KF PROJECT PAPER

NUMBER 49

Reported accidents to hospital patients

Frances M Roberts

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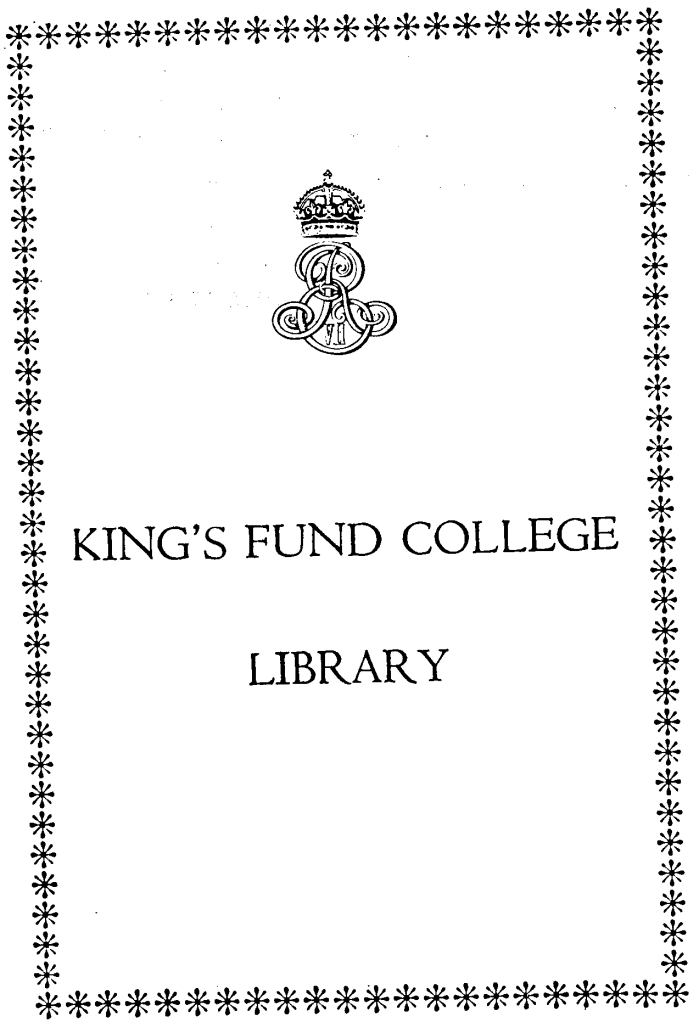


REPORTED ACCIDENTS TO HOSPITAL PATIENTS

by Frances M Roberts

King's Fund Centre

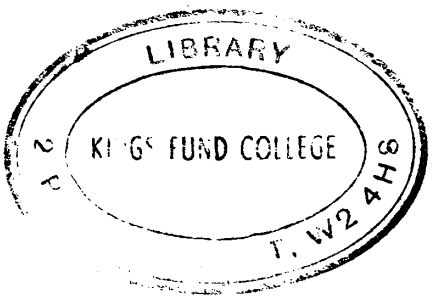
Typeset by Dart Composition, London
Printed by G S Litho, London

King's Fund Publishing Office
126 Albert Street
London NW1 7NF

This paper has been written to stimulate interest in the subject of *reported accidents to hospital patients.* This subject has been studied for several years by the author and, where appropriate, preliminary findings from the study have been used for illustration. The research study is expected to reach completion early in 1985, and it is hoped that it will be possible to make the findings available.

A B Cherns[1], a psychologist, wrote in 1962 that

'As a subject for social research accidents have many disadvantages but one great advantage — there is no shortage of material!'



Acknowledgments

My thanks are due to a number of people who have helped and encouraged me in my research study: to Miss Maureen Fitzgibbon, who kindled my initial interest in the subject; to my supervisors from the Department of Nursing in The University of Manchester, formerly Dr Pamela Hawthorn and latterly Professor Baroness McFarlane of Llandaff; to the staff of the Department of Computation in the University Medical School, especially to Mr Colin Ashcroft for his patience and hard work on my behalf, and to Dr Valerie Hillier for her interested encouragement over a number of years; and to my husband for his interest and helpful criticism.

Foreword

A small peer group of senior nurse managers meet at the King's Fund Centre bi-monthly to exchange ideas, particularly in relation to:

1 identifying substantive policy issues and attempting to assess the components underlying apparently successful innovation and change;

2 noting and recording such changes from inside and outside the group and enabling informal reaction to such developments;

3 providing an opportunity for integrating information from various sources;

4 providing a corpus of knowledge through the process of peer reaction.

In 1983-84 they identified a particular concern relating to recording incidents or accidents and the group focussed on the need for nurses to be encouraged to record all such incidents as a 'reflex action' without fear of punitive action. It was felt that the objectives of these recordings should be seen as:

preventing the occurrence of similar incidents;

providing a better standard of patient care;

providing facts for possible future use.

Frances Roberts, Senior Nurse, Computer Research and Development at Manchester Royal Infirmary, had been studying incident forms for four years and when the group decided to plan a conference on recording of and responding to untoward accidents and incidents on 14 March 1984, she was asked to speak. Her contribution, entitled 'Getting IT (information technology) together: Methodology' was received with much interest and a certain regret was voiced that more detail and some outcomes were not discussed.

This Project Paper is a response to this reaction and gives a considerable amount of data from the yet incomplete study. We believe, however, that it might be used by managers as a tool to assist in highlighting the quality of service.

It is hoped that this preliminary account will help the nurse manager to be made aware of, and given help with, difficulties related to this complex problem.

It is equally hoped that each and everyone will seek his or her own solution and not wait for the 'tablets' from Manchester; for although the final report will be enormously interesting and useful it is important that we all identify with the work personally and as it is developing. This is the way of professional growth and self-discovery — epitomised by Confuscius when he wrote:

> 'I do not expound my teaching to any who are not eager to learn; I do not help out anyone who is not anxious to explain himself; if, after being shown one corner of a subject, a man cannot go on to discover the other three, I do not repeat the lesson'.

Herewith 'one corner'.

Hazel O Allen

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Introduction

Accidents to patients in hospital are and should be a cause for concern because of:

their consequences for patients
'Damage — disorganisation — distress — disablement — death: any or all of these may result from an accident' (Lyndon 1971[2]);

their cost to the National Health Service
medical examination, x-rays and other investigations, the treatment of injuries, nursing care, administration, increase in length of stay in hospital, legal costs and compensation, loss of public confidence;

their legal implications;

the feelings of guilt and fear of recrimination
which may be experienced by nursing staff, probably unnecessary, certainly undesirable.

Definitions

'An error with sad consequences.' (Cherns 1962[3])

'An unexpected, unplanned occurrence which may involve injury. There is a possibility of accident in every sphere of human life.' (Lyndon 1971[4])

However some accidents may have beneficial effects, and 'may be judged in retrospect, to have provided an unexpected benefit or wanted but unsought pleasant consequence.' (Bell and Telman 1980[5 7]

It is likely that sometimes opinion may differ on what constitutes an accident. Lowrey[6], in 1963, highlighted the difficulty facing those responsible for the reporting of accidents to patients, commenting that the designation as an accident of an incident that did not cause injury, is somewhat diffucult to defend. Morris, Isaacs and Brislen[7] suggested, in 1981, that the routine completion of accident forms

after falls in which no injury occurred, should be abandoned.

The danger here might be that:

> nurses may take it upon themselves to decide whether or not injury has occurred; this is clearly outside the role of the nurse and may be indefensible should an injury occur but not be 'diagnosed' by the nurse.

However, many writers on the subject of accident investigation recommend that all accidents, whether or not resulting in injury, should be recorded. This, of course, still leaves the nurse in a dilemma; should the patient who falls to the floor during a faint or an epileptic fit and who sustains no injury, be classed as one who has had an accident?

The answer to this should surely be yes, as:

> injury could have occurred, the fact that it did not was fortuitous;
>
> medical examination would be necessary to establish whether or not injury did result;
>
> the nursing records should demonstrate clear documentation of all patient incidents.

The investigation of individual accidents

The main objective of the investigation should be:

> *the identification of the cause or causes*
> —it is only when this has been achieved that an assessment can be made as to whether or not any measures can be taken to prevent a further similar accident or to reduce the possibility of injury.

Scott[8], a medical practitioner, writing in Edinburgh in 1976 following his study of accidents to old people concluded that perhaps his most important finding was 'the virtual absence of medical

examination directed towards finding the causes of falls, as opposed to detecting injuries sustained.'

An examination of nursing records might produce a similar finding!

In identifying causes there is no substitute for a thorough, objective investigation of each occurrence, as soon as possible after the event.

In 1859, Florence Nightingale[9] stressed the need for facts and not for opinions:

> 'The most important practical lesson that can be given to nurses is to teach them what to observe – how to observe – what symptoms indicate improvement – what the reverse – which are of importance – which are of none – which are the evidence of neglect – and of what kind of neglect.' But, sadly, she felt '. . . few there are, who, by five or six pointed questions can elicit the whole case and get accurately to know and to be able to report. . .'

Causes of accidents

The factors to consider in relation to individual patients include:

Predisposing factors

Any condition which may place a patient in an 'at risk' group (that is, a group of individuals more likely than others to have an accident in hospital) such as:

medical condition;
medications used;
degree of mobility;
visual acuity;
hearing;
age;
reaction to stress.

Environmental factors such as:

ward design;
equipment;
procedures;
staffing.

Nurses have a duty to maintain a safe environment for patients; Roper, Logan and Tierney (1980)[10] suggest how this might be achieved. However, nurses may be unable to achieve such an aim for reasons beyond their control. Their duty is then to report such a situation to an appropriate person.

Human factors such as:

human error;
stress;
fatigue;
attention-seeking;
self-injury as a self-punishment;
self-injury to avoid a more unpleasant situation.

Reason and Mycielska (1982)[11] suggest that the consequences of an accident tend to colour or even distort our perception of the events leading up to it; big accident – big error. However, when they considered reports of major accidents they found this was not necessarily the case. Quite often the contributing errors were relatively trivial. For example, if you switch on the toaster instead of the kettle the result is mildly irritating. But should precisely the same sort of mistake occur on the flight deck of a passenger aircraft or in the control room of a nuclear power plant, the results can be and sometimes are catastrophic.

'Many accidents are due to inadequate or incorrect motor responses in conditions of emotional stress.' (Cherns 1976[12])

There can be few more stressful times for many patients than their stay in hospital!

The duty of care

Some nurses admit to feelings of guilt and fear of blame when a patient in their care is unfortunate enough to experience an accident. These feelings are heightened if injury has occurred. Blame should only be ascribed if, when and to whom it is due.

Lee (1979)[13] writes:

> 'As regards supervision of patients, the most complete statement of law is that of Edmund in Thorne v Northern Group Hospital Management Committee, *Times*, 6 June 1964. The duty owed by hospital authorities and staff to a patient is that of reasonable care and skill in the given circumstances. Whether a breach of that duty has been established depends on the proved facts including what was known or should have been known about a particular patient and the fact that the defendants impliedly undertook to exhibit professional skill and administrative care of reasonable competence and adequacy towards their patient. They must take reasonable care to avoid acts or omissions which they can reasonably foresee would be likely to harm the patient entrusted to their care; but they need not guard against merely possible (as distinct from reasonably probable) harm. On the other hand, the degree of care which will be regarded as reasonable is proportionate both to the degree of risk involved and the magnitude of the mischief which may be occasioned to the particular patient in the absence of due care.'

The accident form

Many hospitals are using a form designed and circulated in 1955, by the then Ministry of Health[14]. The form was intended to accompany an administrator's report which was to contain a full account of the occurrence. It is easy to see how the form came to be the only record, as it was a simple one-page document (see page 14). The rest of the Circular was, no doubt, neatly filed and forgotten, and the onus for investigation and record-making passed from administrators to nurses.

Accident form

CONFIDENTIAL

_____ HOSPITAL/CLINIC

Report of Accidents or other untoward occurences to Patients, Staff, or any other Persons on the Premises

Name in full _____ Case No. _____ (where appropriate)

Home Address _____

_____

Date of Birth _____ Sex _____

PARTICULARS OF OCCURRENCES

Nature and extent of injuries _____

_____

How caused _____

_____

Where occurrence took place _____

Date and time of occurrence _____

In the case of hospital staff, was the injured person on or off duty at the time _____

Names and addresses of any witnesses _____

_____

_____

Description of apparatus or equipment involved _____

Has it been retained for inspection _____

Further details and remarks (e.g. action or treatment in progress, action taken after occurrence)

_____

_____

_____

_____

Signed _____

Date _____ *Designation* _____

NOTE:

This form with attached Reports is to be treated as confidential and is prepared for the use of the Solicitors to the Authority in the event of a complaint arising or legal proceedings being brought.

It should be completed as soon as possible after the occurrence and forwarded to the Secretary of the Committee of Management.

The need for more details about accidents is being expressed; the ability to collate and analyse data is facilitated by the use of computers; and it is known that many districts are designing forms to collect information. Perhaps now is the time to design a form which would not only satisfy any legal requirements, but from which it would be possible to extract data for computer analysis and thence to supply managers with information. A standard form with clear instructions, using a standardised coding system, would enable districts to compare information, might encourage nurses to seek common solutions and might help staff identify at-risk patients, faulty procedures and dangerous environments.

Accident reporting

There is evidence to suggest that accidents occur which are not reported by nurses. The main reasons for this appear to be:

ignorance of the occurrence
There were no witnesses and the patient did not report the accident because he or she could not communicate, saw no reason to report, was afraid to report, did not wish to report, forgot;

ignorance of the systems of reporting and recording
—demonstrates a need for education;

fear of blame
—causing, or caused by, stress situations
—demonstrates a need for education and/or counselling;

neglect of duty
—demonstrates a need for discipline;

forgetfulness;

difficulty of definition.

Documentation

Completion of the accident form

Forms should usually be completed by the qualified nurse responsible for the care of the patient at the time of the accident.

(A learner nurse should only complete the accident form as an educational exercise, under the supervision of a qualified nurse who should sign the form. An auxiliary or assistant nurse should not be asked to complete the form.)

Only witnesses should complete any witness statements.

Completion should take place as soon as possible after the incident has occurred.

The form should be filled in legibly in ink – preferably black in case copies need to be made.

No abbreviations should be used.

All appropriate sections of the form should be completed.

If an error is noticed it is preferable to destroy the form and to complete another. However, if a correction is made it should be signed by the nurse making the correction.

Information added to a form at a later date should be signed and dated by the nurse making the addition.

No copies of the completed form should be made.

The information contained in the form is confidential and should not be given or shown to any member of the public. (Solicitors for the patient may be allowed access to records at a later date.)

At the earliest opportunity the completed form should be given to the nurse manager and a record made in the ward documents that this has been done.

All accident forms should be retained as confidential documents by a designated member of the unit management team.

Where there are no witnesses, the nurse completing the section of the form which requires a description of the accident will rely on:

what the patient says happened;

what the nurse thinks probably happened;

what someone else thinks probably happened.

The nurse's judgement can be of considerable value, particularly in the absence of witnessess.

Obtaining the statements of witnesses

'The problem of reliability of the witness is well known but it is also true that reliability depends greatly on how the questioning is done. Two basic matters must be stressed – first, a mistake frequently committed, is to question a group, since each answer will be influenced by the mere presence of somebody else involved. There is a far better chance of getting a truthful statement from a witness at a private interview.

'The other matter has to do with what the witness is asked; he should be asked about things he is supposed to know, not about what he thinks.' (Mollerhoj 1971[15])

Collection, collation, analysis of data and interpretation of the analysis

This may assist in the identification of:

groups of patients who might be 'at risk';
unsafe environments;
unsafe equipment;
unsafe procedures;
unsafe practitioners;
the cost to the patients in injuries sustained;
the cost to the National Health Service.

A method of collecting, collating and analysing data

Described below is a manual method devised and used for the analysis of some of the information contained in 798 accident forms received during one year.

Preparation
discussion with a statistician
analyses selected
time allocated

Method
The accident forms were sorted alphabetically to identify patients having more than one accident.

Each form was numbered sequentially in the top right-hand corner to enable retrieval if necessary.

The forms were divided, in order, and placed in four ring binders to facilitate handling.

Foolscap sheets were headed with the title of each analysis.

Data were transferred to the analysis sheets using the pencilled numbers.

Bracketing the number of accidents to the same patient enabled counts to be made of numbers of accidents, numbers of patients and numbers of accidents per patient.

When the data required had been transferred, columns and rows were added and checked for accuracy.

Tables, bar charts and graphs were prepared for a report.

Advantages of the method
It was not difficult.

Sequential numbering enabled re-access to the data and reassembly of the data for cross-tabulations.

Care in selecting the analyses was enforced; because of the work involved the choice was limited.

It was a useful introduction to data base work.

It was inexpensive relative to computer analysis.

Disadvantages of the method
It was time-consuming; it took approximately three minutes to transfer the data from one accident form (appproximately 40 hours work in this task alone).

The number of analyses was limited by the time and effort required.

Cross-tabulations, though possible, took extra time.

Checking and cross-checking of calculations were necessary to ensure accuracy.

The preparation and the typing of tables and charts was a substantial task.

An alternative method of collecting, collating and analysing data

Described below is a method devised and used for the computer analysis of the information contained in 1982 accident forms received during two years.

Preparation
discussion with a statistician
discussion with a member of the computation staff
time allocated
literature read

Method
Accident forms were checked, sorted and numbered sequentially as before.

A data collection document was designed (see over page).

A numeric coding system was devised for each of the fields.

Data collection document

1	Area	1
2	Hospital number	2 3 4 5 6 7 8 9
3	Sex	10
4	Age	11 12
5	Ward or department	13 14
6	Place in ward or department	15
7	Date of accident	16 17 18 19 20 21
8	Time of accident	22 23 24 25
9	Witness	26
10	Part of body injured	27
11	Extent of injury	28
12	Treatment of injury	29
13	Type of accident	30 31
14	Number	32 33 34 35

The data from each form were transferred to a data collection document, using the numeric codes.

When all the data had been transferred the collection documents were sent to the computer centre where the data were transferred to punched cards.

The data cards were then used to load the data on to the mainframe computer ready for the analysis.

The Statistical Package for the Social Sciences[16] was used to run most of the analyses.

When the analyses were completed the tables, charts and graphs were prepared using 'spreadsheet' and 'graphics' packages on a microcomputer.

Advantages of the method
Multiple accidents were able to be identified using the unique hospital number; the patients' names were not used.

The analysis was fast and comprehensive.

The clarity of the data collection document helped to ensure that very few errors were made in the transfer of data.

Selections and cross-tabulations were possible.

Calculations did not require manual checking.

Disadvantages of the method
It was tempting to run too many analyses and to forget that each one had to be interpreted and the findings presented.

Encouraged reluctance to return to a manual method.

Notes on the analyses and interpretation of findings

Factors considered (in the order of appearance in the data collection document) were:

Table 1 Analysis by specialty

	% of total accidents	*% bed occupancy*
Acute medical	45.5	38.0
Acute surgical	35.5	48.2
Care of the elderly	19.0	13.8
Totals	100.0	100.0

Note: 1982 accidents reported for the two-year period 1979/80.

Area referred to the specialties involved — medicine, surgery, care of the elderly (see Table 1, above). A number of patients moved between areas and had accidents in more than one area.

Hospital number The main uses of these numbers were:

to identify the number of accidents for each patient (see Table 2, opposite);

to separate multiple accidents from single accidents for further analyses. (Of the patients who had accidents, 21.81 per cent had at least one more; these patients accounted for 45.21 per cent of the total number of accidents).

Length of stay in hospital affects the probability of sustaining an accident.

Sex Only the first accident of multiples and all single accidents were used for this analysis to avoid the distortion apparent in some studies where all accidents had been used..

49.24 per cent of the patients were male
50.76 per cent of the patients were female

Again, length of stay and sex distribution of the total hospital population would have had an effect. (If all accidents had been used, the distorted 'finding' would have been: 46.62 per cent male; 53.38 per cent female.)

Table 2 Number of accidents per patient

Number of patients	*Number of accidents*	*Total number of accidents*	*% of total number of accidents*
1086	1	1086	54.79
181	2	362	18.26
73	3	219	11.05
12	4	48	2.42
14	5	70	3.53
12	6	72	3.63
2	7	14	0.71
5	8	40	2.02
1	9	9	0.45
1	11	11	0.55
1	17	17	0.86
1	34	34	1.72
1389		1982	100.00

Age As with the analysis by sex it was necessary to distinguish between patients and accidents (see Table 3, page 24). An inaccuracy will have occurred if a patient has had a birthday between accidents. The age analyses and cross-tabulations have not yet been studied in detail.

Ward or department So many factors could have contributed to the numbers of reported accidents for individual wards that the analyses were very difficult to interpret and probably of little value. What is required at ward level is not a set of 'league tables' but support for the staff and the involvement of managers, when necessary, in the identification of the needs of individual patients.

Table 3 Analysis by age group

A comparison between the percentages of patients having accidents in each age group and the percentages of the total hospital population in each age group.

Age groups in years	*% of total patients having accidents*	*% of hospital population*
0- 9	0.36	0.73
10-19	2.81	4.40
20-29	7.13	9.09
30-39	5.47	10.41
40-49	7.27	10.12
50-59	13.68	16.42
60-69	18.22	18.62
70-79	27.36	18.04
80-89	14.62	10.26
90+	2.66	1.91
Missing	0.43	
Totals	100.01	100.00

Notes:
1 The total number of patients having accidents was 1389.
2 The ages were not known for 6 patients.
3 The hospital population percentages were calculated from a one-day census only.

Exact location As would be expected, the majority of accidents happened in the main ward area, where patients spend most of their time (see Table 4, opposite). However, in common with other studies, the number of accidents which occurred in the toilet area is a cause for concern.

Day of accident Analysis by day of the week showed an even distribution (see Table 5, opposite). At least one other study has shown the same result. Some of the studies which show a marked difference and claim that the reason for this is lower staffing levels, may have been affected by small sample size.

Table 4 Analysis by location

Location Group number	*Description of location*	*Frequency*	*% of total number of accidents*
1	Main ward	1274	64.28
2	Side ward	293	14.78
3	Treatment room	2	0.10
4	Bathroom	72	3.63
5	Toilet	191	9.64
6	Day room	76	3.83
7	Corridor	52	2.62
8	Other location	17	0.86
9	No record of location	5	0.25
	Total accidents	1982	100.00

Table 5 Analysis by day of the week

	Number of accidents	*% of total accidents*
Monday	276	13.93
Tuesday	282	14.23
Wednesday	288	14.53
Thursday	270	13.62
Friday	294	14.83
Saturday	298	15.04
Sunday	274	13.82
Totals	1982	100.00

Notes:
1 1982 accidents reported for the two-year period 1979/80.
2 Percentages should be compared with bed occupancy percentages.

Table 6 Analysis by time of day

Between the hours of	*Frequency*	*% of total number of accidents*
0000-0100	67	3.38
0100-0200	51	2.57
0200-0300	61	3.08
0300-0400	50	2.52
0400-0500	54	2.72
0500-0600	55	2.77
0600-0700	69	3.48
0700-0800	94	4.74
0800-0900	65	3.28
0900-1000	91	4.59
1000-1100	95	4.79
1100-1200	115	5.80
1200-1300	75	3.78
1300-1400	102	5.15
1400-1500	82	4.14
1500-1600	66	3.33
1600-1700	103	5.20
1700-1800	121	6.10
1800-1900	128	6.46
1900-2000	71	3.58
2000-2100	81	4.09
2100-2200	77	3.88
2200-2300	82	4.14
2300-2400	70	3.53
Missing values	57	2.88
Totals	1982	100.00

Time of accident More accidents occurred during periods of high patient activity (see Table 6, above).

Witness Fewer than 40 per cent were witnessed by nursing staff. (By definition an accident is an unexpected occurrence.)

Table 7 Part of body injured or examined

Code	*Part of body*	*Frequency*	*% of total*
1	Head	300	15.14
2	Face	101	5.10
3	Neck	3	0.15
4	Hand	44	2.22
5	Shoulder or arm	94	4.74
6	Leg	132	6.66
7	Foot	33	1.66
8	Chest or abdomen	73	3.68
9	No injury	1192	60.14
10	No record	10	0.50
	Total accidents	1982	100.00

Note: Only first-named or most serious injury has been used in the analysis.

Part of body injured Only the first-named or more serious injury was used (see Table 7, above). The obvious omission was emotional or psychological damage and loss of confidence.

Extent of injury Not included in the study were: obvious self-inflicted injuries; medication errors; and other incidents where the patient was the passive recipient of someone else's error (see Table 8, page 28). An attempt was made to compare the results of this analysis with other studies; the difficulty was that of the definitions of the categories used (see Table 9, page 28).

Treatment of the injury Only the first-named or most vital treatment was used; any costings based on these findings would show minimum costs only. Although not a treatment, x-rays were included in this field but there were no records to indicate how many were ordered or taken for each patient. (See Table 10, page 29.)

Table 8 Extent of injuries

Code	*Injuries*	*Frequency*	*% of total*
1	Slight bruising	174	8.78
2	Severe bruising	10	0.50
3	Small laceration	275	13.87
4	Severe laceration	23	1.16
5	Fracture	27	1.36
6	Burn or scald	27	1.36
7	Concussion	4	0.20
8	Pain or soreness	71	3.58
9	No injury	1364	68.82
10	No record	7	0.35
	Total accidents	1982	100.00

Note: Only first-named or most serious injury has been used in the analysis.

Table 9 Comparison of injuries with other studies

Author/s & year published	*Number of accidents*	*No injury %*	*Minor injury %*	*Moderate injury %*	*Severe injury %*
Snell 1956	653	52.53	44.56	1.53	1.38
Parrish, Weil 1958	614	45.11	39.74	11.08	4.07
Weil, Parrish 1958	2036	59.92	30.11	7.61	2.36
Bain 1959	1652	<–92.60 ——>		4.20	3.20
Griffiths 1963	1109	58.00	28.00	<–14.00 ——>	
Petrovsky 1965	959	56.20	36.39	3.65	3.79
Manjam, McKinnon 1973	143	60.00	<– 37.00 ——>		3.00
Pablo 1977	544	65.00	<– 35.00 ——>		0.00
Lee 1979	2209	38.48	<– 61.52 ——>		
Roberts 1984	1982	69.17	22.65	4.95	3.23

Table 10 Treatment required

Code	*Required treatment or investigation*	*Frequency*	*% of total*
1	By nurse	115	5.80
2	By doctor	17	0.86
3	X-ray	205	10.34
4	Neurological obs. (if more than once)	285	14.38
5	Surgery	12	0.61
6	Sutures	23	1.16
7	Investigation of medical condition	14	0.71
8	None required	1308	65.99
9	No record	3	0.15
	Total accidents	1982	100.00

Note: Only first-named or most serious injury has been used in the analysis.

Type of accident An attempt was made to categorise each accident. Approximately 90 categories were used and these were grouped to provide 10 major categories (see Table 11, page 30).

Number This number was the pencilled reference on each form and was used to locate particular forms, usually to verify data or to find missing data.

Conclusions

Accidents to hospital patients are not rare occurrences. Sufficient numbers result in injury or distress to justify concern and to indicate the need for a close examination of the subject.

Table 11 Categories of accidents

Category group Number	*Description of category*	*Frequency*	*% of total number of accidents*
1	Involving beds	573	28.91
2	Chairs and wheelchairs	356	17.96
3	Toilets and commodes	189	9.54
4	Epileptic episode Faint Dizziness Loss of consciousness	195	9.84
5	Patient standing: overbalanced or fell	171	8.63
6	Patient walking	277	13.98
7	Fell in bath or shower	17	0.86
8	Burns and scalds	33	1.66
9	Faulty equipment Cuts from broken glass Trapped limbs	94	4.74
10	Found on the floor	70	3.53
11	Insufficient information to categorise	7	0.35
	Total accidents	1982	100.00

Selection of surveys and studies in the United Kingdom

Author/s & year published	*Number of accidents*	*Number of patients*	*Period of study*	*Age groups studied*	*Number of hospital beds (approx)*
Snell 1956	653	—	2 years	all	1043
Fine 1959	277	—	3 months	elderly	1200
Griffiths 1963	1109	—	5 years	all	9 hospitals
Walker 1970	164	83	5 months	all	178
Ballinger & Ramsey 1975	351	—	2 years	all	625
Scott 1976	310	—	1 year	elderly	548
Barrowclough 1979	85	—	6 months	elderly	112
Lee 1979	2209	—	2 years	all	6 hospitals
Walsworth-Bell 1981	26	22	1 month	all	112
Moorat 1983	1539	—	3 years	all	1 hospital
Roberts 1984	1982	1389	2 years	all	860

Selection of surveys and studies outside the United Kingdom

Author/s & year published	*Number of accidents*	*Number of patients*	*Period of study*	*Age groups studied*	*Number of hospital beds (approx)*
Parrish, Weil 1958	614	—	1 year	all	1 hospital USA
Weil, Parrish 1958	2036	1761	3 years	all	1 hospital USA
Bain 1959	1652	—	4 years	all	1 hospital Canada
Lowrey 1963	137	—	1 year	childen	— USA
Fagin, Vita 1965	868	—	2 years	all	— USA
Petrovsky 1965	959	—	9 years	all	1 hospital Australia
Buerhle 1969	766	—	1 year	elderly	491 Canada
Manjam, McKinnon 1973	143	130	16 months	all	318 USA
Pablo 1977	544	302	3 years	all	186 Canada
Sehested, Severin-Neilson 1977	264	134	—	elderly	97 Denmark
Kalchthaler, Basoon 1978	190	—	3 months	elderly	200 USA
Kulikowski 1979	94	86	3 months	all	500 USA
Walshe, Rosen 1979	53	—	1 year	all	300 USA
Lynn 1980	2000	—	4.5 years	all	629 USA

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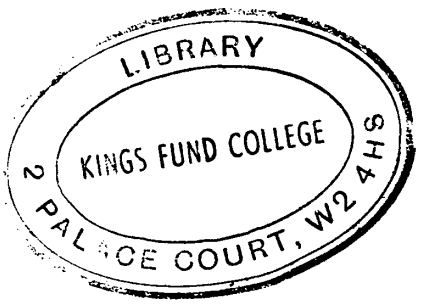

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