

Irish Hip Fracture Database

National Report 2014

Better, safer care



Irish Hip Fracture
Database **IHFD** 

Irish Hip Fracture Database National Report 2014

Better, safer care

Mr Conor Hurson
Chair
Irish Hip Fracture Database
National Office of Clinical Audit
4th Floor, 121 St Stephen's Green
Dublin 2

30th October, 2015

Dear Mr Hurson,

Following presentation of the key findings and recommendations of the Irish Hip Fracture Database National Report 2014 and its circulation to our wider membership, please accept this letter of formal endorsement from the NOCA Governance Board.

On behalf of the NOCA Governance Board and the Executive Team, I wish to congratulate your own and your colleagues continued efforts in supporting this valuable quality improvement initiative. We will continue to support efforts to improve the quality of data collection and completeness and in turn ensure true meaningful comparisons with previous and future IHFD reports. We will work together to ensure hospitals are supported to review and monitor their own IHFD data on a continual basis in our shared commitment to improve patient outcomes.

Yours sincerely,



Professor Sean Tierney
Chairman
National Office of Clinical Audit Governance Board

IRISH HIP FRACTURE DATABASE STEERING GROUP

This report has been prepared by the members of the IHFD steering group.

-
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-

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Enquiries and comments about this report are welcome. Please contact: ihfd@noca.ie

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INTRODUCTION

Welcome to the Irish Hip Fracture Database (IHFD) National Report 2014.

The IHFD is a clinically led, web-based audit of hip fracture care and outcomes.

This second IHFD report details 2,664 hip fracture cases in patients aged 60 years and over, discharged by 14 hospitals in 2014 (84% of all cases).

Nationally, the Model of Care for Trauma and Orthopaedic Surgery (National Clinical Programme for Trauma and Orthopaedic Surgery 2015)¹ was published this year and declared the IHFD an integral part of driving clinical and organisational improvements in quality and effectiveness of care after a hip fracture. Measurement of hip fracture outcome is essential and should be recorded by all hospitals as part of a national hip fracture database.

International evidence has shown us that the synergy of care standards, audit and feedback, drive measurable improvements in hip fracture outcomes (National Hip Fracture Database (NHFD) Annual Report 2015 covering all hospitals in England, Wales and Northern Ireland for 2014)².

In 2015 an evaluation of the introduction of the NHFD on care and mortality after hip fracture was carried out by Neuberger et al, (2015)³. This study showed that the rates of early surgery increased and the thirty-day mortality rate decreased. The study concluded that approximately 1,000 fewer people a year died within 30 days of hospital admission for hip fracture after the introduction of the NHFD in 2007, than would have been expected if pre-2007 trends had continued. The equivalent in Ireland would be 50 less hospital deaths every year after a hip fracture.

In the IHFD we base our audit on six standards of care, as published by the British Orthopaedic Association and British Geriatric Society, in the "Blue Book"; "The Care of Patients With Fragility Fracture" (2007)⁴.

In 2011 the National Institute for Health and Care Excellence (NICE) published its clinical guideline "The Management of Hip Fracture in Adults" (CG124)⁵ and released 12 quality standards (QS16)⁶ in 2012. In the UK the NHFD now bases its audit on these 12 standards.

KEY FINDINGS

- All 16 eligible hospitals in Ireland are uploading data to the Irish Hip Fracture Database.
- Coverage has increased from 78% in 2013 to 84% coverage in this report. (Coverage is calculated as the number of IHFD records expressed as a percentage of the total number of hip fracture cases recorded on HIPE).
- The completeness of the data has increased from 88% in 2013 to 93%. (Completeness is calculated as the percentage of known values across the data items included in this report).
- The mean length of stay decreased from 21 days in 2013 to 19 days in 2014 and the median also decreased from 14 days in 2013 to 12.5 days in 2014.
- While decreases have been noted in all Blue Book Standards since the last report, meaningful annual comparisons will be problematic until such time as coverage and completeness are at optimum levels.

KEY RECOMMENDATIONS

- In the coming year we will focus on promoting good practice in the collection, submission and quality of our data. We will monitor and visit hospitals and support when necessary.
- We will also perform an audit of the facilities in the 16 trauma units around the country.
- We will assist units to use their local hip fracture performance data to improve the clinical and organisation of hip fracture care in their hospital.
- Each hospital has received a supplementary report of their individual performance which will enable benchmarking and comparison of hip fracture care against the national data.

We hope this report will stimulate hospitals to improve both acute hip fracture care and the secondary prevention of further falls and fractures and ultimately deliver better, safer care for our patients.

Dr. Emer Ahern
Clinical Geriatric Lead

Louise Brent
Clinical Nursing Lead

Mr. Conor Hurson
Clinical Orthopaedic Lead

November 2015

TABLE 1: BLUE BOOK

Blue Book	IHFD Measurement of Compliance with Blue Book Standards	IHFD 2013 N=1,950	IHFD 2014 N=2,664
Standard 1: All patients with hip fracture should be admitted to an acute orthopaedic ward within 4 hours of presentation	Percentage admitted within 4 hours to orthopaedic ward See Appendix 4 for specifications on this calculation	23%	14%
Standard 2: All patients with hip fracture who are medically fit should have surgery within 48 hours of admission, and during normal working hours (Mon - Sun; 08:00 – 17:59)	Percentage who had surgery within 48 hours and during working hours. See Appendix 4 for specifications on this calculation	72%	70%
Standard 3: All patients with hip fracture should be assessed and cared for with a view to minimising their risk of developing a pressure ulcer	Percentage of patients who developed a new pressure ulcer	4%	5%
Standard 4: All patients presenting with a fragility fracture should be managed on an orthopaedic ward with routine access to acute orthogeriatric medical support from the time of admission	Percentage routinely seen pre-operatively by a Geriatrician	11%	8%
Standard 5: All patients presenting with fragility fracture should be assessed to determine their need for therapy to prevent future osteoporotic fractures	Percentage of patients who were discharged on bone protection medication	47%	42%
Standard 6: All patients presenting with a fragility fracture following a fall should be offered multidisciplinary assessment and intervention to prevent future falls	Percentage of patients who received specialist falls assessment	64%	54%

In order to ensure compatibility with previous and future reports, percentage calculations excluded 'not known' data

CLINICAL LEADS AND DATA COORDINATORS

HOSPITAL	IHFD DATA COORDINATOR	IHFD CLINICAL LEAD
AMNCH, Tallaght	David Askin	Dr. Tara Coughlan / Mr. David Moore
Beaumont Hospital	Renato Damalerio	Dr. Alan Moore / Dr. Linda Brewer
Connolly Hospital	Jacinta Shields	Mr. Paddy Kenny
Cork University Hospital	Meg Jackson	Mr. Pat Fleming / Dr. Josie Clare
Galway University Hospitals	Catherine Armstrong / Louise Brennan	Mr. Stephen Kearns
Kerry General Hospital	Esther O'Mahony	Mr. Robert Din
Letterkenny General Hospital	Bruce MacGregor	Mr. Peter O'Rourke
Mater Misericordiae University Hospital	Ronan O'Toole	Dr. Joe Duggan
Mayo General Hospital	Francis Power	Mr. Derek Bennett
Midland Regional Hospital Tullamore	Breda Conlon	Mr. Eoin Sheehan
Our Lady of Lourdes Hospital, Drogheda	Debbie McDaniel	Mr. Adi Zubovic
Sligo Regional Hospital	Regina Mitchell / Grainne Hammlton	Mr. William Gaine
St. James's Hospital	Kate McNulty	Mr. Tom McCarthy
St. Vincent's University Hospital	Deirdre Kelly	Mr. Conor Hurson
University Hospital Limerick	Audrey Butler / Pamela Hickey	Mr. Finbarr Condon / Dr. Jude Ryan
University Hospital Waterford	Louise Brent	Ms. May Cleary / Dr. Emer Ahern

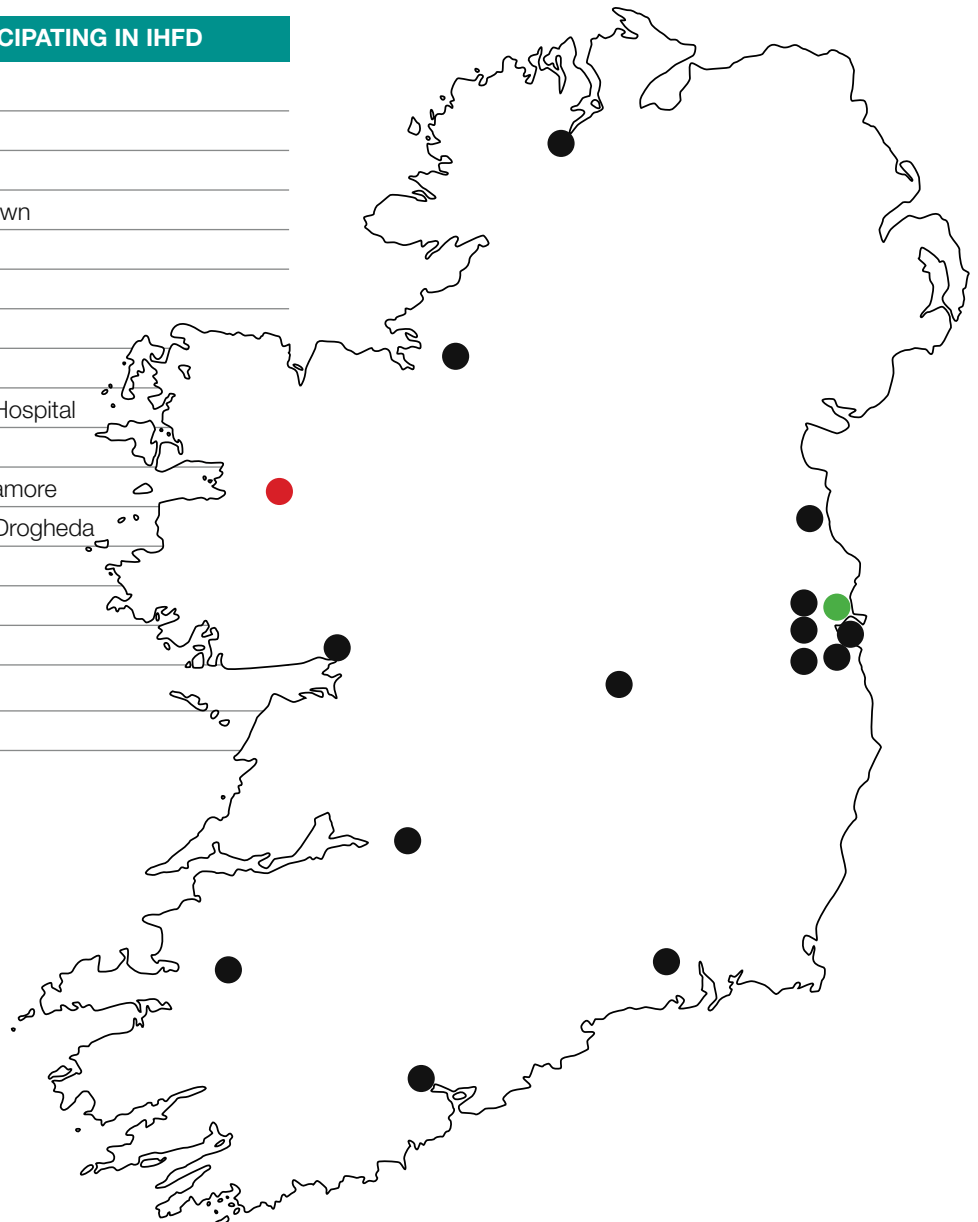
PARTICIPATING HOSPITALS

The IHFD collates data from hospitals within the public hospital system.

TABLE 2: HOSPITALS PARTICIPATING IN IHFD

HOSPITALS

AMNCH Tallaght Hospital
Beaumont Hospital
Connolly Hospital Blanchardstown
Cork University Hospital
Galway University Hospitals
Kerry General Hospital
Letterkenny General Hospital
Mater Misericordiae University Hospital
Mayo General Hospital
Midland Regional Hospital, Tullamore
Our Lady of Lourdes Hospital, Drogheda
Sligo Regional Hospital
St. James's Hospital
St. Vincent's University Hospital
University Hospital Limerick
University Hospital Waterford



Hospitals highlighted in **Black** indicate those included in this report who submitted data on 25 or more hip fracture discharge cases between 1st January 2014 and 31st December 2014.

Hospital highlighted in **Red** failed to enter more than 25 cases between these dates and therefore cannot be included in this report.

Hospital highlighted in **Green** commenced data entry in January 2015.

CHAPTER 1: COVERAGE AND COMPLETENESS OF DATA FIELDS

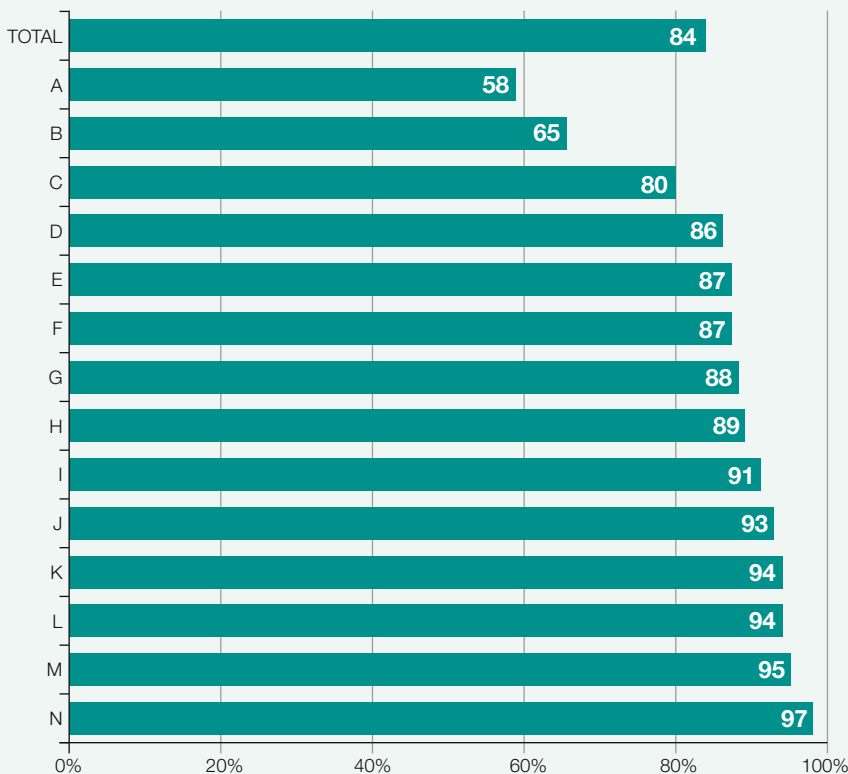
Analysis is based on IHFD records as captured on Hospital Inpatient Enquiry System (HIPE) Portal software.

It includes cases that were:

- (i) discharged from 1 January 2014 to 31 December 2014 inclusive (the HIPE data file used was 2014V19);
- (ii) diagnosed with either a hip fracture due to injury diagnosis on HIPE or a specified type of fracture, other than periprosthetic, on IHFD add-on screens;
- (iii) aged 60 years or older; and
- (iv) from hospitals with at least 25 such cases.

Having excluded duplicate and HIPE/IHFD incompatible records, the final dataset used for this report includes 2,664 cases from 14 hospitals, with the numbers of cases per hospital ranging from 104 to 328. An estimate¹ of what coverage² that represented of all HIPE hip fracture cases for those hospitals combined was calculated at 84% which is an increase on the 78% reported for 2013. Individual hospital coverages range from 58% to 97%, Figure 1.

FIG 1: COVERAGE PERCENTAGES PER HOSPITAL



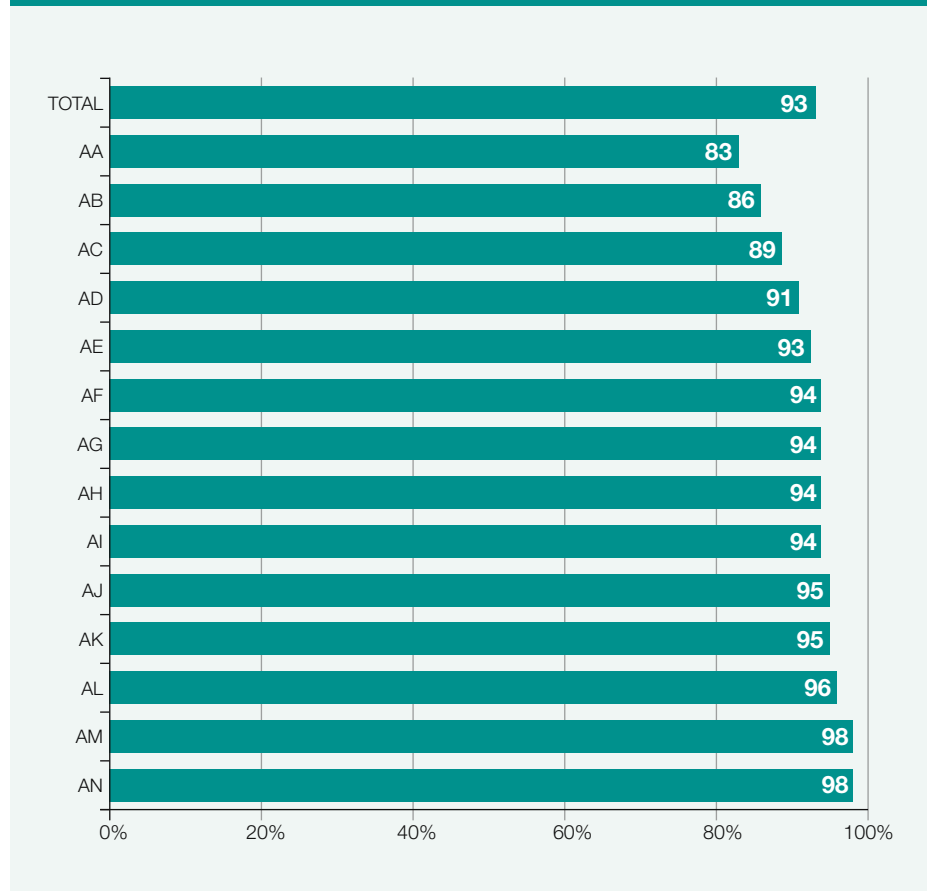
¹ The estimate was based on confining the data to cases with hip fracture due to injury (ICD-10-AM S72.0 – S72.2) recorded as any diagnosis.

² Coverage is calculated as the number of IHFD records expressed as a percentage of the total number of hip fracture cases recorded on HIPE.

Unless it is otherwise stated, the analysis used throughout the report includes 'Not Known' data in the calculation of percentages. The 'Not Known' category includes the 'Not Documented' and 'Unknown' categories, and missing values (blanks).

The overall data completeness³ level for IHFD fields used in generating the graphs in this report is 93%, which is an increase on the 2013 level of 88%. Individual hospital proportions range from 83% to 98%, Figure 2. The recording of dates and times continues to improve, but there are major deficits for Abbreviated Mental Test (AMT) Performed, American Society of Anaesthesiologists (ASA) Grade and Type of Fracture. Lesser deficits were observed for Reason for Delayed Surgery, Pre-Operative Medical Assessment, Pressure Ulcers, Bone Protection Medication and Re-Operation within 30 Days. The dataset and frequently asked questions are provided in Appendices 1 and 2. Figures 1-30 in this report are based on data provided and specified in Appendices 3 and 4. Information on other data items collected is included in Appendix 5.

FIG 2: COMPLETENESS PERCENTAGES PER HOSPITAL



³ Completeness is calculated as the percentage of known values across the data items included in this report.

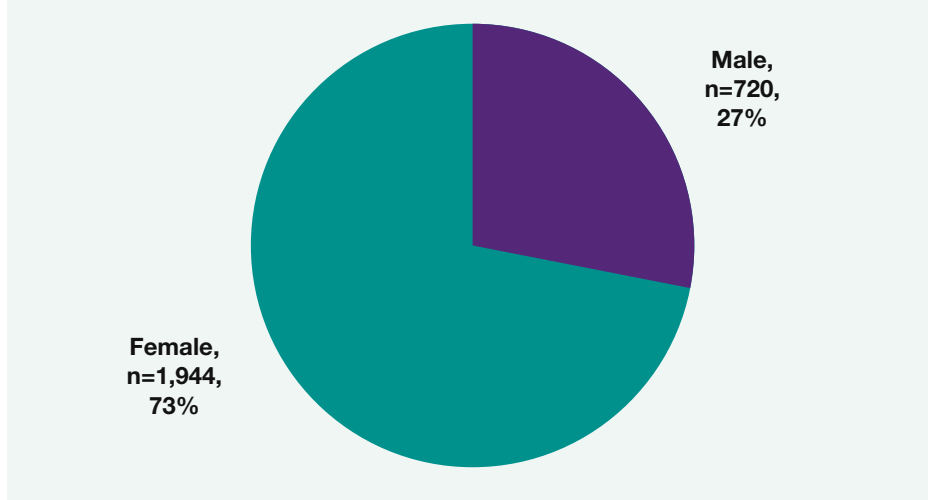
CHAPTER 2: CASE MIX

GENDER AND AGE GROUP

FINDINGS:

Of the 2,664 hip fracture cases recorded, 1,944 or 73% were female, Figure 3.

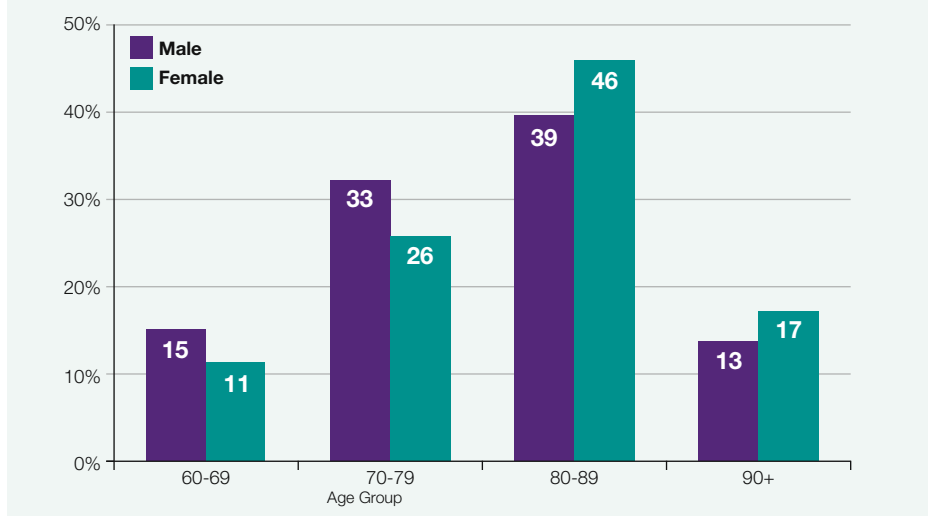
FIG 3: GENDER PERCENTAGES BY AGE GROUP (N=2,664)



FINDINGS:

Age group distributions for males and females were not dissimilar, Figure 4. The highest proportions of cases for both genders were recorded in the 80–89 age group – 39% of males and 46% of females.

FIG 4: AGE GROUP PERCENTAGES FOR MALES (n=720) AND FEMALES (n=1,944)

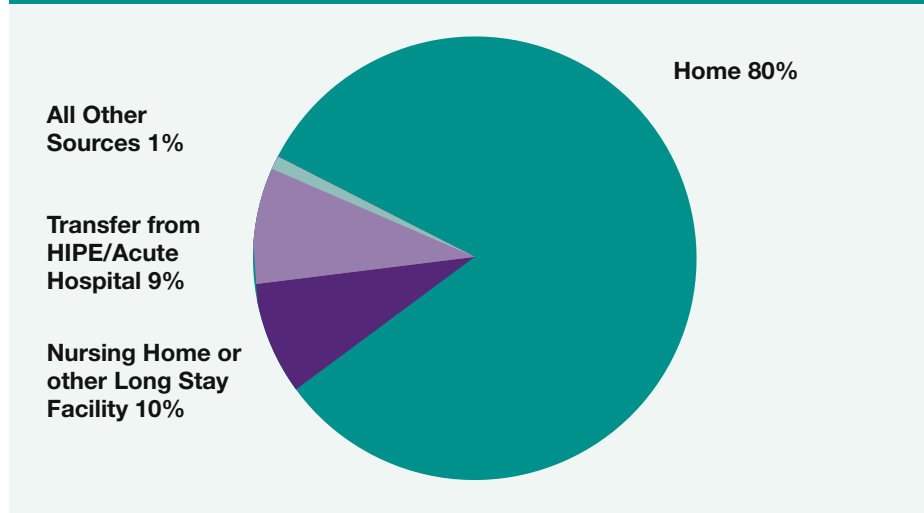


SOURCE OF ADMISSION

FINDINGS:

Admissions from home were the most common source (80%), Figure 5. Transfers from other acute hospitals or other HIPE reporting hospitals accounted for a further 9%, and 10% were admitted from nursing homes / convalescent homes or other long-stay accommodation.

FIG 5: SOURCE OF ADMISSION PERCENTAGES (N=2,664)



AMT SCORE

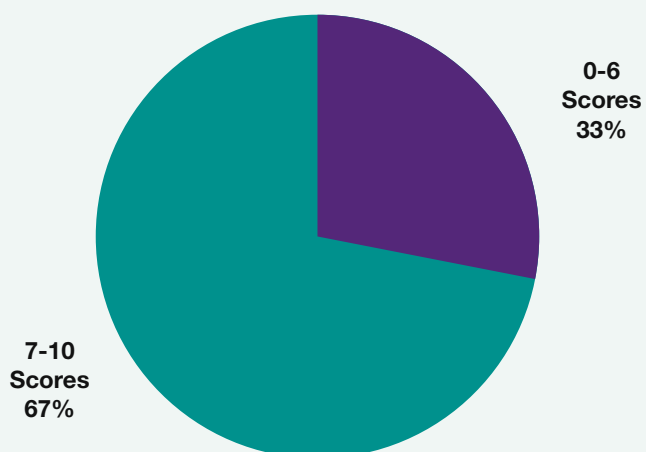
FINDINGS:

Only 287 (11%) of cases had an Abbreviated Mental Test (AMT) score recorded and of those, 67% had scores of 7-10 inclusive i.e. they were not likely to have a cognitive impairment, Figure 6. The deficit of known scores is a reflection of the test not being conducted as opposed to data not being recorded.

TABLE 3: ABBREVIATED MENTAL TEST SCORE

DUE TO COPYRIGHT RESTRICTIONS
THE AMTS TABLE CANNOT BE PUBLISHED ELECTRONICALLY

FIG 6: KNOWN AMT SCORE PERCENTAGE (n=287)



ASA GRADE

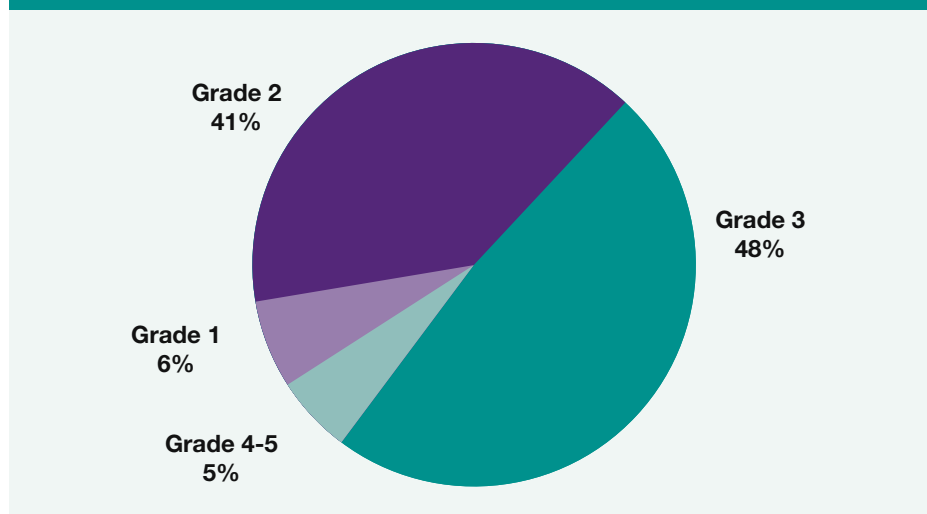
FINDINGS:

Figure 7 displays American Society of Anaesthesiologists (ASA 1963) grades for the 2,221 (88%) of the 2,532 patients who had surgery. The majority were graded as either (Grade 2) mild (41%) or (Grade 3) severe (48%) systemic disease. Fewer than five (Grade 5) moribund cases were recorded and were combined with severe systemic disease (Grade 4) for reporting purposes.

TABLE 4: AMERICAN SOCIETY OF ANAESTHESIOLOGISTS (ASA 1963)⁸: PHYSICAL STATUS CLASSIFICATION

1. Healthy person.
2. Mild systemic disease.
3. Severe systemic disease.
4. Severe systemic disease that is a constant threat to life.
5. A moribund person who is not expected to survive without the operation.

FIG 7: KNOWN ASA GRADE PERCENTAGES (n=2,221)

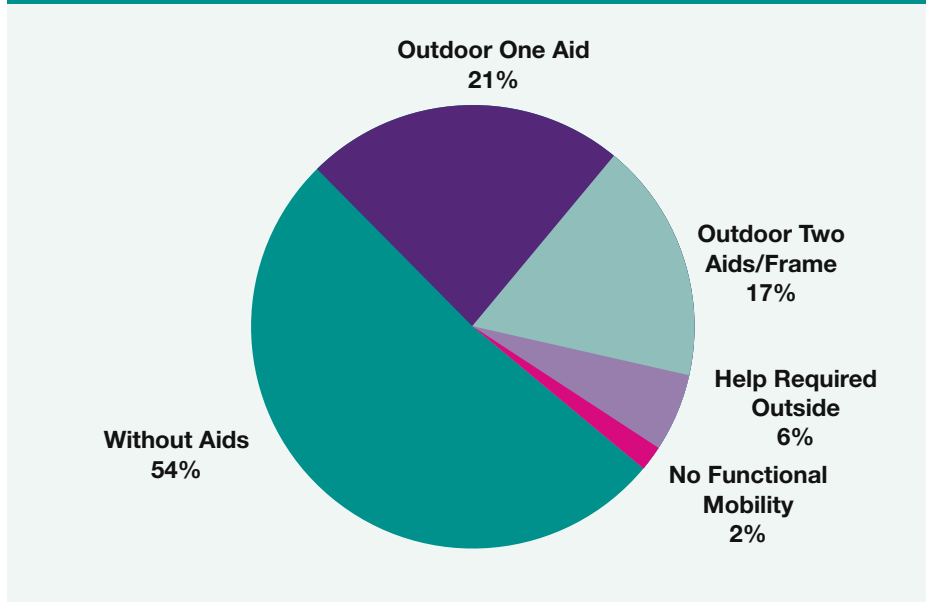


PRE-FRACTURE MOBILITY

FINDINGS:

Mobility status prior to the fracture was recorded for 2,092 (79%) of cases. Over half of cases, 54%, were able to walk unassisted whereas 6% required assistance outdoors and 2% had no functional mobility using lower limbs, Figure 8.

FIG 8: KNOWN PRE-FRACTURE MOBILITY PERCENTAGES (n=2,092)



TYPE OF FRACTURE

FINDINGS:

The most common types of fractures recorded were Intertrochanteric (39%) and Intracapsular - Displaced (27%), Figure 9. Type of fracture was not known for 13% of cases.

FIG 9: TYPE OF FRACTURE PERCENTAGES (N=2,664)

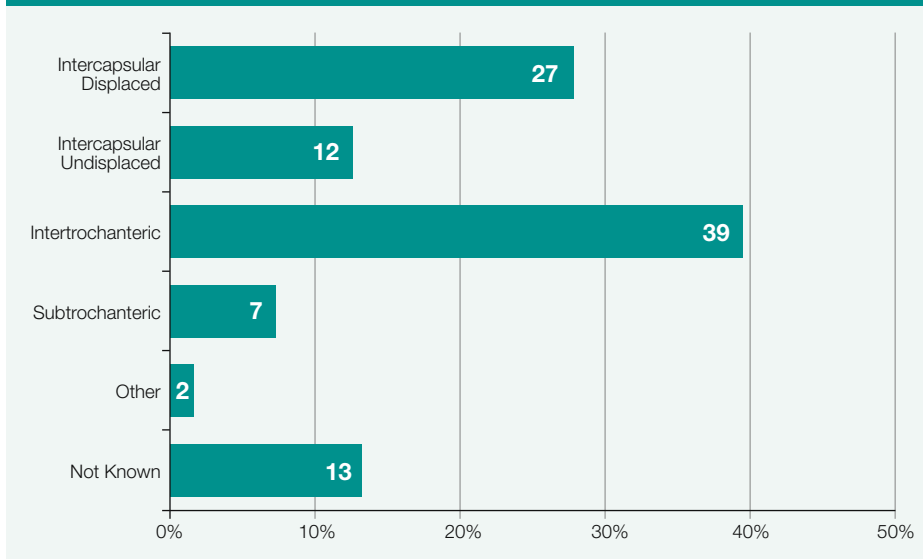
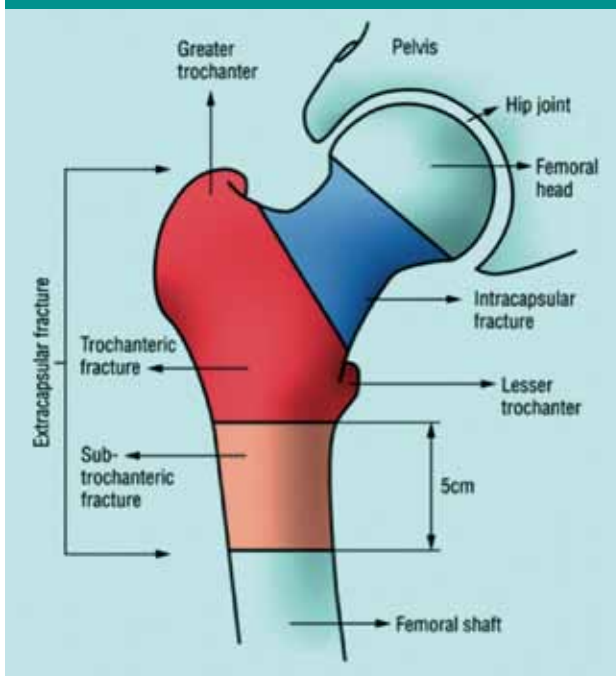


FIG 10: CLASSIFICATION OF HIP FRACTURES



Fractures in the blue area are intracapsular and those in the red and orange areas are extracapsular (Parker & Johansen, 2006)⁹

CHAPTER 3: SURGERY

MODE OF ADMISSION TO HOSPITAL

FINDINGS:

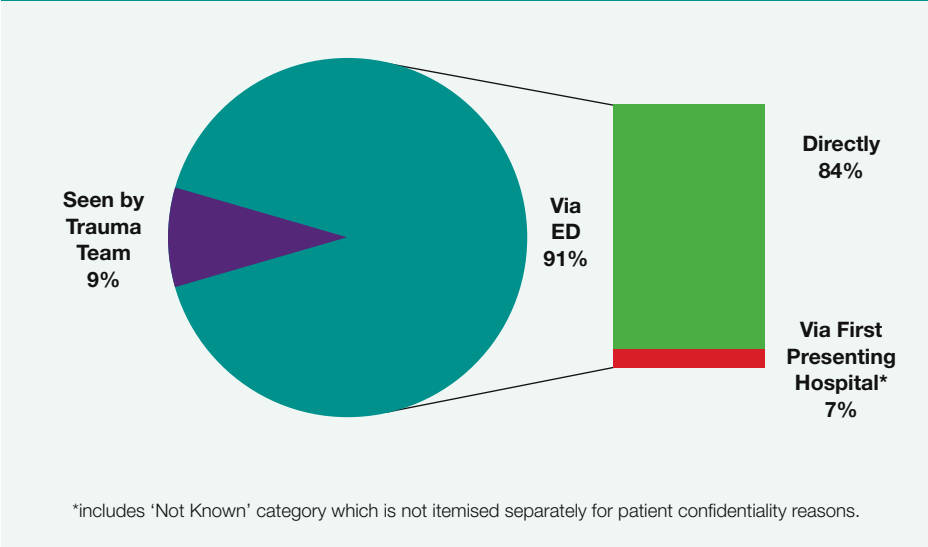
Figure 11 shows that 91% of cases were admitted via Emergency Department (ED) in the operating hospital; 84% directly and 7% indirectly i.e. transferred from another ED. The other 9% of cases were seen and diagnosed by the trauma / orthopaedic team in the operating hospital.

CLINICAL COMMENTARY:

Seven percent of patients (7%) presented to an ED in a hospital which had no orthopaedic trauma operating facilities and were subsequently transferred to the ED of an operating hospital.

The National Model of Care for Trauma and Orthopaedic Surgery (National Clinical Programme for Trauma and Orthopaedic Surgery 2015)¹ recommends 'where a hip fracture is suspected by ambulance personnel / paramedic, the patient should be transferred directly to the nearest trauma hospital that definitively treats hip fracture patients'.

FIG 11: MODE OF ADMISSION TO OPERATING HOSPITAL PERCENTAGES (N=2,664)



ADMISSION TO ORTHOPAEDIC WARD

BLUE BOOK STANDARD 1:

All patients with hip fracture should be admitted to an acute orthopaedic ward within 4 hours of presentation.

SOURCE:

British Orthopaedic Association (BOA) and British Geriatrics Society (BGS), 2007. 'Blue Book': The care of patients with fragility fracture⁴.

FINDINGS:

Of the 2,664 cases, 87% were admitted to an orthopaedic ward but only 14% were admitted within 4 hours, Figure 12.

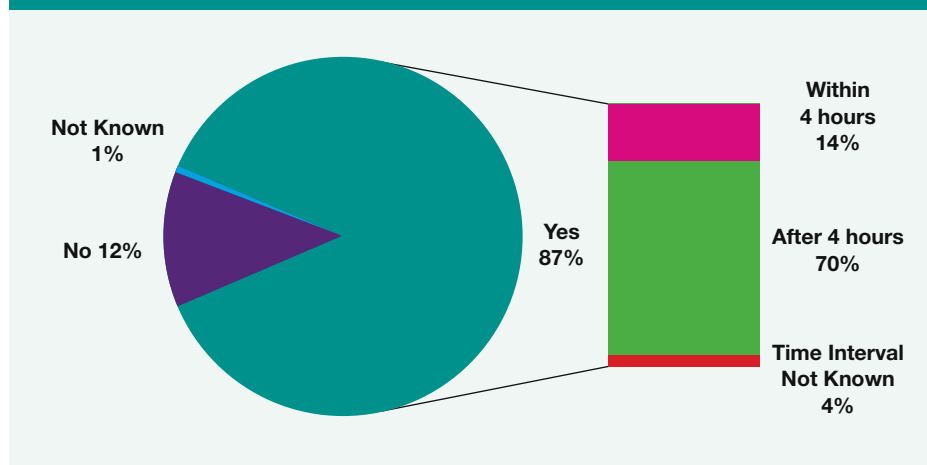
For cases admitted via ED, the time interval is calculated from time of first arrival at ED whether in first presenting hospital or in operating hospital. For non-ED cases, the calculation is from the time seen by the trauma team.

A new data item on whether or not patients went directly from ED to theatre was introduced during the reporting period so it was recorded for only 783 (32%) of the 2,423 ED cases. Of the known cases, 11% went directly to theatre.

CLINICAL COMMENTARY:

The introduction of 'fast track' protocols would minimise delays in the ED and avoid the placement of hip fracture patients on non-orthopaedic wards. Fast track pathways focus on streamlining patient flow through the ED (Ollivere et al, 2012)¹⁰.

FIG 12: ADMISSION TO ORTHOPAEDIC WARD PERCENTAGES (N=2,664)⁴



⁴ Please note: individual stacked bar percentages do not sum to the sub-total percentage due to rounding.

SURGERY PERFORMED

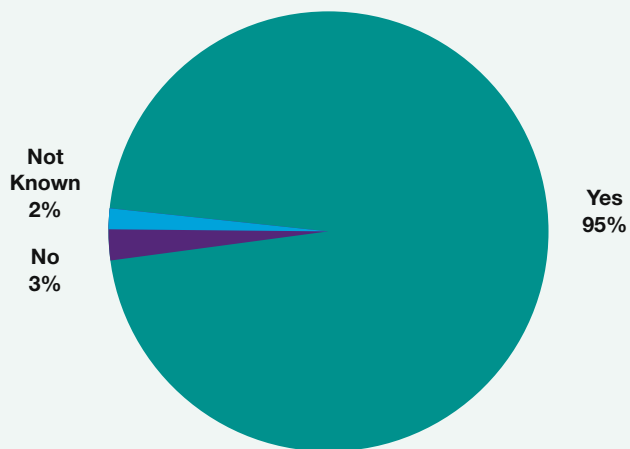
FINDINGS:

Figure 13 illustrates that 2,532 (95%) of the 2,664 hip fracture cases had an operation recorded. 'No operation performed' was recorded for 92 cases (3%).

CLINICAL COMMENTARY:

Reduced length of stay and improved functional outcomes are associated with operative treatment of a hip fracture. The percentage of patients being treated non-operatively has remained unchanged from our last report.

FIG 13: SURGERY PERFORMED PERCENTAGES (N=2,664)



TIME TO AND TIME OF SURGERY

BLUE BOOK STANDARD 2:

All patients with a hip fracture who are medically fit should have surgery within 48 hours of admission, during normal working hours.

SOURCE:

British Orthopaedic Association (BOA) and British Geriatrics Society (BGS), 2007. 'Blue Book': The care of patients with fragility fracture⁴.

FINDINGS:

Analysis indicates that 72% of surgeries were conducted within 48 hours - 70% during working hours (Monday – Sunday during hours 08:00 – 17:59) and 2% out-of-hours, Figure 14.

CLINICAL COMMENTARY:

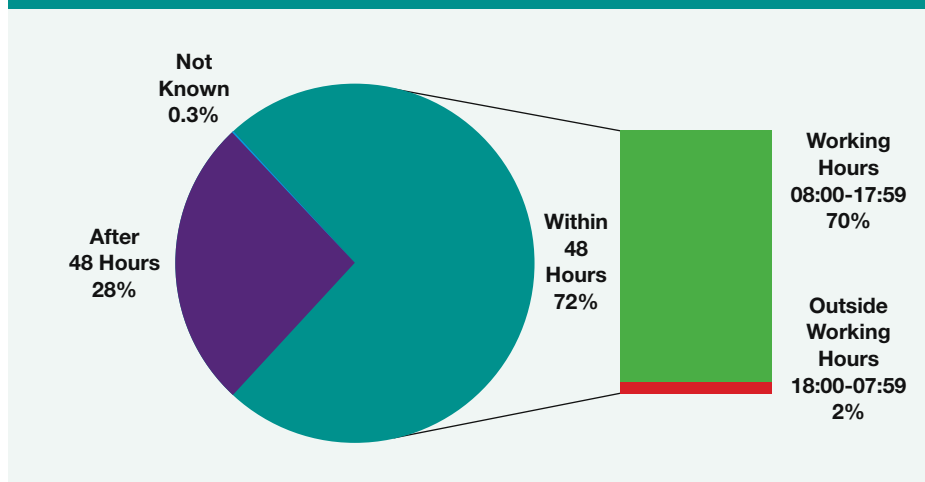
There needs to be improvement in the proportion of medically well patients getting to surgery within the specified time.

The HSE Key Performance Indicator (KPI) for hip fracture surgery reports on the percentage of emergency hip fracture surgeries with the principal procedure carried out on days 0, 1 or 2 of the stay with a specified target of 95%. The HSE reported 82% for 2014 data on this KPI. Health Service, Data Management Report, HSE (2014)¹¹.

The differences between the HSE and IHFD calculation for time to surgery are as follows:

- HSE KPI data is sourced from HIPE and analysed by the Healthcare Pricing Office (HPO)
- HSE calculates the time interval in days from date of admission to a ward whereas the IHFD does so in hours from time of presentation at the ED or seen by Trauma team.
- HSE includes hip fracture due to injury only (ICD-10-AM S72.0 – S72.2) whereas the IHFD includes all hip fractures.
- HSE report on ages over 65 years and IHFD report on ages 60 years and over.

FIG 14: TIME TO AND TIME OF SURGERY PERCENTAGES (n=2,532)



REASON FOR DELAY IF SURGERY AFTER 48 HOURS

FINDINGS:

Awaiting medical review, investigation or stabilisation was the reason surgery was delayed more than 48 hours for 54% of cases, Figure 15.

A further 23% were delayed waiting for a space on a theatre list or were cancelled due to list over-run.

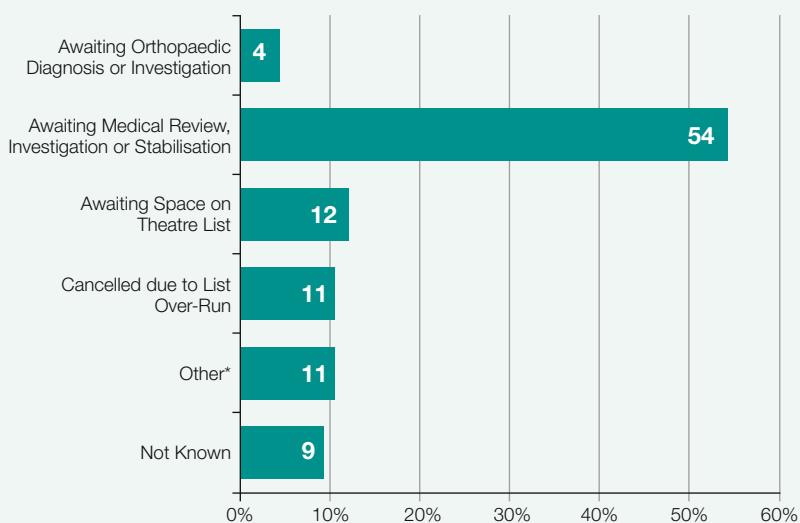
CLINICAL COMMENTARY:

Of the patients awaiting medical review, investigation or stabilisation, it is not possible to determine from the current dataset which caused the delay i.e. awaiting medical review or investigation or stabilisation.

The high proportions recorded for the 'Other' and 'Not Known' categories remain a concern.

The National Model of Care for Trauma and Orthopaedic Surgery (National Clinical Programme for Trauma and Orthopaedic Surgery 2015)¹ recommends patients with a hip fracture should suffer minimal delay to surgery.

FIG 15: REASON FOR 48 HOURS+ SURGERY DELAY PERCENTAGES (n=698)⁵



*Includes 'Awaiting Inpatient or High Dependency Bed', 'Problem with Theatre/Equipment' and 'Problem with Theatre/Surgical/Anaesthetic Staff Cover' categories which are not itemised separately for patient confidentiality reasons.

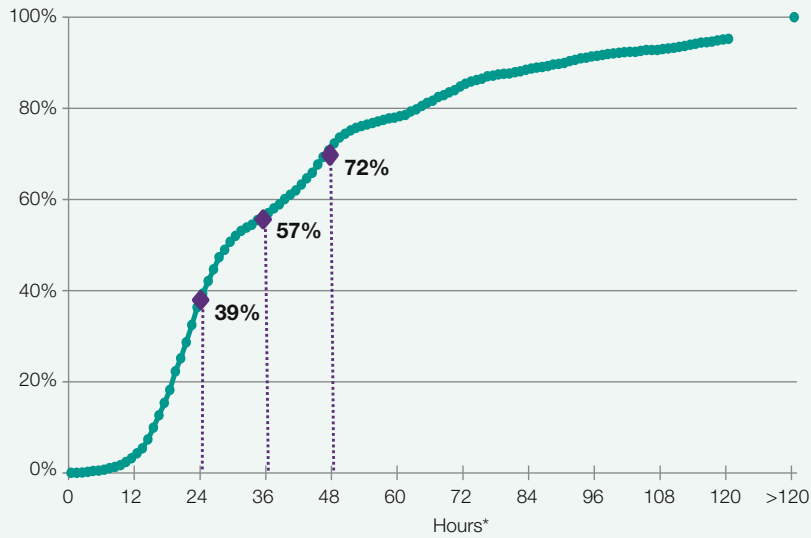
⁵ Please note: Percentages may not sum to 100% due to rounding.

CUMULATIVE TIME OF SURGERY

FINDINGS:

Figure 16 shows that 39% of patients had surgery within the first 24 hours, this increased to 57% within 36 hours and to 72% within 48 hours.

FIG 16: CUMULATIVE TIME TO SURGERY PERCENTAGES (n=2,524)



* Excludes 'Not Known' cases.

ROUTINE PRE-OPERATIVE ASSESSMENT BY A GERIATRICIAN

BLUE BOOK STANDARD 4:

All patients presenting with a fragility fracture should be managed on an orthopaedic ward with routine access to acute orthogeriatric medical support from the time of admission

SOURCE:

British Orthopaedic Association (BOA) and British Geriatrics Society (BGS), 2007. 'Blue Book': The care of patients with fragility fracture⁴.

FINDINGS:

The percentage of patients reviewed routinely pre-operatively by a Geriatrician was 7%, Figure 17.

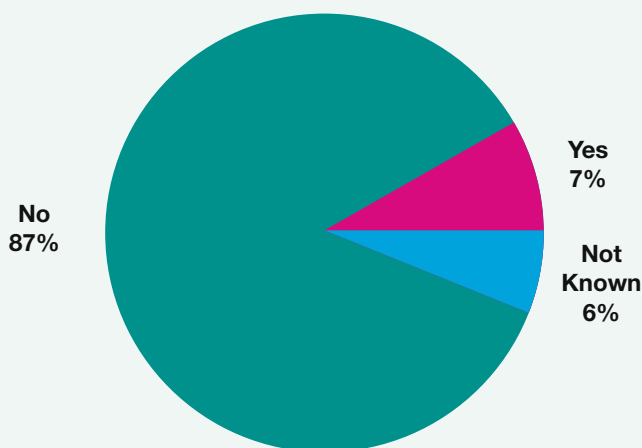
The new data item, 'Assessed by a Geriatrician during this acute admission' was introduced during the reporting period. Findings from the reported cases indicate that a further 12% of patients were assessed by a Geriatrician at some other time during their acute admission.

CLINICAL COMMENTARY:

A collaborative relationship between Orthopaedic and Geriatric teams is fundamental to optimise care and outcomes for hip fracture patients.

It is of concern the percentage of patients receiving such collaborative care is low and is a direct reflection on the paucity of formal orthogeriatric posts in the Irish Health Service. The National Model of Care for Trauma and Orthopaedic Surgery (National Clinical Programme for Trauma and Orthopaedic Surgery 2015)¹ advocates that hip fracture patients require specialist medical care, early rehabilitation and discharge planning from a Geriatrician with an interest in fracture care and should be integrated in the orthopaedic department. Recent evidence from a well designed, prospective, randomised controlled trial suggests that all fracture care be organised as Orthogeriatric care. (Prestmo et al 2015)¹²

FIG 17: PRE-OPERATIVE MEDICAL ASSESSMENT PERCENTAGES (N=2,664)



TYPE OF ANAESTHESIA

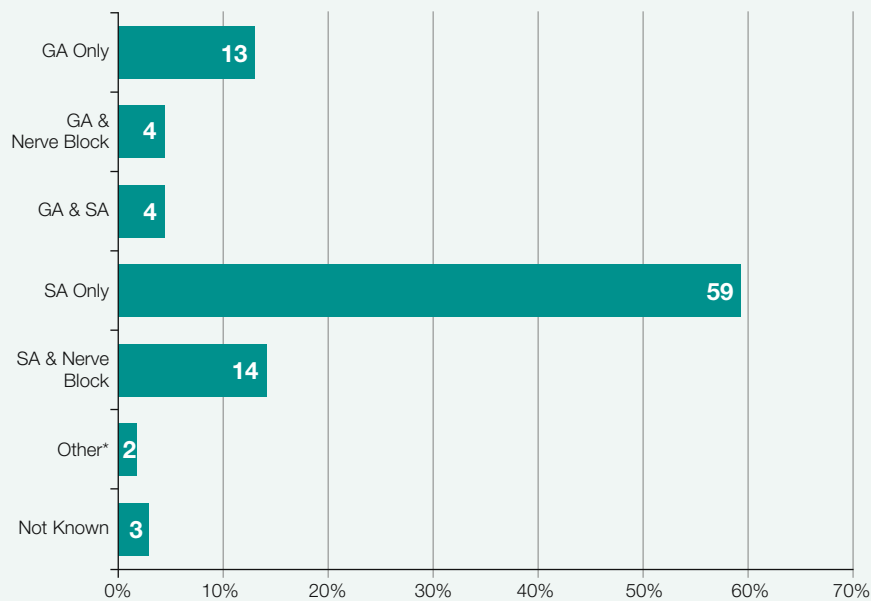
FINDINGS:

The predominant type of anaesthesia was spinal anaesthetic (SA); on its own (59%) or in combination with general anaesthetic (GA) (4%) or nerve block (14%), Figure 18.

CLINICAL COMMENTARY:

Spinal anaesthesia remains the predominant choice of anaesthesia and is associated with lower rates of post-operative delirium.

FIG 18: TYPE OF ANAESTHESIA PERCENTAGES (n=2,532)⁶



*Includes 'GA & Epidural Anaesthesia' and 'SA & Epidural (CSE)' categories which are not itemised separately for patient confidentiality reasons.

⁶ Please note: Percentages may not sum to 100% due to rounding.

TYPE OF SURGERY

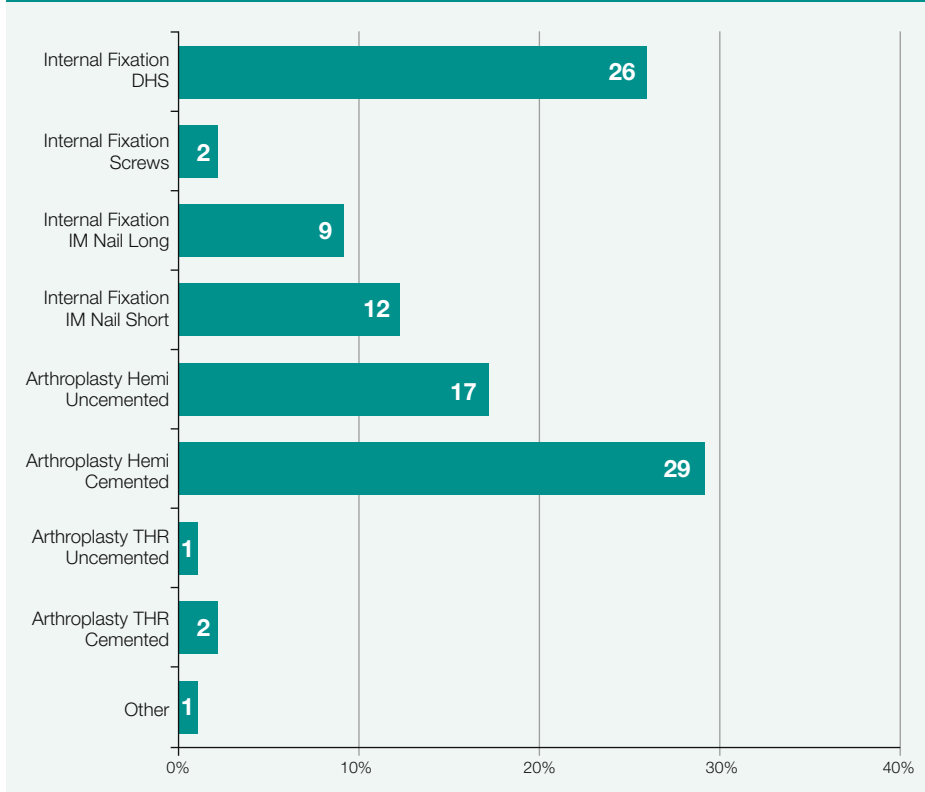
FINDINGS:

Figure 19 shows that 'Arthroplasty Hemi Cemented' accounted for 29% of surgical cases and a further 26% was recorded for the 'Internal Fixation DHS' category. The type of procedure varied by type of fracture with hemi-arthroplasties dominating for both displaced and undisplaced intracapsular fractures while internal fixation procedures were more common for intertrochanteric and subtrochanteric fractures.

CLINICAL COMMENTARY:

The National Model of Care for Trauma and Orthopaedic Surgery (National Clinical Programme for Trauma and Orthopaedic Surgery 2015)¹ recommends accurate and well performed surgery, carried out by an appropriately senior surgeon to ensure stable fracture fixation where possible, allowing immediate full weight bearing and early mobilisation.

FIG 19: TYPE OF SURGERY PERCENTAGES (n=2,532)⁷



⁷ Please note: Percentages may not sum to 100% due to rounding.

TYPE OF SURGERY FOR UNDISPLACED INTRACAPSULAR FRACTURES

FINDINGS:

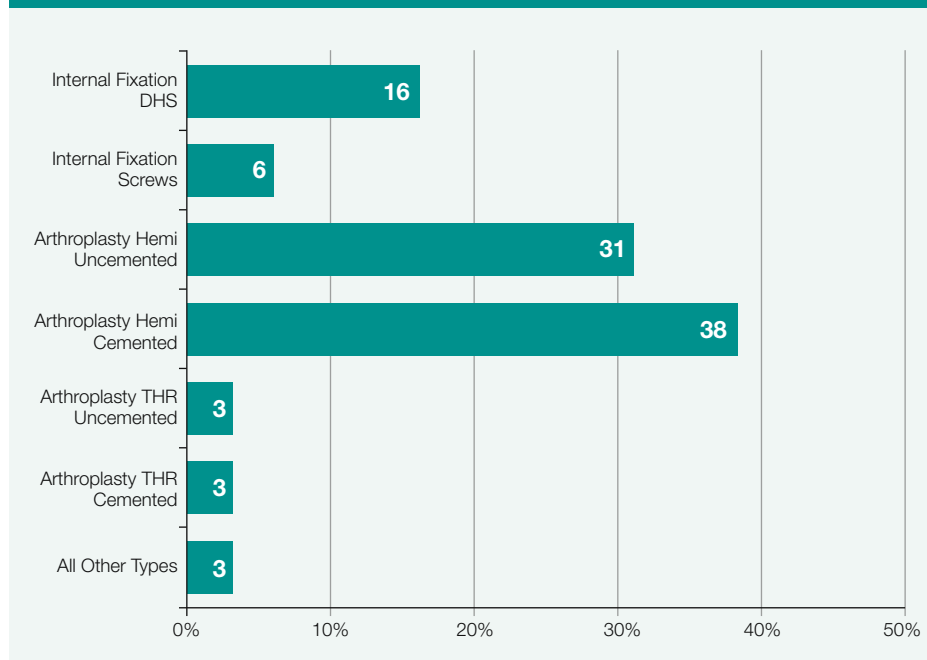
Hemi-arthroplasties dominated for undisplaced intracapsular fractures - 31% uncemented and 38% cemented, Figure 20.

CLINICAL COMMENTARY:

The proportion of patients treated with arthroplasty is 75%. This is 11 percentage points higher than the last report.

The specific type of arthroplasty implant is currently not collected as part of the IHFD, but it is known that in sites where the majority of implants are uncemented, modern hydroxyapatite-coated implants rather than Austin Moore type prostheses are used.

FIG 20: TYPE OF SURGERY FOR UNDISPLACED INTRACAPSULAR FRACTURES PERCENTAGES (n=297)



TYPE OF SURGERY FOR DISPLACED INTRACAPSULAR FRACTURES

FINDINGS:

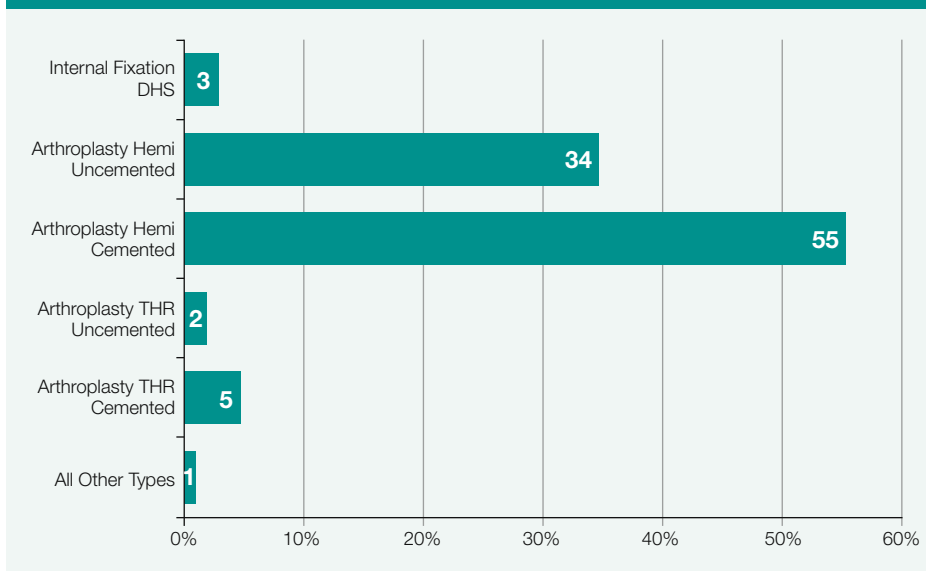
Hemi-arthroplasties dominated for displaced intracapsular fractures - 34% uncemented and 55% cemented, Figure 21. Seven percent (7%) underwent a total hip arthroplasty and 3% received "Internal Fixation DHS".

CLINICAL COMMENTARY:

Data suggests improved clinical and quality of life outcomes with total hip replacement versus hemi-arthroplasty following displaced intracapsular fracture in appropriate patients. Appropriate patients for total hip replacement are classified as able to walk independently out of doors with no more than the use of a stick, not cognitively impaired and medically fit for anaesthesia and the procedure (NICE CG124)⁵. In the UK 26% of patients with a displaced intracapsular fracture underwent a total hip replacement in 2014 (NHFD Annual Report 2015)².

Further examination of our low proportion of total hip replacements is required.

FIG 21: TYPE OF SURGERY FOR DISPLACED INTRACAPSULAR FRACTURES PERCENTAGES (n=710)



TYPE OF SURGERY FOR INTERTROCHANTERIC FRACTURES

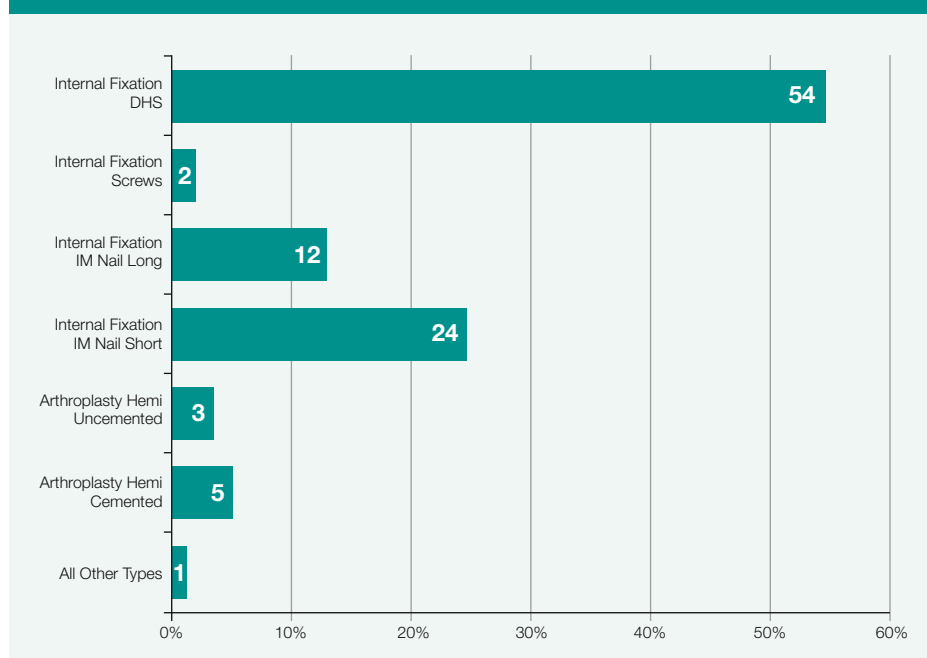
FINDINGS:

Internal fixation procedures accounted for over 92% of surgeries for intertrochanteric fractures - 54% with dynamic hip screws (DHS) and 36% with intramedullary (IM) nails, Figure 22.

CLINICAL COMMENTARY:

Since the last report the proportion of patients receiving internal fixation DHS decreased from 61% to 54% and the proportion of patients receiving an IM nail increased from 29% to 36%. The reason for these variations is unclear as the current IHFD dataset does not distinguish between the different subtypes of intertrochanteric fractures.

FIG 22: TYPE OF SURGERY FOR INTERTROCHANTERIC FRACTURES PERCENTAGES (n=993)^a



^a Please note: Percentages may not sum to 100% due to rounding.

TYPE OF SURGERY FOR SUBTROCHANTERIC FRACTURES

FINDINGS:

Internal fixation procedures with nails accounted for 72% of surgeries for subtrochanteric fractures, Figure 23.

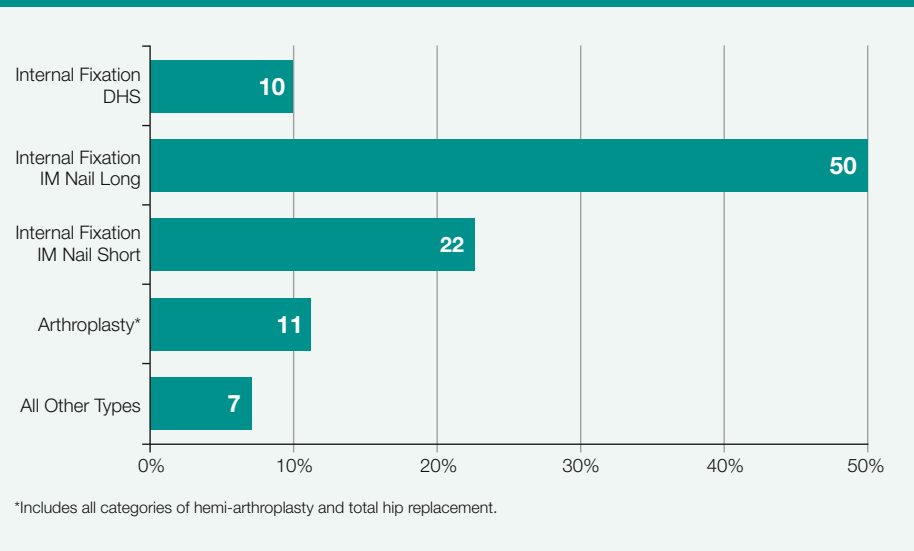
CLINICAL COMMENTARY:

While we are 72% compliant with the NICE guideline of using intramedullary nails for the treatment of subtrochanteric fractures, of concern, however, is the high proportion of patients who received an arthroplasty, 11%, compared to the NHFD equivalent of 0.5% recorded for 2013 (NHFD Annual Report 2014)¹³.

This data may be compromised by the high levels of “Not Known” values (13%) for Type of Fracture, see Figure 9.

Local and national audit of the data will be required to ascertain if the correct fracture types are being recorded.

FIG 23: TYPE OF SURGERY FOR SUBTROCHANTERIC FRACTURES PERCENTAGES (n=194)



CEMENTING OF ARTHROPLASTIES

FINDINGS:

NICE CG124⁵ recommends the use of cemented implants in patients undergoing arthroplasty. Figure 24 shows that 62% of the 1,256 arthroplasties conducted were cemented.

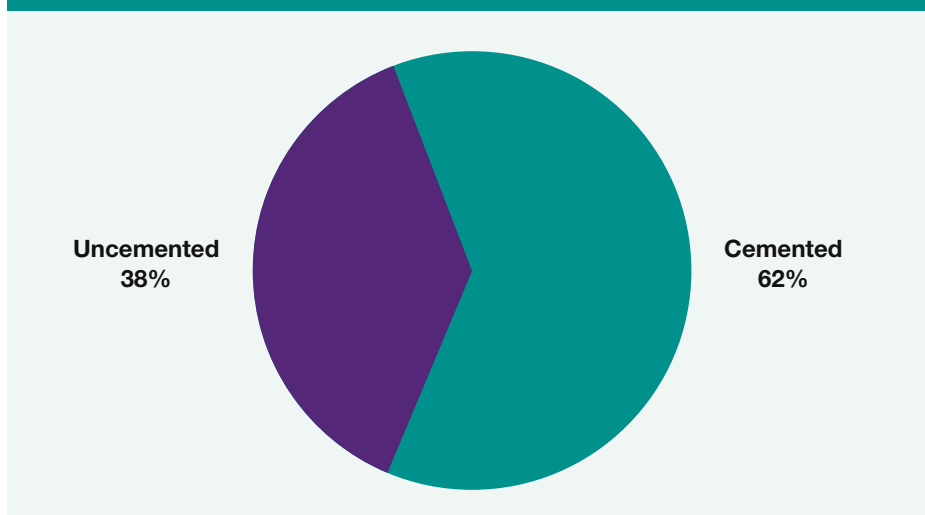
CLINICAL COMMENTARY:

Cementing of arthroplasties is the recommended treatment for patients undergoing hip arthroplasty.

The specific type of arthroplasty implant is currently not collected as part of the IHFD, but it is known that in sites where the majority of implants are uncemented, modern hydroxyapatite-coated implants rather than Austin Moore type prostheses are used.

Adverse cardiovascular events occur in approximately 20% of hip fracture operations in which a cemented prosthesis is used. Recent safety guidelines have been published by the Association of Anaesthetists of Great Britain and Ireland: Reducing the risk from cemented arthroplasty for hip fracture (2015)¹⁴. These concise guidelines are presented for the preparation and conduct of anaesthesia and surgery in patients undergoing cemented hemi-arthroplasties for hip fracture.

FIG 24: CEMENTING OF ARTHROPLASTIES PERCENTAGES (n=1,256)



CHAPTER 4: OUTCOMES

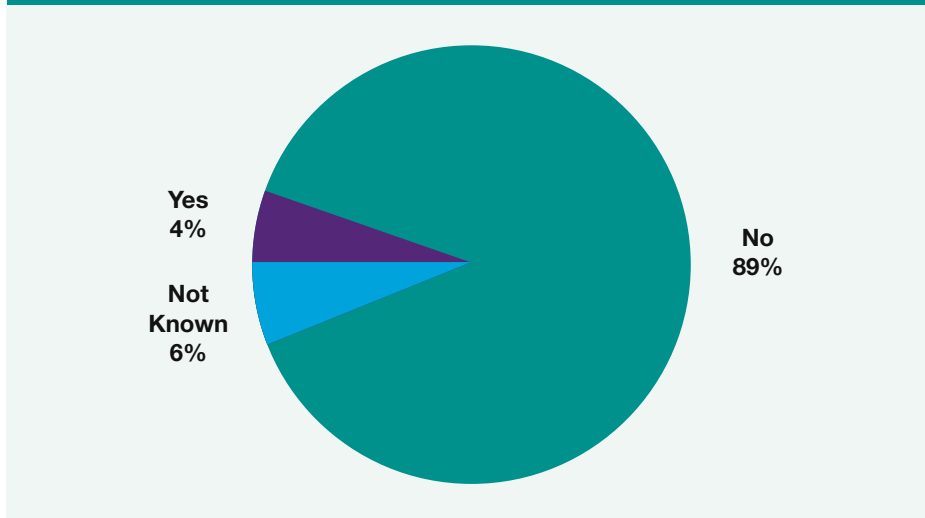
DEVELOPMENT OF PRESSURE ULCERS

BLUE BOOK STANDARD 3: All patients with hip fracture should be assessed and cared for with a view to minimising their risk of developing a pressure ulcer – percentage of patients who developed a new pressure ulcer.
SOURCE: British Orthopaedic Association (BOA) and British Geriatrics Society (BGS), 2007. 'Blue Book': The care of patients with fragility fracture ⁴ .
FINDINGS: Of those patients who were discharged alive, 4% had pressure ulcers, Figure 25. The fact that a higher proportion was recorded as 'Not Known' is a concern for this data item.
CLINICAL COMMENTARY: Patients should be assessed and cared for throughout their admission to minimise their risk of developing a pressure ulcer. For the purpose of this report pressure ulcers Grade 2 or higher that developed after admission and no later than 120 days after admission are included. Due diligence should be paid to the documentation of pressure ulcer incidence, (Table 5). The National Model of Care for Trauma and Orthopaedic Surgery (National Clinical Programme for Trauma and Orthopaedic Surgery 2015) ¹ recommends that in order to prevent pressure ulcers all patients should be rested on pressure reducing surfaces from the point of admission to hospital; in transit; in theatre; and in the ward, where high specification, pressure relieving mattresses should be readily available.

Pressure Ulcer Definition and Stages (Grades), International NPUAP- EPUAP (2009)¹⁵

A pressure ulcer is localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear. A number of contributing or confounding factors are also associated with pressure ulcers; the significance of these factors is yet to be elucidated.

FIG 25: PRESSURE ULCER PERCENTAGES (n=2,552)⁹



⁹ Please note: Percentages may not sum to 100% due to rounding.

TABLE 5: INTERNATIONAL NPUAP- EPUAP PRESSURE ULCER CLASSIFICATION SYSTEM

Category/Stage I: Non-blanchable redness of intact skin

Intact skin with non-blanchable erythema of a localized area usually over a bony prominence. Discoloration of the skin, warmth, edema, hardness or pain may also be present. Darkly pigmented skin may not have visible blanching.

Further description: The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue. Category/Stage I may be difficult to detect in individuals with dark skin tones. May indicate “at risk” persons.

Category/Stage II: Partial thickness skin loss or blister

Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum filled or sero-sanguinous filled blister.

Further description: Presents as a shiny or dry shallow ulcer without slough or bruising. This category/stage should not be used to describe skin tears, tape burns, incontinence associated dermatitis, maceration or excoriation.

Category/Stage III: Full thickness skin loss (fat visible)

Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Some slough may be present. May include undermining and tunnelling.

Further description: The depth of a Category/Stage III pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have (adipose) subcutaneous tissue and Category/Stage III ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep Category/Stage III pressure ulcers. Bone/tendon is not visible or directly palpable.

Category/Stage IV: Full thickness tissue loss (muscle/bone visible)

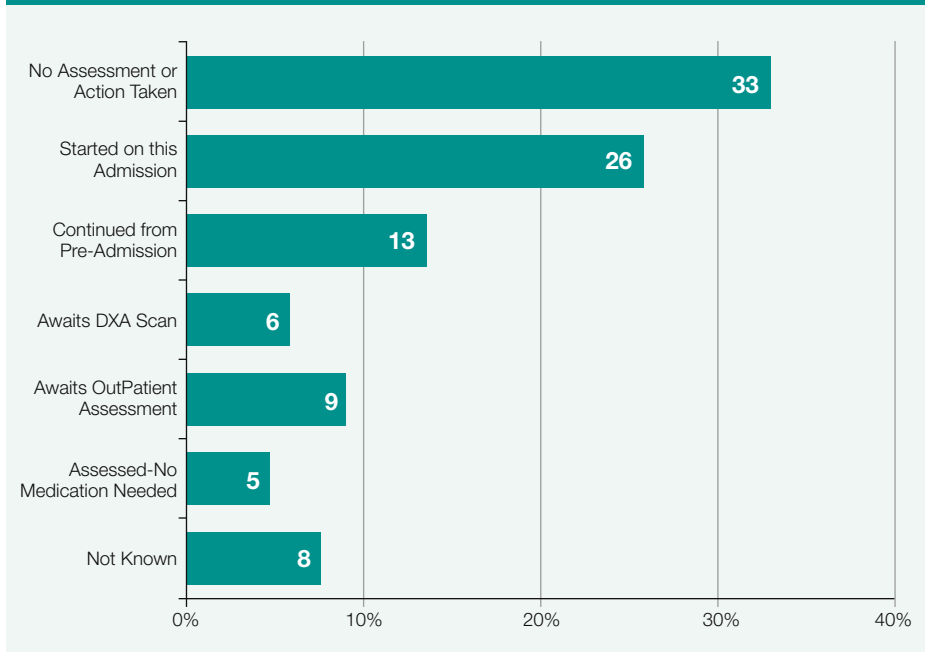
Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present. Often include undermining and tunnelling.

Further description: The depth of a Category/Stage IV pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have (adipose) subcutaneous tissue and these ulcers can be shallow. Category/Stage IV ulcers can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis or osteitis likely to occur. Exposed bone/muscle is visible or directly palpable.

BONE HEALTH ASSESSMENT/BONE PROTECTION MEDICATION ON DISCHARGE

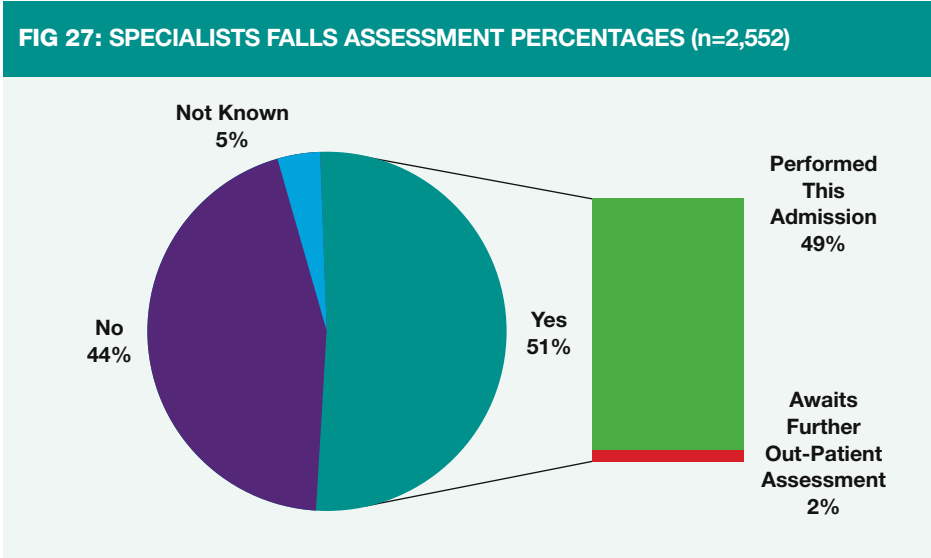
<p>BLUE BOOK STANDARD 5: All patients presenting with a fragility fracture should be assessed to determine their need for bone protection therapy to prevent further osteoporotic fractures.</p>
<p>SOURCE: British Orthopaedic Association (BOA) and British Geriatrics Society (BGS), 2007. 'Blue Book': The care of patients with fragility fracture⁴.</p>
<p>FINDINGS: Thirty nine percent (39%) of patients were discharged on bone protection medication including the 26% who were commenced during their hospital admission, Figure 26. A third of patients (33%) had no bone health assessment or action taken during their stay in hospital.</p>
<p>CLINICAL COMMENTARY: The very low proportion of patients receiving bone health assessment and medication may be a reflection of the lack of Orthogeriatric and Fracture Liaison Services in Ireland.</p> <p>National Model of Care for Trauma and Orthopaedic Surgery (National Clinical Programme for Trauma and Orthopaedic Surgery 2015)¹ recommends there should be a fracture liaison service in each of the sixteen trauma units and a properly resourced orthogeriatric service to manage the older fragility fracture patients during the acute hospital episode of care in order to provide secondary prevention of further falls and fractures.</p>

FIG 26: BONE HEALTH ASSESSMENT/BONE PROTECTION MEDICATION PERCENTAGES (n=2,552)



SPECIALIST FALLS ASSESSMENT

<p>BLUE BOOK STANDARD 6: All patients presenting with a fragility fracture following a fall should be offered multi-disciplinary assessment and intervention to prevent future falls.</p>
<p>SOURCE: British Orthopaedic Association (BOA) and British Geriatrics Society (BGS), 2007. 'Blue Book': The care of patients with fragility fracture⁴.</p>
<p>FINDINGS: Prior to discharge, 49% had a falls assessment during their admission and 2% awaited further out-patient falls assessment, Figure 27.</p>
<p>CLINICAL COMMENTARY: Hip fracture patients are at high risk for further falls and fractures. This assessment should be a systematic one performed by a suitably trained person e.g. Geriatrician or a falls specialist nurse and must include the following domains: a falls history (noting previous falls), cause of index fall (including medication review), risk factors for falling and injury (including fracture) and from that information formulate and document a plan of action to prevent further falls.</p>



DESTINATION ON DISCHARGE

FINDINGS:

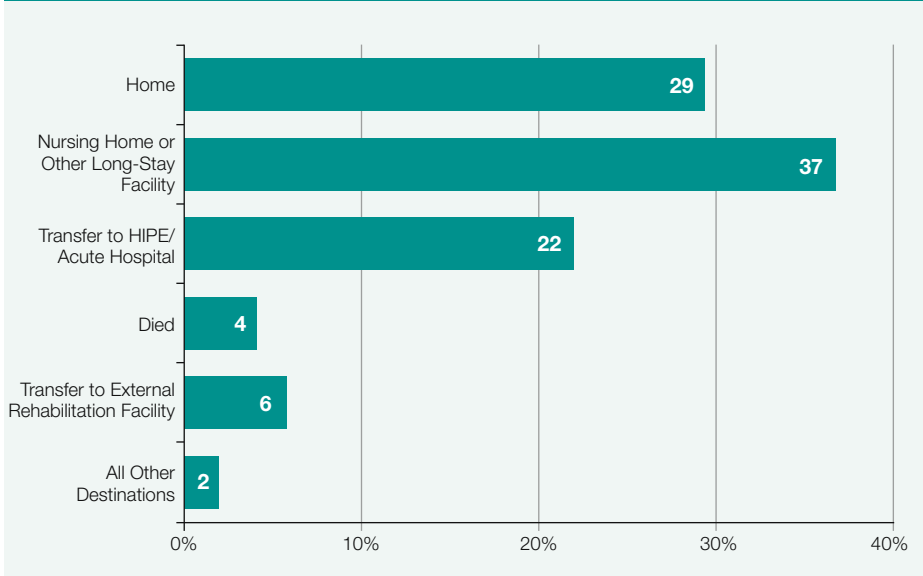
Figure 28 shows that 29% of patients were discharged home, 65% went to another healthcare facility and 4% died while in hospital.

CLINICAL COMMENTARY:

This HIPE field does not capture all patients transferred/referred for rehabilitation in all types of healthcare facilities/settings. A new data item will be added to the IHFD dataset which should provide the required information.

The Model of care for Trauma and Orthopaedics (National Clinical Programme for Trauma and Orthopaedic Surgery 2015)¹ recommends early supported discharge and ongoing rehabilitation.

FIG 28: DISCHARGE DESTINATION PERCENTAGES (N=2,664)



LENGTH OF STAY (LOS)

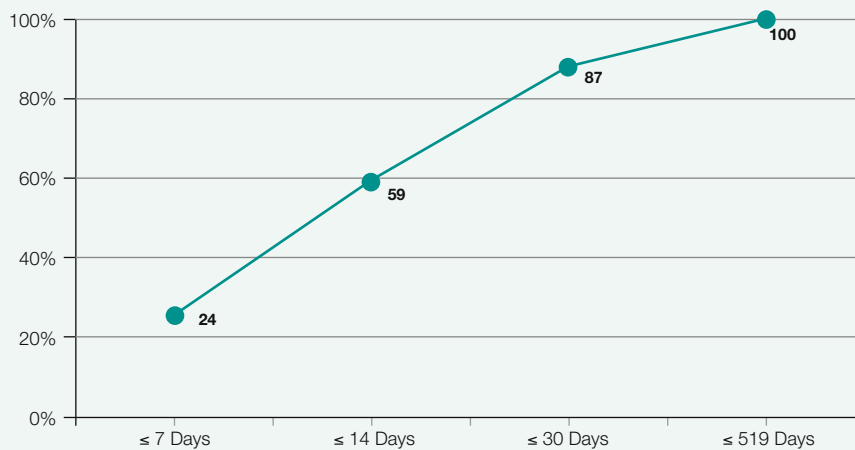
FINDINGS:

Length of stay is measured on HIPE as the number of calendar days from the date the patient is admitted to a ward in the operating hospital to the date the patient is discharged from the operating hospital. Figure 29 shows cumulative percentages for all lengths of stay; 24% were discharged within a week and 59% within a fortnight. Less than or equal to 30 days is regarded as an acute stay and 87% of cases had such a stay. The mean and median LOS for hip fracture patients were 19 and 12.5 days respectively.

CLINICAL COMMENTARY:

Length of stay is used as a surrogate marker of the efficiency of a trauma service. The proportions of patients discharged within a week and a fortnight improved by 4 and 6 percentage points respectively since the last report whereas discharge levels within 30 days remained the same. The number of patients discharged at 30 days remained the same. Both the mean and median lengths of stay decreased since the last report from 21 days to 19 days and from 14 days to 12.5 days respectively.

FIG 29: LENGTH OF STAY CUMULATIVE PERCENTAGES (N=2,664)



RE-OPERATION WITHIN 30 DAYS

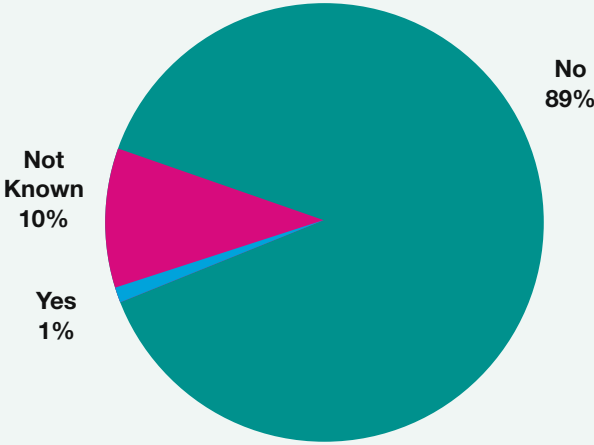
FINDINGS:

Eighty nine percent (89%) of patients did not have any further surgery within 30 days and 1% did, Figure 30. Re-operation performed within 30 days was recorded as 'Not Known' for 10% of patients.

CLINICAL COMMENTARY:

This is obviously an important standard to determine the quality of the initial operation and perioperative care, and the deficit in data recording for this item needs to be examined and addressed in the individual hospitals going forward.

FIG 30: RE-OPERATION WITHIN 30 DAYS PERCENTAGES (n=2,532)



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APPENDIX 1: DATASET

HIPE Portal Data Entry / Hip Fracture Admission (V3.0.3) 17 Dec 2014

Question	Options
1. Date of trauma causing hip fracture	
1A. Time of trauma causing hip fracture	
2. Type of trauma	1 High energy trauma, 2 Low energy trauma 8 Unknown, 9 Not documented
3. Date of arrival at first presenting hospital	
3A. Time of arrival at first presenting hospital	
4. Admission via ED in operating hospital	1 Yes, 2 No
4A. Date of arrival in ED of operating hospital	
4B. Time of arrival in ED of operating hospital	
4C. Date left ED in operating hospital	
4D. Time left ED in operating hospital	
4E. Did patient go directly to theatre from ED	1 Yes, 2 No
4F. Date seen by trauma team in operating hospital (if not admitted via ED)	
4G. Time seen by trauma team in operating hospital (if not admitted via ED)	
4H. Did patient fall during an existing inpatient admission in operating hospital	1 Yes, 2 No
5. Type of ward admitted to in operating hospital	1 Orthopaedic Ward 2 Never Admitted to Orthopaedic Ward 9 Not Documented
5A. Date of admission to orthopaedic ward	
5B. Time of admission to orthopaedic ward	
6. Pre-fracture mobility	1 freely mobile w/o aids 2 mob outdoor 1 aid 3 mob outdoor 2 aids/frame 4 some indoor mob but never goes w/o help outside 5 no func mob using lower limbs 9 not documented

APPENDIX 1: DATASET

HIPE Portal Data Entry / Hip Fracture Admission (V3.0.3) 17 Dec 2014

Question	Options
7. AMT Performed	1 Yes, 2 No 3 Patient Refused, 9 Not Documented
7A. AMTS	00 - 10
8. Side of fracture	1 Left, 2 Right, 3 Both
8A. Type of fracture	1 Intracapsular - displaced 2 Intracapsular - undisplaced 3 Intertrochanteric 4 Subtrochanteric 5 Periprosthetic 8 Other 9 Not documented Dropdown help boxes are available to help determine the type of fracture as follows:- 1. Intracapsular displaced may include Garden III or IV / Displaced Subcapital / Displaced Femoral Neck 2. Intracapsular undisplaced may include Garden I or II / Impacted Intracapsular / Impacted Subcapital Fracture 3. Intertrochanteric may include Pertrochanteric / Extracapsular / Basalcervical 4. Subtrochanteric may include Reverse Oblique
8B. Type of fracture (Other, please specify)	
8C. Type of fracture (Right)	See Q&A
8D. Type of fracture (Right, Other, please specify)	
9. Pathological	1 Atypical, 2 Malignancy 3 No, 9 Not documented
10. History of previous fragility fracture(s)	1 Yes, 2 No, 9 Not documented
11. Pre-op medical assessment	1 Routine by geriatrician 6 None 9 Not documented
11A. Assessed by Geriatrician during this acute admission	1 Yes, 2 No, 9 Not documented
11B. Geriatrician Grade	1 Consultant 2 SpR 3 Registrar 8 Other 9 Not documented

APPENDIX 1: DATASET

HIPE Portal Data Entry / Hip Fracture Admission (V3.0.3) 17 Dec 2014

Question	Options
12. Operation	00 no oper. performed 01 int fix DHS 02 int fix Screws 03 int fix IM nail long 04 int fix IM nail short 05 art uni-p hemi uncem uncoated 06 art uni-p hemi uncem coated 07 art uni-p hemi cem. 08 art bi-p hemi uncem uncoated 09 art bi-p hemi uncem coated 10 art bi-p hemi cem. 11 art THR uncem uncoated 12 art THR uncem coated 13 art THR cem. 88 other 99 not documented
12A. ASA Grade	1 Normal healthy individual 2 Mild systemic disease that does not limit activity 3 Severe systemic disease that limits activity but is not incapacitating 4 Incapacitating systemic disease which is constantly life-threatening 5 Moribund - not expected to survive 24 hours with or without surgery 9 Not documented
12B. Type of Anaesthesia	1 GA only 2 GA + nerve block 3 GA + spinal anaesthesia 4 GA + epidural anaesthesia 5 SA only 6 SA + nerve block 7 SA + epidural (CSE) 8 Other 9 Not documented
12C. Surgeon Grade	1 Consultant 2 Specialist Registrar 3 Registrar 4 SHO 8 Other 9 Not documented
12D. Anaesthetist Grade	1 Consultant 2 Specialist Registrar 3 Registrar 4 SHO 8 Other 9 Not documented
12E. Date of primary surgery	
12F. Time of primary surgery	

APPENDIX 1: DATASET

HIPE Portal Data Entry / Hip Fracture Admission (V3.0.3) 17 Dec 2014

Question	Options
12G. Time from arrival in ED / seen by trauma team to surgery (hrs in decimal)	
12H. Reason if delay > 48 hours	0 No delay - surgery < 48 hours 1 Awaiting orthopaedic diagnosis or investigation 2 Awaiting medical review investigation or stabilisation 3 Awaiting inpatient or high dependency bed 4 Awaiting space on theatre list 5 Problem with theatre/equipment 6 Problem with theatre/surgical/anaesthetic staff cover 7 Cancelled due to list over-run 8 Other 9 Not documented
12H2. Other Reason if delay > 48 hours	
12J. Mobilised on day of, or day after surgery	1 Yes, 2 No, 9 Not documented
12J2. Mobilised by	1 Physiotherapist 8 Other, 9 Not documented
12K. Re-operation within 30 days	0 None 1 Reduction of dislocated prosthesis 2 Washout or debridement 3 Implant removal 4 Revision of internal fixation 5 Conversion to Hemiarthroplasty 6 Conversion to THR 7 Girdlestone/excision arthroplasty 8 Surgery for periprosthetic fracture 9 Not documented
13. Operation (Right)	See Q12
14. Pressure ulcers	1 Yes, 2 No, 9 Not documented
15. Specialist Falls Assessment	0 No, 1 Yes - performed on this admission 2 Yes - awaits further out-patient assessment
16. Bone protection medication	0 No assessment or action taken 1 Started on this admission 2 Continued from pre-admission 3 Awaits DXA scan 4 Awaits out-patient assessment 5 Assessed – no bone protection medication needed/appropriate
17. Multidisciplinary rehabilitation team assessment	1 Yes, 2 No, 9 Not documented

APPENDIX 2: IHFD FREQUENTLY ASKED QUESTIONS

Question	Answer
What does IHFD stand for?	Irish Hip Fracture Database
Who are the members of the IHFD Steering Group?	<p>Dr Emer Ahern, IHFD Clinical Lead, Geriatrician Louise Brent, IHFD Clinical Lead, Orthopaedic Nurse Mr Conor Hurson, IHFD Clinical Lead, Orthopaedic Surgeon Deirdre Burke, Audit Coordinator, National Office of Clinical Audit Dr Tara Coughlan, National Speciality Director for Geriatric Medicine Deirdre Carey, Statistician, Clinical Strategy & Programmes Division and Quality Improvement Division, HSE Philip Dunne, IT Systems Support, Healthcare Pricing Office Catherine Farrell, Programme Manager Trauma and Orthopaedic Clinical Programme Michelle Fitzgerald MISCP, Senior Physiotherapist in Orthopaedics Mr Paddy Kenny, National Clinical Lead for Trauma and Orthopaedic Clinical Programme</p>
How do I get access to the IHFD?	The lead clinician for the IHFD in your hospital should email (from his/her HSE/ Hospital email address) Philip.Dunne@hpo.ie requesting access to the database. The email should include the names, designations and contact details of any personnel within the hospital requiring IHFD access. All subsequent requests for access must also come from the lead clinician.
What do I do if I forget my username and password?	Contact Philip.Dunne@hpo.ie
Can I view anyone else's data?	No, each hospital is registered separately and can only view their local data.
Can more than one person in a hospital be given access to the database for data entry?	Yes, as many as you wish but the request must come from the lead clinician.
How long will it take to enter data?	<p>There are two options for Data Entry. This will vary according to experience but no more than approximately 1-2 minutes per patient entry.</p> <p>1. Pre-Discharge</p> <ol style="list-style-type: none"> Type in the Medical Record Number e.g. 1234567 Click on <i>New Case</i> Enter the hip fracture data Click on Store <p>Note: Only select the option "Store as Non-Admitted Episode" if you are sure the patient was not admitted during this episode of care.</p> <p>If you choose to enter pre-discharge data, the system will automatically merge the hip fracture data and the HIPE data after the patient has been discharged</p> <p>2. Post-Discharge</p> <ol style="list-style-type: none"> Type in the Medical Record Number e.g. 1234567 Click on the relevant <i>Discharge Date</i> Enter the hip fracture data (under "Optional" tab) Click on Store

APPENDIX 2: IHFD FREQUENTLY ASKED QUESTIONS

Question	Answer
Once submitted, can I retrieve records to edit content?	Yes, at any time
What if date of Trauma is not documented?	If unknown enter 99-99-9999
What if the patient is transferred from another hospital?	<p>First presenting hospital</p> <p>Document the hospital the patient first presents at e.g. The patient presents at a hospital with no orthopaedic service and has to be transferred to an operating hospital. The time starts ticking from presentation at the first ED or if a transfer from within a hospital with no orthopaedic service to an operating hospital enter 'date and time seen by trauma team' as most likely time when diagnosis is made.</p> <p>In most cases the first presenting hospital will be the same as the operating hospital. This should still be documented.</p>
If the patient is admitted from within hospital - how do I record this?	<p>We recognise that some patients may sustain a hip fracture whilst already in hospital or may require acute medical management (i.e. are not admitted primarily as a fractured hip). There has been a new field added to the dataset as follows:</p> <p>Q 4H. Did patient fall during an existing inpatient admission in operating hospital 1= Yes 2 = No</p>
Admission to orthopaedic ward	<p>Includes dedicated geriatrician-staffed hip fracture wards as well as conventional orthopaedic/trauma wards.</p> <p>Enter Orthopaedic ward if in-patient on an orthopaedic ward at any time during the acute hip fracture spell.</p>
AMTS (Abbreviated Mental Test Score)	This 10 item version is a simple and robust screening tool in the acute patient. Full assessment for confused people (AMTS less than 7) requires more detailed tools for cognition (MMSE) or presence of delirium (CAM).
Fracture type	Basal and basi-cervical fractures are to be classed as intertrochanteric.
What fracture types are recorded in IHFD	<p>HIPE Principal Diagnosis:</p> <p>S72.00 = Fracture of neck of femur, part unspecified</p> <p>S72.01 = Fracture of intracapsular section of femur</p> <p>S72.02 = Fracture of upper epiphysis (separation) of femur</p> <p>S72.03 = Fracture of subcapital section of femur</p> <p>S72.04 = Fracture of midcervical section of femur</p> <p>S72.05 = Fracture of base of neck of femur</p> <p>S72.08 = Fracture of other parts of neck of femur</p> <p>S72.10 = Fracture of trochanteric section of femur, unspecified</p> <p>S72.11 = Fracture of intertrochanteric section of femur</p> <p>S72.2 = Subtrochanteric fracture</p>

APPENDIX 2: IHFD FREQUENTLY ASKED QUESTIONS

Question	Answer
Arthroplasty	Any replacement of the upper femur including unipolar, bipolar hemi-arthroplasties and total hip replacements
What is a pathological fracture?	A bone broken, caused not by trauma alone, but so weakened by disease as to break with abnormal ease. Pathological fractures are characteristic of primary and metastatic malignant disease and myeloma. Answer Malignancy only if primary or secondary malignancy present at the fracture site.
What is an atypical fracture?	Atypical fractures are transverse femoral fractures, with an unusual cortical spike medially which occur in the subtrochanteric and shaft regions (you should only enter subtrochanteric fractures to the database). They follow low trauma injuries and patients may report pre-injury pain.
Normal working hours?	The National Confidential Enquiry into Peri-operative Deaths (NCEPOD) reports of 1997 and 2003 define "out of hours" as any time outside 08:00 to 17:59 on weekdays, and any time on a Saturday or Sunday.
When is considered time of primary surgery?	The time of primary surgery is taken from the time of induction of anaesthesia. The time is shown in hours to 2 decimal place, e.g. 1.25 = 1hr 15 mins, 3.5 = 3hrs 30 mins, 2.67=2hrs 40 mins.
When does the clock start ticking?	As soon as the patient arrives in ED or is seen by the trauma team. Scenario 1: Hip pain, initial X-ray, no fracture seen, then CT/ MRI identifies fracture, time of arrival to ED to be used Scenario 2: SHO misses fracture, radiologist report shows fracture, time of first arrival to ED to be used Scenario 3: Impacted or old fracture, treated conservatively, trial of mobilisation fails, time of arrival to ED to be used Scenario 4: ED diagnosis? fracture, awaiting CT/ MRI, time of first arrival to ED to be used.
What is an ASA Score?	The American Society of Anaesthesiologists (ASA) devised a preoperative risk score based on the presence of co-morbidities at the time of surgery American Society of Anesthesiologists (ASA 1963) physical status classification: <ol style="list-style-type: none"> 1. Healthy person. 2. Mild systemic disease. 3. Severe systemic disease. 4. Severe systemic disease that is a constant threat to life. 5. A moribund person who is not expected to survive without the operation This grading does not take into account acute illness, hence a patient can be ASA 1 and 'unfit'.
What is meant by 'Routine by Medical Physician'?	Review by a medical physician at Registrar level or above i.e. not an Orthopaedic Surgeon

APPENDIX 2: IHFD FREQUENTLY ASKED QUESTIONS

Question	Answer
What is meant by 'Routine by Geriatrician'?	Review by a Geriatrician at Registrar level or above.
What is meant by 'Medical review following request'?	Review by a member of the medical team at Registrar level or above following a request from the orthopaedic service.
What is meant by 'Specialist nurse'?	Review by specialist nurse CNM 2 level or above.
Issues surrounding delay to surgery	<p>Please document only the main reason for delay. Options are:</p> <ul style="list-style-type: none"> • Medically unfit - awaiting orthopaedic diagnosis/investigation - this means waiting for MRI scan or other confirmation of diagnosis. • Medically unfit - awaiting medical review/investigation or stability - this means waiting for a medical review as patient remains medically unfit for surgery/anaesthetic • Administrative/logistic - awaiting in-patient or high dependency bed • Administrative/logistic - awaiting space on theatre list • Administrative/logistic - problem with theatre /equipment • Administrative/logistic - problem with theatre/surgical/anaesthetic staff cover • Cancelled due to theatre over-run - this option is to be used when the patient has been allocated a theatre slot - but for some reason the list has over-run. • Other - any other reason than the list above • No operation performed
Pressure ulcers	<p>Did patient acquire a new pressure ulcer (Grade 2 or above) during the acute admission?</p> <ul style="list-style-type: none"> • This should be answered as 'yes' only if the patient has developed a grade 2 pressure ulcer or above during their acute orthopaedic admission. • Ignore ulcers acquired during an acute stay but more than 120 days after admission. • If nothing is documented and the patient has left the hospital 'not documented' must be recorded.
Definition of a Ward Round	<p>The ward round is a parade through the hospital, of professionals where most decision making concerning patient care is made. The round provides an opportunity for the multidisciplinary team to listen to the patient's narrative and jointly interpret his concerns. From this unfolds diagnosis, management plans, prognosis formation and the opportunity to explore social, psychological, rehabilitation and placement issues. Physical examination of the patient at the bedside still remains important.</p> <p>Anatomy of the ward round, James A. O'Hare European Journal of Internal Medicine - July 2008 (Vol. 19, Issue 5, Pages 309-313, DOI: 10.1016/j.ejim.2007.09.016)</p>

APPENDIX 2: IHFD FREQUENTLY ASKED QUESTIONS

Question	Answer
<p>Specialist falls assessment</p>	<p>A systematic assessment by a suitably trained person e.g. Geriatrician or a specialist assessment trained nurse which must cover the following domains:</p> <p>Falls history (noting previous falls), cause of index fall (including medication review), risk factors for falling and injury (including fracture) and from this information formulate and document a plan of action to prevent further falls.</p>
<p>Definition of Multidisciplinary Rehabilitation Assessment Team</p>	<p>A group of people of different professions (and including as a minimum a physiotherapist, occupational therapist, nurse and doctor) with job plan responsibilities for the assessment and treatment of hip fracture patients, and who convene (including face to face or virtual ward round) regularly (and at least weekly) to discuss patient treatment and care and plan shared clinical care goals.</p>
<p>What drugs constitute bone protection therapy?</p>	<p>NOT just calcium and vitamin D</p> <ol style="list-style-type: none"> 1. Bisphosphonates (oral, combined with Calcium/ Vitamin D, intravenously) <ul style="list-style-type: none"> • Etidronate • Alendronate • Risedronate • Ibandronate • Zoledronate • Pamidronate 2. Denosumab 3. HRT and SERMS <ul style="list-style-type: none"> • HRT (various) • Tibolone • Raloxifene 4. Parathyroid hormone <ul style="list-style-type: none"> • PTH 1-34 • PTH 1-84 5. Strontium <ul style="list-style-type: none"> • Strontium ranelate 6. Calcium and vitamin D <ul style="list-style-type: none"> • Calcitriol • Calcium and vitamin D – various • Alpha-calcidol (or one alpha) 7. Calcitonin
<p>Minimum age?</p>	<p>We collect the data on all patients over the age of 30 but only report on those 60 and above.</p>

APPENDIX 3: FREQUENCY TABLES

See Appendix 1: Dataset for Question (Q) references

Figure 3	Gender (HIPE variable)	<i>N</i>	%
	Male	720	27.0
	Female	1944	73.0
	Total	2,664	100.0

Figure 4	Age Group: Male (HIPE variable)	<i>N</i>	%
	60-69	106	14.7
	70-79	236	32.8
	80-89	284	39.4
	90+	94	13.1
	Total	720	100.0
	Age Group: Female (HIPE variable)	<i>N</i>	%
	60-69	208	10.7
	70-79	509	26.2
	80-89	891	45.8
	90+	336	17.3
	Total	1944	100.0

Figure 5	Source of Admission (HIPE variable)	<i>N</i>	%
	Home	2137	80.2
	Nursing Home, Convalescent Home or Other Long-Stay Accommodation	257	9.6
	Transfer from HIPE/Acute Hospital ^{(5a), (5b)}	244	9.2
	All Other Sources ^(5c)	26	1.0
	Total	2664	100.0

^(5a) HIPE transfers relate to inpatients only.

^(5b) Includes transfers from hospital in HIPE Hospital Listing or transfer from any acute hospital not in HIPE Hospital listing.

^(5c) Includes 'Transfer from 'Non-Acute Hospital not in HIPE Hospital listing' , 'Transfer from Psychiatric Hospital/Unit' and 'Temporary Place of Residence' categories.

Figure 6	AMT Performed (Q7)	<i>N</i>	%
	Yes	287	10.8
	No	1964	73.7
	Patient Refused	14	0.5
	Not Documented	139	5.2
	Missing Value (blank)	260	9.8
	Total	2664	100.0
	AMT Scores (Q7A)	<i>N</i>	%
	0 - 6	95	33.1
	7 - 10	192	66.9
	Total	287	100.0

APPENDIX 3: FREQUENCY TABLES

See Appendix 1: Dataset for Question (Q) references

Figure 7	ASA Grade Completeness (Q12A) ^(7a)	<i>N</i>	%
	Grade Known ^(7b)	2221	87.7
	Grade Not Documented	261	10.3
	Missing Value (blank)	50	2.0
	Total	2532	100.0
	ASA Grade (Q12A) ^(7b)	<i>N</i>	%
	1	128	5.8
	2	919	41.4
	3	1066	48.0
	4-5 ^(7c)	108	4.9
	Total	2221	100.0

^(7a) Relates to cases with values 1 - 88 recorded for Q12.

^(7b) Relates to cases with values 1-5 recorded.

^(7c) Grade 5 is not itemised separately for patient confidentiality reasons.

Figure 8	Pre-Fracture Mobility Completeness (Q6)	<i>N</i>	%
	Mobility Known ⁽⁸⁾	2092	78.5
	Mobility Not Documented	148	5.6
	Missing Value (blank)	424	15.9
	Total	2664	100.0
	Pre-Fracture Mobility (Q6) ⁽⁸⁾	<i>N</i>	%
	Freely Mobile Without Aids	1125	53.8
	Mobile Outdoor One Aid	439	21.0
	Mobile Outdoor Two Aids/Frame	355	17.0
	Some Indoor Mobility but Never Goes Without Help Outside	133	6.4
	No Functional Mobility Using Lower Limbs	40	1.9
	Total	2092	100.0

⁽⁸⁾ Relates to cases with values 1-5 recorded.

Figure 9	Type of Fracture (Q8A)	<i>N</i>	%
	Intracapsular-displaced	720	27.0
	Intracapsular-undisplaced	320	12.0
	Intertrochanteric	1034	38.8
	Subtrochanteric	196	7.4
	Other	54	2.0
	Not Documented	282	10.6
	Missing Value (blank)	58	2.2
	Total	2664	100.0

Figure 11	Mode of Admission to Operating Hospital (Composite Variable) ^(11a)	<i>N</i>	%
	via ED	2423	91.0
	- via ED direct	2248	84.4
	- via ED indirectly (i.e. via first presenting hospital) or Not Known if direct or not ^(11b)	175	6.6
	Seen by Trauma Team	241	9.0
	Total	2664	100.0

^(11a) Derived from Q3-Q4B and Q4F-Q4G, see Appendix 4:

Specifications for Composite Variables.

^(11b) Includes 'Not Known' category which is not itemised separately for patient confidentiality reasons.

APPENDIX 3: FREQUENCY TABLES

See Appendix 1: Dataset for Question (Q) references

Figure 12	Admission to Orthopaedic Ward (Composite Variable) ⁽¹²⁾	<i>N</i>	%
	Admitted to Orthopaedic Ward	2328	87.4
	- admitted within 4 hours	370	13.9
	- admitted after 4 hours	1860	69.8
	- time interval not known	98	3.7
	Never Admitted to Orthopaedic Ward	322	12.1
	Not Known	14	0.5
	Total	2664	100.0

⁽¹²⁾ Derived from Q3-Q4B, Q4F-Q4G and Q5-Q5B, see Appendix 4: Specifications for Composite Variables.

Figure 13	Surgery Performed (Q12)	<i>N</i>	%
	Yes ^(13a)	2532	95.0
	No Operation Performed	92	3.5
	Missing Value (blank) ^(13b)	40	1.5
	Total	2664	100.0

^(13a) Relates to cases with values 1 - 88 recorded.

^(13b) Includes 'Not Documented' category which is not itemised separately for patient confidentiality reasons.

Figure 14	Time to Surgery - 48 Hours / Working Hours (Composite Variable) ⁽¹⁴⁾	<i>N</i>	%
	Within 48 Hours and Working Hours (Mon-Sun 08:00-17:59)	1766	69.7
	Within 48 Hours but Out-of-Hours (Mon-Sun 18:00-07:59)	60	2.4
	After 48 Hours	698	27.6
	Not Known	8	0.3
	Total	2532	100.0

⁽¹⁴⁾ Derived from Q3-Q4B, Q4F-Q4G, Q5-Q5B, Q12 and Q12E-Q12F, see Appendix 4: Specifications for Composite Variables.

Figure 15	Reason for Surgery Delay Beyond 48 Hours (Q12H) ^(15a)	<i>N</i>	%
	Awaiting Orthopaedic Diagnosis or Investigation	26	3.7
	Awaiting Medical Review, Investigation or Stabilisation	379	54.3
	Awaiting Space on Theatre List	84	12.0
	Cancelled Due to List Over-Run	75	10.7
	Other ^(15b)	74	10.6
	Not Documented	30	4.3
	Missing Value (blank) ^(15c)	30	4.3
	Total	698	100.0

^(15a) Relates to Figure 14's 'After 48 Hours' cases.

^(15b) Includes 'Awaiting Inpatient or High Dependency Bed', 'Problem with Theatre/Equipment' and 'Problem with Theatre/Surgical/Anaesthetic Staff Cover' categories which are not itemised separately for patient confidentiality reasons.

^(15c) Includes invalid 'No delay - surgery <48 hours' cases.

Figure 17	Pre-Op Medical Assessment (Q11)	<i>N</i>	%
	Routine by Geriatrician	190	7.1
	None	2320	87.1
	Not Documented	80	3.0
	Missing Value (blank)	74	2.8
	Total	2664	100.0

APPENDIX 3: FREQUENCY TABLES

See Appendix 1: Dataset for Question (Q) references

Figure 18	Type of Anaesthesia (Q12B) ^(18a)	N	%
	GA Only	339	13.4
	GA & Nerve Block	113	4.5
	GA & Spinal Anaesthesia	108	4.3
	SA Only	1483	58.6
	SA & Nerve Block	355	14.0
	Other ^(18b)	60	2.4
	Not Documented	6	0.2
	Missing Value (blank)	68	2.7
	Total	2532	100.0

^(18a) Relates to cases with values 1 - 88 recorded for Q12.

^(18b) Includes 'GA & Epidural Anaesthesia' and 'SA & Epidural (CSE)' categories which are not itemised separately for patient confidentiality reasons.

Figure 19	Type of Surgery (Q12) ⁽¹⁹⁾	N	%
	Internal Fixation DHS	670	26.5
	Internal Fixation Screws	43	1.7
	Internal Fixation IM Nail Long	233	9.2
	Internal Fixation IM Nail Short	299	11.8
	Arthroplasty Hemi Uncemented	443	17.5
	Arthroplasty Hemi Cemented	729	28.8
	Arthroplasty THR Uncemented	31	1.2
	Arthroplasty THR Cemented	53	2.1
	Other	31	1.2
	Total	2532	100.0

⁽¹⁹⁾ Relates to cases with values 1 - 88 recorded. Categories have been condensed in that coated and uncoated categories have been combined as have uni-polar and bi-polar categories i.e. values 5, 6, 8 and 9 have been combined and labelled as 'Arthroplasty Hemi. Uncemented'; values 7 & 10 have been combined and labelled as 'Arthroplasty Hemi Cemented'; and values 11 & 12 have been combined and labelled as 'Arthroplasty THR Uncemented'.

Figure 20	Type of Surgery for Undisplaced Intracapsular Fractures ^{(19), (20a)}	N	%
	Internal Fixation DHS	47	15.8
	Internal Fixation Screws	18	6.1
	Arthroplasty Hemi Uncemented	91	30.6
	Arthroplasty Hemi Cemented	114	38.4
	Arthroplasty THR Uncemented	8	2.7
	Arthroplasty THR Cemented	9	3.0
	Other ^(20b)	10	3.4
	Total	297	100.0

^(20a) Relates to surgery for undisplaced intracapsular fractures only (Q8A=2).

^(20b) 'Internal Fixation IM Nail Long', 'Internal Fixation IM Nail Short' and 'Other' categories have been combined as they cannot be itemised separately for patient confidentiality reasons.

APPENDIX 3: FREQUENCY TABLES

See Appendix 1: Dataset for Question (Q) references

Figure 21	Type of Surgery for Displaced Intracapsular Fractures ^{(19), (21a)}	<i>N</i>	%
	Internal Fixation DHS	19	2.7
	Arthroplasty Hemi Uncemented	238	33.5
	Arthroplasty Hemi Cemented	393	55.4
	Arthroplasty THR Uncemented	17	2.4
	Arthroplasty THR Cemented	34	4.8
	Other ^(21b)	9	1.3
	Total	710	100.0

^(21a) Relates to surgery for displaced intracapsular fractures only (Q8A=1).

^(21b) 'Internal Fixation Screws', 'Internal Fixation IM Nail Long', 'Internal Fixation IM Nail Short', and 'Other' categories have been combined as they cannot be itemised separately for patient confidentiality reasons.

Figure 22	Type of Surgery for Intertrochanteric Fractures ^{(19), (22a)}	<i>N</i>	%
	Internal Fixation DHS	534	53.8
	Internal Fixation Screws	15	1.5
	Internal Fixation IM Nail Long	123	12.4
	Internal Fixation IM Nail Short	236	23.8
	Arthroplasty Hemi Uncemented	28	2.8
	Arthroplasty Hemi Cemented	48	4.8
	Other ^(22b)	9	0.9
	Total	993	100.0

^(22a) Relates to surgery for intertrochanteric fractures only (Q8A=3).

^(22b) Includes 'Arthroplasty THR Uncemented' and 'Arthroplasty THR Cemented' categories which are not itemised separately for patient confidentiality reasons.

Figure 23	Type of Surgery for Subtrochanteric Fractures ^{(19), (23a)}	<i>N</i>	%
	Internal Fixation DHS	20	10.3
	Internal Fixation IM Nail Long	97	50.0
	Internal Fixation IM Nail Short	42	21.6
	Arthroplasty ^(23b)	21	10.8
	Other ^(23c)	14	7.2
	Total	194	100.0

^(23a) Relates to surgery for subtrochanteric fractures only (Q8A=4).

^(23b) Hemi and THR arthroplasties have been combined for both cemented and uncemented types.

^(23c) Includes 'Internal Fixation Screws' category which is not itemised separately for patient confidentiality reasons.

Figure 24	Cementing of Arthroplasties ^{(19), (24)}	<i>N</i>	%
	Cemented	782	62.3
	Uncemented	474	37.7
	Total	1256	100.0

⁽²⁴⁾ Hemi and THR arthroplasties have been combined for both cemented and uncemented types.

APPENDIX 3: FREQUENCY TABLES

See Appendix 1: Dataset for Question (Q) references

Figure 25	Pressure Ulcers (Q14) ⁽²⁵⁾	<i>N</i>	%
	Yes	110	4.3
	No	2278	89.3
	Not Documented	52	2.0
	Missing Value (blank)	112	4.4
	Total	2552	100.0

⁽²⁵⁾ Excludes patients who died in hospital.

Figure 26	Bone Protection Assessment/Medication (Q16) ⁽²⁶⁾	<i>N</i>	%
	No Assessment or Action Taken	842	33.0
	Started on this Admission	659	25.8
	Continued from Pre-Admission	331	13.0
	Awaits DXA Scan	163	6.4
	Awaits OutPatient Assessment	234	9.2
	Assessed - No Bone Protection Medication Needed/Appropriate	128	5.0
	Missing Value (blank)	195	7.6
	Total	2552	100.0

⁽²⁶⁾ Excludes patients who died in hospital.

Figure 27	Specialist Falls Assessment (Q15) ⁽²⁷⁾	<i>N</i>	%
	No	1127	44.2
	Yes - Performed on This Admission	1260	49.4
	Yes - Awaits Further OutPatient Assessment	49	1.9
	Missing Value (blank)	116	4.5
	Total	2552	100.0

⁽²⁷⁾ Excludes patients who died in hospital.

Figure 28	Discharge Destination (HIPE variable)	<i>N</i>	%
	Home	783	29.4
	Nursing Home, Convalescent Home or Other Long-Stay Accommodation	981	36.8
	Transfer to HIPE/Acute Hospital ^(28a)	590	22.1
	Died	112	4.2
	Transfer to External Rehabilitation Facility not in HIPE listing	148	5.6
	All Other Destinations ^(28b)	50	1.9
	Total	2664	100.0

^(28a) This category is a combination of emergency and non-emergency transfers to hospitals in HIPE Hospital listing or to any acute hospital not in HIPE Hospital listing.

^(28b) Includes 'Transfer to Psychiatric Hospital/Unit', 'Hospice (not in HIPE Hospital listing)', and 'Temporary Place of Residence' categories which are not itemised separately for patient confidentiality reasons, as well as the 'Self-Discharge', 'Non-Emergency Transfer to Non-Acute Hospital not in HIPE Hospital listing' and 'Other' categories with 8, 27 and 6 cases recorded respectively.

APPENDIX 3: FREQUENCY TABLES

See Appendix 1: Dataset for Question (Q) references

Figure 29	Length of Stay (HIPE variable)	<i>N</i>	<i>%</i>
	Acute Stay (<=30 days)	2327	87.3
	Extended Stays (>30 days)	337	12.7
	Total	2664	100.0
	Length of Stay (HIPE variable)	Mean LOS	Median LOS
	Acute Stay (<=30 days)	12.3	11
	Extended Stays (>30 days)	65.7	49
	Total	19.1	12.5
Figure 30	Re-operation within 30 days (Q12K) ^(30a)	<i>N</i>	<i>%</i>
	No	2255	89.1
	Yes ^(30b)	34	1.3
	Not Documented	25	1.0
	Missing Value (blank)	218	8.6
	Total	2532	100.0
	^(30a) Relates to cases with values 1 - 88 recorded for Q12.		
	^(30b) Relates to cases with values 1 - 8 recorded for Q12K.		

APPENDIX 4: SPECIFICATIONS FOR COMPOSITE VARIABLES

As illustrated in Figures 11,12 and 14. See Appendix 1: Dataset for Question (Q) references.

FIGURE 11: MODE OF ADMISSION TO OPERATING HOSPITAL

Composite variable based on Q3-Q4B and Q4F-Q4G as follows:

Category	Specification
via ED *	If Q4=1
- via ED direct	If Q4=1; and Q4A-Q4B are recorded
- via ED indirectly i.e. via first presenting hospital	If Q4=1; and Q3-Q3A are recorded
- via ED but not known if direct or not	If Q4=1; and Q3-Q3A & Q4A-Q4B are not recorded
Seen by Trauma Team	If Q4=2; and Q4F-Q4G are recorded

* Assumptions: (i) If Q4 was blank and Mode of Emergency Admission on HIPE was recorded as 'ED' then Q4=1. (ii) When date & time of arrival at first presenting hospital (Q3-Q3A) were recorded and date & time of arrival in ED of operating hospital (Q4A-Q4B) were not, it is assumed that the first presenting hospital was the operating hospital i.e. such cases are interpreted as direct presentations with Q4A-Q4B=Q3-Q3A.

FIGURE 12: ADMISSION TO ORTHOPAEDIC WARD

12.1. Composite variable based on Q3-Q4B, Q4F-Q4G, Q5-Q5B as follows:

Category	Specification
Admitted to Orthopaedic Ward	If Q5=1
- admitted within 4 hours	If Q5=1; and time interval is calculated as within 4 hours
- admitted after 4 hours	If Q5=1; and time interval is calculated as more than 4 hours
- time interval not known	If Q5=1; and time interval is not known
Never Admitted to Orthopaedic Ward	If Q5=2
Not Known	If Q5=9 or blank

12.2. Time Interval Determination for Patients Admitted to Orthopaedic Ward (Q5=1):

- If admitted via ED (Q4=1) then the time interval is calculated from date & time of arrival at first presenting hospital (Q3-Q3A) or from date and time of arrival at ED of operating hospital (Q4A-Q4B), whichever is earlier, to the date & time admitted to orthopaedic ward (Q5A-Q5B).
- If not admitted via ED (Q4=2) then the time interval is calculated from the date and time seen by trauma team in operating hospital (Q4F-Q4G) to the date & time admitted to orthopaedic ward (Q5A-Q5B).

12.3. Determination of Time Interval Categories

Category	Specification
within 4 hours	If interval range is 0 - 240 minutes
after 4 hours	If interval range is 241- 525,600 minutes
not known	If relevant dates/times are missing; or interval is invalid i.e. <0 minutes; or interval is implausible i.e. >525,600 minutes (1 year)

12.4. Blue Book Standard 1, Table 1, excludes both the 'time interval not known' and the 'Not Known' categories.

APPENDIX 4: SPECIFICATIONS FOR COMPOSITE VARIABLES

As illustrated in Figures 11,12 and 14. See Appendix 1: Dataset for Question (Q) references.

FIGURE 14: TIME TO SURGERY – 48 HOURS/WORKING HOURS

14.1. Composite variable based on Q3-Q4B, Q4F-Q4G, Q5-Q5B, Q12 and Q12E-Q12F as follows:

Category	Specification
Within 48 Hours and Working Hours Mon-Sun 08:00-17:59	If Q12=1 - 88; and time interval is calculated as within 48 hours; and time of surgery is within specified working hours
Within 48 Hours but Out-of-Hours (Mon-Sun 18:00-07:59)	If Q12=1 - 88; and time interval is calculated as within 48 hours; and time of surgery is within specified working hours
After 48 Hours	If Q12=1 - 88; and time interval is calculated as more than 48 hours
Not Known	If Q12=1 - 88 and time interval is not known
Total	If Q12=1 - 88

14.2. Time Interval Determination for Patients who had Surgery (Q12=1 - 88):

- If admitted via ED (Q4=1) then the time interval is calculated from date & time of arrival at first presenting hospital (Q3-Q3A) or from date and time of arrival at ED of operating hospital (Q4A-Q4B), whichever is earlier, to the date & time of surgery (Q12E-Q12F). If Q3-Q3A / Q4A-Q4B are missing and the patient was admitted to an orthopaedic ward (Q5=1) then the time interval is estimated by using the date & time admitted to orthopaedic ward (Q5A-Q5B) as its starting point.
- If not admitted via ED (Q4=2) then the time interval is calculated from the date and time seen by trauma team in operating hospital (Q4F-Q4G), to the date & time date & time of surgery (Q12E-Q12F). If Q4F-Q4G are missing and the patient was admitted to an orthopaedic ward (Q5=1) then the time interval is estimated by using the date & time admitted to orthopaedic ward (Q5A-Q5B) as its starting point.

14.3. Determination of Time Interval and Working Hours Categories:

Category	Specification
Within 48 Hours and Working Hours Mon-Sun 08:00-17:59	If interval range is 0 - 2880 minutes; and time of surgery (Q12F) range is 08:00 - 17:59
Within 48 Hours but Out-of-Hours (Mon-Sun 18:00-07:59)	If interval range is 0 - 2880 minutes; and time of surgery (Q12F) range is 18:00 - 07:59
After 48 Hours	If interval range is 2881 - 525,600 minutes
Not Known	If relevant dates/times are missing; or interval is invalid i.e. <0 minutes; or interval is implausible i.e. >525,600 minutes (1 year)

14.4. Blue Book Standard 2, Table 1, excludes the 'not known' category.

APPENDIX 5: ADDITIONAL INFORMATION

Q2	TYPE OF TRAUMA	N	%
	High Energy	98	3.7
	Low Energy	2385	89.5
	Not Known	181	6.8
	Total	2664	100.0
Q9	PATHOLOGICAL	N	%
	Atypical	129	4.8
	Malignancy	39	1.5
	No	2242	84.2
	Not Known	254	9.5
	Total	2664	100.0
Q10	HISTORY OF PREVIOUS FRAGILITY FRACTURE	N	%
	Yes	546	20.5
	No	1803	67.7
	Not Known	315	11.8
	Total	2664	100.0
Q11 B	GERIATRICIAN GRADE ⁽¹⁾	N	%
	Consultant	325	62.5
	Specialist Registrar	25	4.8
	Registrar ⁽²⁾	114	21.9
	Not Known	56	10.8
	Total	520	100.0
Q12 C	SURGEON GRADE ⁽³⁾	N	%
	Consultant	1329	52.5
	Specialist Registrar	419	16.5
	Registrar	499	19.7
	SHO	16	0.6
	Not Known	269	10.6
	Total	2532	100.0
Q12 D	ANAESTHETIST GRADE ⁽³⁾	N	%
	Consultant	1680	66.4
	Specialist Registrar	104	4.1
	Registrar	190	7.5
	SHO ⁽²⁾	23	0.9
	Not Known	535	21.1
	Total	2532	100.0
Q17	MULTIDISCIPLINARY REHABILITATION TEAM ASSESSMENT ⁽⁴⁾	N	%
	Yes	2174	85.2
	No	244	9.6
	Not Known	134	5.3
	Total	2552	100.0

(1) Includes cases assessed by geriatrician at any time during the acute admission i.e. those with value 1 recorded for Q11 and / or Q11A.

(2) Includes 'Other' category which is not itemised separately for patient confidentiality reasons.

(3) Relates to surgical cases only i.e. those with values 1-88 recorded for Q12.

(4) Excludes patients who died in hospital.

APPENDIX 6: NATIONAL OFFICE OF CLINICAL AUDIT

The Commission on Patient Safety and Quality Assurance (2008) defined clinical audit as:

“a clinically led, quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and to act to improve care when standards are not met”

The National Office of Clinical Audit (NOCA) was established in 2012 as a result of collaboration between the HSE Quality and Patient Safety Directorate and the Royal College of Surgeons in Ireland. The primary purpose of NOCA is to establish sustainable clinical audit programmes at national level which will ultimately improve outcomes for Irish patients. The National Standards for Safer Better Healthcare (HIQA 2012) recommends that where national audits exist hospitals should have an agreed audit plan for participation. The current national audits being rolled out from NOCA are as follows:

- Major Trauma Audit (MTA), clinically led by Dr Conor Deasy
- Irish Hip Fracture Database (IHFD), clinically led by Dr Emer Ahern, Louise Brent, Mr Conor Hurson,
- National Intensive Care Audit (ICU Audit), clinically led by Dr Rory Dwyer
- Irish National Orthopaedic Register (INOR), clinically led by Mr David Moore, Mr Paddy Kenny, Mr James Cashman
- National Audit of Hospital Mortality (NAHM), clinically led by Dr Brian Creedon
- National Perinatal Epidemiology Centre (NPEC) (Governance only) clinically led by Prof Richard Greene
- Irish Audit of Surgical Mortality (IASM), clinically led by Mr Ken Mealy



**Irish Hip Fracture
Database IHFD** 

NOCA National Office of
Clinical Audit

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