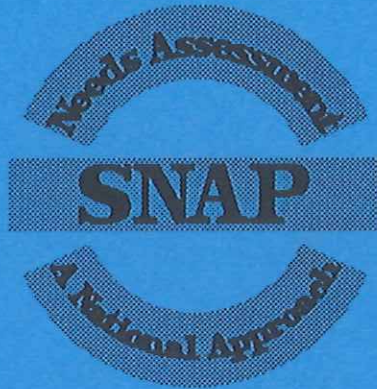


Scottish Needs Assessment Programme



Workplace Accidents in Scotland

SCOTTISH FORUM FOR PUBLIC HEALTH MEDICINE

69 Oakfield Avenue
Glasgow
G12 8QQ
Tel - 041-330-5607
Tel/Fax - 041-307-8036

**FOR
REFERENCE ONLY**

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SCO
REF

Health Promotion Library Scotland
Health Education Board for Scotland
The Priory, Canaan Lane
Edinburgh EH10 4SG
Tel: 0345 125 442 Fax: 0131 447 6180



Scottish Needs Assessment Programme
Health Promotion Review: Accident Prevention
Workplace Accidents in Scotland

Dr Cameron Stark

Department of Public Health Medicine
Argyll and Clyde Health Board

January 1995

Scottish Forum for Public Health Medicine
69 Oakfield Avenue
Glasgow G12 8QQ
Tel - 041 330 5607
Fax - 041 307 8036

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Introductory Note

This Health Promotion Review is one of a series of five being published simultaneously. The others are:

- Home Accidents in Scotland
- Leisure and Water Accidents in Scotland
- Road Traffic Accidents in Scotland
- School Accidents in Scotland

SNAP Reports currently available

Total Elective Hip and Knee Replacement - a comparative assessment

Cataract Surgery

Congenital Dislocation of the Hip

Global Needs Assessment - a screening tool for determining priorities

Increasing Choice in Maternity Care in Scotland - Issues for Purchasers and Providers

Breastfeeding in Scotland

Improving Gynaecological Services Within Existing Resources - A Programme

Budgeting and Marginal Analysis Approach

Cancer Care in Glasgow - A Model for Regional Cancer Care in Scotland

Inpatient Resources for Communicable Disease in Scotland

Dental Caries in Children

Oral Cancer

Addictions - Overview and Summary

- Alcohol Misuse

- Tobacco

- Problem Drug Use

Acute Stroke

Teenage Pregnancy in Scotland

Mental Health - Overview and Programme

SNAP Reports due to be published shortly

Cardiac Disease

Hernia Repair

Copies of all SNAP Reports are available from Ms Jackie Gregan, Scottish Needs Assessment Programme, 69 Oakfield Avenue, Glasgow G12 8QQ.

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ACCIDENTS IN SCOTLAND - GENERAL

STATEMENT OF THE PROBLEM

Mortality

Deaths resulting from accidents account for a substantial proportion of all deaths and are the fourth largest single cause of death in Scotland. In the 1980s deaths from accidents showed a downward trend but this has now levelled off.

Although death rates due to accidents increase with age, much of the impact on years of life lost is due to deaths among children and young adults, especially young men. Accidents are the third largest single cause of years of life lost, calculated as years of life lost before the age of 75 years.

Morbidity

Figures on the morbidity caused by accidents is limited. Information on community morbidity is not collected nationally. There may be information collected by individual practices or health visitors but this is not yet in a systematised form. Accident and emergency department information is limited by the proportion of attendances not coded completely. Information collected in the hospital service concentrates on the injury rather than on the place of injury or how it was caused and is, therefore, not complete.

Need for a common data set

Information on the number of accidents and types of accidents are collected by many agencies but as yet there is no common data set of information agreed by the various agencies and limited use can, therefore, be made of these data.

RISK FACTORS

The risk factors and their amenability to intervention depends very much on the setting in which the potential accident takes place. However, it is widely recognised now that in order to reduce injury and death from accidents it is necessary to reduce the number of accidents as well as to reduce the adverse effects of the accident.

EFFECTIVENESS AND COST-EFFECTIVENESS OF INTERVENTION

There is limited published information about the effectiveness and cost-effectiveness of interventions to both reduce the number of accidents and also to reduce the adverse effects of an accident. Much more research is required in this area. However, in summary, the value of health education initiatives alone is questionable. When coupled with structural or environmental changes, there can be an improvement in the outcome.

COSTS TO THE NHS OF ACCIDENTS

The cost of accidents is very difficult to estimate and therefore these estimates, in most cases, have been limited to the costs of the Health Service. These are meant to indicate the likely scale of the problem in Scotland.

School accidents	Hospital costs	£1 million per year
Workplace (NHS as a workplace)	Medical care costs (Total costs)	£5-22 million per year (£85 million per year)
Road accidents	Total costs	£608 million per year
Leisure and water accidents	Hospital costs	£15-27 million per year
Home accidents	Hospital costs	£8-13 million per year

OVERALL RECOMMENDATIONS

At national level

- Information systems between the various organisations should agree on a minimum data set of information to allow for better analyses of the statistics to inform an action plan
- A joint strategy for accident prevention by setting should be drawn up in conjunction with all agencies involved.

At local level

- Purchasers should encourage Healthy Alliances to examine accidents locally and produce an action plan.
- Purchasers should require improved completeness and accuracy of statistics.
- A pilot scheme to evaluate the costs and effectiveness of community health service staff and domiciliary social work staff (such as home helps) undertaking a safety audit with advice within the homes of young people and the elderly should be undertaken.
- Various initiatives to reduce injuries from road accidents should be promoted including encouragement of the use of public transport, separation of pedestrians and cyclists from traffic, automatic speed cameras, especially in dangerous areas, the use of cycle helmets, infant car seats and rear seat belts, advanced driver training, especially by employers for their staff who drive, and sensible alcohol consumption
- The NHS should implement the SCOTMEG recommendations and monitor these through the contracting mechanism.
- Health Promotion initiatives with employers should include accident prevention.
- Schools should be encouraged to review regularly their information on accidents to identify risks and design an action plan incorporating the findings.
- All leisure and sports centres and clubs should collect and analyse data on accidents to identify risks and design an action plan to reduce these risks.

WORKPLACE ACCIDENTS - EXECUTIVE SUMMARY

- The type of accident and measures taken to prevent them depend largely on the workplace activity and size of employment unit. The majority of employees in Scotland are employed in the service sector. Workplaces employing less than 25 people account for 88% of all workplaces.
- Legislation provides a framework for the health and safety of employees in most workplaces. Employers are responsible for preventing workplace accidents, with several bodies enforcing this requirement or contributing to its implementation. These include the Health and Safety Executive and Commission, Environmental Health Officers, and company Occupational Health Services.
- Despite the large number of bodies collecting information on workplace accidents, there are no routine sources which provide mortality, morbidity or cost data on workplace accidents in Scotland. The Scottish Office, however, estimate that accidents at work in Scotland cost £1-1.5 billion per year. The cost of accidents occurring in the NHS in Scotland is estimated at around £85 million per year.
- Costs of accident prevention strategies can be offset by reductions in the cost of accidents up to a certain point, beyond which the costs of further prevention activities outweigh the benefits. Few companies, however, have reached this cut-off point.
- To some extent, accident prevention and health promotion go hand in hand, although not all workplaces welcome health promotion activities. Among those who do, reduced accident, injury and absence rates have been reported, along with decreased labour turnover and increasing profits.
- "Off-the-job" accidents are also important; some companies invest large amounts of capital on programmes designed to reduce these accidents. Workplace health action must come from the needs of individual workplaces as well as an overall health promotion strategy, so that companies focus on promoting health and safety within their own particular establishment.
- In order to encourage good health and safety practice within the NHS, action taken by purchasers can include a contractual requirement for workplace health promotion activities within provider units, and the setting of targets for accident reduction in Units where health and safety give cause for concern.
- Suggested recommendations for provider units include: the provision of a minimum data set on workplace accidents, analysis of which could be fed back throughout the unit; appropriate training in health and safety for senior management; and setting and monitoring targets for accident reduction. To prevent accidents, providers should focus action on those accidents which occur most frequently and/or at the greatest cost.
- Involvement of various health service bodies with health promotion activities in the private sector is also recommended, particularly where businesses encounter difficulty in delivering their own occupational health service.
- Finally, there is a need for accident prevention and health promotion activities to be evaluated in order to determine those which are most effective, thus enabling recommendations to be made for specific interventions.

RECOMMENDATIONS

These recommendations review possible actions for the health service as an employer, as a participant in healthy alliances, as a provider of services to commercial organisations and as one of the major collators of information on accidents. Many of the possible accident prevention activities are not within the direct control of the NHS, thus emphasising the importance of healthy alliances.

1.1 Health Service Accidents

The NHS as an Employer

NHS Trusts and Directly Managed Units are major employers, and purchasers will have a continuing interest in ensuring that appropriate standards of health and safety are in place in the provider units with which they enter into contracts. Given the opportunities for health promotion, purchasers may want to include requirements for workplace health promotion activities in overall service specifications.

SCOTMEG Recommendations

The SCOTMEG recommendations on accidents in the NHS are shown below. They cover three areas, accident reporting, management of health and safety, and accident prevention. They are broadly in sympathy with the HSE work reviewed above.

1.1.1 Accident Reporting

Providers: All units and trusts should collect the information identified by SCOTMEG as a minimum data set. This information should be fed back to all managers and supervisors, and quarterly and annual reports should be produced. Units should use the reporting form designed by SCOTMEG, and should keep cost information on accidents.

Purchasers: Should display an interest in accident rates, and should have access to providers' annual Health and Safety Reports. Accident rates should also be centrally compiled in order to compare rates between hospitals.

1.1.2 Management of Health and Safety

Providers: Units and Trusts should demonstrate that health and safety management is included on their senior management agenda. Senior staff should focus on policy, monitoring, assessing performance and achieving a cultural change to move from accident reporting to accident prevention and safety management.

Senior management must have appropriate training in health and safety, and should ensure that their staff are also appropriately trained. Units and Trusts should ensure that, wherever possible, there is one single point of health and safety advice. The Management Executive (ME) guidelines on components of a comprehensive occupational health service for the NHS are appended (see Appendix C). Purchasers may wish to use them as a model.

Trusts and Units should set and monitor targets for accident reduction, both for specific accidents such as needlestick injuries or back injuries, and also for absence because of accidents.

Purchasers: Should set targets to improve performance if accident rates or other aspects of health and safety performance give concern.

1.1.3 Accident Prevention

Providers: SCOTMEG recommended three specific actions by Units and Trusts to be taken immediately.

- They should focus action on those accidents which are most frequent, or cause the greatest financial or organisational costs.
- They should investigate the incidence of back injuries and sharps injuries, and set targets for their reduction.
- They should review their practices to ensure that they are doing all that is reasonable to protect staff from person to person assault.

1.2 Wider Issues for Purchasers

1.2.1 Health Promotion

Given the mounting evidence on the benefits of holistic approaches to health promotion in the workplace, purchasers should encourage provider units to include accident prevention within their overall health promotion activities. This is in keeping with the Health at Work in the NHS initiative (HEA 1992). A Faculty of Public Health Medicine Working Group on Health Promotion in the Workplace will be issuing guidelines later in the year. The group, which included representatives from Occupational Health, are also likely to emphasise the importance of a wider view of health promotion in the workplace.

1.2.2 Feedback within Provider Units

Where purchasers ask for the establishment of improved monitoring systems, they should also require evidence that the information collected is being disseminated within the provider unit.

1.3 Additional Costs

Provider Units and Trusts may feel that health and safety practices cannot be improved without extra funds. This is not supported by the HSE, nor by initiatives in industry where the cost savings associated with accident prevention have been recognised. There may be extra costs in the early stages of establishing an effective monitoring system, but once in place accident prevention activities should be self-funding.

1.4 Monitoring

1.4.1 Data Quality

The NHS is best placed to drive forward improvements in data quality on accidents presenting to health care services. There is considerable scope for epidemiological research but quality of routine data is likely to be of even greater importance. Providers can act to include appropriate data quality standards in all contracts with acute units in order to provide epidemiological information for needs assessment and targeting of health promotion and accident prevention activity.

1.4.2 Accident and Emergency Information Systems

Good morbidity information will also be of value to businesses in planning and evaluating accident prevention activities. Where accident and emergency information systems have been introduced, purchasers should require information on the proportion of attendances in which relevant information has been recorded. This may require extra administrative staff time but should offer benefits to purchasers in their needs assessment responsibilities. If accident and emergency information systems have not been established, purchasers should await guidance from Information Services Division (ISD) and the ME on the results of current information systems trials.

1.4.3 SMR1 System

The difficulties in identifying occupational accidents in the SMR1 system are of concern. ISD should review this to see whether this can be overcome without excessive cost. Purchasers should not rely on SMR1 information for review of occupational accidents.

1.5 Extension of NHS Activities into Workplaces

1.5.1 Private Sector Involvement

NHS Trusts, Directly Managed Units and Health Boards include individuals and departments with expertise in evaluating accident prevention needs, interpreting information and providing services to organisations. Section 1.1.3 above demonstrates the impossibility of all businesses delivering their own occupational health services to employees. There are opportunities for NHS bodies to enter into contracts with businesses to deliver health promotion services to these organisations.

Purchasers should seek evidence of extension of health promotion activities to the workplace, and should encourage provider units to consider entering into contracts with employers to support accident prevention activities.

1.5.2 Targeting of Workplace Initiatives

Where purchasers contract directly for health promotion and accident prevention activities in the workplace, they may consider it more cost-effective to direct activity at larger employers, as contact with a smaller number of workplaces will allow contact with a large proportion of the workforce. However, these are the businesses most likely to have occupational health services. In addition, the disproportionate risk of accidents to part-time workers does suggest that making contact with small businesses may offer benefits. Purchasers should consider funding innovative schemes to assist small businesses without occupational health services.

1.5.3 Further Research

There is a need for well-designed intervention studies to evaluate the effectiveness of accident prevention and health promotion activities in the workplace. Previous work suggests that appropriate expertise lies within the health care sector and can usefully supplement business research skills of employing organisations. Health care and health promotion workers must agree joint projects with businesses, use evaluation methods which will be satisfactory to all, and have the potential to demonstrate generalisable results. Many businesses have demonstrated an interest in health promotion, and this interest can be harnessed to produce transferable results.

1 STATEMENT OF THE PROBLEM

Accidents are the largest single cause of death in people under the age of 35 years, and rank as the third largest single cause of years of life lost in Scotland before the age of 75 years. There have been several recent initiatives on accidents in Scotland, including a Scottish Office inter-departmental working party, which reviewed sources of information. The aim of this report, and others in this series, is to bring together the disparate sources of information for use by purchasers of health services. The reports on accident prevention differ from some other Scottish Needs Assessment Programme reports in that most direct action on prevention is not within the control of the health service. This report reviews areas of appropriate involvement for the NHS. It refers specifically to accident prevention and excludes general occupational health issues, such as long term exposure to chemicals and ergonomic issues, such as use of video display units, which are comprehensively reviewed elsewhere (Cooke and Hodgson, 1992, Waldren 1989).

As with other reports in the series, the Scottish Needs Assessment Programme working group reviewed the production of the report at all stages and made detailed comments on structure and content. As well as the immediate members of the working group, this report was also reviewed by a representative of the Confederation of British Industry, the trade union UNISON, an occupational health physician, and a health and safety advisor. The literature review was conducted by using the on-line information database MEDLINE, by consulting the health and safety executive, and by discussion with RoSPA.

1.1 The Workplace

This section reviews the importance of the workplace as an area for accident prevention activity, discusses present employment patterns, and identifies sub-groups of workers who may require special attention, such as part-time workers or those working in small businesses without access to occupational health advice.

1.1.1 Introduction

The workplace is an important site of accident prevention and health promotion activities. In Scotland in 1992, 2,260,000 people were in employment (Scottish Abstract of Statistics 1992). Patterns of workplace activity and therefore of accident risk vary from area to area. A breakdown of employment type by gender is given in Table 1. Members of the Armed Forces and those in private domestic service are not included in these figures. The large number of part-time workers, particularly women, is evident.

Table 1
Employment by Industry and Sex Scotland 1989, Thousands

Industry	Total	Males	Females	
			Total	Part-time
All Manufacturing	402.5	273.3	129.1	21.5
All Service	1344.2	565.7	778.5	360.2
Agriculture, Forestry and Fishing	29.6	25.1	4.5	2.0
Energy and Water Supply	57.4	49.4	8.0	0.9
Extraction/Manufacture of Minerals/Chemicals	45.2	36.1	9.0	1.6
Metal Goods, Engineering and Vehicle Industries	165.8	131.8	34.0	4.7
Construction	133.9	120.5	13.4	4.6
Other Manufacturing Industries	191.6	105.4	86.1	15.1
Distribution, Hotel and Catering, Repairs	405.8	167.2	238.6	139.5
Transport and Communications	111.4	89.9	21.4	4.7
Banking, Finance etc	182.2	87.5	94.7	21.6
Other Services	644.8	221.1	423.7	194.3

(Source: Scottish Abstract of Statistics 1992)

1.1.2 Employment by Category

Table 2 shows employment by broad category of industry for Scotland and Regional Council. The differing pattern of employment between areas is clear, but the relative importance of the service industries in all areas is apparent. The differences in employment patterns limit generalisations from area to area, but it is evident that service industries constitute an important area of employment.

Table 2
Employees in Employment by Area and Industry 1989 (Thousands)

	Agriculture, Forestry & Fishing	Energy and Water Supply	Manufacturing	Construction	Services
Scotland	29.6	57.4	402.5	133.9	1344.2
Borders	2.2	0.3	12	2	20.1
Central	0.9	2.7	23.4	7.1	64.9
Dumfries & Galloway	4.1	1.3	11.8	3.2	30.3
Fife	1.4	4.1	32.7	7.2	68.2
Grampian	5	26.9	36.2	16.2	143.8
Highlands	3	1	9.7	5.7	57.9
Lothian	2.8	5.3	55.5	21.7	242.3
Strathclyde	6	12.7	187.9	59.5	594.7
Tayside	3.1	2	31.1	9.3	104.2
Orkney	0.5	0.3	0.6	0.6	4.9
Shetlands	0.4	0.8	0.9	0.6	6.4
Western Isles	0.4	0.1	0.7	0.9	6.3

(Source: Scottish Abstract of Statistics 1992)

1.1.3 Number of Employees by Size of Business

There are a large number of individual employers in Scotland. The method used to collect data on the size of businesses does not relate directly to individual employers, but is the best information available. In general, the census unit is an entire office, factory or shop and the employees working there. However, if two different payrolls are used, or more than one industry is carried out, then two separate entries will be made. Armed Forces, private domestic service and the self-employed are not included in these figures.

Table 3 shows the number of employees by size of business at the employment census in 1989. Just over one percent of workplaces account for 32.3% of employees, and the largest 12% of workplaces include 56.5% of workers. The final 30.9% of employees are situated in the remaining 87.9% of workplaces. Accident prevention initiatives could be directed towards a relatively small number of workplaces, and still affect the majority of workers. As discussed later, however, workers in small workplaces may be less likely to have access to occupational health advice and so may be greater priorities for intervention than those in larger workplaces.

Table 3
Number of Employees by Size and Number of Employment Units, 1989

No of Employees	No of Workplaces	Percent of Workplaces	No of Employees	Percent of Employees
1-10	81 605	72.3	322 400	16.6
11-24	17 595	15.6	277 500	14.3
25-49	7330	6.5	247 600	12.7
50-99	3229	2.9	223 600	11.5
100-199	1786	1.6	245 500	12.6
200-249	853	0.8	255 400	13.1
500+	389	0.3	373 700	19.2
Total	112 787	100	1 945 700	100

(Source: Scottish Abstract of Statistics 1992)

1.2 Definition of Workplace Accident

The Department of Trade and Industry define an accident as:

"any unplanned event which resulted in injury or ill-health of people, no matter how caused, except for

(i) deliberately self-inflicted injuries or suspected suicides and

(ii) injuries resulting from physical attacks by other persons"

(Department of Trade and Industry, 1993)

This report refers specifically to accidents occurring to people at their place of work. Accidents to members of the public while visiting a workplace are not included in this report.

1.3 Current Legislation

1.3.1 The Legislative Framework

Legal requirements affecting health at work are complex, and it is important that health boards are familiar with the main legislation. The main pieces of relevant legislation are:

- the Public Health Act 1936
- Health and Safety at Work Act 1974
- 1977 Safety Representatives and Safety Committee Regulations
- 1985 Reporting of Injuries, Diseases and Dangerous Occurrences (RIDDOR)
- 1988 Control of Substances Hazardous to Health (COSHH)
- 1992 Health and Safety (General Provisions) Regulations
- associated Regulations introduced to meet the terms of EC Directives (Clarkson et al 1991).

The legislative framework is outlined in greater detail in Appendix A.

1.3.2 Important Pieces of Legislation

The Health and Safety at Work Act 1974 and the new Health and Safety Regulations are of particular importance. The Health and Safety at Work Act drew together various pieces of existing legislation into a comprehensive framework dealing with the health and safety of employees in most workplaces, as well as the public when they are exposed to these work activities. The new Health and Safety Regulations make explicit the actions to be taken to meet the requirements of the Health and Safety at Work Act. They require employers to assess risk, to record the assessment, to plan preventive action and to take the appropriate steps to carry the action out.

1.3.3 Enforcing Bodies

There are many bodies involved in workplace accident prevention. Health boards should be aware of the statutory agencies involved, and the responsibilities placed upon employers in order that they may target their own efforts appropriately. Employers are responsible for the prevention of workplace accidents, with the involvement of various enforcing bodies (Scottish Office Interdepartmental Working Party on Accidents, 1994a). The bodies involved in occupational health include the Health and Safety Executive and Commission, Environmental Health Officers and company Occupational Health Services (Clarkson et al 1991).

- The Health and Safety Commission is the overall body responsible for development of health and safety law. Its advisory committees set standards and codes of practice.
- The Health and Safety Executive advises on, enforces and implements the Health and Safety at Work Act. It inspects manufacturing worksites. It has a medical arm, the Employment Medical Advisory Service (EMAS).
- Local Authority Environmental Health Officers enforce health and safety legislation in service and leisure worksites, such as high street shops, supermarkets and leisure centres.
- Company occupational health services provide a variety of services (see Appendix C). Much of their efforts are directed towards ensuring that the requirements of the COSHH regulations are met, although in some organisations health and safety advisors may undertake these duties. This may limit the time they have available for other activities.

1.3.4 Occupational Health Requirements

There is no legal requirement for workplaces to provide an Occupational Health Service. Employers are required to provide first aid facilities, health surveillance under COSHH Regulations (see above) and medical examinations for specified industrial operations. One trained first-aidier is required for every 50 employees. In 1978 EMAS found that firms with less than 250 employees usually did not have any occupational health services other than first aid, and work in 1986 also suggested that less than half of the work force have access to Occupational Health Services (Webb and Schilling 1988). Given the very large number of small employers in Scotland, this figure may be an overestimate of the Scottish position.

1.4 Mortality and Morbidity

The Scottish Office Interdepartmental Working Group on Accidents found that there was no central mechanism for collating information on workplace accidents. In looking at these accidents, it is important to use all available sources, but to be aware of the limitations of the data sources.

1.4.1 Information Sources

Routine Mortality Data

Routine mortality data cannot be used to estimate deaths due to workplace accidents in Scotland. Clinical cause of death is coded to ICD9, with external cause of injury codes (E-codes) used to describe the agent of injury. The place of occurrence is coded using the fifth digit of relevant ICD9 codes. Place of occurrence, however, does not necessarily imply that the death has been caused by industrial

activity. Health and Safety Executive information on deaths from industrial accidents is published for the UK as a whole: data for Scotland is not available separately (Scottish Office Interdepartmental Working Party on Accidents, 1994a).

Hospital Morbidity Statistics

SMR1 returns do not identify industrial accidents. E-codes, as mentioned above, do include a fifth digit for place of occurrence but these are rarely completed (J Clark, personal communication).

RIDDOR Reports

Under RIDDOR Regulations, major accidents (involving injuries such as fractured arms or legs, fractured skull etc), injuries resulting in more than three days absence from work and some incidents specified as "dangerous occurrences" have to be reported to the relevant enforcing authority (see Appendix B). Reports of non-fatal accidents to the Health and Safety Executive and Local Authorities are unreliable, and numbers are likely to be considerably higher than official returns indicate.

The 1990 Labour Force Survey estimated that the proportion of reportable non-fatal injuries being reported by employers was:

- 4/5 in the energy sector
- 2/5 in manufacturing and construction
- 1/5 in agriculture
- 1/4 in the service industries.

Within the Service sector, reporting varied from:

- 1/4 in health and personal services
- 1/6 in distribution and hotels
- 1/10 in social, welfare and recreational services
- less than 1/10 in business services.

These modifiers can be used to produce probable numbers from RIDDOR data when looking at local figures.

Information from individual companies

There is no central source of information from private companies. Differing definitions and methods of collection are used even by companies in the same industry. In many cases, companies will view information on minor injuries and lost time accidents as being commercially confidential. Health boards may be able to negotiate access to data from individual companies, but this is unlikely to help them produce good population estimates of accident incidence unless the company is a very large employer in their area.

1.4.2 Mortality and Morbidity Estimates

Webb and Schilling, in a survey for the Health Education Authority, concluded that there were about 1,400 deaths in England and Wales from occupational disease or accident each year, with 525 of these occurring in the workplace. They also estimated some 396,000 episodes of non-fatal work injuries (Webb and Schilling 1988).

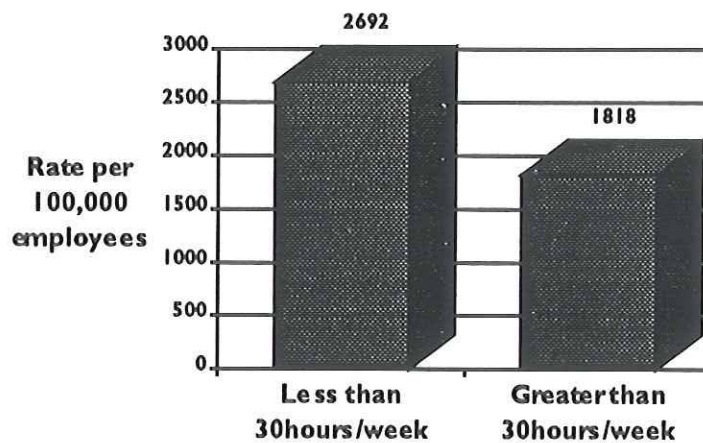
In the Local Authority enforced sector in the UK (around 1.25 million premises), 62 fatal accidents were reported in 1991/92. Of these deaths, 24 resulted from falls from a height and a further 10 by being struck by a moving vehicle (HSE/HELA 1993).

RIDDOR Estimates

The 1990 Labour Force Survey was based on a survey of 500 workplace trade union safety representatives, and was thus not a random sample. However, the extrapolation of these results by the Health and Safety Executive/Local Authority Liaison Committee (HSE/HELA 1993) provides the most useful rates to estimate RIDDOR accidents in Scotland. Although manufacturing industries are usually thought of as relatively high risk, workers in retail, wholesale and hotel and catering industries have over four-fifths of the risk of manufacturing as a whole.

Table 4 shows rates of reportable injuries estimated for full-time equivalents from the 1990 Labour Force Survey.

Table 4 Rates of injuries for part-time employees - retail and hotel and catering industries (full-time equivalent staff)



[Source: Health and Safety Commission, 1993]

Other Sources of Morbidity Information

Figures for industrial disablement pensions were constant from 1989-1991. 17,000 people in Scotland received industrial disablement pension, of which 14,000 received their pension as a result of accidents at work.

There are numerous estimates of morbidity from specific workplace accidents in the scientific literature, but estimates from Scotland are unusual. One study in Aberdeen collected information on accident and emergency department attendances over a 27-day period (Harker et al 1991, 1992). The Department served a population of 500,000, and saw half of all accidents in the area. The study was limited by the short data collection period, with potential problems of seasonal variation, and by the difficulties in generalising to other areas mentioned in 1.2 above. Despite this, it is the best information available. They found that 16.5% of all new patients and 21.7% of eye casualty patients had sustained work-related accidents. They projected that 12,300 medical treatments and 5,100 x-rays would be required for

work-related accidents in a one year period in a population of 250,000. It was estimated that almost one in ten workers involved in manufacturing or agriculture/forestry/fishing would attend casualty in a year.

Service industries, although with a low relative risk, contributed the greatest number of individuals because of the numbers involved. This information has limitations, and it would be valuable to repeat the study in a another area. Good quality routine data from accident and emergency departments would be of great value in planning prevention strategies.

Eye injuries were singled out in the Aberdeen study, and have been examined in other UK studies. Although the absolute number of injuries is small, some result in unilateral blindness and almost 90% are thought to be preventable (Patel and Morgan 1991).

Health Service Accidents

The Health Service is of particular interest, as discussed below. A HSE study in one Glasgow hospital produced estimates of accident rates (HSE/HELA 1993). A Scottish Health Management Efficiency Group (SCOTMEG) Project Team examined what information was available on Health Service accidents, and reviewed all accidents reported in NHS facilities over a one week period. After examining the results of the one-week study, they concluded that it would be valid to extrapolate the HSE findings to the whole NHS (SCOTMEG 1993).

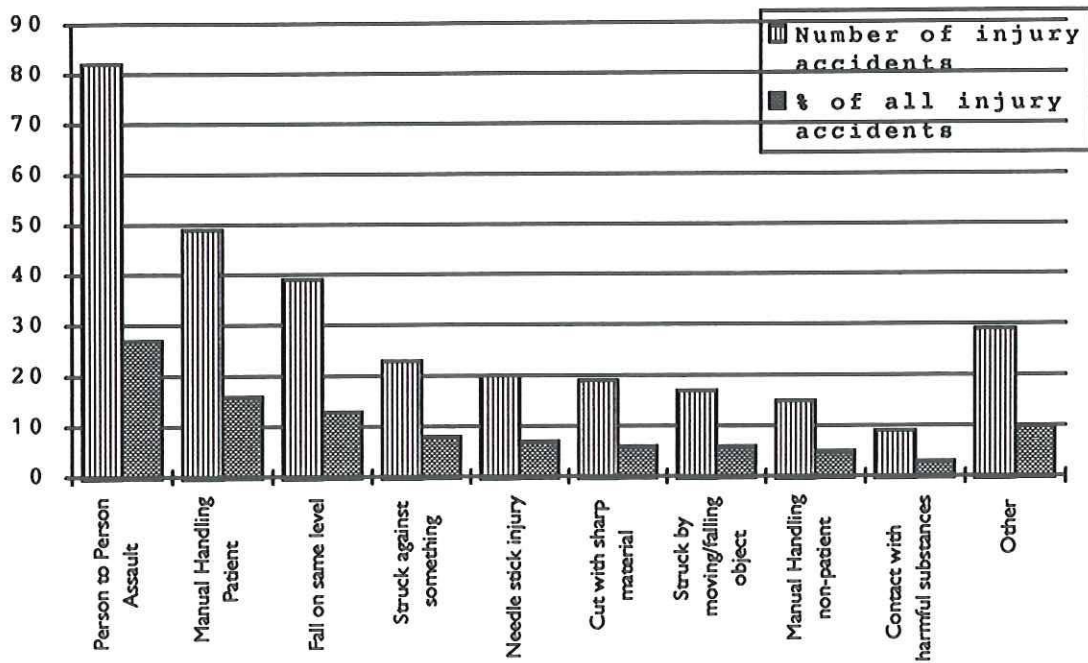
This would mean that a hospital with 1,000 employees could expect:

- 35 accidents resulting in absences of over 3 days and
- 350 accidents resulting in personal injury

each year

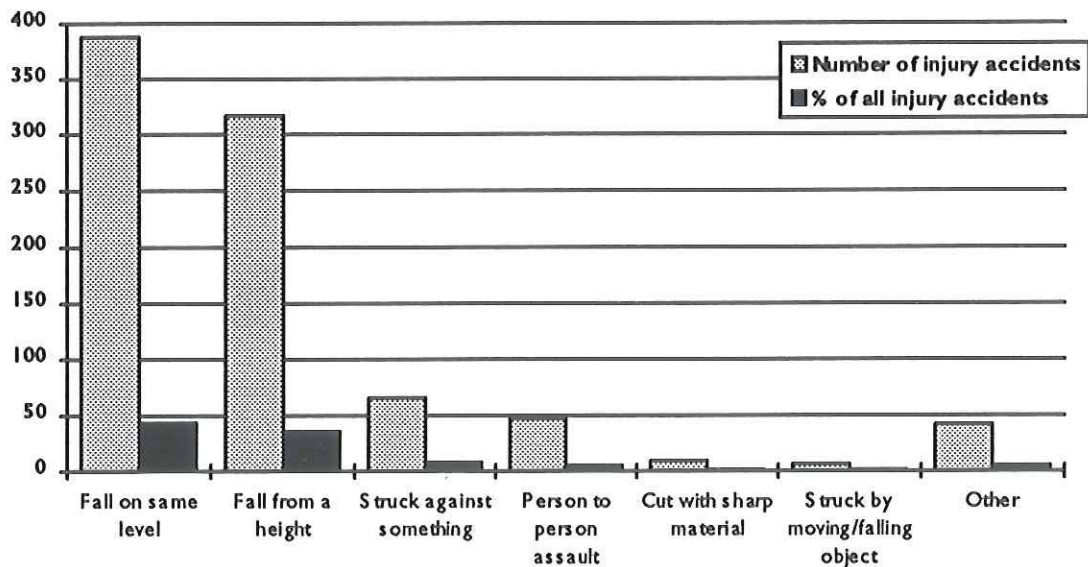
The most common causes of accidental injury in the SCOTMEG study are shown in Table 5 below.

Table 5
Number and Percentage of injury accidents to staff in the NHS



[Source: SCOTMEG, 1993]

Chart 6
Number and Percentage of injury accidents to patients in the NHS



[Source: SCOTMEG, 1993]

It should be noted that the SCOTMEG study covered a one-week period only, but is the best information available. Furthermore, this study defined assault as an accident which others may not have.

2 COST OF WORKPLACE ACCIDENTS

2.1 Cost to Industry

The HSE provide information on the cost of workplace accidents. Using this information, the Scottish Office Interdepartmental Working Party on Accidents have estimated the cost of accidents at work in Scotland as £1-1.5 billion per year.

Some accidents can have enormous costs: the Piper Alpha explosion resulted in the loss of 167 lives, and a financial cost of over £2 billion, while the 1987 Grangemouth refinery fire, in which one person died, cost around £100 million (HSE/HELA 1993). These figures help to explain the different perspectives of health care professionals and managers in relation to accidents. While health care workers may be interested only in accidents resulting in injury or death, businesses have an interest in all accidents.

2.2 Cost to Health Service

The HSE's Accident Prevention and Advisory Unit (APAU) estimate that accidents involving employees and property absorb roughly 5% of the running costs of a hospital (HSE 1993). SCOTMEG extrapolated this finding to the whole of Scotland and estimated that health services accidents cost the NHS in Scotland around £85 million per year (SCOTMEG 1993).

3 EVIDENCE OF EFFECTIVE INTERVENTIONS

3.1 Accident Pyramids

Workplace action on accident prevention tends to be built around loss control and quality management. These concepts offer many opportunities for accident prevention. The HSE argues that uninsured accident costs greatly exceed insured costs, and that there is a pyramid relating death at the top of the pyramid to over three-day injury accidents to minor injuries to non-injury accidents (Diagram 1). The ratios differ according to industry, as the examples below illustrate.

Diagram 1: Accident pyramid



[Source: HSE, The Cost of Accidents at Work, 1993]

3.2 Intervention Studies

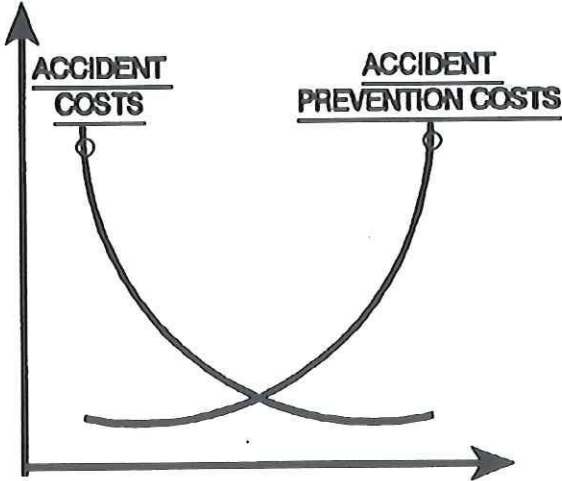
Examples of intervention studies to reduce injuries at work, rather than observational studies, are surprisingly limited. This seems to be related to the inclusion of accident prevention work in the technical literature, which is not easily accessible to health care, and to a different culture. Structural accident prevention mechanisms such as the use of visors are assumed to be of such obvious value that they are not formally evaluated.

As Stone (1993) found in other areas of accident prevention, effective accident prevention measures are usually structural in nature (e.g. Mohr and Clemmer 1989, Harms-Ringhdal 1987). Some of the efforts to demonstrate benefits of educational programmes have been confounded by poor statistical design, which ensure that trials have little chance of demonstrating benefit in the study period.

3.3 Costs of Accident Prevention

The economics of accident prevention have been controversial in the past. This may be because the costs of accidents have been underestimated, and also because poor reporting has hidden the financial burden on organisations imposed by accidents. The Accident Prevention Advisory Unit (APAU) of the HSE commend the costing model shown in Diagram 2. This demonstrates that, while there is cut off point where costs of accident prevention will not give a net return, efforts up to that point will result in savings for the organisation involved. The HSE comment that few, if any companies, have reached the cut-off point.

Diagram 2: Economic Costing Model



(Source: Cost of Accidents at Work, HSE)

APAU, after working in many different organisations, have concluded that accident prevention requires a comprehensive system, and that focusing on injury accidents is insufficient. This emphasises the importance of the accident pyramids discussed above, and the recognition of the importance of non-injury accidents.

4 EXAMPLES OF WORKPLACE HEALTH ACTION

Health promotion in the workplace includes more than accident prevention. This section discusses why workplaces may be a suitable site for health promotion activity, and reviews some specific programmes which include accident prevention components.

4.1 Barriers to Workplace Health Action

Many health care workers and health promoters argue for holistic health action in the workplace. A great deal of effort has gone into elucidating the components of innovative health promotion programmes and the barriers to health promotion in the workplace (Harvey 1988). Some large organisations have invested money in workplace health promotion activities. The reasons for interest in workplace health promotion include:

- the number of individuals at work
- the environmental hazards of the workplace
- the increase in "lifestyle" illnesses
- the low level of turnover in many workforces
- high rates of participation
- potential benefits to the organisation

Not all workplaces welcome health promotion activity. The HEA survey listed five traditional occupational health concerns - noise, safety, dust, muscular and chemical hazards - before the first health promotion issue (alcohol). The Labour Research Survey of Trade Union representatives found more interest in this sort of issue, with 56% wishing advice on alcohol, drugs and smoking to be available, and 52% screening for breast and cervical cancer (Labour Research Department 1989).

4.2 Case Studies

Examples of broad-based programmes include the Don and Low Group in Tayside, a textile manufacturer. They have tried to reduce equipment noise; offer annual hearing tests to relevant employees; train first-aid staff and offer various other benefits including stress management, healthy eating and discounted membership of leisure centres. The company believe they have reduced accidents, injuries and absence levels, and decreased labour turnover as well as increasing profit per employee.

"Off the job" accidents are of great importance to employers. RoSPA estimate that off the job accidents cost employers at least £220,000 for every thousand employees (Cassin 1992). Shell UK lose 2.6 days a year for each employee as a result of accidents outside the job. They spend £200,000 a year on off the job safety and have sanctioned expenditure of £1 million over 5 years to maintain their programme. They believe they will have a return on their capital investment within 5 years (V Welch, personal communication). There are numerous other examples (see for example Clarkson et al 1991).

4.3 Priorities and Challenges

Wright (1993) argues that priorities for workplace health action must come from the needs of workplaces, rather than from overall health promotion priorities - hence, he argues, back injury may have to come above stroke in the list of workplace priorities. He also stresses that the decentralising of business, with increasing use of smaller contractors may lead to increased distance from occupational health services.

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APPENDIX 1

OUTLINE OF LEGISLATIVE FRAMEWORK

PUBLIC HEALTH ACT 1936

- Applies to a number of workplaces including offices and shops.
- Introduction to Control Pollutants.
- Requires employers not to create a "statutory nuisance".
- Places a duty on employers to provide sufficient ventilation to keep the atmosphere free of "noxious effluvia".

HEALTH AND SAFETY AT WORK (HASAW) ACT 1974

- Covers health, safety and welfare of people at work.
- Attempts to protect the public where they may be affected by the activities of people at work.
- Controls the use and disposal of dangerous chemicals.
- Requires employers to supply an environment that is "so far as reasonably practicable safe, without risks to health, and adequate as regards facilities and arrangements for their welfare at work".
- Places a duty on employees to take reasonable steps to protect their own health and safety and that of other people who might be affected by their activities at work.

CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH (COSHH) REGULATIONS 1989

- Provides a single set of up to date guidelines under the HSAW Act, in place of various separate pieces of legislation.
- Requires employers to assess and monitor the exposure of employees to hazards, and to perform appropriate surveillance.

REPORTING OF INJURIES, DISEASES AND DANGEROUS OCCURRENCES REGULATION (RIDDOR) 1985

- Places duties on an employer to report specified injuries resulting from workplace accidents.
- Includes deaths, specified major injuries, dangerous occurrences and diseases.
- Includes injuries resulting in a person being incapacitated from their normal work for more than three days.
- Imposes a duty to report fatal and specified major injuries to members of the public.

MANAGEMENT OF HEALTH AND SAFETY AT WORK REGULATIONS 1992

Supplement to the HSAW Act 1974.

- Requires employers and self-employed people to assess risks to the health and safety of employees and public, as a result of their work activities.
- Where there are five or more employees, employers are required to record the findings.
- Employers are required to make arrangements for the effective planning, organisation, control, monitoring and review of preventive and protective measures.
- Requires employers to supply adequate health surveillance.
- Imposes a duty on employers to appoint one or more competent persons to assist them in undertaking the appropriate measures.
- Requires employers to provide employees with comprehensible and relevant information on the items above.
- Employers are required to ensure that employees are supplied with adequate health and safety training.
- Applies to temporary workers as well as permanent.
- Places a duty on employees as well as employers.

Adapted from Clarkson et al, 1991.

APPENDIX 2
NOTIFIABLE ACCIDENTS

NOTIFIABLE ACCIDENTS

I a **FATAL** accident

II a specified **MAJOR INJURY/CONDITION**

- fracture of the skull, spine or pelvis
- fracture of any bone
 - i) in the arm or wrist, but not a bone in the hand or
 - ii) in the leg or ankle, but not a bone in the foot
- amputation of
 - i) a hand or foot or
 - ii) a finger, thumb or toe, or any part thereof if the joint or bone is completely severed
- the loss of sight of an eye, a penetrating injury to an eye, or a chemical or hot metal burn to the eye
- either injury (including burns), or loss of consciousness requiring immediate medical treatment, resulting in either case from an electric shock from an electrical circuit or equipment, whether or not due to direct contact
- loss of consciousness resulting from lack of oxygen
- decompression sickness (unless suffered during an operation to which the Diving Operations at Work Regulation 1981 apply) requiring immediate medical treatment
- either acute illness requiring medical treatment, or loss of consciousness, resulting in either case from the absorption of any substance by inhalation, ingestion or through the skin
- acute illness requiring medical treatment where there is reason to believe that this resulted from exposure to a pathogen or infected material
- any other injury which results in the person injured being admitted immediately into hospital for more than 24 hours

III an accident to an employee or trainee which results in absences extending to more than **3 DAYS**, excluding the day of the accident but including weekends or rest days. These accidents would not generally fall into category II.

APPENDIX 3

**OCCUPATIONAL HEALTH SERVICES:
SUGGESTED AIMS AND FUNCTIONS**

OCCUPATIONAL HEALTH SERVICES: SUGGESTED AIMS AND FUNCTIONS

- 1 The promotion, maintenance and improvement of the physical and mental well-being of all employees, whether directly or through taking a leading role in healthy workplace initiatives.
- 2 The promotion of health awareness (for example, healthy eating campaigns, stress counselling, exercise promotion) in furtherance of health workplace initiatives.
- 3 The giving of advice to both staff and management on the protection of employees against physical or environmental health hazards (for example, the teaching of lifting skills, advice on skin care for domestic staff).
- 4 To advise management on their responsibilities under existing and impending legislation, e.g. the Health and Safety at Work Act, COSHH Regulations, Manual handling Regulations and Visual Display Unit Regulations.
- 5 To advise on known risks and any factors about work which give rise to risks, taking into account mental as well as physical health problems.
- 6 To recommend solutions for the removal or control of risks.
- 7 To advise management and employees on appropriate remedial action on individual sickness cases which have given rise to concern.
- 8 To advise management and employees on issues of rehabilitation and redeployment, for example after extended sick leave.
- 9 To gather and hold information, in strict confidence and in an appropriate form, in the OHS records - for example, health status, accident and immunisation records.
- 10 To provide staff training and education in health promotion and accident avoidance.
- 11 To provide counselling and support to employees, especially when dealing with reportable or notifiable illness.
- 12 To advise on the relationship between health and work.
- 13 To advise on all aspects of First Aid arrangements, including acceptable alternatives equivalent to those described in the Approved Code of Practice attached to the First Aid at Work Regulations in 1981.
- 14 To advise management on staff immunisation policy and, where required, to take responsibility for its implementation.

Scottish Needs Assessment Programme



Workplace Accidents in Scotland

SCOTTISH FORUM FOR PUBLIC HEALTH MEDICINE

69 Oakfield Avenue
Glasgow
G12 8QQ
Tel - 041-330-5607
Tel/Fax - 041-307-8036

Scottish Needs Assessment Programme
Health Promotion Review: Accident Prevention
Workplace Accidents in Scotland

Dr Cameron Stark

Department of Public Health Medicine
Argyll and Clyde Health Board

January 1995

Scottish Forum for Public Health Medicine
69 Oakfield Avenue
Glasgow G12 8QQ
Tel - 041 330 5607
Fax - 041 307 8036

ACCIDENTS IN SCOTLAND - GENERAL

STATEMENT OF THE PROBLEM

Mortality

Deaths resulting from accidents account for a substantial proportion of all deaths and are the fourth largest single cause of death in Scotland. In the 1980s deaths from accidents showed a downward trend but this has now levelled off.

Although death rates due to accidents increase with age, much of the impact on years of life lost is due to deaths among children and young adults, especially young men. Accidents are the third largest single cause of years of life lost, calculated as years of life lost before the age of 75 years.

Morbidity

Figures on the morbidity caused by accidents is limited. Information on community morbidity is not collected nationally. There may be information collected by individual practices or health visitors but this is not yet in a systematised form. Accident and emergency department information is limited by the proportion of attendances not coded completely. Information collected in the hospital service concentrates on the injury rather than on the place of injury or how it was caused and is, therefore, not complete.

Need for a common data set

Information on the number of accidents and types of accidents are collected by many agencies but as yet there is no common data set of information agreed by the various agencies and limited use can, therefore, be made of these data.

RISK FACTORS

The risk factors and their amenability to intervention depends very much on the setting in which the potential accident takes place. However, it is widely recognised now that in order to reduce injury and death from accidents it is necessary to reduce the number of accidents as well as to reduce the adverse effects of the accident.

EFFECTIVENESS AND COST-EFFECTIVENESS OF INTERVENTION

There is limited published information about the effectiveness and cost-effectiveness of interventions to both reduce the number of accidents and also to reduce the adverse effects of an accident. Much more research is required in this area. However, in summary, the value of health education initiatives alone is questionable. When coupled with structural or environmental changes, there can be an improvement in the outcome.

COSTS TO THE NHS OF ACCIDENTS

The cost of accidents is very difficult to estimate and therefore these estimates, in most cases, have been limited to the costs of the Health Service. These are meant to indicate the likely scale of the problem in Scotland.

School accidents	Hospital costs	£1 million per year
Workplace	Medical care costs	£5-22 million per year
(NHS as a workplace)	(Total costs)	(£85 million per year)
Road accidents	Total costs	£608 million per year
Leisure and water accidents	Hospital costs	£15-27 million per year
Home accidents	Hospital costs	£8-13 million per year

OVERALL RECOMMENDATIONS

At national level

- Information systems between the various organisations should agree on a minimum data set of information to allow for better analyses of the statistics to inform an action plan
- A joint strategy for accident prevention by setting should be drawn up in conjunction with all agencies involved.

At local level

- Purchasers should encourage Healthy Alliances to examine accidents locally and produce an action plan.
- Purchasers should require improved completeness and accuracy of statistics.
- A pilot scheme to evaluate the costs and effectiveness of community health service staff and domiciliary social work staff (such as home helps) undertaking a safety audit with advice within the homes of young people and the elderly should be undertaken.
- Various initiatives to reduce injuries from road accidents should be promoted including encouragement of the use of public transport, separation of pedestrians and cyclists from traffic, automatic speed cameras, especially in dangerous areas, the use of cycle helmets, infant car seats and rear seat belts, advanced driver training, especially by employers for their staff who drive, and sensible alcohol consumption
- The NHS should implement the SCOTMEG recommendations and monitor these through the contracting mechanism.
- Health Promotion initiatives with employers should include accident prevention.
- Schools should be encouraged to review regularly their information on accidents to identify risks and design an action plan incorporating the findings.
- All leisure and sports centres and clubs should collect and analyse data on accidents to identify risks and design an action plan to reduce these risks.

WORKPLACE ACCIDENTS - EXECUTIVE SUMMARY

- The type of accident and measures taken to prevent them depend largely on the workplace activity and size of employment unit. The majority of employees in Scotland are employed in the service sector. Workplaces employing less than 25 people account for 88% of all workplaces.
- Legislation provides a framework for the health and safety of employees in most workplaces. Employers are responsible for preventing workplace accidents, with several bodies enforcing this requirement or contributing to its implementation. These include the Health and Safety Executive and Commission, Environmental Health Officers, and company Occupational Health Services.
- Despite the large number of bodies collecting information on workplace accidents, there are no routine sources which provide mortality, morbidity or cost data on workplace accidents in Scotland. The Scottish Office, however, estimate that accidents at work in Scotland cost £1-1.5 billion per year. The cost of accidents occurring in the NHS in Scotland is estimated at around £85 million per year.
- Costs of accident prevention strategies can be offset by reductions in the cost of accidents up to a certain point, beyond which the costs of further prevention activities outweigh the benefits. Few companies, however, have reached this cut-off point.
- To some extent, accident prevention and health promotion go hand in hand, although not all workplaces welcome health promotion activities. Among those who do, reduced accident, injury and absence rates have been reported, along with decreased labour turnover and increasing profits.
- "Off-the-job" accidents are also important; some companies invest large amounts of capital on programmes designed to reduce these accidents. Workplace health action must come from the needs of individual workplaces as well as an overall health promotion strategy, so that companies focus on promoting health and safety within their own particular establishment.
- In order to encourage good health and safety practice within the NHS, action taken by purchasers can include a contractual requirement for workplace health promotion activities within provider units, and the setting of targets for accident reduction in Units where health and safety give cause for concern.
- Suggested recommendations for provider units include: the provision of a minimum data set on workplace accidents, analysis of which could be fed back throughout the unit; appropriate training in health and safety for senior management; and setting and monitoring targets for accident reduction. To prevent accidents, providers should focus action on those accidents which occur most frequently and/or at the greatest cost.
- Involvement of various health service bodies with health promotion activities in the private sector is also recommended, particularly where businesses encounter difficulty in delivering their own occupational health service.
- Finally, there is a need for accident prevention and health promotion activities to be evaluated in order to determine those which are most effective, thus enabling recommendations to be made for specific interventions.

RECOMMENDATIONS

These recommendations review possible actions for the health service as an employer, as a participant in healthy alliances, as a provider of services to commercial organisations and as one of the major collators of information on accidents. Many of the possible accident prevention activities are not within the direct control of the NHS, thus emphasising the importance of healthy alliances.

1.1 Health Service Accidents

The NHS as an Employer

NHS Trusts and Directly Managed Units are major employers, and purchasers will have a continuing interest in ensuring that appropriate standards of health and safety are in place in the provider units with which they enter into contracts. Given the opportunities for health promotion, purchasers may want to include requirements for workplace health promotion activities in overall service specifications.

SCOTMEG Recommendations

The SCOTMEG recommendations on accidents in the NHS are shown below. They cover three areas, accident reporting, management of health and safety, and accident prevention. They are broadly in sympathy with the HSE work reviewed above.

1.1.1 Accident Reporting

Providers: All units and trusts should collect the information identified by SCOTMEG as a minimum data set. This information should be fed back to all managers and supervisors, and quarterly and annual reports should be produced. Units should use the reporting form designed by SCOTMEG, and should keep cost information on accidents.

Purchasers: Should display an interest in accident rates, and should have access to providers' annual Health and Safety Reports. Accident rates should also be centrally compiled in order to compare rates between hospitals.

1.1.2 Management of Health and Safety

Providers: Units and Trusts should demonstrate that health and safety management is included on their senior management agenda. Senior staff should focus on policy, monitoring, assessing performance and achieving a cultural change to move from accident reporting to accident prevention and safety management.

Senior management must have appropriate training in health and safety, and should ensure that their staff are also appropriately trained. Units and Trusts should ensure that, wherever possible, there is one single point of health and safety advice. The Management Executive (ME) guidelines on components of a comprehensive occupational health service for the NHS are appended (see Appendix C). Purchasers may wish to use them as a model.

Trusts and Units should set and monitor targets for accident reduction, both for specific accidents such as needlestick injuries or back injuries, and also for absence because of accidents.

Purchasers: Should set targets to improve performance if accident rates or other aspects of health and safety performance give concern.

1.1.3 Accident Prevention

Providers: SCOTMEG recommended three specific actions by Units and Trusts to be taken immediately.

- They should focus action on those accidents which are most frequent, or cause the greatest financial or organisational costs.
- They should investigate the incidence of back injuries and sharps injuries, and set targets for their reduction.
- They should review their practices to ensure that they are doing all that is reasonable to protect staff from person to person assault.

1.2 Wider Issues for Purchasers

1.2.1 Health Promotion

Given the mounting evidence on the benefits of holistic approaches to health promotion in the workplace, purchasers should encourage provider units to include accident prevention within their overall health promotion activities. This is in keeping with the Health at Work in the NHS initiative (HEA 1992). A Faculty of Public Health Medicine Working Group on Health Promotion in the Workplace will be issuing guidelines later in the year. The group, which included representatives from Occupational Health, are also likely to emphasise the importance of a wider view of health promotion in the workplace.

1.2.2 Feedback within Provider Units

Where purchasers ask for the establishment of improved monitoring systems, they should also require evidence that the information collected is being disseminated within the provider unit.

1.3 Additional Costs

Provider Units and Trusts may feel that health and safety practices cannot be improved without extra funds. This is not supported by the HSE, nor by initiatives in industry where the cost savings associated with accident prevention have been recognised. There may be extra costs in the early stages of establishing an effective monitoring system, but once in place accident prevention activities should be self-funding.

1.4 Monitoring

1.4.1 Data Quality

The NHS is best placed to drive forward improvements in data quality on accidents presenting to health care services. There is considerable scope for epidemiological research but quality of routine data is likely to be of even greater importance. Providers can act to include appropriate data quality standards in all contracts with acute units in order to provide epidemiological information for needs assessment and targeting of health promotion and accident prevention activity.

1.4.2 Accident and Emergency Information Systems

Good morbidity information will also be of value to businesses in planning and evaluating accident prevention activities. Where accident and emergency information systems have been introduced, purchasers should require information on the proportion of attendances in which relevant information has been recorded. This may require extra administrative staff time but should offer benefits to purchasers in their needs assessment responsibilities. If accident and emergency information systems have not been established, purchasers should await guidance from Information Services Division (ISD) and the ME on the results of current information systems trials.

1.4.3 SMR1 System

The difficulties in identifying occupational accidents in the SMR1 system are of concern. ISD should review this to see whether this can be overcome without excessive cost. Purchasers should not rely on SMR1 information for review of occupational accidents.

1.5 Extension of NHS Activities into Workplaces

1.5.1 Private Sector Involvement

NHS Trusts, Directly Managed Units and Health Boards include individuals and departments with expertise in evaluating accident prevention needs, interpreting information and providing services to organisations. Section 1.1.3 above demonstrates the impossibility of all businesses delivering their own occupational health services to employees. There are opportunities for NHS bodies to enter into contracts with businesses to deliver health promotion services to these organisations.

Purchasers should seek evidence of extension of health promotion activities to the workplace, and should encourage provider units to consider entering into contracts with employers to support accident prevention activities.

1.5.2 Targeting of Workplace Initiatives

Where purchasers contract directly for health promotion and accident prevention activities in the workplace, they may consider it more cost-effective to direct activity at larger employers, as contact with a smaller number of workplaces will allow contact with a large proportion of the workforce. However, these are the businesses most likely to have occupational health services. In addition, the disproportionate risk of accidents to part-time workers does suggest that making contact with small businesses may offer benefits. Purchasers should consider funding innovative schemes to assist small businesses without occupational health services.

1.5.3 Further Research

There is a need for well-designed intervention studies to evaluate the effectiveness of accident prevention and health promotion activities in the workplace. Previous work suggests that appropriate expertise lies within the health care sector and can usefully supplement business research skills of employing organisations. Health care and health promotion workers must agree joint projects with businesses, use evaluation methods which will be satisfactory to all, and have the potential to demonstrate generalisable results. Many businesses have demonstrated an interest in health promotion, and this interest can be harnessed to produce transferable results.