safety plans. (3)
- Development of urban safety management programmes. (3)

For the Metropolitan authorities the uses are:

- To assess accident rates. (12)
- To calculate the PV^2. (1)
- For an unspecified area of research. (1)

For the London boroughs the uses are:

- To assess accident rates. (5)
- To establish priorities. (5)
- To calculate the PV^2. (1)
- For basic data. (1)
- To aid in the assessment of sites. (1)
- To work out the level of use of a particular road. (1)

For the non-English authorities the uses are:

- To assess accident rates. (7)
- To rank and assess priorities. (2)
- As an input for traffic management schemes. (1)

The most important use is in the calculation of accident rates which can be used to develop priorities for treatment.

3.7HIGHWAY AND LAND DEVELOPMENT

This item concerns how new road layouts and development proposals could affect the level of accidents at a particular site.

Both the shire counties and the metropolitan authorities use this source more than the London boroughs and the non-English authorities. The difference is significant at the 5% level, with $X^2 = 5.98$ with 1 df. There is no obvious reason why this difference should exist.

For shire counties the uses are:

- For development control to asses the likelihood of accidents if a development takes place. (7)
- As an input for safety audits. (3)
- To assist in urban safety management. (3)

For the metropolitan authorities this source can be used to:

- Assess the effect of road building. (7)
- assist in local safety schemes. (1)

For London boroughs this can be used to:

- Assess the accident effects of development proposals. (4)
- Assess the accident effects of temporary works. (1)

For non-English authorities the uses are:

- To assist in planning decisions. (2)
- To assist in blackspot ranking criteria. (1)

In general this source is used to assess whether a likely development will increase the level of accidents. In the majority of cases this source is used on request rather than to assess accident priorities.

3.8POPULATION

This section identifies the uses of census data for accident studies. shire counties and the non-English authorities use population data more than the metropolitan authorities and the London boroughs. This is significant at the 1% level with $X^2 = 9.27$ with 1 df. There is no obvious reason to explain this difference.

For shire counties the uses to which this data source is put are:

- To calculate accident/population rates and hence their risk. (11)
- To calculate accident trends. (4)
- For urban safety management ranking. (2)
- For county wide effects and priorities. (1)

For the metropolitan districts three of the authorities use this source to calculate accident/population rates.

For the London boroughs the uses are:

- To provide accident population rates especially for traffic calming. (2)
- To aid in the preparation of the road safety plan. (1)
- To assist in trend analysis. (1)

For the non-English authorities there is a much wider number of factors which include:

- Aiding problem assessment. (1)
- Assisting in area study comparisons. (1)
- Defining the rural and urban areas. (1)
- Assessing casualty involvement by the area the casualty lives in. (1)
- Assessing the most vulnerable road user groups. (1)
- Developing age related accident statistics. (1)

3.9OTHERS

The most used data source that was not explicitly included on the questionnaire was the police records. One shire county, one London borough, two of the non-English authorities and four metropolitan authorities use this source. The metropolitan authorities use this more than the other authorities, although this is not significant at 5% since $X^2 = 2.28$ with 1 df.

For shire counties the other data sources are:

- Scrim data is used to assist in the analysis of wet/skid sites. (3)
- Pre-paid postcards are used for concerned individuals to fill out reports of accidents, the presence/absence of the cards proves/disproves an accident problem. (2)
- Local garages which can often identify non-injury non-reported problems. (1)
- Council staff may report areas of concern. (1)
- Feedback of results of Accident Investigation and Prevention (AIP) or ETP schemes used in future scheme design. (1)
- Learn from other areas and national data. (1)
- Animal accidents from farmers on unfenced roads. (1)
- Damage to street furniture. (1)

For metropolitan districts, two have unofficial discussions with the police and one conducts speed and origin-destination surveys.

For the London boroughs the additional data are:

- Damage to street furniture. (1)
- Bus operators are used when an accident occurs on private land incorporating a bus lane. (1)
- Newspaper reports of accidents, particularly fatal accidents, to supplement STATS 19 data. (1)
- National and London wide statistics are used for comparison. (1)
- Local data to assess traffic calming, one of these uses schools data and another schools, parks, hospitals, elderly peoples homes. (2)
- Highways inspectorate notify the Road Safety section of any road traffic accidents they might have been involved with, eg;those involving chemical spillage. (1)

For the non-English authorities schools data which includes school roll, location and type is used in one case, as is information on damage to council property, such as street furniture.

There are a large number of different sources of data used to identify dangerous sites and over-represented casualty groups. The following section will investigate which of the above sources are considered most useful.

4.MOST VALUABLE DATA SOURCE

A further question was asked as to the most valuable additional source. The sources that are considered to be most valuable should be included in any system which analyzes accidents. The results desegregated by Authority type are shown in Figure 2.

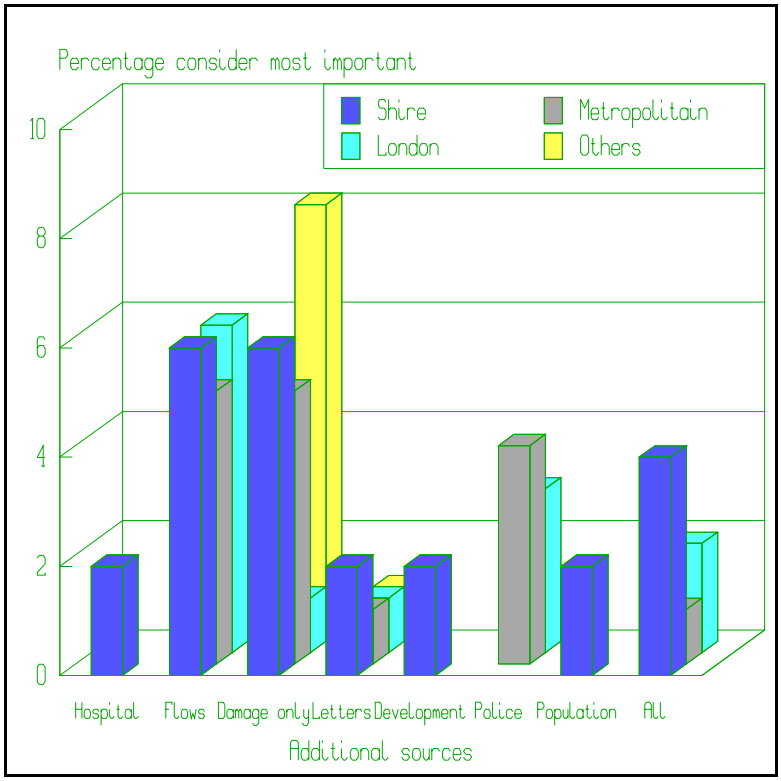

Figure 2: The most valuable dat source by highway authority type.

For the shire counties there is a great variation in authorities attitudes as to the most important source, although police reported damage only accidents and traffic flows are generally considered the most important source. For metropolitan districts police reported damage only accidents,traffic flows and police reports are considered to be the most important. For the London boroughs traffic flows and police reports are the most important. For the non-English authorities police reported damage only accidents and traffic flows are judged to be the most influential.

The sources that should be considered in even the simplest accident analysis system would be police reported damage only accidents and traffic flows. It may be appropriate to design systems that includes different sources for different authority types according to their preference stated above.

5.NUMBER OF SOURCES

The total number of sources were calculated for each authority and the distribution is shown in Figure 3.

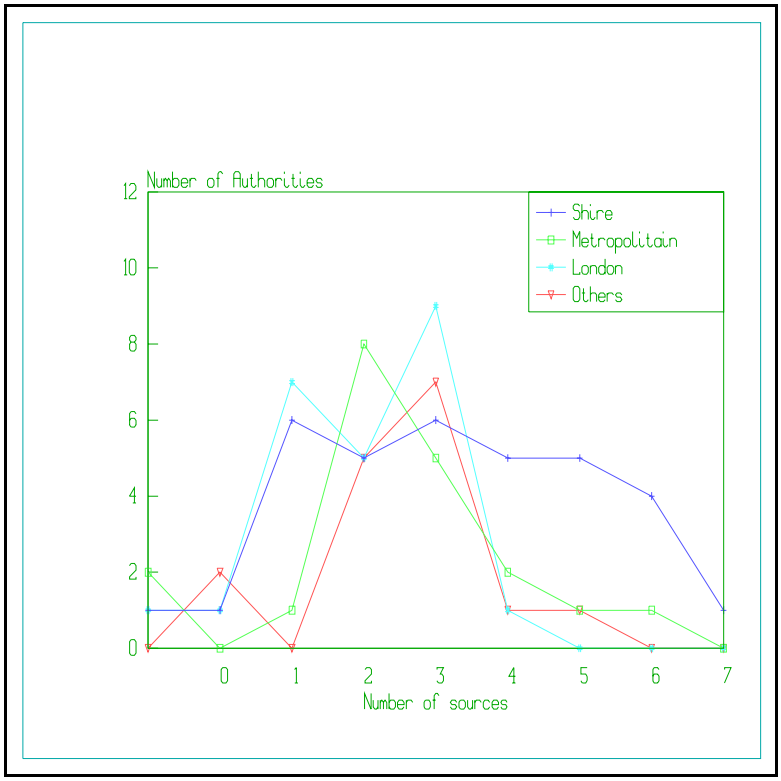

Figure 3: The number of additional sources by highway authority type.

The mean number of sources for shire counties is 4.21, for metropolitan districts this is 3.45, for London boroughs it is 2.96 and for the non-English authorities is 3.5. It is clear that in general the shire counties collect more additional sources of data than the other authorities.

Some sources may have been omitted by some authorities, but this will hopefully not affect the results greatly. In general there is a large scope for improvement in collecting additional sources by all authority types. Many of the sources which have not been collected will certainly be of some use and would be economically beneficial to do so.

6.CO-OPERATION WITH OUTSIDE BODIES

The *Road Safety Code of Good Practice* stated that a coordinated road safety strategy at the local level should be developed. To achieve this a great deal of co-operation between the Highway Authority and outside bodies needs to exist. This section will establish whether meetings take place between the Highway Authorities, the police and the hospitals and the interval at which these meetings occur.

6.1FORMAL MEETINGS

The results of formal meetings between the bodies are shown in Table 4 .

Table 4:Meetings between the Highway Authority, the police and hospitals

Body	Shire	Met	London	Non English	Total
Police-highway Authority	14	11	19	5	49
Hospital-Highway Authority	1	1	0	2	4
Highway Authority meets both	10	2	4	4	20
All three meet	3	1	2	3	9

It is possible to investigate whether or not any differences exist between authority type and the occurrence of hospital meetings. There is no significant difference as to the number of meetings with the hospitals between the shire counties and the non-English authorities at the 5% level with $X^2 = 1.04$ with 1 df. The same is true for the differences between metropolitan authorities and London boroughs, with a $X^2 = 0.16$ with 1 df. But the difference between the shire counties/non-English authorities and the metropolitan districts/London boroughs was significant at 5%, with $X^2 = 5.56$ with 1 df.

The authorities that have more meetings with the hospitals tend to be those that are larger in geographic terms, which may be because the hospitals cover road accidents in their area and so joint plans can be worked out. For the metropolitan authorities and the London boroughs the hospitals may admit many casualties from outside their administrative area and so they may consider this link less important.

The London boroughs formally meet the police more than the other three authority types. This is significant at the 1% level, with $X^2 = 7.12$ with 1 df.

The differences concerning meetings with both the hospitals and the police or meetings between all three were then investigated. The difference between the shire counties and the non-English authorities is not significant at 5% with a $X^2 = 0.14$ with 1 df. The same is true for differences between the metropolitan districts and the London boroughs with $X^2 = 0.67$ with 1 df. On the other hand, the difference between the shire counties/non-English authorities and the metropolitan authorities/London boroughs were significant at 5% with $X^2 = 4.19$ with 1 df. This though may reflect that more of the shire counties and the non-English authorities meet with the hospitals for the reason stated above.

6.2INTERVAL BETWEEN MEETINGS

The distribution of the intervals between meetings with the police and the Highway Authority, and the hospital and the Highway Authority are shown in Table 5.

Table 5:Time period of meetings between police and hospitals

Time period	Police	Hospital
<1 month	2	0
4-6 weeks	30	5
2 months	9	5
3 months	16	11
4 months	3	1
<1 year	2	3
1 year +	2	1
No time specified	11	7

The majority of meetings with the police occur at less than six weekly intervals, whereas for meetings with the hospitals the majority met at 3 monthly intervals. The meetings with the police may occur more often than those with the hospitals because they would supply data and also use it by being involved with the enforcement side of safety campaigns. The links with the hospitals tend to be more one-way, in that they often just provide data to be used by the Highway Authorities.

The mean for meetings by authority type can also be investigated as is shown in Table 6.

Table 6:Mean interval of meetings by Highway Authority type (in months).

Authority	Police	Hospital
Shire	2.88	2.33
London	1.59	3.67
Metropolitan	2.88	2.25
Non English	2.38	4.14

The London boroughs have the shortest mean time interval between meetings with the police, which is followed by the non-English authorities. For the meetings with hospitals three of the authority types have intervals around two and three and a half months. The non-English authorities interval is considerably higher. Because only a small number of authorities can be used, the existence of one very high figure can shift the mean dramatically. In this case one authority had a meeting interval of one year. The removal of this item reduced the mean to 3.4, which is within the bounds of the other three authorities.

One authority has a two monthly forum which includes the Highway Authority, police, hospital, planning, education and social work sections. The approach outlined here would seem to be a positive step forward in road safety liaison. This enables the safety teams to obtain information and ideas from the different sections that have a bearing on road safety.

6.3INFORMAL MEETINGS

In addition to these formal meetings, 89.4 percent of the authorities had informal contacts with the police. But ten authorities did not have any informal meetings with the police. Of these, one has a police Officer seconded to the AIP team, six had formal meetings at six weekly or less intervals, one had three monthly joint meetings with the police and health board, one twice a year formal meetings and one occasionally. Most authorities therefore have regular contacts with the police whether in a formal or an informal context.

6.4DATA OBTAINED

One of the objectives of meeting with the hospitals is to obtain data from this source. Seventeen authorities have obtained or are currently setting up data links with the hospitals who also have meetings with the hospitals. A further seventeen authorities meet with the hospitals but have not obtained any data from them. Fifty six authorities do not have any meetings, nor do they have any data, whilst four authorities have obtained hospital data, but they do not have any meetings with the hospitals. A statistical test was undertaken to see if those authorities that have meetings with the hospitals are more likely to obtain data. This was significant at the 1% level with $X^2 = 23.49$ with 1 df.

7.UNDER REPORTING OF INJURY ACCIDENTS

Of the ninety four replies received only twenty two authorities had any evidence of under-reporting. The numbers and percentage of authorities who have evidence of under-reporting by authority type are shown in Table 7.

Table 7:Evidence of under-reporting by Highway Authority type

Authorities	Numbers	Percentage
Shire counties	11	32.4
Metropolitan	4	20.0
London boroughs	6	25.0
Non-English	1	6.25

For the shire counties six of the eleven obtained their results from hospital studies. Four of these had no figures for under-reporting, one had figures for cyclists of 26% non-reporting and one had figures for all categories listed, which were:-

Pedestrians	25.2%
Drivers	38.7%

Passengers	40.0%
TWMV's	23.9%
Cyclists	33.2%

In addition three authorities had anecdotal evidence of under-reporting from the police, of which only one had provided any figures.

Pedestrians	0%
Drivers	5%
Passengers	5%
TWMV's	10%
Cyclists	20%

One authority stated that they had no evidence of under-reporting although a study undertaken in the late 1970's indicated this to be about 30%. Another one used national figures although they did not supply any figures.

For the London boroughs, one authority obtained the evidence from hospital data, stating that 30 fatal accidents were recorded on the hospital database as being caused by a road accident, whilst only twenty two fatalities were recorded on the STATS 19 files. No evidence was provided as to whether these extra fatalities were involved in accidents outside the authorities boundary and were taken to hospital within the area. Five authorities obtained their information from anecdotal sources and one source was from accidents to council officers who may have reported the accidents to the police but they did not appear on the statistics.

For the metropolitan districts one authority obtained the information from hospitals, one from in-house research, one from anecdotal and one did not specify the source. In none of the four cases were any figures quoted.

For the non-English authorities one study found that the under-reporting for child pedestrians was 20%.

In total only six authorities provided any figures on under-reporting, of which five obtained the information from hospital data and one from anecdotal evidence. This indicates that individual authorities seem to have little knowledge of under-reporting in their areas.

8.ERRORS IN ACCIDENT REPORTING

The *Road Safety Code of Good Practice* acknowledges that there are a number of errors in police reports and so to rectify this:

"Arrangements should therefore be introduced by Highway Authorities in co-operation with police to monitor the accuracy of reports." Local Authorities Association, (p16).

This section investigates which items of items of data the Highway Authorities consider to have the greatest number of errors. Table 8 shows the number and percentage of authorities by type who have monitored the errors in the police reports.

Table 8: Monitoring of errors by authority type

Type	Number	Percentage
Shire counties	19	55.6
London boroughs	5	20.8
Metropolitan districts	8	40.0
Non-English	9	56.3

The London boroughs and the metropolitan districts obtain their STATS 19 data from a separate body which collects information for all the districts in the area, hence these bodies would conduct the examination of the errors rather than the individual authority itself, which may account for the lower figure in these cases.

The authorities that have such an arrangement were asked to specify which variables had the most errors (identified by 1) and which had the least (identified by 6) . These variables were casualty severity, age of casualty, location, junction type, speed limit and junction control. These factors were selected for two reasons, firstly they were considered to be important variables where errors can have a serious implication for data investigation. Secondly, there is no satisfactory method of validation for these measures which exist at present.

Unfortunately not all those authorities that claimed to have arrangements for the monitoring of errors supplied any data. After this adjustment the returns by authority type are shown in Table 9.

Table 9:Monitoring of errors by authority type

Authority	Number	Percentage
Shire	18	52.9
London	2	8.3
Metropolitan	4	20.0
Non-English	9	56.3

The difference between the shire counties/non-English authorities and the metropolitan districts/London boroughs is significant at the 1% level with $X^2 = 16.74$ with 1 df. This reinforces the ideas that the London boroughs and the metropolitan districts use the joint data teams to provide any error estimation procedures.

The ranking points were added up and then divided by the number of times they were included. This gave the mean ranking results for each item stated. The results are shown in Table 10.

Table 10: Mean ranking for size of error in items of STATS 19 data.

	Mean
Casualty severity	4.52
Casualty age	4.46
Location	1.12
Junction type	2.92
Speed limit	4.26
Junction control	3.92

The item that has the lowest mean figure is that which is considered to have the highest number of errors. In almost all cases the coding of accident location was considered to be the most imprecise. The inaccuracy in the coding of junction type is next. The other four are considered very similar as to the number of errors. These results could reflect the number of errors, or those variables that they consider to be most important in getting correct. It also may be the case that most authorities check the accident location while they are plotting the accidents and so all the errors would be recognised, whereas errors in the other factors would only be identified during specific studies relating to error.

For the shire counties the mean importance was 1.2 for location, 3 for junction type, 3.5 for junction control, 4 for speed limit, 4.58 for casualty age and 5 for casualty severity. For one authority road number was classed as most important, vehicle movements as second and the map reference as third. For another authority vehicle type was classed as third most important.

For the London boroughs only two had their own data, the other three stated that the London Accident Analysis Unit undertakes this research. It was stated that a recent survey of all London borough safety representatives on this subject produced a ranking as to the level of accuracy. This survey found that location was the least accurate followed by junction control, junction type, casualty severity and finally age of casualty. Speed limit was not included.

For the metropolitan districts location was universally considered as the most important measure. For the non-English authorities, location was considered to be the most important factor, with junction type the next most important followed by junction control. Casualty severity, casualty age and speed limit had a similar low magnitude of error.

9.CONCLUSION

Many additional sources to STATS 19 are being used. The most important of which is traffic flows which are primarily used to calculate accident rates. This is followed by letters from the public, highway and land development data, population data and police reported damage only accidents.

The most important sources were police reported damage only accidents and traffic flows, although metropolitan authorities and London boroughs found police reports detailing the witness statements to be just as important.

The shire counties collect a larger number of sources than the non-English authorities. It must be accepted that some sources may have not been added by some authorities and this could affect the accuracy of the results, but hopefully not in a way that would render them obsolete.

All authorities meet the police regularly, whether on a formal or informal basis, although the shire counties and the non-English authorities do meet the hospitals more often. Meetings with the police tend to take place at less than two month intervals, whereas those with the hospitals tend to be at three month intervals.

Only twenty two authorities had any evidence of under-reporting of which only six provided any figures.

The shire counties and the non-English authorities monitor errors more than the metropolitan districts and the London boroughs since they may use their joint data teams to do this. It was found that the location of the accident was considered to be the most inaccurately reported item of data followed by junction type. Junction control, speed limit, casualty age and casualty severity all had reasonably similar error ratings.

The shire counties appear to perform better than the other authorities according to the criteria laid down in the *Road Safety Code of Good Practice*. This may be due to their size and type whereby the collection of such data provides greater returns than in the other authorities. An alternative explanation could be that the document was produced by the Association of County Councils and so would act as a basis for safety plans in the County Councils, whereas the other authorities may have different goals in accident data and co-operation, which have been overlooked by this study.

In general, most authorities have a great scope to improve the collection and use of additional items of safety data. All authorities meet with the police whether in a formal or informal context, but only a minority meet with the hospitals. If more authorities meet the hospitals, more data on casualties would be able to be provided. This will then allow the levels of under-reporting to be assessed in each area. With a greater amount of locational data sources available the identification of errors in the police reports would be made possible. The collection of these extra sources and the co-operation with outside bodies should lead to a more accurate accident database, a smaller number of injury accidents not reported and an improved level of accident analysis.

10.ACKNOWLEDGEMENTS

The author would like to thank the Highway Authorities who responded to the questionnaire, since without their support this project would not have been possible. The author would also like to thank Howard Kirby and Dr Miles Tight for their helpful comments and suggestions.

11.REFERENCE

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