

IRISH HIP FRACTURE DATABASE

NATIONAL REPORT 2015

Better, safer care



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NATIONAL OFFICE OF CLINICAL AUDIT (NOCA)

NOCA was established in 2012 to create sustainable clinical audit programmes at national level. NOCA is funded by the Health Service Executive Quality Improvement Division and operationally supported by the Royal College of Surgeons in Ireland.

The National Clinical Effectiveness Committee (NCEC) define national clinical audit as "a cyclical process that aims to improve patient care and outcomes by systematic, structured review and evaluation of clinical care against explicit clinical standards on a national basis"¹. NOCA supports hospitals to learn from their audit cycles.

For more information, please visit www.noca.ie

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The Irish Institute for Trauma and Orthopaedic Surgery (IITOS) was established in 1999 as a charitable organisation. IITOS delivers higher surgical training in Ireland, under the governance of the Royal College of Surgeons in Ireland.



Irish
Gerontological
Society

The Irish Gerontological Society (IGS) is an interdisciplinary professional organisation whose membership reflects the complexity and diversity of those interested in promoting the interests of older people and in how knowledge about ageing and later life can be enhanced and improved.

Its core purposes are education and research in the study of ageing and promoting a better understanding by the general public of ageing and related issues.



The Quality Improvement Division was established to support the development of a culture that ensures improvement of quality of care is at the heart of all services that the HSE delivers.

HSE QID work in partnership with patients, families and all who work in the health system to innovate and improve the quality and safety of our care.



The Royal College of Surgeons in Ireland provides education and training in the fields of medicine and the health sciences at undergraduate and postgraduate level. The College has a strong international presence with Schools in Malaysia, Dubai and a University in Bahrain. RCSI also provides surgery and emergency medicine training in all recognised specialities and sub-specialities.

The IHFD and NOCA team would particularly like to thank the valuable contribution of all participating hospitals, in particular the data coordinators and clinical leads. Without their continued support and input, this audit could not continue to produce meaningful analysis of hip fracture care in Ireland.

DESIGNED BY
SWERVE

Irish Hip Fracture
Database **IHFD** 

Irish Hip Fracture Database

National Report 2015

Better, safer care

Mr Conor Hurson & Dr Emer Ahern
Clinical Leads
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15th September, 2016

Dear Mr Hurson & Dr Ahern,

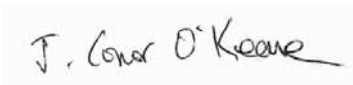
Following presentation of the key findings and recommendations of the Irish Hip Fracture Database National Report 2015 and its circulation to our wider membership, we are delighted to endorse this report. I wish to congratulate your own and your colleagues continued efforts in supporting this valuable quality improvement initiative.

We welcome your three focussed recommendations, in particular the proposal that all suspected hip fracture patients should be brought directly to a trauma operating hospital. Equally we fully support your recommendation that all 16 participating hospitals should establish a hip fracture working group, to review and utilise the IHFD data locally to improve patient care.

On behalf of all our NOCA Audit streams, we continue to highlight requirement for protected time of clinical staff to collect, monitor and adequately interpret audit data at hospital level.

Please accept this letter as formal endorsement of the 2015 IHFD National Report.

Yours sincerely,



Professor Conor O' Keane FFPATH FRCPI
Chairman
National Office of Clinical Audit Governance Board

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INTRODUCTION

Welcome to the Irish Hip Fracture Database (IHFD) National Report 2015.

The IHFD is a clinically led, web-based audit which measures the care and outcomes of patients with hip fractures. Hip fracture care takes the patient through a complex clinical pathway involving a wide range of specialties. It is an ideal marker condition for the care of older patients in our acute hospitals and also tells us how well the trauma service is functioning. Hip fractures are an ideal condition to audit for the following reasons:

- Common condition
- Clearly defined diagnosis
- Good evidence base for care and prevention
- Care is complex and costly
- Care, outcomes and costs vary
- Numbers rising
- High morbidity, mortality and loss of independence
- 3,591 hip fractures in Ireland in 2015 (aged 60 years and over and due to injury)

This third IHFD report details 2,962 hip fracture cases in patients aged 60 years and over, discharged by 16 hospitals in 2015, which accounts for 81% of all hip fracture cases nationally.

Nationally, the Model of Care for Trauma and Orthopaedic Surgery² 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.

The National Healthcare Quality Report System Second Annual Report³, published by the Department of Health details, key performance indicators about a number of conditions. 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%**. There can be many reasons for delays in performing hip fracture surgery, for example, the patient being too sick for surgery, but it can also be due to avoidable administrative reasons. Therefore, an indicator on time to hip fracture surgery is used internationally as a measure of quality³.

International evidence has shown us that the synergy of care standards, audit and feedback, drive measurable improvements in hip fracture outcomes for patients⁴.

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"⁵.

HIP FRACTURES

WHAT IS A HIP FRACTURE?

A hip fracture is a term used to describe a break or fracture in the upper portion of the thigh bone (femur) where the bone meets the pelvis, (See Figure 1). It is commonly referred to as a “fractured neck of femur” or “proximal femur fracture”.

ABOUT THE PATIENT

Our skeleton is constantly remodelling itself throughout our lifetime. As we age our bones can become weaker (osteoporosis). This means that a simple fall from a standing height or less can result in a fracture. A number of factors influence this increased risk of fracture as we age.

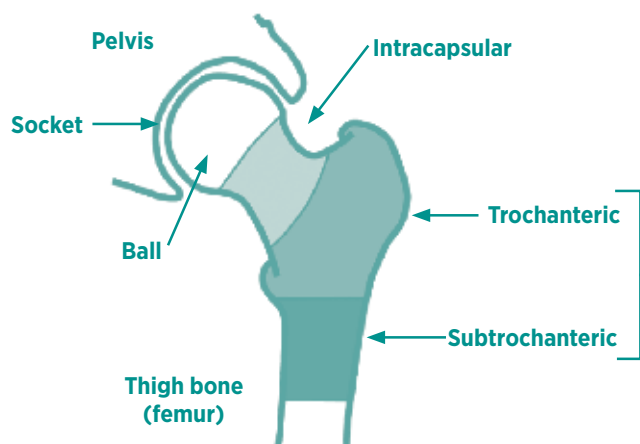
- The leading cause of hip fractures are falls. One in three people over the age of 65 fall each year and half of them will fall again within six months. In 2008, a national strategy report on falls and fractures in Ireland’s ageing population identified hip fractures as one of the most devastating injuries resulting from a fall, such is the morbidity, mortality and disability resulting from the fracture⁶.
- Another factor that influences risk of falls is slowing reflexes, meaning we cannot protect ourselves quickly enough to break the fall. This often means the hip takes the full force of the fall.
- A fracture may be the first sign that the bones are weaker than they should be (osteoporosis), it may also unmask other diseases leading to multiple falls or frailty. Frailty is a clinical syndrome in older adults that leads to an increased risk of poor health outcomes including falls, incident disability, hospital admission and death⁷.
- Many people who fracture their hips are older, have multiple medical conditions, psychological and social problems making recovery from the operation and rehabilitation a big challenge.

ABOUT THE HIP

The hip joint is made up of a ball and socket joint. The ball (head of the femur) is located on top of the thigh bone and the socket sits within the pelvis. The joint is contained within a fibrous capsule and much of ball receives its blood supply through blood vessels in the capsule.

- If the fracture occurs within the capsule (intracapsular) the blood supply can be disrupted and fracture healing may be delayed or the head of the femur may die.
- Fractures outside the capsule (extracapsular) do not have this problem. Fractures outside the capsule can be classified depending on their location into (intertrochanteric) or (subtrochanteric).
- The type of operation to fix the fracture will depend on the location of the break

FIGURE 1: ANATOMY OF THE HIP



ABOUT THE OPERATION

The pain caused by a hip fracture can be managed with painkillers or injections of local anaesthetic around the nerves in the front of the hip joint, but undoubtedly the best form of pain relief is to fix the fracture as promptly and as safely as possible. In a very small portion of patients surgery will not be required if the fracture will heal on its own. Occasionally a patient may be too medically unwell to operate on. The vast majority of patients need an operation to allow them to move, walk and regain their independence.

- The most common operation involves removing the broken part of the ball joint and replacing it with a prosthesis (hemiarthroplasty – partial hip replacement). This is usually performed for intracapsular hip fractures if the bones have separated.
- Extracapsular hip fractures are repaired with a plate screwed to the upper thigh bone, through which a sliding screw is placed into the head of the femur.
- For more complex fractures, and those further down the thigh bone, a long nail is passed down the inside of the thigh bone – an intramedullary nail.
- The operation can be performed with the patient asleep using a general anaesthetic (GA), or with their pain blocked by a spinal (SA) or epidural anaesthetic (CSE).

WHO IS THIS REPORT AIMED AT?

The work reported here is intended to meet the needs of a wide range of individuals and organisations, including:

- Patients and carers
- Patient organisations
- Healthcare professionals
- Hospital managers
- Hospital Group CEO's
- Policymakers

The report has been designed in two parts.

- 1 The National 2015 IHFD Report presents our key findings on casemix, surgery and outcomes. This report follows the patient's pathway from presentation to the emergency department (ED), through assessment, anaesthetics, surgery, post-operative care, rehabilitation and discharge. It benchmarks the national performance against the 6 Blue Book Standards of care for patients with hip fractures. In this report we also include a facilities report and a summary from the site visits throughout the year. This report is suited to healthcare professionals, hospital managers and policy makers who are trying to determine their local service priorities and improve patient care and outcomes. This report will also be of interest to patients and patient organisations.

Each hospital manager and clinical lead receives quarterly update reports of their individual hospital performance.

- 2 A local hospital report for 2015 comparing the individual hospital with the National IHFD 2015 Report has been issued to the individual hospitals in advance of the national report.

PARTICIPATING HOSPITALS

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

TABLE 1: HOSPITALS PARTICIPATING IN IHFD

AMNCH Tallaght Hospital
Beaumont Hospital
Connolly Hospital Blanchardstown
Cork University Hospital
Galway University Hospitals
University Hospital Kerry
Letterkenny University Hospital
Mater Misericordiae University Hospital
Mayo University Hospital
Midland Regional Hospital, Tullamore
Our Lady of Lourdes Hospital, Drogheda
Sligo University 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 2015 and 31st December 2015.



TABLE 2: IHFD CLINICAL LEADS & DATA COORDINATORS IN HOSPITALS PARTICIPATING IN IHFD

HOSPITAL	IHFD DATA COORDINATOR	IHFD CLINICAL LEAD
AMNCH, Tallaght	David Askin	Dr. Tara Coughlan Mr. Brendan O' Daly
Beaumont Hospital	Renato Damalerio	Dr. Linda Brewer
Connolly Hospital Blanchardstown	Jacinta Shields	Mr. Paddy Kenny
Cork University Hospital	Toni O'Keeffe	Mr. Shane Guerin Dr. Josie Clare
Galway University Hospitals	Catherine Armstrong Louise Brennan	Mr. Colin Murphy
Letterkenny University Hospital	Bruce MacGregor	Mr. Peter O'Rourke
Mater Misericordiae University Hospital	Ronan O'Toole Eva Gaynor	Dr. Joe Duggan
Mayo University Hospital	Francis Power	Mr. Derek Bennett
Midland Regional Hospital Tullamore	Breda Conlon	Ms. Dorothy Niall
Our Lady of Lourdes Hospital, Drogheda	Debbie McDaniel	Mr. Adi Zubovic
Sligo University Hospital	AnnMarie Mullen Regina Mitchell Grainne Hamilton	Mr. William Gaine
St. James's Hospital	Alison Reynolds	Mr. Tom McCarthy Dr. Ger McMahon
St. Vincent's University Hospital	Ursula Kelliher Deirdre Kelly	Mr. Conor Hurson Dr. Rachael Doyle
University Hospital Kerry	Esther O'Mahony	Mr. John Rice
University Hospital Limerick	Audrey Butler Pamela Hickey	Mr. Finbarr Condon Dr. Jude Ryan
University Hospital Waterford	Louise Brent	Ms. May Cleary Dr. Emer Ahern

2015 IHFD NATIONAL REPORT

KEY FINDINGS

- ▶ This report includes data from all 16 eligible hospitals in Ireland. This has increased from 14 last year and gives us a more complete national picture.
- ▶ Coverage for the 2015 report is 81% of all hip fractures due to injury. Twelve hospitals had coverage of 90% or more compared with only 6 hospitals in 2014.
- ▶ The overall data completeness level for IHFD fields used in generating the graphs in this report is 96%, which is an increase on the 2014 level of 93%. Fifteen hospitals achieved over 90% completeness.
- ▶ The mean and median length of stay in 2015 are 20 days and 13 days respectively.
- ▶ In 2015, 72% of medically fit patients received surgery within 48 hours and during normal working hours (See Table 3) - this is an increase of 3 percentage points compared with 2014.
- ▶ Nine percent (9%) of patients went directly from the emergency department to theatre.
- ▶ Thirty-nine percent (39%) of patients were reviewed by a geriatrician at any time during their admission. The proportion of patients being reviewed pre-operatively is 15% (See Table 3) - this is an increase of 7 percentage points compared with 2014.
- ▶ Seventy-five percent (75%) of patients received a bone health assessment in 2015. This is an increase of 8 percentage points compared with 2014.
- ▶ Sixty-nine percent (69%) of patients received cemented hemiarthroplasties for displaced intracapsular fractures in 2015, this is an increase of 14 percentage points compared with 2014.

TABLE 3: BLUE BOOK STANDARDS

BLUE BOOK	IHFD MEASUREMENTS OF COMPLIANCE WITH BLUE BOOK STANDARDS	IHFD 2013 N=1,950	IHFD 2014 N=2,664	IHFD 2015 N=2,962
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 6 for specifications on this calculation*	15%	9%	10%
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 6 for specifications on this calculation*	70%	69%	72%
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%	4%
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%	15%
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%	47%
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%	49%

*Specifications for the calculation of time intervals for patients seen by orthopaedic team (referred to as 'trauma team' in Dataset V3) in the operating hospitals have been amended and the 2013 and 2014 statistics for Standards 1 & 2 have been revised accordingly.

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

2015 IHFD NATIONAL REPORT

KEY RECOMMENDATIONS

▶ All suspected hip fracture patients should be brought directly to the trauma operating hospital.

▶ Hospitals should submit 100% of their data and provide protected time for data collection.

▶ All 16 hospitals should establish a hip fracture working group, to review and utilise the IHFD data locally to improve patient care.

The IHFD will continue to visit hospital sites and support high quality data collection. We will continue to issue quarterly hospital reports and support hospitals to use these reports to improve clinical and organisational care. 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
National IHFD
Clinical Geriatric Lead

Louise Brent
National IHFD
Audit Coordinator

Mr. Conor Hurson
National IHFD
Clinical Orthopaedic Lead

November 2016



CHAPTER 1

COVERAGE AND COMPLETENESS OF DATA ITEMS

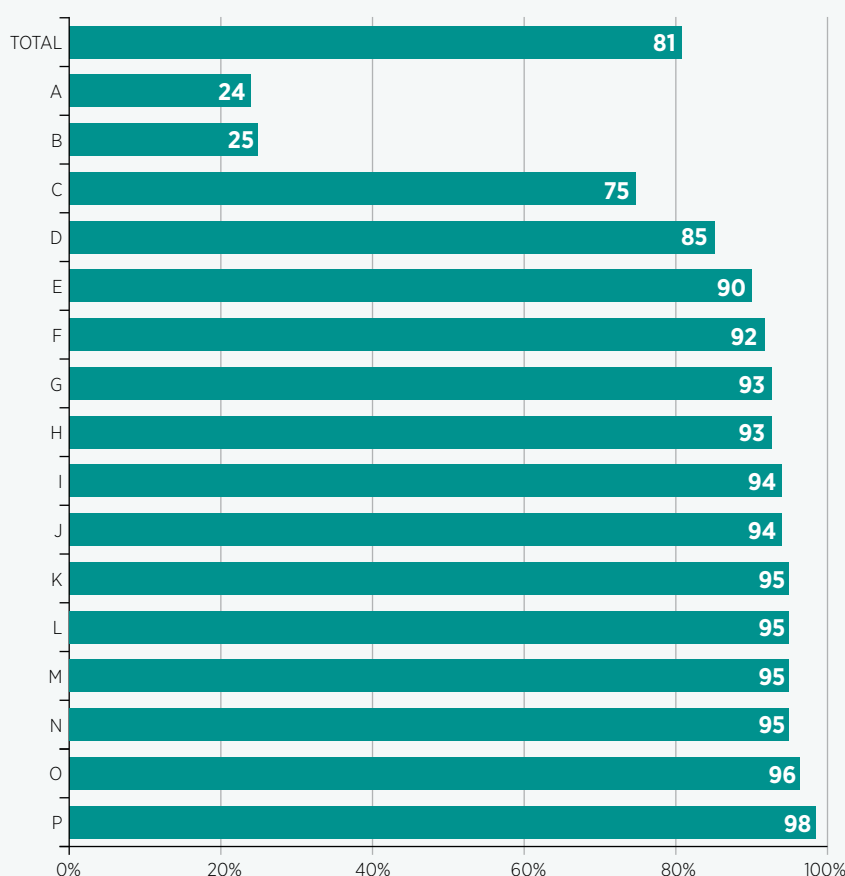
CHAPTER 1: COVERAGE AND COMPLETENESS OF DATA ITEMS

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 2015 to 31 December 2015 inclusive (the HIPE data file used was 2015V18);
- (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; and
- (iii) aged 60 years or older.

The final dataset used for this report includes 2,962 cases from 16 hospitals, with the numbers of cases per hospital ranging from 33 to 355. An estimateⁱ of what coverageⁱⁱ that represented of all HIPE hip fracture cases for those hospitals combined was calculated at 81% which is a decrease on the 84% reported for 2014. Individual hospital coverages range from 24% to 98%, Figure 2. There are two hospitals with very low coverage.

FIGURE 2: COVERAGE PERCENTAGES PER HOSPITAL



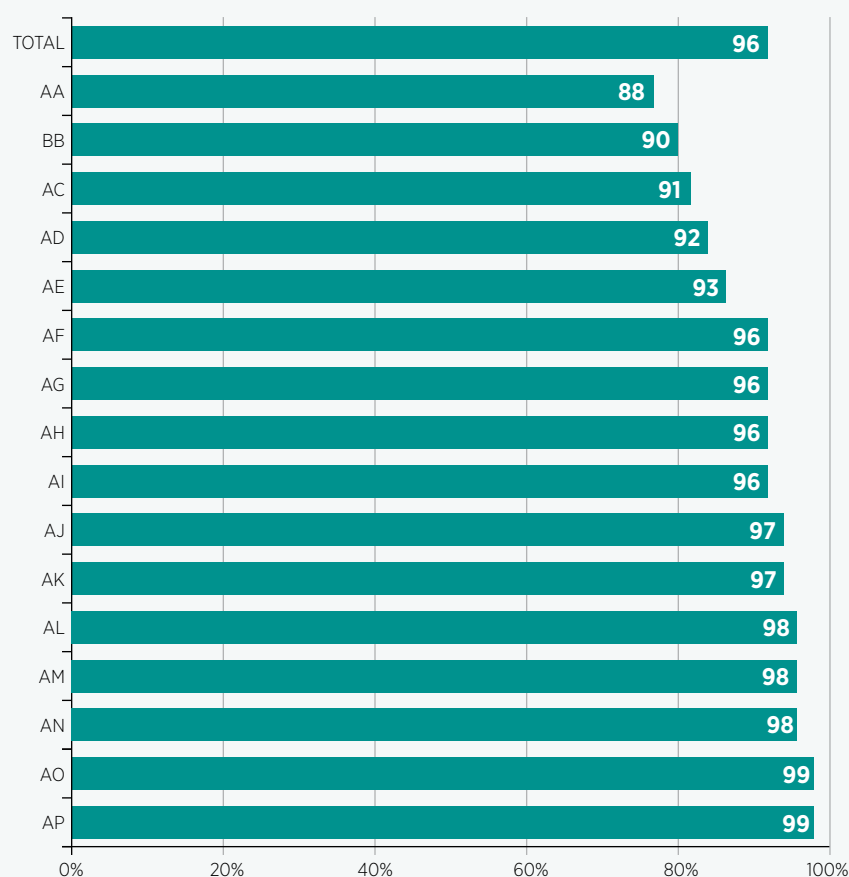
ⁱ The estimate was based on confining the data to cases with hip fracture due to injury (ICD-10-AM S72.0 – S72.2) recorded as any diagnosis.

ⁱⁱ 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 completenessⁱⁱⁱ level for IHFD fields used in generating the graphs in this report is 96%, which is an increase on the 2014 level of 93%. Individual hospital proportions range from 88% to 99%, Figure 3. The recording of dates/times for patients not admitted via ED in the operating hospitals remains a challenge and there are also significant completeness deficits for the Abbreviated Mental Test (AMT) Performed, American Society of Anaesthesiologists (ASA) Grade, Reason for Delayed Surgery, and Type of Fracture data items.

FIGURE 3: COMPLETENESS PERCENTAGES PER HOSPITAL



The dataset and frequently asked questions are provided in Appendices 1 and 2. Figures 1-32 in this report are based on data provided and specified in Appendices 5 and 6. Information on other data items collected is included in Appendix 7.

ⁱⁱⁱ Completeness is calculated as the percentage of known values across the data items included in this report's graphs.



CHAPTER 2

CASE MIX

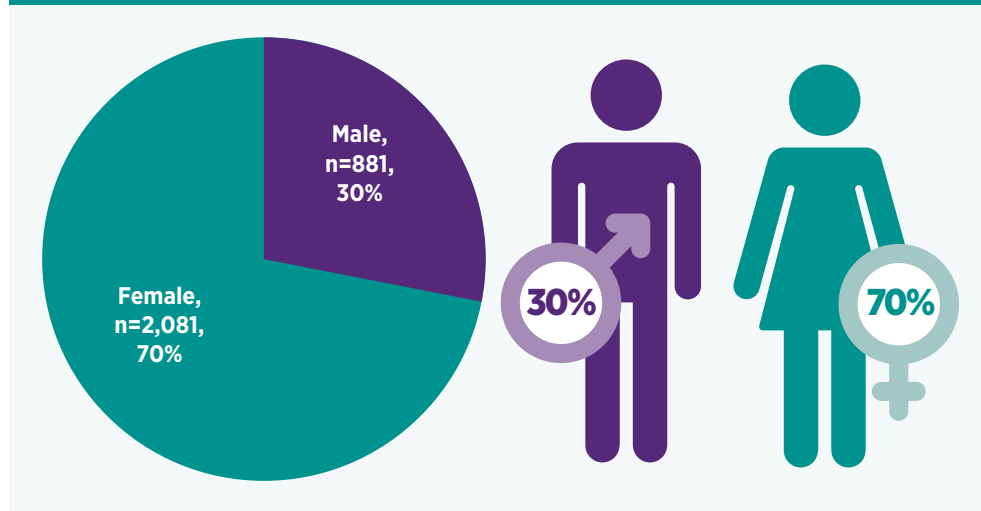
CHAPTER 2: CASE MIX

GENDER AND AGE GROUP

FINDINGS:

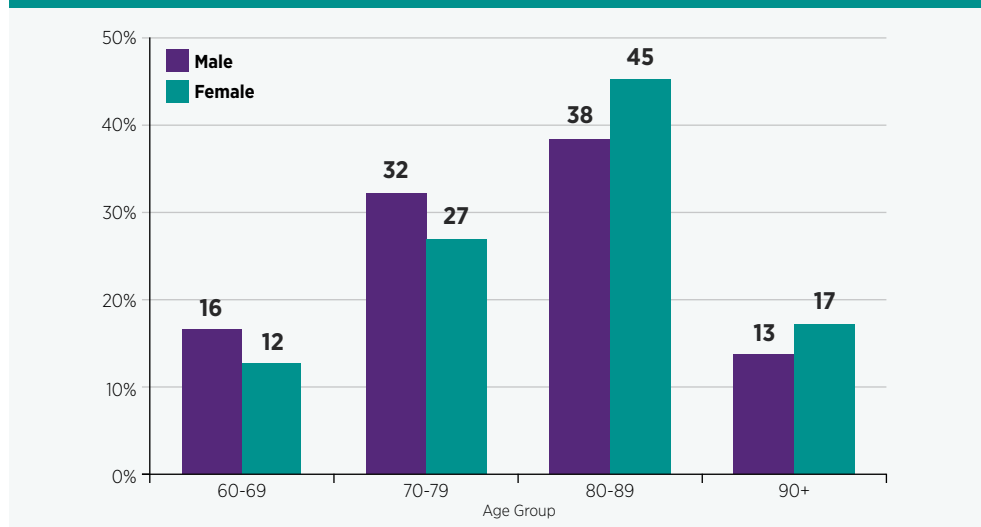
Of the 2,962 hip fracture cases recorded, 2,081 or 70% were female, Figure 4.

FIGURE 4: GENDER PERCENTAGES BY AGE GROUP (N=2,962)


FINDINGS:

Age group distributions for males and females were not dissimilar, Figure 5. The highest proportions of cases for both genders were recorded in the 80-89 age group – 38% of males and 45% of females.

FIGURE 5: AGE GROUP PERCENTAGES FOR MALES (n=881) AND FEMALES (n=2,081)^{iv}



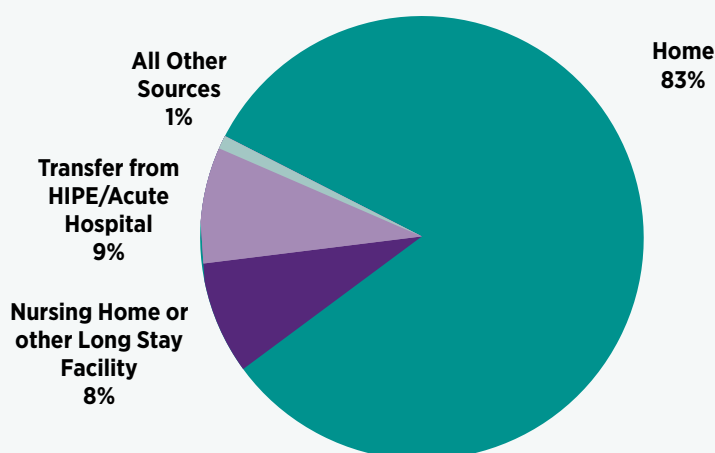
^{iv} Please note: Percentages may not sum to 100% due to rounding

SOURCE OF ADMISSION

FINDINGS:

Admissions from home were the most common source (83%), Figure 6. Transfers from other acute hospitals or other HIPE reporting hospitals accounted for a further 9%, and 8% were admitted from nursing homes / convalescent homes or other long-stay accommodation.

FIGURE 6: SOURCE OF ADMISSION PERCENTAGES (N=2,962)^v

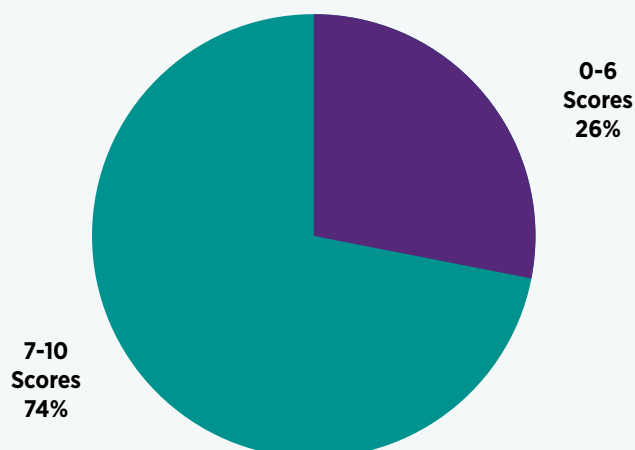


AMT SCORE

FINDINGS:

Only 282 (10%) of cases had an Abbreviated Mental Test (AMT) (see Appendix 3) score recorded and of those, 74% had scores of 7-10 inclusive i.e. they were not likely to have cognitive impairment, Figure 7. The deficit of known scores is a reflection of the test not being conducted as opposed to data not being recorded.

FIGURE 7: KNOWN AMT SCORE PERCENTAGES (n=282)



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

ASA GRADE

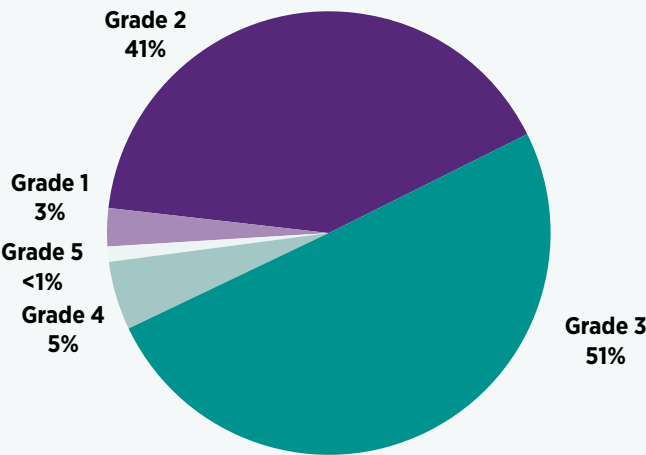
FINDINGS:

Figure 8 displays American Society of Anaesthesiologists grades for the 2,563 (91%) of the 2,827 patients who had surgery. The majority were graded as either (Grade 2) mild (41%) or (Grade 3) severe (51%) systemic disease. Seven cases were classified as (Grade 5) moribund.

TABLE 4: AMERICAN SOCIETY OF ANAESTHESIOLOGISTS (ASA 1963)^a: 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 |

FIGURE 8: KNOWN ASA GRADE PERCENTAGES (n=2,563)



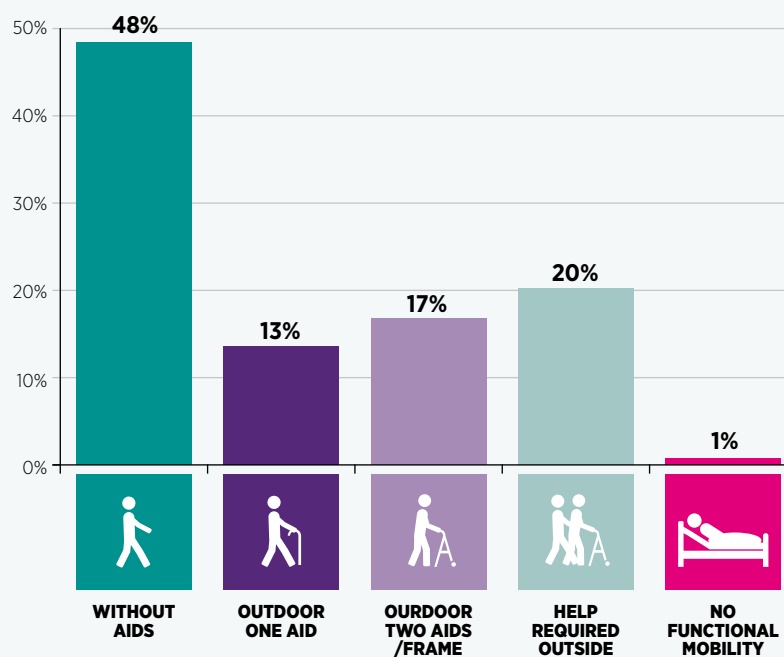
PRE-FRACTURE MOBILITY

FINDINGS:

Mobility status prior to the fracture was recorded for 2,170 (73%) of cases. Nearly half of cases, 48%, were able to walk unassisted. Twenty percent (20%) required assistance outdoors. One percent (1%) had no functional mobility, Figure 9.

New functional measures have been added to the dataset this year. The 2016 report will provide additional information on both pre-fracture mobility and postoperative functional outcome.

FIGURE 9: KNOWN PRE-FRACTURE MOBILITY PERCENTAGES (n=2,170)^{vi}



^{vi} Please note: Percentages may not sum to 100% due to rounding

TYPE OF FRACTURE

FINDINGS:

The most common types of fractures recorded were Intracapsular - Displaced (37%) and Intertrochanteric (35%), Figure 10. Type of fracture was not known for 9% of cases.

Due to the various orthopaedic classifications of proximal femoral fractures a number of cases were validated and reclassified into the relevant groups in Figure 10. The IHFD have provided education regarding the preferred classification for the purpose of the IHFD and there are supports within the database to insure the uniformity of data collection. As a result of continued education, we should see a reduction in the “Other” category. This year saw a reduction of 4 percentage points in the ‘Not Known’ category compared with 2014.

FIGURE 10: TYPE OF FRACTURE PERCENTAGES (N=2,962)

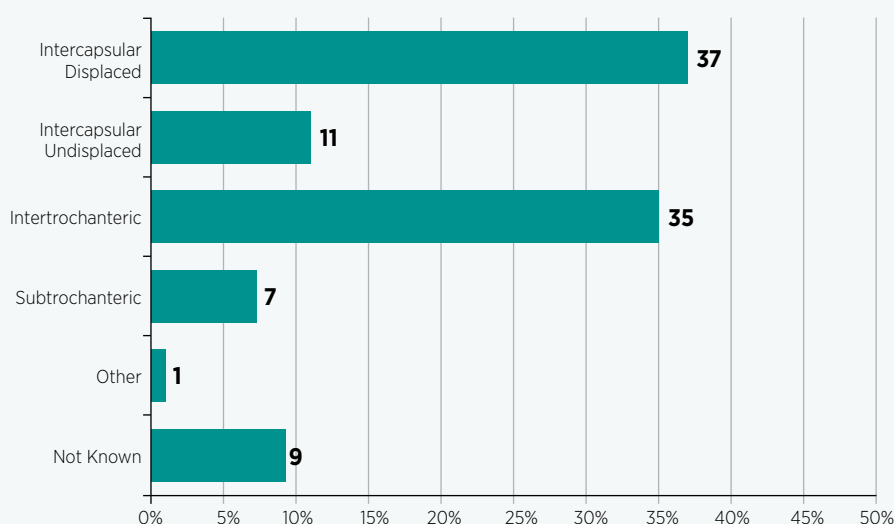
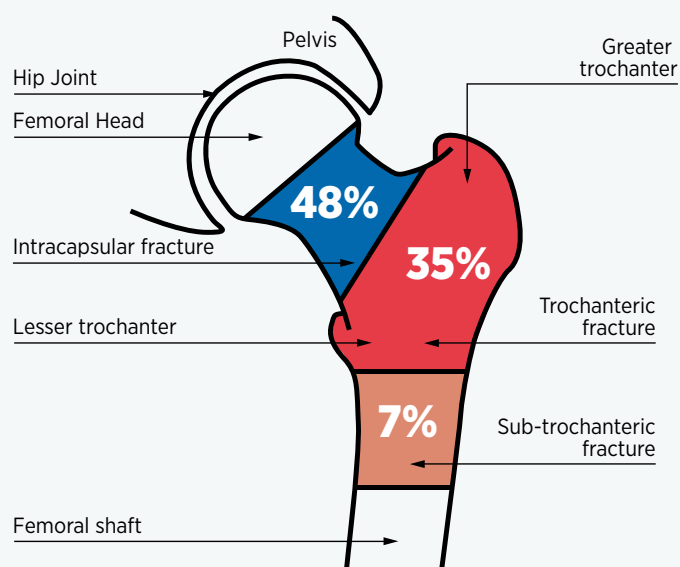


FIGURE 11: CLASSIFICATION OF HIP FRACTURES



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



CHAPTER 3

SURGERY

CHAPTER 3: SURGERY

MODE OF ADMISSION TO HOSPITAL

FINDINGS:

Figure 12 shows that 89% of cases were admitted via ED in the operating hospital; 86% directly and 3% indirectly i.e. transferred from another ED. The other 11% of cases were seen and diagnosed by the orthopaedic* team in the operating hospital.

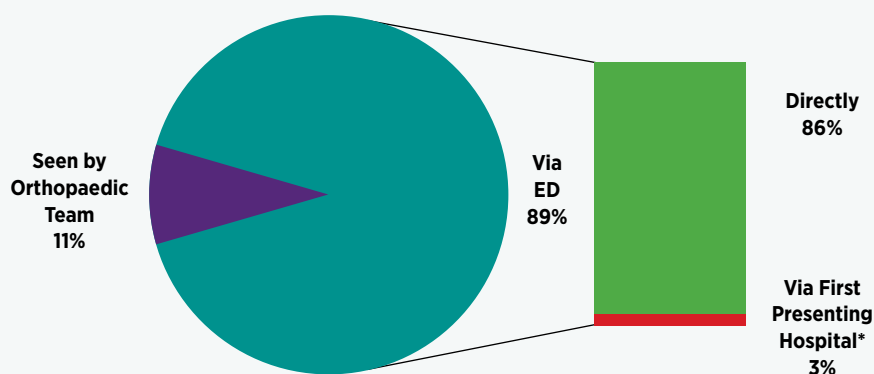
CLINICAL COMMENTARY:

Three percent of patients (3%) 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. Within the other 11% of patients seen and diagnosed by the orthopaedic team the vast majority of this group would have also presented to a hospital that does not have orthopaedic trauma operating facilities. Seventy-six (76) patients had a hospital acquired diagnosis of a hip fracture during 2015†.

The National Model of Care for Trauma and Orthopaedic Surgery² 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’.

PATIENTS WHO DO NOT PRESENT DIRECTLY TO THE ED IN THE OPERATING HOSPITAL SPEND AN AVERAGE OF TWO DAYS LONGER IN HOSPITAL THAN THOSE PATIENTS WHO PRESENT DIRECTLY.

FIGURE 12: MODE OF ADMISSION TO OPERATING HOSPITAL PERCENTAGES (N=2,962)



*includes 'Not Known' category which is not itemised separately for patient confidentiality reasons.

*Referred to as 'trauma team' in Dataset V3

†2015 Discharges (Age 60+) Hospital In-Patient Enquiry (HIPE) Database, with secondary diagnosis of hip fracture (S72.0 – S72.2) which was not present on admission.

ADMISSION TO ORTHOPAEDIC WARD

**NINE PERCENT
(9%) OF
PATIENTS WENT
DIRECTLY FROM
THE ED TO
THEATRE.**

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 fracture⁵.

FINDINGS:

Of the 2,962 cases, 88% were admitted to an orthopaedic ward but only 10% were admitted within 4 hours, Figure 13.

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 either from time of arrival at first presenting hospital or from time seen by the orthopaedic team in the operating hospital, as appropriate.

CLINICAL COMMENTARY:

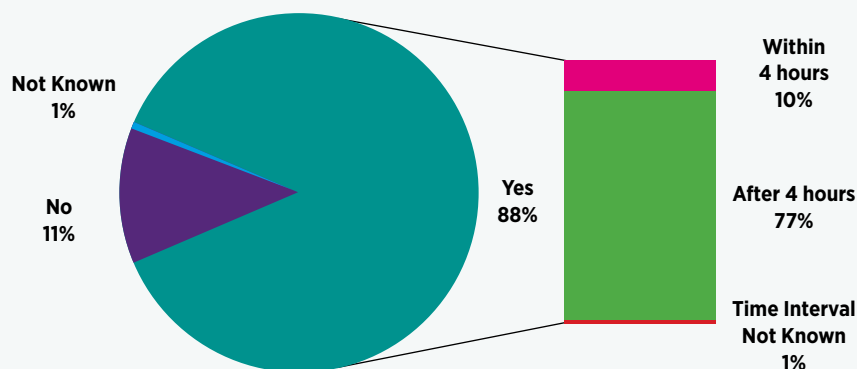
The introduction of 'fast track' protocols would minimise delays in the ED and avoid the placement of hip fracture patients on non-orthopaedic wards.

Fast track pathways focus on streamlining patient flow through the emergency department¹⁰.

Eleven percent (11%) of patients were never admitted to an orthopaedic ward and some causes for this have been identified i.e. patients may be too unwell, and some hospitals prioritise patients to private wards regardless of reason for admission. The National Model of Care for Trauma and Orthopaedic Surgery² state that hip fracture patients are best cared for on an orthopaedic specialist ward with routine access to a geriatrician and full multidisciplinary team.

Nine percent (9%) patients went directly to theatre from ED in 2015. The dataset was amended at the start of 2015 to capture this pathway.

FIGURE 13: ADMISSION TO ORTHOPAEDIC WARD PERCENTAGES (N=2,962)



SURGERY PERFORMED

FINDINGS:

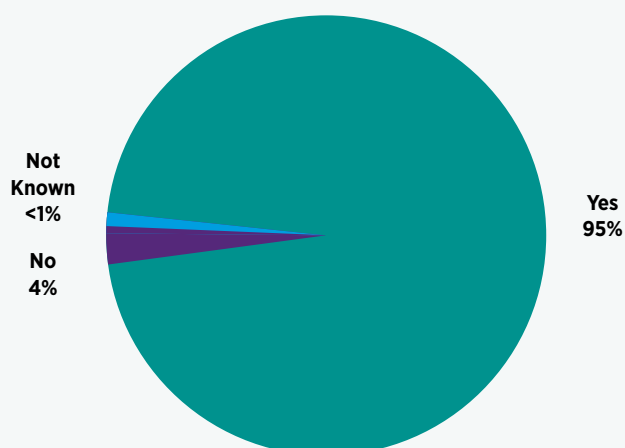
Figure 14 illustrates that 2,827 (95%) of the 2,962 hip fracture cases had an operation recorded. 'No operation performed' was recorded for 124 cases (4%).

CLINICAL COMMENTARY:

Reduced length of stay and improved functional outcomes are associated with operative treatment of a hip fracture⁵.

Forty-eight percent (48%) of surgery was carried out by an orthopaedic consultant (see Appendix 7). Best practice would advocate that this group of patients should be operated upon by consultants as this would be associated with better outcomes⁵.

FIGURE 14: SURGERY PERFORMED PERCENTAGES (N=2,962)



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 fracture⁵.

FINDINGS:

Analysis indicates that 74% of surgeries were conducted within 48 hours - 72% during working hours (Monday – Sunday during hours 08:00 – 17:59) and 2% out-of-hours, Figure 15.

CLINICAL COMMENTARY:

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

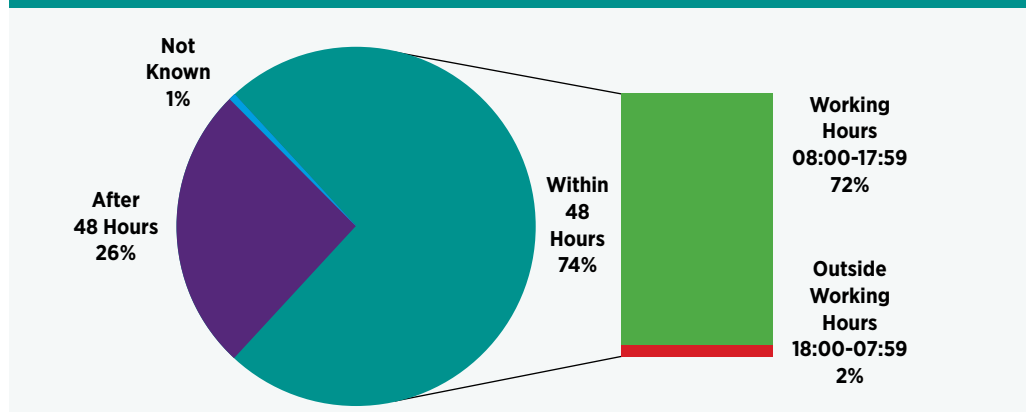
The HSE Key Performance Indicator (KPI) for hip fracture surgery reports on the percentage of emergency hip fracture surgeries with the principal procedure carried out on days 0, 1 or 2 of the stay with a specified target of 95%. The HSE reported 85% for 2015 data on this KPI³.

- 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 Emergency Department or seen by the orthopaedic 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.

Some key issues causing difficulties for hospitals achieving this target are lack of seven day trauma theatre access, delays in admissions, low levels of orthogeriatric input in the pre-operative phase, theatre inefficiencies and orthopaedic consultant specialties dominating trauma lists.

The National Model of Care for Trauma and Orthopaedic Surgery² recommend seven day trauma theatre access in all sixteen trauma centres and equal access for all trauma patients. Hip fractures should be given high priority on the trauma list.

FIGURE 15: TIME TO AND TIME OF SURGERY PERCENTAGES (n=2,827)^{vii}



^{vii} Please note: Percentages may not sum to 100% due to rounding

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 delayed cases, Figure 16.

Theatre access was also a factor as 'Awaiting Space on Theatre List' caused 14% of cases to be delayed and another 9% had their surgery cancelled due to list over-run.

A number of cases were recategorised following validation into the defined categories featured in Figure 16.

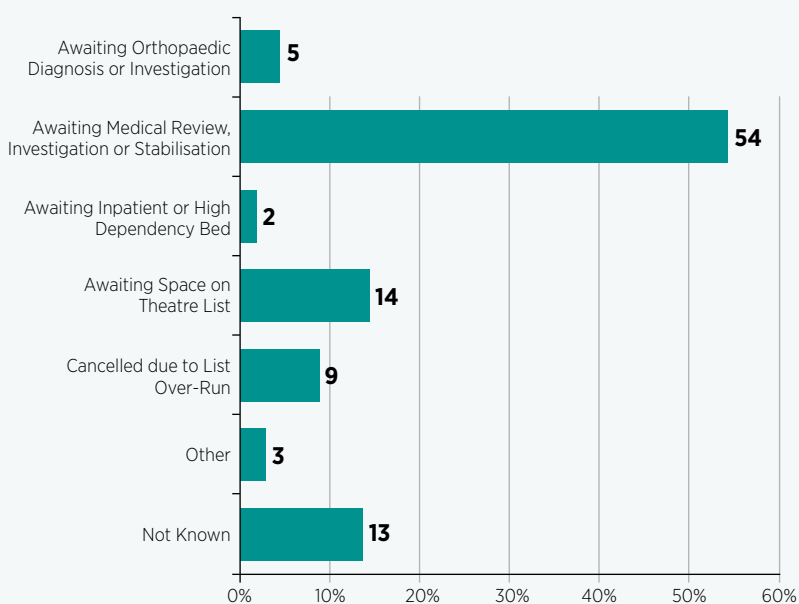
CLINICAL COMMENTARY:

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 proportion recorded for the 'Other' category has decreased from 11% to 3% since the last report but the proportion for the 'Not Known' category has increased from 9% to 13%. This may be for the most part attributable to delayed cases not being appropriately flagged at time of data entry. This issue within the IHFD portal will be addressed going forward.

The National Model of Care for Trauma and Orthopaedic Surgery² recommends patients with a hip fracture should suffer minimal delay to surgery.

FIGURE 16: REASON FOR 48 HOURS+ SURGERY DELAY PERCENTAGES (n=726)

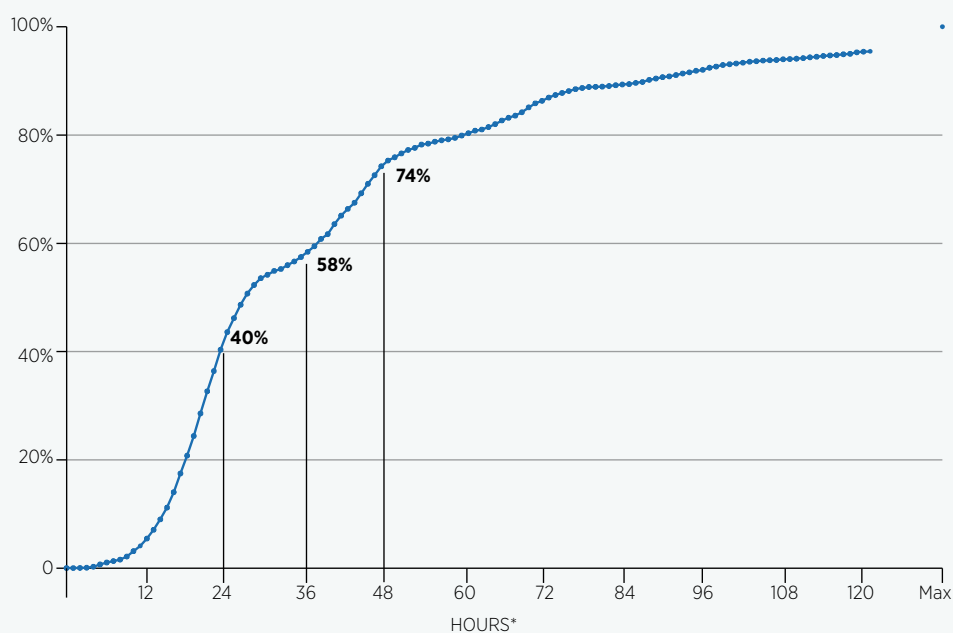


CUMULATIVE TIME TO SURGERY

FINDINGS:

Figure 17 shows that 40% of patients had surgery within the first 24 hours, this increased to 57% within 36 hours and to 74% within 48 hours.

FIGURE 17: CUMULATIVE TIME TO SURGERY PERCENTAGES (n=2,812)



*Excludes 'Not Known' cases.

ASSESSMENT BY A GERIATRICIAN, AND WHEN ASSESSED

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 fracture⁵.

FINDINGS:

The percentage of patients reviewed routinely pre-operatively by a geriatrician was 15%, this is an increase of 8 percentage points from 2014, Figure 18.

A further 39% of cases were assessed by a geriatrician at some other time during their acute stay.

Sixty-one percent (61%) of these reviews were carried out by a consultant geriatrician (see Appendix 7).

CLINICAL COMMENTARY:

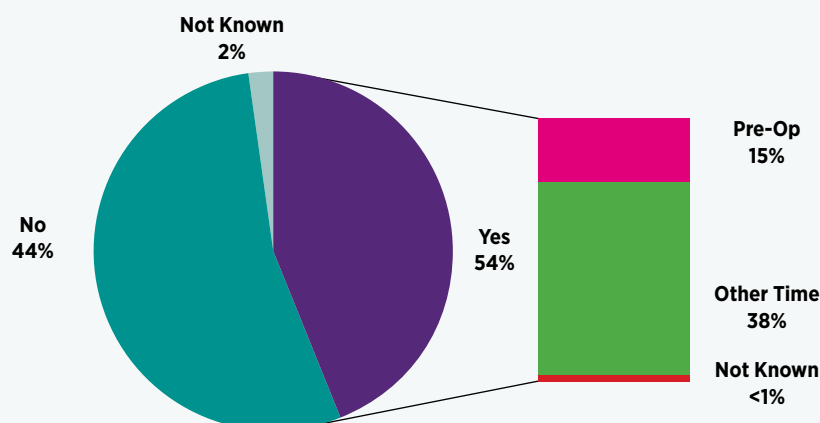
A collaborative relationship between orthopaedic and geriatric teams is fundamental to optimise care and outcomes for hip fracture patients.

The National Model of Care for Trauma and Orthopaedic Surgery² 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.

Shanahan et al¹¹ demonstrated that the introduction of an orthogeriatric service led to improved patient outcomes in a cost effective manner. This includes a decrease in the acute hospital length of stay by three days, reduced the volume of patients requiring rehabilitation and the length of stay in rehabilitation was also reduced by six days. As a result, less patients were discharged into long term care.

THERE HAS BEEN AN INCREASE OF 8 PERCENTAGE POINTS IN THE PROPORTION OF PATIENTS BEING REVIEWED PREOPERATIVELY BY A GERIATRICIAN.

FIGURE 18: ASSESSMENT BY GERIATRICIAN PERCENTAGES (N=2,962)



TYPE OF ANAESTHESIA

FINDINGS:

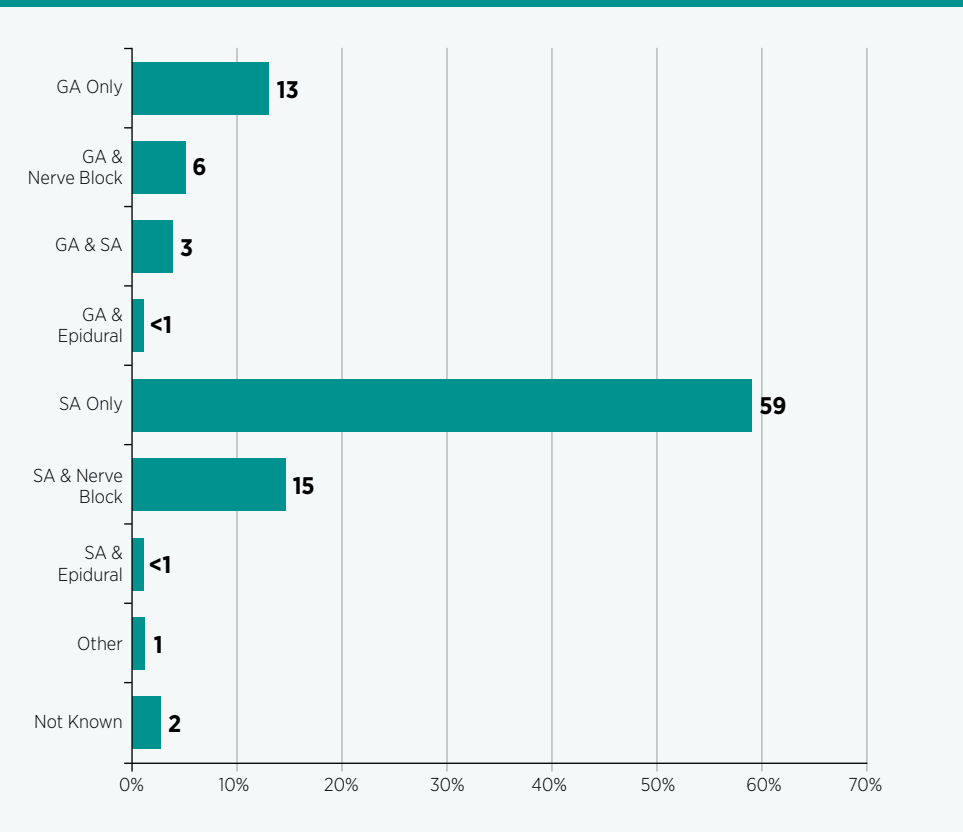
The predominant type of anaesthesia was spinal anaesthetic (SA); on its own (59%) or in combination with general anaesthetic (GA) (3%) or nerve block (15%), Figure 19.

CLINICAL COMMENTARY:

Spinal anaesthesia remains the predominant choice of anaesthesia and is associated with lower rates of post-operative delirium¹². The percentage of patients receiving intra-operative nerve blocks remain very low. Nerve blocks reduce the volume of opioids required in the post-operative phase, resulting in less delirium and constipation, enabling earlier ambulation, better outcomes and ultimately a more comfortable experience for the patient.

Seventy-two percent (72%) of cases received anaesthesia from a consultant anaesthetist (see Appendix 7).

FIGURE 19: TYPE OF ANAESTHESIA PERCENTAGES (n=2,827)



TYPE OF SURGERY

FINDINGS:

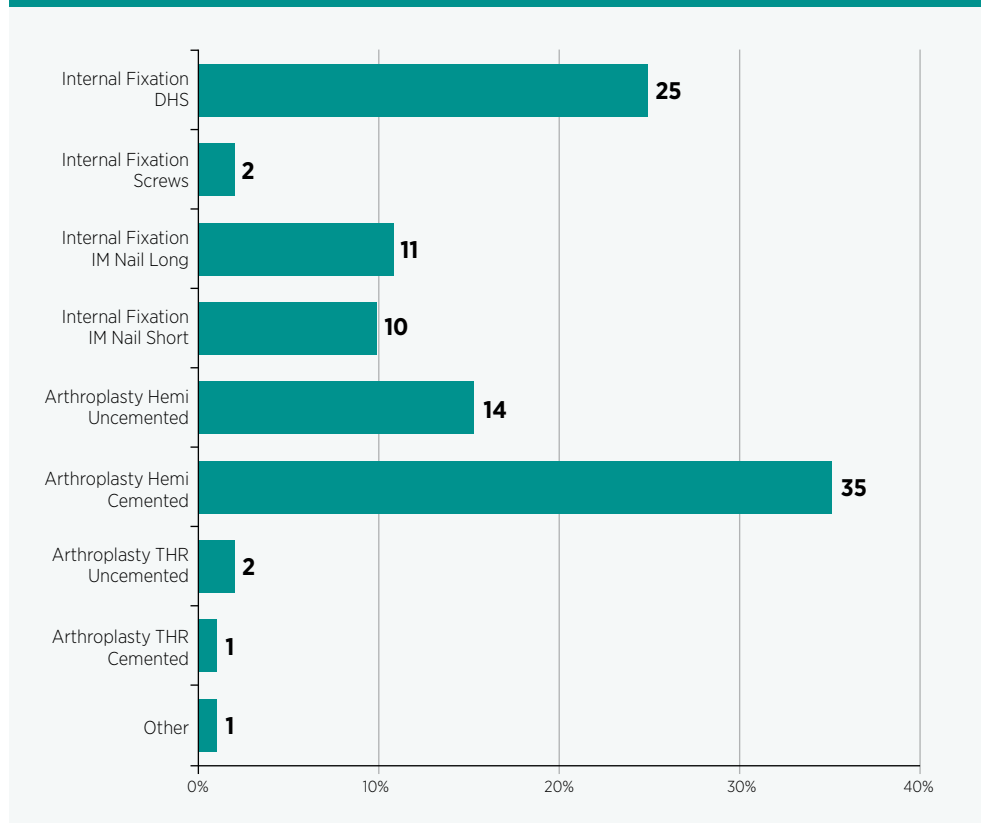
Figure 20 shows that 'Arthroplasty Hemi Cemented' accounted for 35% of surgical cases and a further 25% was recorded for the 'Internal Fixation DHS' category. The type of procedure varied by type of fracture with hemi-arthroplasties dominating for both displaced and undisplaced intracapsular fractures while internal fixation procedures were more common for intertrochanteric and subtrochanteric fractures.

CLINICAL COMMENTARY:

The National Model of Care for Trauma and Orthopaedic Surgery² recommends accurate and well performed surgery, carried out by an appropriate senior surgeon to ensure stable fracture fixation where possible, allowing immediate full weight bearing and early mobilisation.

In 2016, implant manufacturers and implant types have been introduced to the IHFD dataset to improve the accuracy of this data item and capture the variability of implants used in Ireland.

FIGURE 20: TYPE OF SURGERY PERCENTAGES (n=2,827)^{vii}



^{vii} Please note: Percentages may not sum to 100% due to rounding.

TYPE OF SURGERY FOR UNDISPLACED INTRACAPSULAR FRACTURES

FINDINGS:

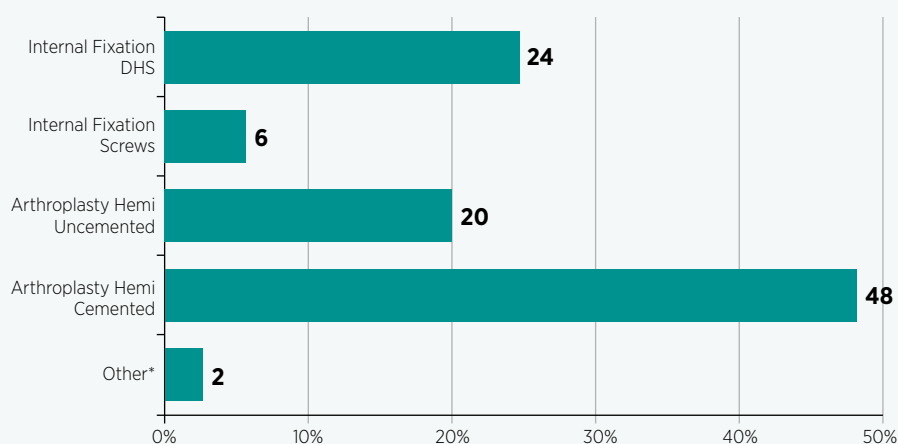
Hemi-arthroplasties dominated for undisplaced intracapsular fractures - 20% uncemented and 48% cemented, Figure 21.

CLINICAL COMMENTARY:

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 coated implants rather than Austin Moore type prostheses are used.

Interestingly, there was a 10 percentage point increase in the number of cemented hemi-arthroplasties compared with 2014. Cementing of arthroplasties is the recommended treatment for patients undergoing hip arthroplasty¹³.

FIGURE 21: TYPE OF SURGERY FOR UNDISPLACED INTRACAPSULAR FRACTURES PERCENTAGES (n=303)



*Includes the 'Internal Fixation IM Nail Short', 'Arthroplasty THR Uncemented', 'Arthroplasty THR Cemented' and 'Other' categories as they cannot be itemised separately for patient confidentiality reasons

TYPE OF SURGERY FOR DISPLACED INTRACAPSULAR FRACTURES

FINDINGS:

Hemi-arthroplasties dominated for displaced intracapsular fractures - 20% uncemented and 69% cemented. Figure 22. Five percent (5%) underwent a total hip arthroplasty and 4% received 'Internal Fixation DHS'.

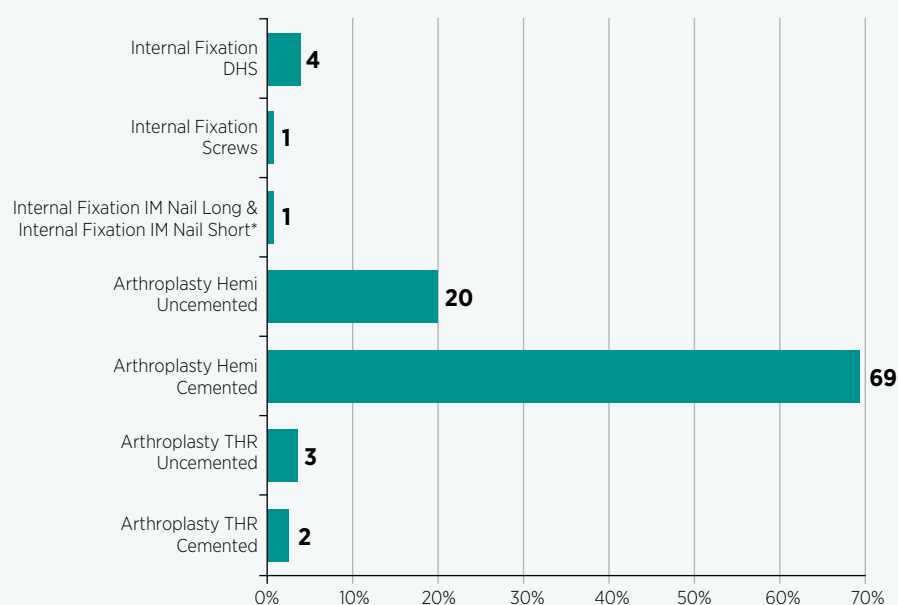
CLINICAL COMMENTARY:

There was a 14 percentage point increase in the proportion of cemented hemi-arthroplasties compared with 2014.

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 procedure¹². In the UK 26% of patients with a displaced intracapsular fracture underwent a total hip replacement in 2014⁴.

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

FIGURE 22: TYPE OF SURGERY FOR DISPLACED INTRACAPSULAR FRACTURES PERCENTAGES (n=1,072)



*Includes 'Other' category which is not itemised separately for patient confidentiality reasons

TYPE OF SURGERY FOR INTERTROCHANTERIC FRACTURES

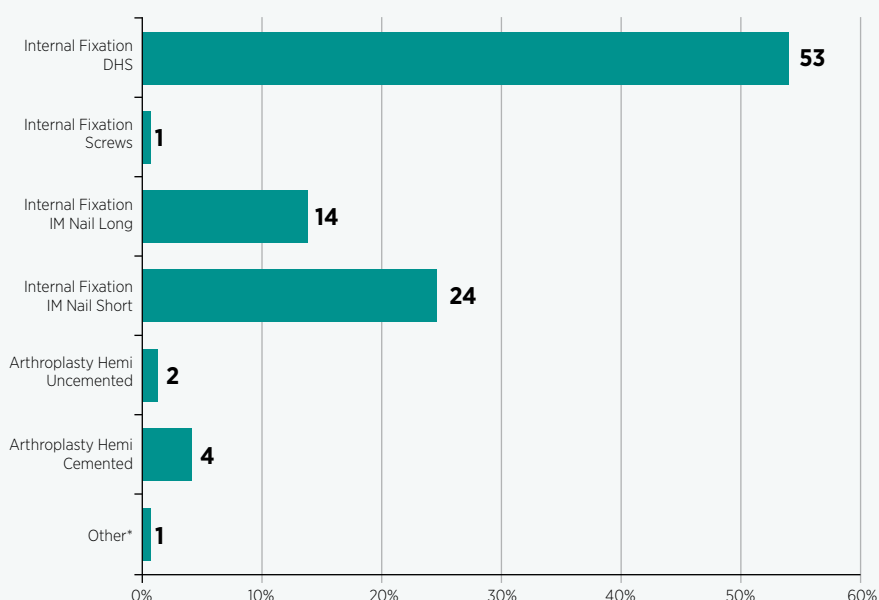
FINDINGS:

Internal fixations were, by far, the most common type of surgery (90%+) for intertrochanteric fractures - 53% of patients were fixed with a dynamic hip screw (DHS); 14% with a long intramedullary (IM) nail; and 24% with a short IM nail, Figure 23.

CLINICAL COMMENTARY:

The percentage of fixations for intertrochanteric fractures has virtually remained unchanged from the previous report.

**FIGURE 23: TYPE OF SURGERY FOR INTERTROCHANTERIC FRACTURES
PERCENTAGES (n=1,006)^{ix}**



*Includes the 'Arthroplasty THR Uncemented' and 'Arthroplasty THR Cemented' categories as they cannot be itemised separately for patient confidentiality reasons

^{ix} Please note: Percentages may not sum to 100% due to rounding.

TYPE OF SURGERY FOR SUBTROCHANTERIC FRACTURES

FINDINGS:

Over 90% of subtrochanteric fractures had internal fixation procedures, Figure 24.

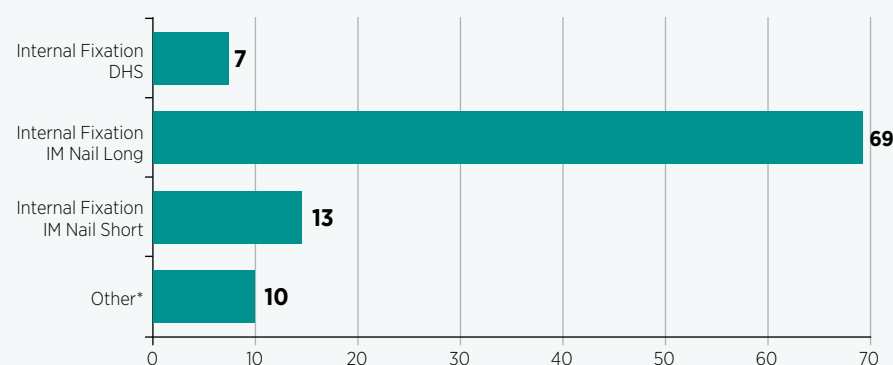
CLINICAL COMMENTARY:

Long intramedullary (IM) nails were used for 69% of cases which is 19 percentage points higher than that reported for 2014. Short IM nails (13%) and DHS screws (7%) were 9 and 3 percentage points lower than their 2014 equivalents respectively.

Arthroplasty cases accounted for fewer ($\leq 2\%$) of cases in this report which is a significant change on the 11% recorded for 2014.

This data may be compromised by the high levels of 'Not Known' values (9%) for Type of Fracture, see Figure 10.

FIGURE 24: TYPE OF SURGERY FOR SUBTROCHANTERIC FRACTURES
PERCENTAGES (n=201) ^x



*Includes 'Internal Fixation Screws' and 'Arthroplasty Hemi Cemented' categories as they cannot be itemised separately for patient confidentiality reasons.

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

CEMENTING OF ARTHROPLASTIES

FINDINGS:

NICE Clinical Guideline 124¹² recommends the use of cemented implants in patients undergoing arthroplasty. Figure 25 shows that 70% of the 1,467 arthroplasties conducted were cemented.

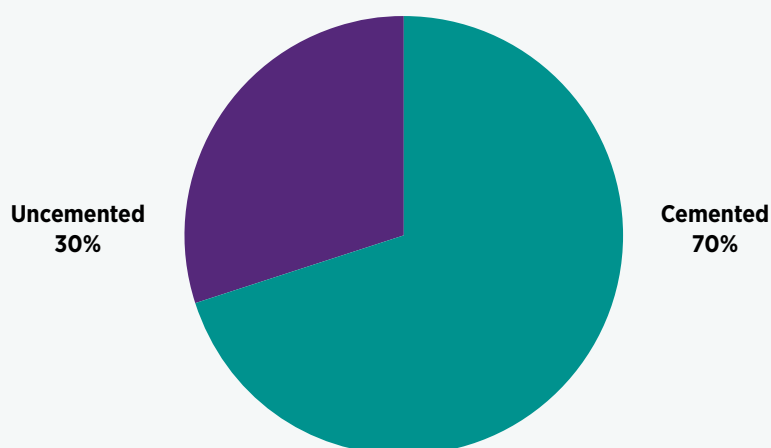
CLINICAL COMMENTARY:

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 coated implants rather than Austin Moore type prostheses are 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 fracture¹³. These concise guidelines are for the preparation and conduct of anaesthesia and surgery in patients undergoing cemented hemi-arthroplasties for hip fracture.

FIGURE 25: CEMENTING OF ARTHROPLASTIES PERCENTAGES (n=1,467)





CHAPTER 4

OUTCOMES

CHAPTER 4: OUTCOMES

MOBILISATION ON DAY OF, OR DAY AFTER SURGERY AND MOBILISED BY

FINDINGS:

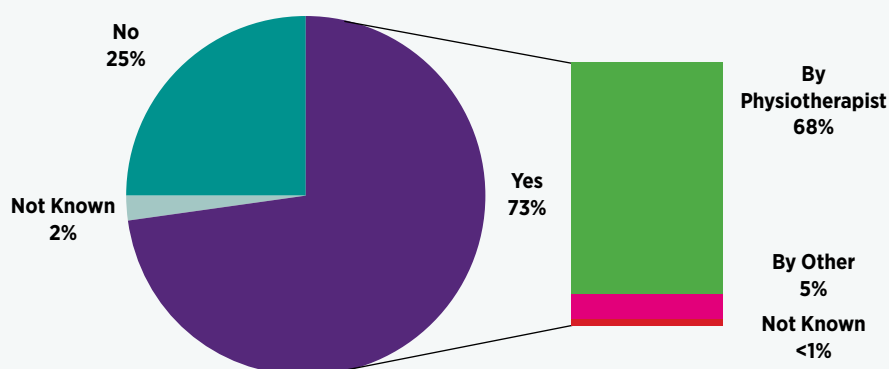
Seventy-three percent (73%) of the 2,827 surgical patients were mobilised on the day of surgery or on the following day – 68% by physiotherapists, Figure 26.

CLINICAL COMMENTARY:

The majority of hip fracture patients (73%) were mobilised on the day of or day after surgery. However, 25% of patients were not mobilised in this time-frame, Figure 26. It is not possible to determine from the current dataset, factors that influenced the ability of patients to mobilise on the day of or day after surgery.

Early mobilisation of hip fractures leads to better outcomes¹⁴. The national facilities audit (See Table 5) shows that routine 5 day a week (Mon – Fri) physiotherapy service exists for all trauma units. However only 7 out of 16 trauma units have access to physiotherapy assessment on Saturdays and Sundays. It is important that access to physiotherapy services is optimised.

FIGURE 26: MOBILISATION PERCENTAGES (n=2,827)



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 fracture⁵.

FINDINGS:

Of those patients who were discharged alive, 4% had pressure ulcers, Figure 27.

CLINICAL COMMENTARY:

A pressure ulcer is localised 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 elucidated¹⁵.

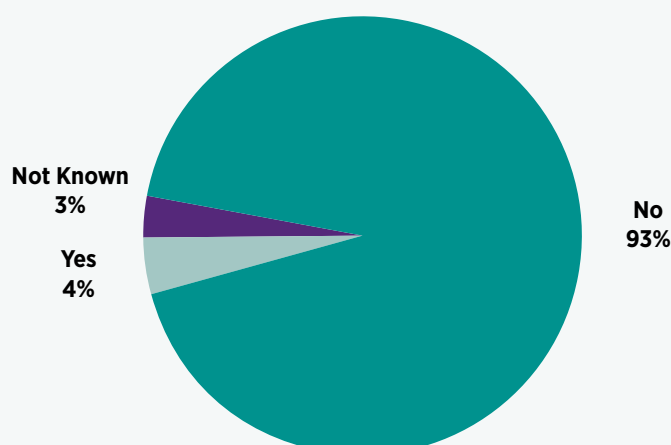
Patients should be assessed and cared for throughout their admission to minimise their risk of developing a pressure ulcer. For the purpose of this report pressure ulcers Stage 2 or higher that developed after admission and no later than 120 days after admission are included. Due diligence should be paid to the documentation of pressure ulcer incidence, (see Appendix 4).

The National Model of Care for Trauma and Orthopaedic Surgery² recommends that in order to prevent pressure ulcers all hip fracture 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.

The Department of Health (DOH) is currently working on the introduction of a Key Performance Indicator (KPI) for pressure ulcers in all hospitalised patients.

The National Quality Improvement Programme has delivered two Pressure Ulcers to Zero collaboratives that have focused on preventing pressure ulcers within acute, community and primary care settings. The key safety intervention used within the collaboratives is the SSKIN bundle.

The percentage of "Not Known" values has decreased by 3 percentage points compared with the two previous reports for 2013 and 2014. Ongoing education and the addition of definitions to the IHFD portal has seen the completeness for this data item improve.

FIGURE 27: PRESSURE ULCER PERCENTAGES (n=2,820)

BONE HEALTH ASSESSMENT/BONE PROTECTION MEDICATION ON DISCHARGE

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.

SOURCE:

British Orthopaedic Association (BOA) and British Geriatrics Society (BGS), 2007.
'Blue Book': The care of patients with fragility fracture⁵.

FINDINGS:

Bone protection therapy commenced for 34% of patients during their hospital stay and it was continued for the 13% of patients who were already in receipt of it pre-admission, Figure 28. A quarter of patients (25%) had no bone health assessment or action taken during their admission.

CLINICAL COMMENTARY:

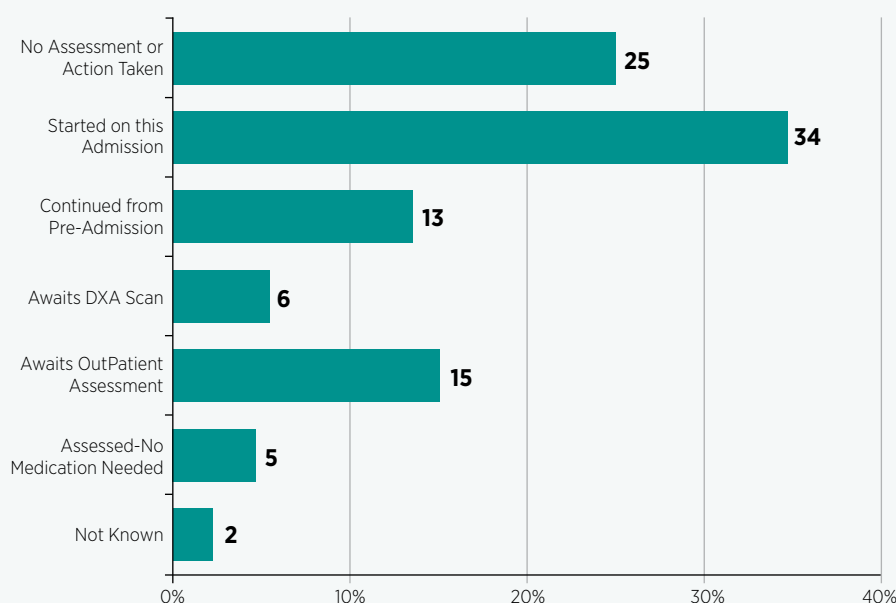
Seventy-five percent (75%) of patients received an assessment but only a low portion of patients had treatment initiated (34%) this may be a reflection of the lack of orthogeriatric and fracture liaison services in Ireland.

National Model of Care for Trauma and Orthopaedic Surgery² 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.

Ninety-two percent (92%) of these fractures were caused as a result of low trauma (see Appendix 7) and should carry a high suspicion of osteoporosis until proven otherwise. It should be expected that a much higher portion of patients would have bone protection treatment initiated.

8 PERCENTAGE POINTS INCREASE IN THE PROPORTION OF PATIENTS HAVING A BONE HEALTH ASSESSMENT

FIGURE 28: BONE HEALTH ASSESSMENT/BONE PROTECTION MEDICATION PERCENTAGES (n=2,820)



SPECIALIST FALLS ASSESSMENT

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.

SOURCE:

British Orthopaedic Association (BOA) and British Geriatrics Society (BGS), 2007. 'Blue Book': The care of patients with fragility fracture⁵.

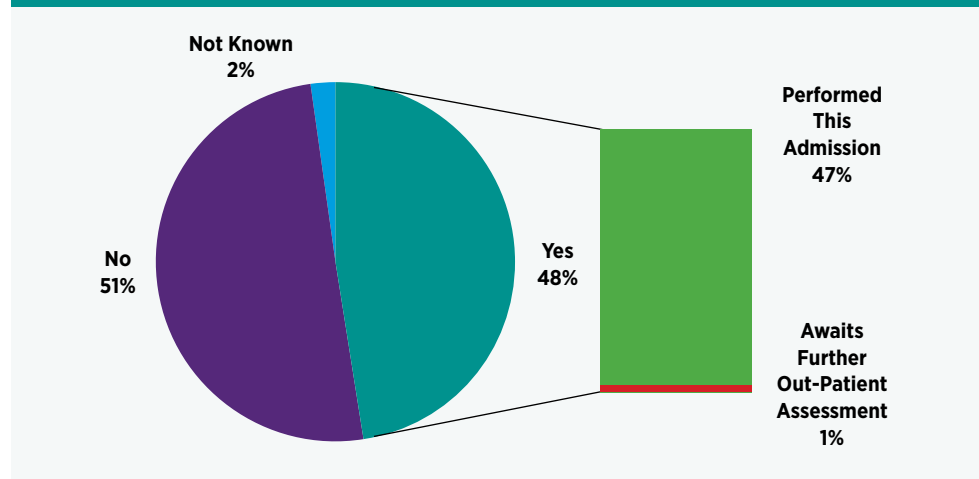
FINDINGS:

Prior to discharge, 47% had a falls assessment during their admission and 1% awaited further assessment, Figure 29.

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, (see Appendix 2).

FIGURE 29: SPECIALISTS FALLS ASSESSMENT PERCENTAGES (n=2,820)^{xi}



^{xi} Please note: Percentages may not sum to 100% due to rounding

DESTINATION ON DISCHARGE

FINDINGS:

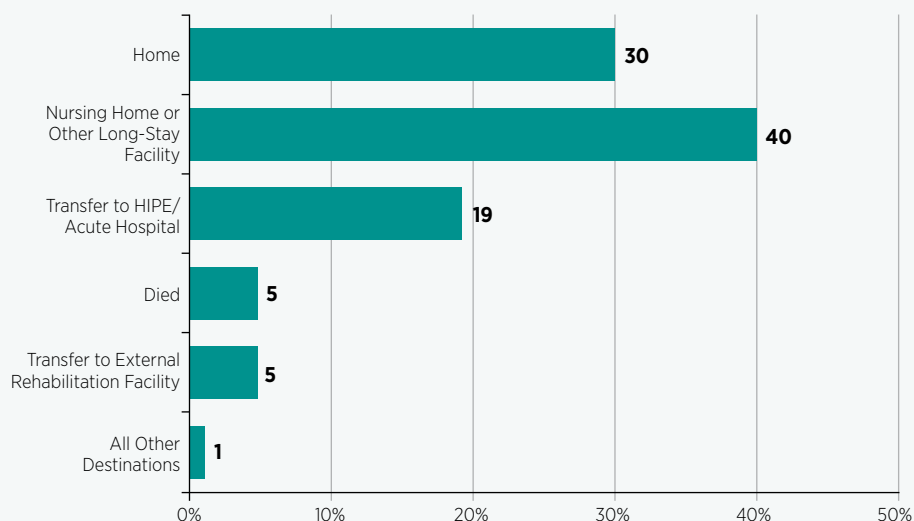
Figure 30 shows that 30% of patients were discharged home from the operating hospital, 64% went to another healthcare facility and 5% died while in hospital.

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 has been added to the IHFD dataset which should in time provide the required information.

The Model of care for Trauma and Orthopaedics² recommends early supported discharge and ongoing rehabilitation.

FIGURE 30: DISCHARGE DESTINATION PERCENTAGES (N=2,962)



CUMULATIVE LENGTH OF STAY (LOS)

**FIFTY PERCENT
(50%) OF PATIENTS
HAD BEEN
DISCHARGED BY 13
DAYS (MEDIAN) AND
73% BY 20.5 DAYS
(MEAN) IN 2015**

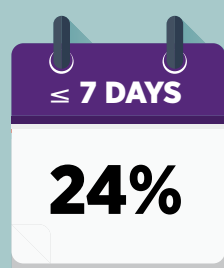
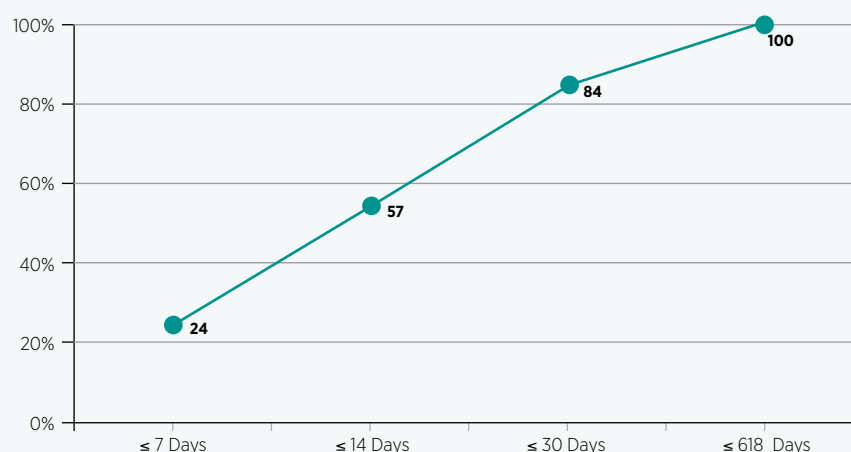
FINDINGS:

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 31 shows cumulative percentages for all lengths of stay; 24% were discharged within a week and 57% within a fortnight. Less than or equal to 30 days is regarded as an acute stay and 84% of cases had such a stay. The mean and median Length of stay for hip fracture patients were 20 and 13 days respectively.

CLINICAL COMMENTARY:

Length of stay is used as a surrogate marker of the efficiency of a trauma service. The proportion of cases discharged within a week was on a par with its equivalent for 2014 whereas the fortnight and 30 days proportions were, by comparison, 2 and 3 percentage points lower respectively. Both the mean and median lengths of stay increased since the last report from 19 to 20 days and from 12.5 to 13 days respectively.

FIGURE 31: CUMULATIVE LENGTH OF STAY PERCENTAGES (N=2,962)



RE-OPERATION WITHIN 30 DAYS

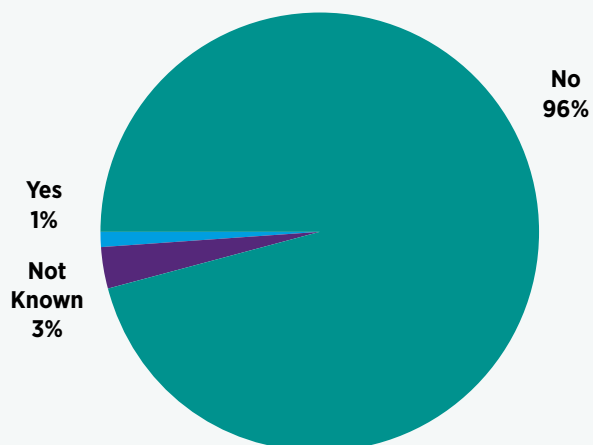
FINDINGS:

Ninety-six percent (96%) of patients did not have any further surgery within 30 days and 1% did, Figure 32. Re-operation performed within 30 days was recorded as 'Not Known' for 3% of patients which is a significant improvement on the 10% recorded in the last report.

CLINICAL COMMENTARY:

This is obviously an important measure to determine the quality of the initial operation and perioperative care. The 3% recorded for 'Not Known' is a big improvement on the 10% equivalent in the 2014 report.

FIGURE 32: RE-OPERATION WITHIN 30 DAYS PERCENTAGES (n=2,827)





CHAPTER 5

FACILITIES AUDIT

CHAPTER 5: FACILITIES AUDIT

There are sixteen designated trauma units in the Republic of Ireland that admit and treat hip fracture patients. In 2016 the Irish Hip Fracture Database undertook an audit of the facilities provided by these hospitals.

We have taken into account the size of the catchment area each service provides, the locality and the volume of patients who present.

The populations served by these trauma units vary from 120,000-550,000. The numbers of patients presenting with hip fractures also vary from 119-455 annually. We anticipate that due to the ageing population, these figures will rise considerably over the next 10-15 years and we should be planning our services for that expected growth. The number of trauma beds per service range from 12-59. Three wards have combined specialties and 2 wards have combined elective and trauma orthopaedic beds. The majority of units have routine physiotherapy Monday to Friday, access to occupational therapy on a routine basis and varied input from dietetics and speech and language and social workers.

Nursing staff ratios vary dramatically from unit to unit. This can mean that there is as many as one nurse to three patients in the morning or as little as one nurse to eight patients in the morning. In the evening, the ratio ranges from one nurse to four patients to as little as one nurse to ten patients. On the night shift, the ratio ranges from one nurse to six patients or as little as one nurse to ten patients. There are also varying degrees of health care assistant (HCA) support within the units, varying from four on duty in the morning to none, three in the evening in some sites to none and two on nights and none in others. There are extensive differences between the amount of nurses with higher level education in the speciality of orthopaedics within the units ranging from one to fourteen. Detailed in Table 5 is a summary of the facilities audit conducted across the sixteen trauma receiving hospitals.

TABLE 5: SUMMARY OF FACILITIES AUDIT

Anonymised Hospital No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Trauma Service Description^A	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Both	Both	Primary	Primary	Both	Primary	Primary
Dedicated Hip Bed	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No
Hours of designated trauma /week	40	40	40	36	20	40	52	44	40	60	48	56	0	80	96	0
No. of WTE^B orthopaedic consultants	4	4	6	6	4	4	6	3	6	8	8	10	4	5	8	3
No. of WTE orthopaedic middle grades (Reg/SHO)	4 Reg 2 SHO	2 Reg 6 SHO	5 Reg 5 SHO	5 Reg 4 SHO	5 Reg 6 SHO	5 Reg 1 SHO	5 Reg 3 SHO	4 Reg 6 SHO	4 Reg 4 SHO	6 Reg 8 SHO	9 Reg 8 SHO	10 Reg 10 SHO	4 Reg 6 SHO	6 Reg 4 SHO	8 Reg 3 SHO	3 Reg 3 SHO
Orthogeriatric team hours/week	4	0	20 (Registrar)	4	4	4	10.5	0	4	0	0	0	0	0	39	0
No. of WTE fragility fracture nurses	0	0	0	0	1	3	0	0	0	0.25	0	0.25	0	0	0	0
No. of WTE fracture liaison nurses	0	0	0	0	0	0	0.5 Vacant	0	0	0.5	0	1	1	1	0	0
Specific clerking proforma	Yes	No	No	No	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes
Falls clinic	No	No	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No	Yes
DXA on-site facility	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
7 day physiotherapy service	5	5	6	7	7	7	7	5	5	5	5	7	7	7	5	5
Onsite/offsite rehabilitation	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Onsite	Onsite	Offsite	Offsite	Offsite
Data collected by	Nurse	Nurse	Registrar	Nurse	Nurse	Nurse	Nurse	Nurse	Nurse	Nurse	Nurse	Nurse	Nurse	Nurse	Nurse	Nurse
Protected time for IHFD	Yes	No	No	No	No	Yes	No	Yes	No	No	No	No	No	No	No	No
Hip fracture group	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No

A. Both: Hospital which provides specialist hip fracture care to a number of surrounding tertiary hospitals where an appropriate orthopaedic service does not exist;

Primary: Hospital which provides specialist hip fracture care within a geographical area; tertiary hospital

B. WTE: whole-time equivalent

SITE VISITS

During 2016 the National IHFD Audit Coordinator, Louise Brent, conducted sites visits to all 16 trauma units. This following is a summary of her findings and observations from those visits.

Since January 2016 I have visited all sixteen trauma units to meet with the clinical leads, data coordinators, hospital management and multidisciplinary teams involved in the care and management of hip fracture patients. These first site visits served to:



LOUISE BRENT

- raise awareness about the Irish Hip Fracture Database and its role in improving the care and outcomes of hip fracture patients at a local and national level.
- examine and present the data being collected at each site to ensure this data is understood by the relevant stakeholders.
- ensure the data is being collected and interpreted correctly at the point of data collection and also to ensure it is being disseminated properly.
- to focus on areas of good clinical care and to highlight areas where work is needed.

Initially the coverage and completeness of the data was discussed to ensure it is a real reflection of the service being delivered. Specific focus was put on the six blue book standards⁵ of hip fracture care but also on other outcome data including length of stay & inpatient mortality, demographic data, service size and information from the facilities audit.

There was excellent engagement at all sites. Visits ranged from focused meetings to large scale hospital presentations. During each visit a walkthrough of the service was conducted, including visits to the emergency department, orthopaedic ward and theatre. Hospital documentation was reviewed and time was spent with the data coordinator going through the IHFD portal, reports, data entry and ensuring that data interpretation is correct at hospital level.

Each hospital is configured slightly differently which presents some challenges but also creates great examples of ingenuity that I was able to share with other hospitals.

BLUE BOOK STANDARD 1

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

My observations were that competing admissions, shortage of beds, lack of pathways, delayed access to orthopaedic beds and delays in doctors admitting patients results in high numbers of patients not meeting this target. Having a “pitstop” style assessment bay in the ED where hip fracture patients get a rapid triage and work-up or a protected hip fracture bed have helped some sites overcome the difficulties in achieving this target. It was also noted that some sites bring patients directly to theatre from ED which is a superior pathway. I particularly liked some of the ED hip fracture admission proformas which ranged from a succinct algorithm to a sticker with inbuilt timing prompts that could be placed in the medical notes.

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.

There are numerous reasons why patients who are medically fit for surgery are not receiving their surgery within 48 hours. High numbers of patients continue to present to ED's in hospitals without an orthopaedic service, meaning they must undergo a second journey for admission to an operating hospital. Inadequate trauma theatre access, predominantly at weekends, means multiple specialties compete for access to one theatre. I was able to demonstrate the surgery by day of the week to highlight this issue at the relevant sites.

In some units orthopaedic consultant specialties play a role in the delay of hip fracture patients, for example, set theatre days for individual consultants may mean that if they are an upper limb specialist or a foot and ankle specialist, their trauma list may consist of more patients suited to that speciality. This also affects hospitals that provide national orthopaedic services.

Optimisation of the available theatre capacity is another area to consider. In three sites, trauma coordinators have been appointed to improve the coordination, communication and throughput of patients in the theatre.

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.

The rate of pressure ulcer development varies quite dramatically from site to site with one hospital achieving 0% of patients developing a pressure ulcer in 2015 and the highest rate being 10%. Some factors that potentially impacted on the rate of pressure ulcer development in hospitals are delays in transfer through the ED meaning patients spend long times on trolleys, often in overcrowded conditions, resulting in difficulty providing pressure area care regularly. The quality of the mattresses that patients are placed on within the ED can also vary. All sites demonstrated the use of a pressure ulcer risk screening tool. Delay to surgery can also play a significant role in the development of pressure ulcers.

There is however a growing awareness of pressure ulcer prevalence for all hospitalised patients due to the impending KPI measuring this. To further explore our hip fracture patient population and their pressure ulcer incidence a research project is currently being undertaken through the Royal College of Surgeons to identify areas for intervention and continue to raise awareness of pressure ulcer prevention.

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

There are varying amounts of geriatric input scattered across the sixteen trauma units but this is by far one of the most topical areas of discussion that I encountered on my visits. There is no doubt that there is a huge push towards a collaborative model of care for hip fractures that would be shared between orthopaedics and geriatrics. Unfortunately in Ireland thus far we only have one full-time locum orthogeriatric consultant in place. Going forward, there will be a big focus on the development of orthogeriatric services in Ireland. It is clear to see that the involvement of geriatricians at varying degrees in the sixteen sites is making an impact already.

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.

Currently bone health is looked after by a wide range of people and professions. During my visits I met with fracture liaison nurses, osteoporosis nurses, DXA operators, geriatricians, rheumatologists and endocrinologists who all play a role in assessing this group of patients. Other practices such as local bone health protocols/ algorithms completed by NCHD's are also making an impact. There appears to be a growing awareness of osteoporosis/ fragility fractures and work continues through the clinical programme for Trauma and Orthopaedic Surgery to encourage hospitals to develop fracture liaison services in all sixteen sites.

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.

This is a standard that is challenging most sites. Work is underway in a number of sites assembling a pathway that will include input from a number of stakeholders such as occupational therapy, physiotherapy, geriatrics, pharmacy and nursing. Until such time as orthogeriatric services are established in all sites it is almost certain that the majority of sites will continue to struggle to meet this target.

IRISH HIP FRACTURE DATABASE PORTAL

Over the last number of months many improvements have been made to the IHFD portal and reports to ensure that this information is valid, complete and readily accessible in the local site. At a local level the data coordinator and clinical lead have easy access to the data and reports. The National Office of Clinical Audit will continue to issue quarterly reports to the hospitals. Many sites have already made good use of the IHFD portal to export the data into excel to conduct other projects locally or presented work at national and international conferences. The IHFD gives a wide range of specialties a good opportunity to present, write papers and posters.

Data is key to driving improvements at a local level but also formulates an important part of the development of national strategies for care of fragility fracture patients and older patients.

It has been a great privilege to visit all of the sixteen trauma units around the country and I would like to thank everyone for the warm welcome I have received in every site. I look forward to coming back to all of the sites again soon and thanks to everyone for their continuing efforts and dedication to the care of fragility fracture patients.

Louise Brent
National IHFD Audit Coordinator



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REFERENCES & BIBLIOGRAPHY

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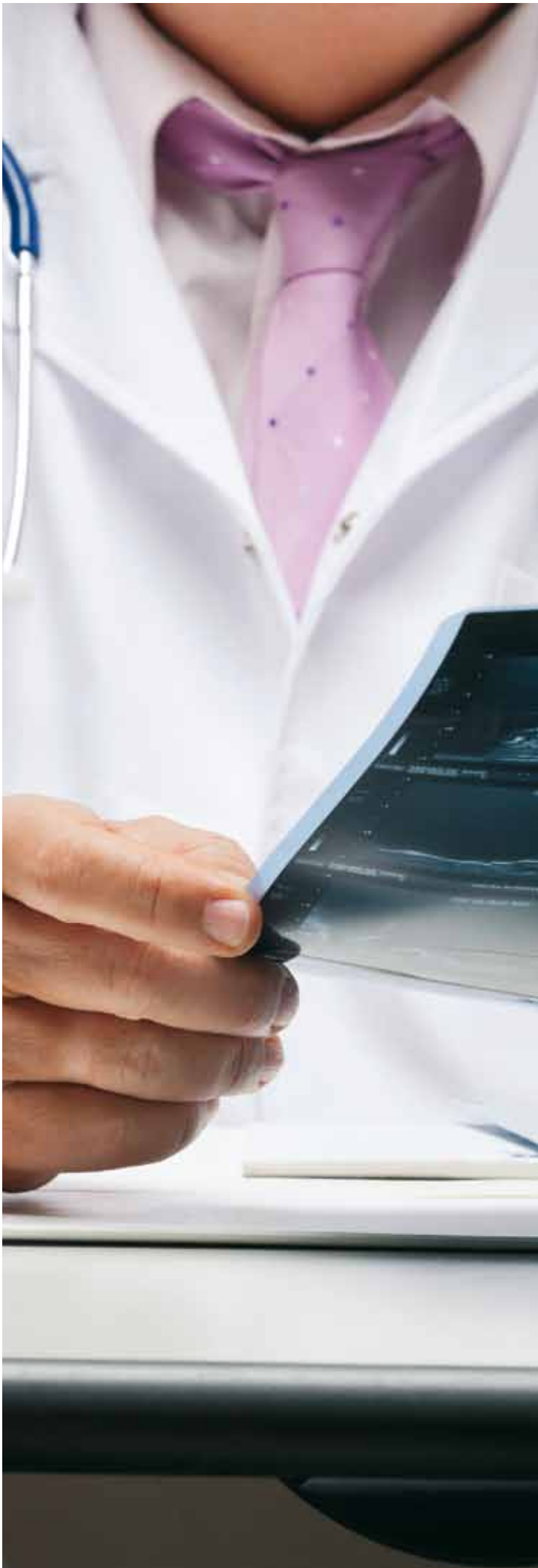
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APPENDICES

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
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 1: DATASET

HIPE Portal Data Entry / Hip Fracture Admission (V4.0.2*) 17 Dec 2015

* [Trauma Team] replaced with [Orthopaedic Team] in Q4F, Q4G, Q12G

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 orthopaedic team in operating hospital (if not admitted via ED)	
4G. Time seen by orthopaedic 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	
6A. Pre-fracture Indoor Walking	0 Unable 1 Assistance of one person 2 With an aid 3 Independent
6B. Pre-fracture Outdoor Walking	0 Unable 1 Assistance of one person 2 With an aid 3 Independent

APPENDIX 1: DATASET

HIPE Portal Data Entry / Hip Fracture Admission (V4.0.2*) 17 Dec 2015

* [Trauma Team] replaced with [Orthopaedic Team] in Q4F, Q4G, Q12G

Question	Options
6C. Pre-fracture Shopping	0 Unable 1 Assistance of one person 2 With an aid 3 Independent
6D. Pre-fracture New Mobility Score (Sum A+B+C)	
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
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 2 Routine by medical physician 6 None 7 Ger review following request 8 Med physician review following request 9 Not documented
11A. Assessed by Geriatrician during this acute admission	1 Yes, 2 No, 9 Not documented
11B. Geriatrician Assessment Date	
11C. Geriatrician Assessment Time	
11D. Geriatrician Grade	1 Consultant 2 SpR 3 Registrar 8 Other 9 Not documented

APPENDIX 1: DATASET

HIPE Portal Data Entry / Hip Fracture Admission (V4.0.2*) 17 Dec 2015

* [Trauma Team] replaced with [Orthopaedic Team] in Q4F, Q4G, Q12G

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 (V4.0.2*) 17 Dec 2015

* [Trauma Team] replaced with [Orthopaedic Team] in Q4F, Q4G, Q12G

Question	Options
12G. Time from arrival in ED / seen by orthopaedic 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. Physiotherapy Assessment on day of, or day after surgery	1 Yes 2 No, 9 Not documented
12L. Cumulated Ambulatory Score - day after, surgery	0-6
12M. 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 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

APPENDIX 1: DATASET

HIPE Portal Data Entry / Hip Fracture Admission (V4.0.2*) 17 Dec 2015

* [Trauma Team] replaced with [Orthopaedic Team] in Q4F, Q4G, Q12G

Question	Options
17. Multidisciplinary rehabilitation team assessment	1 Yes, 2 No, 9 Not documented
18. Cumulated Ambulatory Score - day of acute hospital discharge	0-6
19. Where was the patient discharged to following the acute hospital spell?	1 Home 2 On-site rehab unit 3 Off-site rehab unit 4 Convalescence care 5 New adm to nursing home or long-stay care 6 Return adm to nursing home or long-stay care 8 Other
19A. Discharged to (Other, please specify)	
20. Is admission data entry complete for this episode	1 Yes, 2 No

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, National IHFD Clinical Geriatric Lead</p> <p>Louise Brent, National IHFD Audit Coordinator</p> <p>Deirdre Carey, Statistician, Clinical Strategy & Programmes Division and Quality Improvement Division, HSE</p> <p>Aisling Connolly, Senior Administrator, National Office of Clinical Audit</p> <p>Dr Tara Coughlan, National Speciality Director for Geriatric Medicine</p> <p>Philip Dunne, IT systems support, Healthcare Pricing Office</p> <p>Catherine Farrell, Programme Manager Trauma and Orthopaedic Clinical Programme</p> <p>Michelle Fitzgerald MISCP, Senior Physiotherapist</p> <p>Mr Conor Hurson, National IHFD Clinical Orthopaedic Lead</p> <p>Mr Paddy Kenny, National Clinical Lead for Trauma and Orthopaedic Clinical Programme</p> <p>Dr. Geraldine McMahon, Consultant in Emergency Medicine</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 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 or ihfd@noca.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.</p> <p>This will vary according to experience but usually <15 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 New Case 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 Discharge Date 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 orthopaedic team' as most likely time when diagnosis is made. 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 Diagnosis Codes:</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>
Arthroplasty	Any replacement of the upper femur including unipolar, bipolar hemi-arthroplasties and total hip replacements

APPENDIX 2: IHFD FREQUENTLY ASKED QUESTIONS

Question	Answer
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 orthopaedic 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: 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.
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 or emergency department.

APPENDIX 2: IHFD FREQUENTLY ASKED QUESTIONS

Question	Answer
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. 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>
Specialist falls assessment	<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) medication review and from this information formulate and document a plan of action to prevent further falls.</p>

APPENDIX 2: IHFD FREQUENTLY ASKED QUESTIONS

Question	Answer
Definition of Multidisciplinary Rehabilitation Assessment Team	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.
What drugs constitute bone protection therapy?	<p>NOT just calcium and vitamin D</p> <ol style="list-style-type: none"> Bisphosphonates (oral, combined with Calcium/ Vitamin D, intravenously) <ul style="list-style-type: none"> Etidronate Alendronate Risedronate Ibandronate Zoledronate Pamidronate Denosumab HRT and SERMS <ul style="list-style-type: none"> HRT (various) Tibolone Raloxifene Parathyroid hormone <ul style="list-style-type: none"> PTH 1-34 PTH 1-84 Strontium <ul style="list-style-type: none"> Strontium ranelate Calcium and vitamin D <ul style="list-style-type: none"> Calcitriol Calcium and vitamin D – various Alpha-calcidol (or one alpha) Calcitonin Vitamin D's
Minimum age?	We collect the data on all patients over the age of 30 but only report on those 60 and above.

APPENDIX 3: © ABBREVIATED MENTAL TEST SCORE¹⁶

PATIENT'S DETAILS:		
DATE OF TEST:		
Scoring Each correctly answered question scores 1 point.		
Interpretation Scores < 7 is indicative of likely cognitive impairment.		
INSTRUMENT		
1. What is your age?	0	1
2. What is the time (to nearest hour)?		
3. Address (for recall at end of test) Say to patient: I am going to say an address: '42 West Street'. Can you say that address please? I am going to ask you to repeat it for me in a few minutes.	0	1
4. What is the year?	0	1
5. What is your home address ?	0	1
6. Recognition of two persons (Doctor, Nurse)	0	1
7. What is your date of birth?	0	1
8. In what year did First/Second World War begin? (Other dates can be used with a preference for dates in the past)	0	1
9. What is the name of the current Taoiseach?	0	1
10. Count backwards 20-1	0	1
TOTAL SCORE		

© Hodkinson H. Evaluation of a mental test score for assessment of mental impairment in the elderly. Age Ageing. 1972;1(4):233-238.

APPENDIX 4: PRESSURE ULCER CLASSIFICATION

International NPUAP-EPUAP Pressure Ulcer Classification¹⁵

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.

APPENDIX 5: FREQUENCY TABLES

See Appendix 1: Dataset V3 for Question (Q) references

Figure 4	Gender (HIPE variable)	<i>N</i>	<i>%</i>
	Male	881	29.7
	Female	2081	70.3
	Total	2962	100.0
Figure 5	Age Group: Male (HIPE variable)	<i>N</i>	<i>%</i>
	60-69	145	16.5
	70-79	286	32.5
	80-89	335	38.0
	90+	115	13.1
	Total	881	100.0
	Age Group: Female (HIPE variable)	<i>N</i>	<i>%</i>
	60-69	251	12.1
	70-79	557	26.8
	80-89	928	44.6
	90+	345	16.6
	Total	2081	100.0
Figure 6	Source of Admission (HIPE variable)	<i>N</i>	<i>%</i>
	Home	2451	82.7
	Nursing Home, Convalescent Home or Other Long-Stay Accommodation	224	7.6
	Transfer from HIPE/Acute Hospital ^(6a) , ^(6b)	269	9.1
	All Other Sources ^(6c)	18	0.6
	Total	2962	100.0
	^(6a) HIPE transfers relate to inpatients only.		
	^(6b) Includes transfers from hospital in HIPE Hospital Listing or transfer from any acute hospital not in HIPE Hospital listing.		
	^(6c) Includes 'Transfer from 'Non-Acute Hospital not in HIPE Hospital listing', 'Transfer from Hospice not in HIPE Hospital Listing', and 'Transfer from Psychiatric Hospital/Unit' categories which are not itemised separately for patient confidentiality reasons as well as the 'Temporary Place of Residence' category with 11 cases recorded.		
Figure 7	AMT Performed (Q7)	<i>N</i>	<i>%</i>
	Yes	282	9.5
	No	2338	78.9
	Patient Refused	13	0.4
	Not Documented	29	1.0
	Missing Value (blank)	300	10.1
	Total	2962	100.0
	AMT Scores (Q7A)	<i>N</i>	<i>%</i>
	0 - 6	73	25.9
	7 - 10	209	74.1
	Total	282	100.0

APPENDIX 5: FREQUENCY TABLES

See Appendix 1: Dataset V3 for Question (Q) references

Figure 8	ASA Grade Completeness (Q12A) ^(8a)	<i>N</i>	%
	Grade Known ^(8b)	2563	90.7
	Grade Not Documented	225	8.0
	Missing Value (blank)	39	1.4
	Total	2827	100.0
	ASA Grade (Q12A) ^(8b)	<i>N</i>	%
	1	71	2.8
	2	1051	41.0
	3	1303	50.8
	4	131	5.1
	5	7	0.3
	Total	2563	100.0

^(8a) Relates to cases with values 1 - 88 recorded for Q12.

^(8b) Relates to cases with grades of 1-5 recorded.

Figure 9	Pre-Fracture Mobility Completeness (Q6)	<i>N</i>	%
	Mobility Known ⁽⁹⁾	2170	73.3
	Mobility Not Known	792	26.7
	Total	2962	100.0
	Pre-Fracture Mobility (Q6) ⁽⁹⁾	<i>N</i>	%
	Freely Mobile Without Aids	1039	47.9
	Mobile Outdoor One Aid	284	13.1
	Mobile Outdoor Two Aids/Frame	376	17.3
	Some Indoor Mobility but Never Goes Without Help Outside	443	20.4
	No Functional Mobility Using Lower Limbs	28	1.3
	Total	2170	100.0

⁽⁹⁾ Relates to cases with values 1-5 recorded for Q6. This data item was revised and expanded during the reporting period and for completeness the two versions have been combined with a new to old mapping.

Figure 10	Type of Fracture (Q8A)	<i>N</i>	%
	Intracapsular-displaced	1091	36.8
	Intracapsular-undisplaced	337	11.4
	Intertrochanteric	1042	35.2
	Subtrochanteric	206	7.0
	Other	26	0.9
	Not Documented	247	8.3
	Missing Value (blank)	13	0.4
	Total	2962	100.0

Figure 12	Mode of Admission to Operating Hospital (Composite Variable) ^(12a)	<i>N</i>	%
	via ED	2647	89.4
	- via ED direct	2562	86.5
	- via ED indirectly (i.e. via first presenting hospital) or Not Known if direct or not ^(12b)	85	2.9
	Seen by Orthopaedic team	315	10.6
	Total	2962	100.0

^(12a) Derived from Q3-Q4B and Q4F-Q4G, see Appendix 6: Specifications for Composite Variables.

^(12b) Includes 'Not Known' category which is not itemised separately for patient confidentiality reasons.

APPENDIX 5: FREQUENCY TABLES

See Appendix 1: Dataset V3 for Question (Q) references

Figure 13	Admission to Orthopaedic Ward (Composite Variable) ⁽¹³⁾	<i>N</i>	%
	Admitted to Orthopaedic Ward	2620	88.5
	- admitted within 4 hours	286	9.7
	- admitted after 4 hours	2295	77.5
	- time interval not known	39	1.3
	Never Admitted to Orthopaedic Ward	327	11.0
	Not Known	15	0.5
	Total	2962	100.0

⁽¹³⁾ Derived from Q3-Q4B, Q4F-Q4H and Q5-Q5B, see Appendix 6: Specifications for Composite Variables.

Figure 14	Surgery Performed (Q12)	<i>N</i>	%
	Yes ^(14a)	2827	95.4
	No Operation Performed	124	4.2
	Missing Value (blank)	11	0.4
	Total	2962	100.0

^(14a) Relates to cases with values 1 - 88 recorded.

Figure 15	Time to Surgery - 48 Hours / Working Hours	<i>N</i>	%
	(Composite Variable) ⁽¹⁵⁾		
	Within 48 Hours and Working Hours (Mon-Sun 08:00-17:59)	2038	72.1
	Within 48 Hours but Out-of-Hours (Mon-Sun 18:00-07:59)	48	1.7
	After 48 Hours	726	25.7
	Not Known	15	0.5
	Total	2827	100.0

⁽¹⁵⁾ Derived from Q3-Q4B, Q4F-Q4H, Q5-Q5B, Q12 and Q12E-Q12F, see Appendix 6: Specifications for Composite Variables.

Figure 16	Reason for Surgery Delay Beyond 48 Hours (Q12H) ^(16a)	<i>N</i>	%
	Awaiting Orthopaedic Diagnosis or Investigation	39	5.4
	Awaiting Medical Review, Investigation or Stabilisation	392	54.0
	Awaiting Inpatient or High Dependency Bed	11	1.5
	Awaiting Space on Theatre List	103	14.2
	Cancelled Due to List Over-Run	68	9.4
	Other	21	2.9
	Not Documented	27	3.7
	Missing Value (blank) ^(16b)	65	9.0
	Total	726	100.0

^(16a) Relates to Figure 14's 'After 48 Hours' cases.

^(16b) Includes invalid 'No delay - surgery <48 hours' cases.

Figure 18	Assessment by Geriatrician and When Assessed	<i>N</i>	%
	(Composite Variable) ⁽¹⁸⁾		
	Yes	1588	53.6
	- pre-operative	439	14.8
	- at any other time during admission	1135	38.3
	- not known	14	0.5
	No	1304	44.0
	Not Known	70	2.4
	Total	2962	100.0

⁽¹⁸⁾ Derived from Q11 and Q11A, see Appendix 6: Specifications for Composite Variables.

APPENDIX 5: FREQUENCY TABLES

See Appendix 1: Dataset V3 for Question (Q) references

Figure 19	Type of Anaesthesia (Q12B) ^(19a)	<i>N</i>	<i>%</i>
	GA Only	380	13.4
	GA & Nerve Block	175	6.2
	GA & Spinal Anaesthesia	85	3.0
	GA & Epidural Anaesthesia	7	0.2
	SA Only	1681	59.5
	SA & Nerve Block	417	14.8
	SA & Epidural (CSE)	13	0.5
	Other	16	0.6
	Missing Value (blank) ^(19b)	53	1.9
	Total	2827	100.0

^(19a) Relates to cases with values 1 - 88 recorded for Q12.

^(19b) Includes 'Not Documented' category which is not itemised separately for patient confidentiality reasons.

Figure 20	Type of Surgery (Q12) ⁽²⁰⁾	<i>N</i>	<i>%</i>
	Internal Fixation DHS	703	24.9
	Internal Fixation Screws	43	1.5
	Internal Fixation IM Nail Long	305	10.8
	Internal Fixation IM Nail Short	282	10.0
	Arthroplasty Hemi Uncemented	394	13.9
	Arthroplasty Hemi Cemented	997	35.3
	Arthroplasty THR Uncemented	44	1.6
	Arthroplasty THR Cemented	32	1.1
	Other	27	1.0
	Total	2827	100.0

⁽²⁰⁾ 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 21	Type of Surgery for Undisplaced Intracapsular Fractures ^{(20), (21a)}	<i>N</i>	<i>%</i>
	Internal Fixation DHS	74	24.4
	Internal Fixation Screws	17	5.6
	Arthroplasty Hemi Uncemented	62	20.5
	Arthroplasty Hemi Cemented	144	47.5
	Other ^(20b)	6	2.0
	Total	303	100.0

^(21a) Relates to surgery for undisplaced intracapsular fractures only (Q8A=2).

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

APPENDIX 5: FREQUENCY TABLES

See Appendix 1: Dataset V3 for Question (Q) references

Figure 22	Type of Surgery for Displaced Intracapsular Fractures ^{(20), (22a)}	<i>N</i>	%
	Internal Fixation DHS	40	3.7
	Internal Fixation Screws	9	0.8
	Internal Fixation IM Nail Long & Internal Fixation IM Nail Short ^(22b)	16	1.5
	Arthroplasty Hemi Uncemented	212	19.8
	Arthroplasty Hemi Cemented	739	68.9
	Arthroplasty THR Uncemented	31	2.9
	Arthroplasty THR Cemented	25	2.3
	Total	1072	100.0
	^(22a) Relates to surgery for displaced intracapsular fractures only (Q8A=1).		
	^(22b) Includes 'Other' category which is not itemised separately for patient confidentiality reasons.		
Figure 23	Type of Surgery for Intertrochanteric Fractures ^{(20), (23a)}	<i>N</i>	%
	Internal Fixation DHS	534	53.1
	Internal Fixation Screws	14	1.4
	Internal Fixation IM Nail Long	144	14.3
	Internal Fixation IM Nail Short	245	24.4
	Arthroplasty Hemi Uncemented	17	1.7
	Arthroplasty Hemi Cemented	41	4.1
	Other ^(23b)	11	1.1
	Total	1006	100.0
	^(23a) Relates to surgery for intertrochanteric fractures only (Q8A=3).		
	^(23b) Includes 'Arthroplasty THR Uncemented' and 'Arthroplasty THR Cemented' categories which are not itemised separately for patient confidentiality reasons.		
Figure 24	Type of Surgery for Subtrochanteric Fractures ^{(20), (24a)}	<i>N</i>	%
	Internal Fixation DHS	14	7.0
	Internal Fixation IM Nail Long	139	69.2
	Internal Fixation IM Nail Short	27	13.4
	Other ^(24b)	21	10.4
	Total	201	100.0
	^(24a) Relates to surgery for subtrochanteric fractures only (Q8A=4).		
	^(24b) Includes 'Internal Fixation Screws' and 'Arthroplasty Hemi Cemented' categories which are not itemised separately for patient confidentiality reasons.		
Figure 25	Cementing of Arthroplasties ^{(20), (25)}	<i>N</i>	%
	Cemented	1029	70.1
	Uncemented	438	29.9
	Total	1467	100.0
	⁽²⁵⁾ Hemi and THR arthroplasties have been combined for both cemented and uncemented types.		

APPENDIX 5: FREQUENCY TABLES

See Appendix 1: Dataset V3 for Question (Q) references

Figure 26	Mobilisation on Day of or Day After Surgery, and Mobilised By (Composite Variable) ⁽²⁶⁾	<i>N</i>	%
	Yes	2059	72.8
	- by physiotherapist	1913	67.7
	- by other	137	4.8
	- by whom not known	9	0.3
	No	698	24.7
	Not Known	70	2.5
	Total	2827	100.0

⁽²⁶⁾ Derived from Q12J and Q12J2, see Appendix 6: Specifications for Composite Variables.

Figure 27	Pressure Ulcers (Q14) ⁽²⁷⁾	<i>N</i>	%
	Yes	111	3.9
	No	2624	93.0
	Not Documented	38	1.3
	Missing Value (blank)	47	1.7
	Total	2820	100.0

⁽²⁷⁾ Excludes patients who died in hospital.

Figure 28	Bone Protection Assessment/Medication (Q16) ⁽²⁸⁾	<i>N</i>	%
	No Assessment or Action Taken	715	25.4
	Started on this Admission	947	33.6
	Continued from Pre-Admission	358	12.7
	Awaits DXA Scan	181	6.4
	Awaits OutPatient Assessment	410	14.5
	Assessed - No Bone Protection Medication Needed/Appropriate	155	5.5
	Missing Value (blank)	54	1.9
	Total	2820	100.0

⁽²⁸⁾ Excludes patients who died in hospital.

Figure 29	Specialist Falls Assessment (Q15) ⁽²⁹⁾	<i>N</i>	%
	No	1425	50.5
	Yes - Performed on This Admission	1335	47.3
	Yes - Awaits Further OutPatient Assessment	15	0.5
	Missing Value (blank)	45	1.6
	Total	2820	100.0

⁽²⁹⁾ Excludes patients who died in hospital.

APPENDIX 5: FREQUENCY TABLES

See Appendix 1: Dataset V3 for Question (Q) references

Figure 30	Discharge Destination (HIPE variable)	<i>N</i>	<i>%</i>
	Home	896	30.2
	Nursing Home, Convalescent Home or Other Long-Stay Accommodation	1179	39.8
	Transfer to HIPE/Acute Hospital ^(30a)	549	18.5
	Died	142	4.8
	Transfer to External Rehabilitation Facility not in HIPE listing	153	5.2
	All Other Destinations ^(30b)	43	1.5
	Total	2962	100.0
^(30a) 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.			
^(30b) Includes 'Transfer to Psychiatric Hospital/Unit', 'Absconded', 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', 'Hospice (not in HIPE Hospital Listing)' and 'Other' categories with 7, 14, 7 and 6 cases recorded respectively.			
Figure 31	Length of Stay (HIPE variable)	<i>N</i>	<i>%</i>
	Acute Stay (<=30 days)	2500	84.4
	Extended Stays (>30 days)	462	15.6
	Total	2962	100.0
	Length of Stay (HIPE variable)	Mean LOS	Median LOS
	Acute Stay (<=30 days)	12.4	11
	Extended Stays (>30 days)	64.0	47
	Total	20.5	13
Figure 32	Re-operation within 30 days (Q12K) ^(32a)	<i>N</i>	<i>%</i>
	No	2714	96.0
	Yes ^(32b)	41	1.5
	Not Documented	17	0.6
	Missing Value (blank)	55	1.9
	Total	2827	100.0
	^(32a) Relates to cases with values 1 - 88 recorded for Q12.		
	^(32b) Relates to cases with values 1 - 8 recorded for Q12K.		

APPENDIX 6: SPECIFICATIONS FOR COMPOSITE VARIABLES

As illustrated in Figures 12, 13, 15, 18 and 26. See Appendix 1: Dataset V3 for Question (Q) references.

FIGURE 12: 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 Orthopaedic Team	If Q4=2

*** Assumption:** 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 13: ADMISSION TO ORTHOPAEDIC WARD

13.1. Composite variable based on Q3-Q4B, Q4F-Q4H, 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

13.2. 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 (i) for inpatient fall cases (Q4H=1) the time interval is calculated from the date and time seen by orthopaedic team in operating hospital (Q4F-Q4G) to the date & time admitted to orthopaedic ward (Q5A-Q5B); (ii) for other cases the time interval is calculated from the date/time of arrival at either the first presenting hospital (Q3-Q3A) or from the date/time seen by orthopaedic team (Q4F-Q4G), whichever is earlier, to the date and time admitted to orthopaedic ward (Q5A-Q5B); and If date/time of arrival at the first presenting hospital (Q3-Q3A) is not recorded, and date/time seen by orthopaedic team (Q4F-Q4G) postdates date and time admitted to orthopaedic ward (Q5A-Q5B) then the time interval is set at zero minutes.

13.3. 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)

13.4. Blue Book Standard 1, Table 3, excludes both the 'time interval not known' and the 'Not Known' categories.

APPENDIX 6: SPECIFICATIONS FOR COMPOSITE VARIABLES

As illustrated in Figures 12, 13, 15, 18 and 26. See Appendix 1: Dataset V3 for Question (Q) references.

FIGURE 15: TIME TO SURGERY – 48 HOURS/WORKING HOURS

15.1. Composite variable based on Q3-Q4B, Q4F-Q4H, 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

15.2. 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 and 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 (i) for inpatient fall cases (Q4H=1) the time interval is calculated from the date and time seen by orthopaedic team in operating hospital (Q4F-Q4G) to the date & time of surgery (Q12E-Q12F); (ii) for other cases the time interval is calculated from the date/time of arrival at either the first presenting hospital (Q3-Q3A) or from the date/time seen by orthopaedic team (Q4F-Q4G), whichever is earlier, to the date and time of surgery (Q12E-Q12F); (iii) if date/time of arrival at the first presenting hospital (Q3-Q3A) is not recorded, and date/time seen by orthopaedic team (Q4F-Q4G) postdates date and time admitted to orthopaedic ward (Q5A-Q5B) then the time interval is calculated from the date/time of admission to orthopaedic ward to the date and time of surgery (Q12E-Q12F); and (iv) if Q3-Q3A and 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.

15.3. 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)

15.4. Blue Book Standard 2, Table 3, excludes the 'Not Known' category.

APPENDIX 6: SPECIFICATIONS FOR COMPOSITE VARIABLES

As illustrated in Figures 12, 13, 15, 18 and 26. See Appendix 1: Dataset V3 for Question (Q) references.

FIGURE 18: ASSESSMENT BY GERIATRICIAN, AND WHEN ASSESSED

Composite variable based on Q11 and Q11A as follows:

Category	Specification
Yes	If Q11A=1
- pre-operative	If Q11A=1 and Q11=1
- at any other time during admission	If Q11A=1 and Q11=6
- not known	if Q11A=1 and Q11=blank or 9
No	If Q11A=2
Not Known	Q11A=blank or 9

FIGURE 26: MOBILISED ON DAY OF OR DAY AFTER SURGERY, AND MOBILISED BY

Composite variable based on Q12J and Q12J2 as follows:

Category	Specification
Yes	If Q12J=1
- by physiotherapist	If Q12J=1 and Q12J2=1
- by other	If Q12J=1 and Q12J2=8
- by whom not known	if Q12J=1 and Q12J2=blank or 9
No	If Q12J=2
Not Known	Q12J=blank or 9

APPENDIX 7: ADDITIONAL INFORMATION

See Appendix 1: Dataset V3 for Question (Q) References.

Q2	TYPE OF TRAUMA	N	%
	High Energy	115	3.9
	Low Energy	2720	91.8
	Not Known	127	4.3
	Total	2962	100.0
Q9	PATHOLOGICAL	N	%
	Atypical	105	3.5
	Malignancy	33	1.1
	No	2441	82.4
	Not Known	383	12.9
	Total	2962	100.0
Q10	HISTORY OF PREVIOUS FRAGILITY FRACTURE	N	%
	Yes	644	21.7
	No	2105	71.1
	Not Known	213	7.2
	Total	2962	100.0
Q11 B	GERIATRICIAN GRADE ^(a)	N	%
	Consultant	965	60.8
	Specialist Registrar	180	11.3
	Registrar ^(b)	270	17.0
	Not Known	173	10.9
	Total	1588	100.0
Q12 C	SURGEON GRADE ^(c)	N	%
	Consultant	1347	47.6
	Specialist Registrar	638	22.6
	Registrar	493	17.4
	SHO ^(b)	10	0.4
	Not Known	339	12.0
	Total	2827	100.0
Q12 D	ANAESTHETIST GRADE ^(c)	N	%
	Consultant	2038	72.1
	Specialist Registrar	111	3.9
	Registrar	203	7.2
	SHO ^(b)	12	0.4
	Not Known	463	16.4
	Total	2827	100.0
Q17	MULTIDISCIPLINARY REHABILITATION TEAM ASSESSMENT ^(d)	N	%
	Yes	2526	89.6
	No	242	8.6
	Not Known	52	1.8
	Total	2820	100.0

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

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

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

(d) Excludes patients who died in hospital.

NOTES

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