Technical Report 6

Older People Attending the Emergency Department with a Fall or Blackout: A Pilot Study

Midland Regional Hospital Mullingar

And

Sligo General Hospital

Technical report to NCAOP/HSE/DOHC

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Executive Summary

Research was carried out in the Emergency Department (ED) of two hospitals (Midland Regional Hospital Mullingar and Sligo General Hospital) to identify the number of older people presenting with a fall or blackout. Everyone over 65 attending ED between 9am and 5pm Monday to Friday were asked to take part in the research. Data were collected prospectively over a four week period in Midland Regional Hospital Mullingar (MRHM) and a two week period in Sligo General Hospital (SGH). Once consent has been given, participants were administered a questionnaire (see Appendix A). The sequence of questions is outlined in the flowchart below.
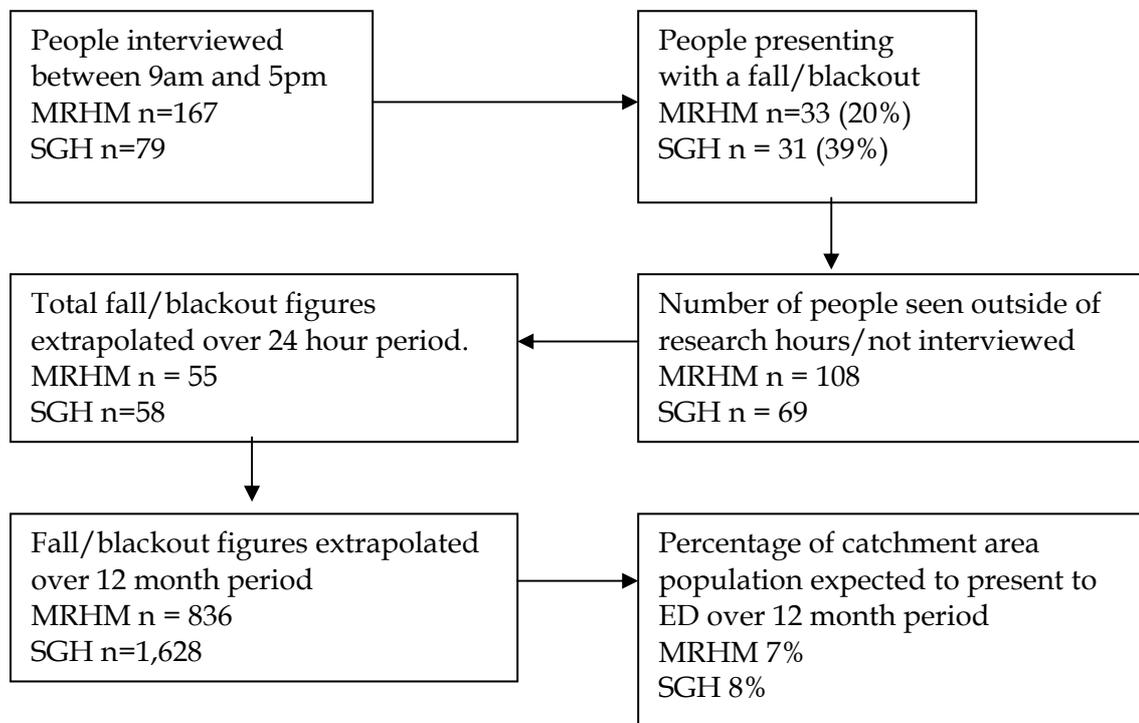
Figure A: Data collection methodology
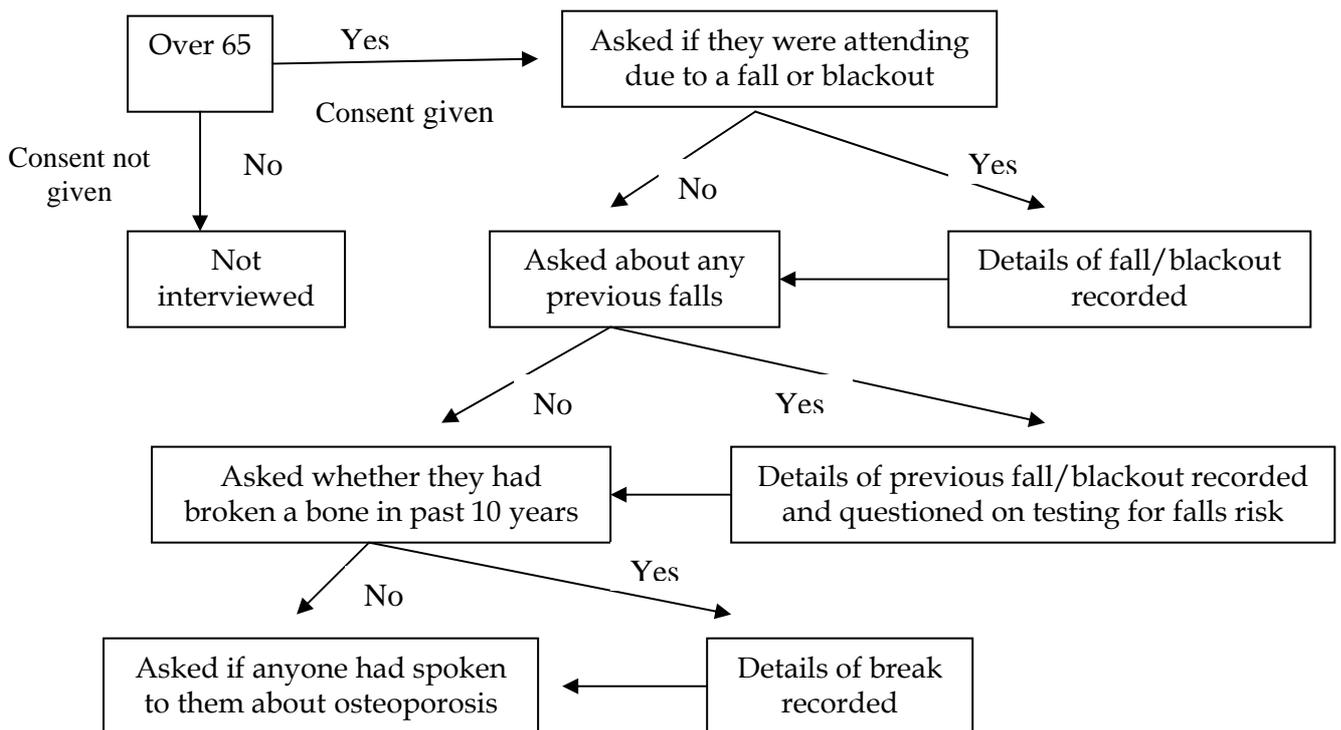
Though there are limitations, the data collected from the two sites were extrapolated to the older person populations in the catchment areas of the two hospitals in order to provide an estimate on the number of older people who may be attending Emergency Departments over a 12 month period with a fall or blackout.

It must be highlighted that while this figure helps shed some light on the number of older people falling in the community, it provides information on a subgroup of fallers only, namely those people who present to ED. There are still an unknown number of people falling who do not seek any medical attention, or who present only to their GP or PHN.

The flowchart below gives an outline of the fall/blackout figures collected and their extrapolation to the catchment area populations:

Figure B: Presenting to ED with a Fall/Blackout

People interviewed between 9am and 5pm MRHM n=167 SGH n=79	People presenting with a fall/blackout MRHM n=33 (20%) SGH n = 31 (39%)
Total fall/blackout figures extrapolated over 24 hour period. MRHM n = 55 SGH n=58	Number of people seen outside of research hours/not interviewed MRHM n = 108 SGH n = 69
Fall/blackout figures extrapolated over 12 month period MRHM n = 836 SGH n=1,628	Percentage of catchment area population expected to present to ED over 12 month period MRHM 7% SGH 8%

When applied to the general older person population, based on 2002 census figures, between 7% - 8% of the older person population (30,520 – 34,880 people) would be expected to attend an ED with a fall or blackout over a 12 month period.

A similar set of figures were calculated from the data collected on the number of people with at least one previous fall in the past 12 months. The results are outlined in the flowchart below:

Figure C: Fall in the Past 12 Months

Had a previous fall in the past 12 months MRHM n=41 (25%) SGH n=20 (25%)	Number of people seen outside of research hours/not interviewed MRHM n = 108 SGH n = 69
Total number with previous fall extrapolated over 12 month period MRHM n=1039 SGH n=1034	Total number with previous fall extrapolated over 24 hour period MRHM n=68 SGH n=37
Percentage of catchment area population expected to have a previous fall when presenting to ED over 12 month period MRHM 8% SGH 5%	

When these percentages are applied to the general older person population, based on 2002 census figures, between 21,800 and 34,880 older people presenting to ED over a year would be expected to have had at least one fall in the previous 12 months.

When asked about falls risk testing, only 4 people had ever been tested for falls risk.

Of the people who had fallen in the past 12 months, 39% had not sustained an injury while 61% had. Of those who had sustained an injury, 9 attended ED and 9 were admitted to hospital.

Therefore, of the 61 people who had sustained a fall over the past 12 months, only 15% attended ED and 15% were admitted to hospital. This would imply that relying on data collected from the current research and from HIPE captures only 30% of fallers.

Data on the circumstances of the fall/blackout was also collected in the two hospitals. The mean age of fallers was 78.5 years (males: 75.4 years; females: 80 years) compared to a mean age of 75.7 years for people with other presentations (male: 76.1 years; female 77 years).

The majority of people had either a slip, trip, or unexplained fall. As the research was carried out in ED, a full diagnosis of injury sustained was not collected. However, the most common areas injured were the head and face, shoulder and hip.

People were also asked how they felt after the fall. Replies ranged from shocked, confused, dizzy to being able to get up unaided. The majority of people came to ED either by car (39%), driven by a spouse or other relation, or by ambulance (36%).

As expected from other research, nearly half of falls (47%) occurred in the home, with a further 1.5% occurring in the persons garden/yard. Approximately 34% of people had a spouse or relative present or nearby when they fell who were able to come to their aid. Two percent of people were able to get up unaided, while 1% were found some time later.

It was found that 20% of people interviewed had broken a bone in the past 10 years. The most common bones broken were the wrist, hip and ankle. Of those who had broken a bone in the past ten years, 26% had been spoken to about osteoporosis, while 72% had not.

Overall, 16% of people had been spoken to about osteoporosis, 64% had not, and data was missing for 20% of people.

It is apparent from the data collected that falls/blackout continues to be a major issue among the older person population of Ireland. Testing for falls risk remains extremely low, as does the distribution of information regarding osteoporosis and bone health.

Introduction

Currently in Ireland there is no system established to collect data on the number of falls/blackouts which occur in people over 65. Data is available from the Hospital Inpatient Enquiry System (HIPE) on the number of people admitted to acute care with injuries as the result of a fall, and medical conditions most likely associated with falling. However, as only a small percentage of fallers are admitted to hospital, further information is needed in order to estimate the number of falls which may be occurring. A possible source identified for this information is the number of older people attending the Emergency Department (ED) with a fall or blackout. Many of these people are not admitted, and return home after seeing a doctor and receiving any necessary medical treatment.

Unfortunately, very few hospitals collect this type of information as routine, and often in our busy emergency departments, a fall/blackout as the reason for attendance can be overlooked. In order to obtain the necessary data, research was carried out in the ED of two pilot sites.

Aim:

To collect data on the number of older people attending the Emergency Department with a fall or blackout.

Objectives:
- Collect data on the circumstances of their current fall.
- Collect data on any previous falls they may have had.
- Ascertain whether they had ever been assessed for falls risk.
- Collect data on any previous fractures and knowledge of osteoporosis.
- Extrapolate data to the general older person population.

Methodology

The two pilot sites chosen were Midland Regional Hospital Mullingar (MRHM) and Sligo General Hospital (SGH). Two research nurses were identified to carry out the data collection, Rosemary McGuire (SGH) and Margaret Garrett (MRHM).

Data was collected prospectively, over a four week period in MRHM and a two week period in SGH. Every person over 65 attending the emergency department (ED) between 9am and 5pm Monday to Friday were approached and asked to take part in the research. A patient information sheet was given to all potential participants, and the purpose of the research was explained verbally by the research nurse. All participants were given the option to decline taking part. In some instances medical staff asked that a person not be approached due to their condition, and this request was always respected.

If a person agreed to take part, a consent form was signed by the participant and the research nurse. The consent form was copied three times, one copy was given to the participant, one copy was kept in the patient notes and one copy was returned to the researcher with the completed questionnaire.

Every participant was administered the MTS. If a score less than 6 was calculated, a relative/carer was asked to give consent on the persons behalf and aid them in answering the questionnaire.

Participants who agreed to take part were administered a set questionnaire (see Appendix A). The sequence of questions is outlined in the flowchart below:

Figure A: Data collection methodology
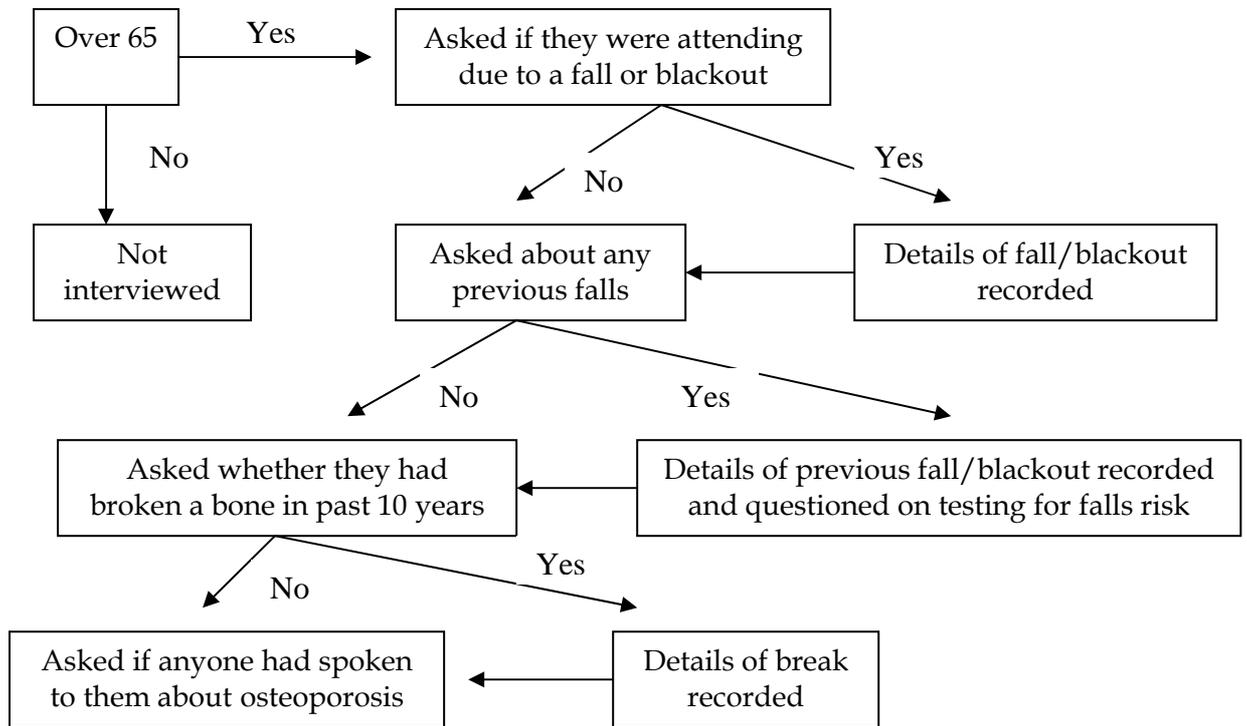
Questionnaires were returned to Anna de Siún for analysis. All data was entered onto an access database for analysis. Descriptive data was collated on the circumstances of the fall/blackout and previous falls.

Data was collected on the number of older people attending the ED outside of the research hours (5pm – 9am) during the research period. This data was used to extrapolate the expected falls rate over a 24 hour period. Information on the older person population within the catchment area of each hospital was also collected to allow further extrapolation of results.

Results

A combined total of 282 people over 65 attended the Emergency Departments of Midland Regional Hospital Mullingar (MRHM) and Sligo General Hospital between 9am and 5pm, Monday to Friday. 194 people attended the ED of Midland Regional Hospital Mullingar over a period of approximately four weeks, between 19/09/06 – 25/10/06 inclusive (excluding 19/10/06 and 20/10/06). 88 people attended the ED of Sligo General Hospital over a period of approximately two weeks, between 03/10/06 – 19/10/06 inclusive.

Table 1: Presentation to the Emergency Department MRHM and SGH

	Mullingar	% of Sub Total	Sligo	% of Sub Total
Fall/Blackout	33	20%	31	39%
Other Presentation	134	80%	48	61%
Subtotal	**167**		**79**	
Not interviewed 9am – 5pm	27		9	
Attended outside research hours	81		60	
Total	**275**	**100%**	**148**	**100%**

Reasons for people not being interviewed included: patient too unwell to be interviewed (22); patient declined to be interviewed (6); time constraints (9).

In total, 108 older people were not interviewed in MRHM and 69 were not interviewed in SGH. These figures are a combination of those not interviewed during research hours, and those attending outside research hours. Applying the fall rates of 20% and 39% to these figures, the total number of expected falls/blackouts over a 24 hour period was extrapolated. These figures are outlined in Table 2 below.

Table 2: Fall/Blackout Figures Extrapolated for 24 Hour Period

	Mullingar	Sligo	Combined
Fall/Blackout figures collected	33	31	64
Fall/Blackout figures extrapolated	22	27	49
Total Fall/Blackout	**55**	**58**	**113**

Extrapolating these figures over the period of a year (52 weeks), it would be expected that 836 older people would present to ED in MRHM and 1,628 older people would present to ED in SGH.

Midland Regional Hospital Mullingar serves Counties Longford and Westmeath. The older person population served in this catchment area, based on 2002 census figures, is 12,162. Extrapolating on the falls figures calculated during the research, 7% of this population would be expected to present to ED with a fall or blackout over a 12 month period.

Sligo General Hospital serves Counties Sligo, Leitrim and South Donegal. The total older person population served in this catchment area, based on 2002 census figures, is 19,478. Extrapolating on the falls figures calculated during the research, 8% of this population would be expected to present to ED with a fall or blackout over a 12 month period.

Principal Demographics

Table 3: Gender – Combined Data

	Male	**Female**	**Combined**	**% of Total**
Fall/Blackout	21 (33%)	43 (67%)	64	26%
Other Presentation	80 (44%)	101 (56%)	181	74%
Total	**101**	**144**	**245**	**100%**

Table 4: Mean Age

	Mean	**Median**	**Range**
Falls/Blackout	78.5	78	65-93
Other Presentation	75.7	75	65-95
All	75.8	76	65-95

Table 5: Age/Gender

	Male Mean Age	**Male Age Range**	**Female Mean Age**	**Female Age Range**
Fall/Blackout	75.4	65-86	80	65-93
Other Presentation	76.1	65-95	77	65-95

Details of Fall/Blackout

Table 6: Type of Fall

	Male	Female	Total
Slip	5	7	12
Trip	1	11	12
Dizziness or faint feeling	1	7	8
Blackout	1	5	6
Unexplained	9	8	17
Other	4	1	5
Missing	0	4	4
Total	**21**	**43**	**64**

Figure D: Time of Fall/Blackout
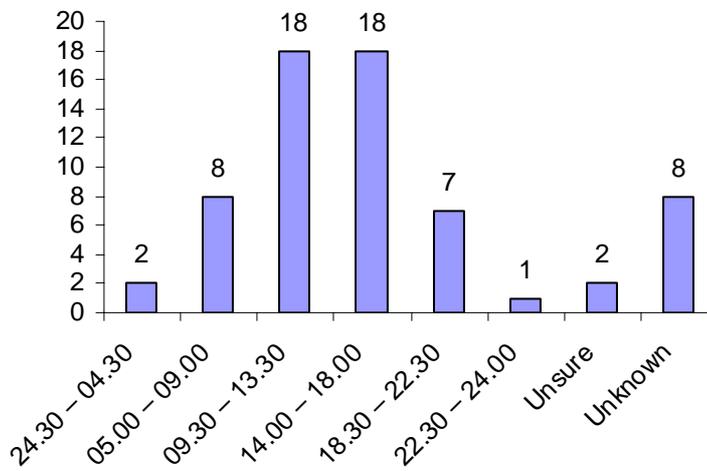
Type of Injury

As the interviews were often conducted before a diagnosis was made, the area where patients reported feeling pain was recorded rather than their diagnosis. Often patients injured more than one area. These areas of injury are recorded separately in the table below.

Table 8: Area of Injury

Injury	Number
Head & Face	13
Ribs/Trunk	6
Back	2
Shoulder	10
Arm	4
Wrist	5
Hand	4
Hip	12
Leg	3
Knee	4
Ankle	2
Foot	1
Reduced power in arms/legs	1
No injury– dizziness	1
No Injury	7
Missing	4

How did you feel?

Patient's experiences directly after the fall differed greatly, from being fine, able to get themselves up, to feeling very shocked, weak or dizzy. As far as possible, these experiences have been grouped into the categories below. As with the previous section, often more than one symptom/feeling was expressed. These have been classed separately for ease of reporting.

Table 9: Feel After Fall

Feeling	Number
Tired	2
Dizzy	5
Faint	1
Weak	4
Nauseous	5
Cold	2
Shocked	8
Confused	2
In pain/sore	5
Unable to get up	7
Reduced vision	1
Short of breath	1
Ok/ Got up unaided	17
Missing	9

Where did it happen?

Patients were also asked to describe where the fall happened. As expected, the majority of falls occurred in the patients own home.

Table 10: Location of Fall

Location	Number
In home	30
In garden/yard	10
Road/path	6
Public area/ building	5
Residential care	4
Hospital (visiting not inpatient)	3
Boarding Luas	1
Missing	5
Total	64

Who did you contact after you fell?

Patients were also asked who they contacted after they fell. As outlined below the majority had a spouse or relative present or nearby at the time of the accident, and were able to call out to receive help. A large number of people did not contact anyone immediately after the fall, though some of these did contact a relative or friend a day or two later.

Table 11: First point of contact

Contacted	Number
Spouse present/nearby	11
Relation present/nearby	11
Found sometime later (by relation, home help or nurse)	7
Occurred in public place	4
Contacted help by phone	4
Used call bell	1
Witnessed by nurse/staff	5
Nobody – got self up	14
Unsure	1
Missing	6
Total	**64**

Table 12: Method of Transport to ED

Brought to ED	Number
Ambulance	23
In car by spouse	4
In car by son/ daughter	16
In car by friend/ relation	5
Drove self	2
Taxi	3
At hospital	2
Missing	9
Total	**64**

Previous Falls

When asked about previous falls, 148 (60%) had a previous fall, though only 61 (25%) had fallen in the past 12 months.

When the figures are split between the two hospitals, it was found that 41 people (25%) presenting to MRHM and 20 people (25%) presenting to Sligo General Hospital had a previous fall.

Table 13: Previous Falls Extrapolated over 24 Hour Period

	Mullingar	Sligo	Combined
Previous fall figures collected	41	20	61
Previous fall figures extrapolated	27	17	44
Total Previous Fall	**68**	**37**	**105**

Extrapolating these figures over a 12 month period, it would be expected that 1,034 older people presenting to ED in MRHM and 1,039 older people presenting to ED in SGH would have at least one fall in the past 12 months.

This would be approximately 8% of the older person population in the catchment area of MRHM and 5% of the catchment area of SGH.

Information on their previous fall was collected for 61 people:

36 fell once (59%)

11 fell 2-3 times (18%)

11 fell 4-6 times (18%)

1 person reported falling every fortnight (1.6%)

1 person reported falling every week. (1.6%)

1 person was not sure of the number of falls (1.6%)

Injuries received in past 12 months

Out of the 61 people who had fallen in the past 12 months, 24 people (39%) sustained an injury, while a slight majority, 37 people (61%) sustained no injury.

Of those who sustained an injury, 6 (25%) did not need medical attention, 9 (37.5%) attended the ED and 9 (37.5%) were admitted to hospital.

Tested for Falls Risk

Table 14: Tested for Falls Risk

Tested for Falls Risk	Mullingar	Sligo	Combined
Yes	3	1	4
No	148	68	216
Missing	43	19	62
Total	194	88	282

Of those tested, 2 were male, 2 female. Two were tested by a nurse/doctor in hospital, 1 was tested by a physiotherapist and it is unknown who tested the fourth person.

Both females presented with a fall, both had fallen before, though one had not in the past 12 months, while the other had fallen 4-5 times in the past twelve months. One male presented with a fall, and had never fallen before. One male presented for another reason, had fallen before, but not in the past 12 months.

Osteoporosis

Broken a bone in past 10 years?

50 people interviewed (20%) had broken a bone in the past 10 years. The most common injuries are listed in the table below.

Table 15: Bone Broken in Past 10 Years

Bone	Number
Wrist	16
Hip	10
Ankle	11
Arm	3
Ribs	2
Shoulder	2
Other	16
Total	**50**

Of the 50 people who had broken a bone in the past 10 years, 13 (26%) had been spoken to about osteoporosis while the majority, 36 people (72%) had not. Overall, 44 people (16%) had been spoken to about osteoporosis, 182 people (64%) had not been spoken to, and data was missing for 56 people (20%)

Discussion

Although the figures collected during this research give an insight into the current situation regarding older people attending ED with falls/blackout in Ireland today, due to the small numbers collected during the research period, these figures can be used as a rough guide only.

However, despite the limitations of the study, it is clear that falls in older people continues to be a major challenge for the health care services in Ireland today. When figures were extrapolated to the general older person population, it was suggested that between 30,520 and 34,880 older people would present to emergency departments around the country over a period of 12 months. As mentioned in the introduction, this figure represents a subgroup of fallers only, those who present to the acute services. A large number of older people do not seek medical care from the acute services after a fall.

Highlighting this is the finding that of those who had fallen previously in the past twelve months, only 30% had attended ED or been admitted to hospital. The only data available on the number of falls/blackouts occurring in Ireland today is from the HIPE system (recording those who had been admitted to hospital) and data extrapolated from this research in ED. It is possible that HIPE and ED data represents only 30% of fallers.

The details collected on the circumstances of each fall/blackout emphasise that no two people experience a fall in the same way. Though the majority of falls did occur in the home, circumstances varied even within this one location. This highlights the need to recognise the individual needs of people who fall, the broad spectrum of issues which will need to be covered in any health promotion messages, and the need for comprehensive assessments to be carried out in order to identify which factors may be putting people at risk.

One of the most startling pieces of data collected was the fact that only 4 people had ever been tested for falls risk. Although there are a number of falls

prevention services in place in Ireland, these services tend to be isolated geographically and have poor referral systems in place. The need for a co-ordinated falls prevention and management structure in Ireland is highlighted by the extremely low number of older people found to have been tested for falls risk during this study.

The research also indicates that there is a need for greater education in the area of bone health and osteoporosis. Even among the group who had broken a bone in the past ten years, only 26% had even been spoken to about osteoporosis, leaving 72% of people without any information.

Overall, although the numbers in the study were small, the research gives a rough estimate on the scale of the problem of falls/blackouts in Ireland today.

Limitations

The major limitation of this study was the fact that it was not possible to have data collected over a 24 hour period due to difficulties identifying someone to collect the data over the 5pm – 9am period. Data had to be extrapolated for the 24 period.

Time constraints led to the research period in both hospitals being quite short, four weeks of data collection in Midland Regional Hospital Mullingar and two weeks of data collection in Sligo General Hospital. The numbers of older people seen during this period were smaller than expected.

Some limitations reported by the research nurses collecting the data included difficulty administering the questionnaire to people with hearing and visual impairments. It was also reported that privacy was an issue in the Emergency Department.

Finally, due to time constraints the questionnaire was not piloted before data collection began.

These limitations weaken the results and the extrapolation carried out based on the data collected.

Interview Schedule for Falls and Blackout ED Research

Patient Name: **Hospital Number:**   **DOB:**

_____   _____   ___/___/____

Gender: **Male**   ☐   **Female** ☐

1. **Did you have a fall, slip, trip or blackout?** (*an event whereby an individual comes to rest on the ground or another lower level with or without a loss of consciousness*)

   Yes   ☐   No   ☐

   Administer 10 point Mental Test Score (MTS). If score of less than 6 obtained, try to achieve witness account for the following questions.

   If person did not have a fall or blackout, skip to Question 9.

2. **What type of injury did you sustain?**

Details of the fall

3. **Type of fall**

Slip	☐	Unexplained	☐
Trip	☐	Dizziness or faint feeling	☐
Blackout	☐	Other (please describe)_____	

4. **How did you feel afterwards?**

5. What time of day did the fall happen?

6. Where did it happen?

7. Who did you contact after you fell?

8. How were you brought to Emergency Department?

Previous falls

9. Have you ever had a slip, trip or fall before? (Prompt: Even if you didn't hurt yourself) *(If no, please skip to question 12)*

Yes ☐   No   ☐

9a. **If yes**, roughly how many times in the past 12 months?

10. Have you ever injured yourself falling before?

Yes ☐   No   ☐

10a. **If yes,** please give details

Type of injury (s)_____

Did you need medical attention?

No ☐   PHN ☐   GP ☐   ED ☐   Admitted to hospital ☐
Other_____

11. Were you ever tested for falls risk?

Yes ☐   No ☐

11a. **If yes**, who tested you

GP ☐   Doctor/Nurse in hospital ☐

PHN ☐   Physiotherapist ☐

12. Have you ever broken a bone in the past 10 years?

Yes ☐   No ☐

12a. **If yes** which bone?

Hip ☐   Wrist ☐   Humerus ☐   Verterabral ☐

Other _____

12b. What age were you? _____

12c. **How did it happen?**

13. Has any health care professional ever spoken to you about any aspect of Osteoporosis?

Yes ☐   No ☐

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*Please attach **Mental Test Score** to this sheet*