Learning from the findings of the National Hip Fracture Database (NHFD) to improve outcome for Hip Fracture patients

Chris Boulton, NHFD project manager
March 2016
National Clinical Audit and Patient Outcomes Programme

Care Quality Improvement Department
Clinical Effectiveness and Evaluation Unit
Falls and Fragility Fracture Audit Programme

FLS-DB  NHFD  Falls audit
Confidentiality Advisory Group

Hospitals across England, Wales and Northern Ireland
Falls and Fragility Fracture Audit Programme

- Commissioned by Healthcare Quality Improvement Partnership
- Managed by Royal College of Physicians

- National Hip Fracture Database (NHFD)
- Fracture Liaison Service Database (FLS-DB)
- Falls Pathway Workstream
445,000 cases
100% of hospitals
>95% of all cases
1. Admission to orthopaedic ward within 4 hours
2. Surgery within 48 hours and during working hours
3. Patients developing pressure ulcers
4. Pre-operative assessment by an orthogeriatrician
5. Discharged on bone protection medication
6. Received a falls assessment prior to discharge
Fitted trends in adjusted 30-day mortality before and after launch of NHFD

Notes: Y axis is on log scale, labelled on natural scale. The log rate was fitted as linear function of continuous time measured in 3-month intervals. An interaction term was included to test for a change in slope comparing 2007-2011 to 2003-2007. Adjustment made for age and sex.
• A description of facilities...

Trends in unit staffing 2010-13
...and practice
Welcome to the National Hip Fracture Database (NHFD)

The NHFD is a national clinical audit project designed to facilitate improvements in the quality of hip fracture care.

2015 Annual report

This report considers the care of patients with hip fracture, but it also has much wider implications. Hip fracture is an ideal marker condition with which to examine and challenge the quality and outcome of the care offered to frail and older patients by the modern NHS.

Download Report

Previous Reports

Hospital dashboards

Progress charts and summaries for every hospital participating in the audit database.

In association with:

- British Orthopaedic Association
- RCS
- ageUK
- National Osteoporosis Society
- Falls and Fractures Alliance
- HQIP

Commissioned by:
### NHFD 2015 Dashboard Reports

To view a hospital dashboard report, please select a region from the list below:

- East Midlands
- East of England
- London
- North East
- North West
- Northern Ireland
- South Central
- South East
- South West
- Wales
- West Midlands
- Yorkshire and the Humber
NHFD 2015 Dashboard Reports for the East of England Region

To access dashboard report for a specific hospital, please select the required hospital from the choices below:

- ADD. Addenbrooke's Hospital
- BAS. Basildon
- BED. Bedford Hospital
- BFH. Broomfield Chelmsford
- COL. Colchester General Hospital
- ENH. East and North Herts Hospital
- HIN. Hinchingbrooke Hospital
- IPS. The Ipswich Hospital
- JPH. James Paget Hospital
- LDH. Luton & Dunstable Hospital
- NOR. Norfolk and Norwich Hospital
- PAH. Princess Alexandra Hospital
- PET. Peterborough City Hospital
- QKL. Queen Elizabeth Hospital (King's Lynn)
- SEH. Southend Hospital
- WAT. Watford General Hospital
- WSH. West Suffolk Hospital

[Back to hospital regions]
### East Midlands

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Hospital code</th>
<th>Number of cases submitted</th>
<th>Admitted to orthopaedic ward within 4 hours (%)</th>
<th>Mental tests score recorded on admission (%)</th>
<th>Participative medical assessment (%)</th>
<th>Mobilised out of bed on the day after surgery (%)</th>
<th>Received falls assessment (2016-17) (%)</th>
<th>Received bone health assessment (2016-17) (%)</th>
<th>Met all the criteria for best practice tariff (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chesterfield Royal Hospital</td>
<td>CHE</td>
<td>375</td>
<td>51.9</td>
<td>95.7</td>
<td>92.3</td>
<td>38.7</td>
<td>100.0</td>
<td>99.1</td>
<td>59.0</td>
</tr>
<tr>
<td>Derbyshire Royal Infirmary, Derby</td>
<td>DER</td>
<td>572</td>
<td>63.1</td>
<td>98.6</td>
<td>83.5</td>
<td>99.4</td>
<td>99.1</td>
<td>81.6</td>
<td></td>
</tr>
<tr>
<td>Grantham and District Hospital</td>
<td>GRA</td>
<td>58</td>
<td>55.2</td>
<td>97.0</td>
<td>94.5</td>
<td>81.6</td>
<td>59.6</td>
<td>63.2</td>
<td>29.3</td>
</tr>
<tr>
<td>Kettering General Hospital</td>
<td>KGH</td>
<td>370</td>
<td>84.9</td>
<td>94.6</td>
<td>68.4</td>
<td>91.9</td>
<td>96.0</td>
<td>50.6</td>
<td></td>
</tr>
<tr>
<td>King’s Mill Hospital, Sutton in Ashfield</td>
<td>KMH</td>
<td>396</td>
<td>69.1</td>
<td>96.7</td>
<td>60.9</td>
<td>96.9</td>
<td>86.1</td>
<td>91.6</td>
<td>19.6</td>
</tr>
<tr>
<td>Leicester Royal Infirmary</td>
<td>LER</td>
<td>775</td>
<td>33.6</td>
<td>93.5</td>
<td>82.1</td>
<td>73.5</td>
<td>90.6</td>
<td>90.3</td>
<td>39.5</td>
</tr>
<tr>
<td>Lincoln County Hospital</td>
<td>LIN</td>
<td>355</td>
<td>43.5</td>
<td>100.0</td>
<td>92.4</td>
<td>66.1</td>
<td>99.7</td>
<td>99.7</td>
<td>82.9</td>
</tr>
<tr>
<td>Northampton General Hospital</td>
<td>NTH</td>
<td>365</td>
<td>19.9</td>
<td>97.8</td>
<td>93.7</td>
<td>97.6</td>
<td>97.9</td>
<td>99.1</td>
<td>64.1</td>
</tr>
<tr>
<td>Pilgrim Hospital, Boston</td>
<td>PIL</td>
<td>342</td>
<td>84.6</td>
<td>100.0</td>
<td>98.2</td>
<td>63.3</td>
<td>100.0</td>
<td>100.0</td>
<td>92.5</td>
</tr>
<tr>
<td>University Hospital Nottingham</td>
<td>UHN</td>
<td>800</td>
<td>81.5</td>
<td>98.1</td>
<td>92.3</td>
<td>65.7</td>
<td>98.4</td>
<td>98.2</td>
<td>68.0</td>
</tr>
</tbody>
</table>

**East Midlands (Average):**

- 4,408 cases submitted
- 55.7% admitted within 4 hours
- 96.3% mental test score recorded on admission
- 81.0% participative medical assessment
- 64.4% mobilised out of bed on the day after surgery
- 92.3% received falls assessment
- 93.6% received bone health assessment
- 58.8% met all criteria for best practice tariff

**Overall (Average):**

- 64,102 cases submitted
- 46.1% admitted within 4 hours
- 94.5% mental test score recorded on admission
- 85.3% participative medical assessment
- 73.3% mobilised out of bed on the day after surgery
- 96.1% received falls assessment
- 96.5% received bone health assessment
- 63.3% met all criteria for best practice tariff
• Performance monitoring to support Best Practice Tariff

Example of BPT achievement chart
• Support for clinical governance in individual hospitals

NHFD ‘live’ online reporting
• Support for clinical governance in individual hospitals

NHFD ‘live’ online reporting
## Sacred Heart Hospital-Hip Fracture Audit

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Case ascertainment</td>
<td>E WL</td>
<td>97.4%</td>
<td>96.4%</td>
<td>93.5%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>All eligible patients</td>
<td></td>
<td></td>
<td></td>
<td>383 Cases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crude proportion of patients having surgery on the day or day after admission</td>
<td>E</td>
<td>60.2%</td>
<td>70.6%</td>
<td>74.6%</td>
<td>85%*</td>
<td>15-95</td>
</tr>
<tr>
<td>Crude perioperative medical assessment rate</td>
<td>E</td>
<td>85.4%</td>
<td>79.4%</td>
<td>91.4%</td>
<td>100%**</td>
<td>0-100</td>
</tr>
<tr>
<td>Crude percentage of patients documented as not developing a pressure ulcer</td>
<td>S</td>
<td>98.8%</td>
<td>98.5%</td>
<td>98.0%</td>
<td>n/a</td>
<td>0-100</td>
</tr>
<tr>
<td>Crude overall hospital length of stay</td>
<td>E R</td>
<td>18.7 days</td>
<td>14.2 days</td>
<td>20.1 days</td>
<td>n/a</td>
<td>9-48</td>
</tr>
<tr>
<td>Risk-adjusted 30-day mortality rate</td>
<td>E</td>
<td>3.2%</td>
<td>2.6%</td>
<td>7.5%</td>
<td>n/a</td>
<td>Below 95% control limit</td>
</tr>
</tbody>
</table>

Source: [National Hip Fracture Database](https://nationalhipfracturedatabase.org)

Anticipated date of next data feed is mm/yy

1 Jan 13 - Dec 13  
2 Jan 14 - Dec 14

* Audit recommendation  
** NICE Guideline
• Identification of outlier hospitals in respect of patient outcome

30 day mortality funnel
• A framework to support local and national audit work
• An infrastructure for scientific and research work

The Bone & Joint Journal

Leading research and clinical practice in orthopaedic surgery

Does cementing the femoral component increase the risk of peri-operative mortality for patients having replacement surgery for a fracture of the neck of femur? Data from the National Hip Fracture Database

Anaesthesia 2014
doi:10.1111/anae.12542

Original Article

Outcome by mode of anaesthesia for hip fracture surgery. An observational audit of 65 535 patients in a national dataset

S. M. White, I. K. Moppett and R. Griffiths

1 Consultant Anaesthetist, Brighton and Sussex University Hospitals NHS Trust, Brighton, East Sussex, UK
2 Associate Professor and Honorary Consultant Anaesthetist, Anaesthesia and Critical Care Research Group, Division of Clinical Neuroscience, University of Nottingham, Queen’s Medical Centre Campus, Nottingham University Hospitals NHS Trust, Nottingham, UK
3 Consultant Anaesthetist, Peterborough and Stamford Hospitals NHS Trust, Peterborough, UK

NHFD journal publications
A resource of specialist information, expertise and networking
NHFD reporting

- Hospital and CCG reports published
- CEO dashboards well received
- Patient report update January
- Mortality supplement February

- Surgery and anaesthetic run charts
- Public reporting
- CQC dashboards
- MyNHS and NHS Choices
My hip fracture care: 12 questions to ask
A guide for patients, their families and carers
Will a senior surgeon and anaesthetist be in charge of my operation?

Many people with hip fracture are very frail and this means that they will benefit from the care of an experienced surgeon and anaesthetist.

This will minimise the stress of the operation, and the best possible repair of the hip will improve prospects for rehabilitation.

In 2013 the NHFD recorded that for 69% of hip fracture operations, the orthopaedic surgeon and anaesthetist in theatre were both consultants or other senior specialists.

Notes
2015 NHFD annual report

Key findings

- 72.1% now receive surgery on their first or second day in hospital, but there remains unacceptable variation.
- 26.1% of the patients with displaced intracapsular fractures who met the clinical criteria were offered total hip replacement.
- 73.3% of patients were mobilised from bed on the day after surgery.
- 85.3% received orthogeriatric assessment in the perioperative period, but seven units (4%) reported that they still had no orthogeriatric service.
- Hip fracture teams lack input into rehabilitation and only 3% of hospitals have community rehabilitation team attending governance meetings.
2015 NHFD annual report

Standard: People with hip fracture have surgery on the day of, or the day after, admission

72.1% Range 14.7% - 95.3%
Standard: Offer patients a choice of spinal anaesthesia (SA) or general anaesthesia (GA) after discussing the risks and benefits.

Variation in practice suggests departmental preference rather than patient choice.
Standard: People with displaced intracapsular fracture receive cemented arthroplasty, with the offer of total hip replacement (THR) if clinically eligible.

2015 NHFD annual report

2015 82.3% of arthroplasties are cemented
2015 NHFD annual report

Standard: People with displaced intracapsular fracture receive cemented arthroplasty, with the offer of total hip replacement (THR) if clinically eligible

2015 26.1% of clinically eligible patient have a Total Hip Replacement
Standard: People with trochanteric fractures above and including the lesser trochanter (AO classification types A1 and A2) receive extramedullary implants such as a sliding hip screw (SHS) in preference to an intramedullary (IM) nail.

2015 81.7% of intertrochanteric fractures have a SHS
2015 NHFD annual report

- Mortality figures are obtained by matching NHFD records with those from the Office of National Statistics.
Public reporting

• For a number of years the public has had access to NHFD data through the transparency files held on the website.

• Once IT security issues have been addressed the public will be able to access charts driven by live data.

• Now there is access to the Annual dashboards provided to the CEO of each hospital.
### Fracture type

<table>
<thead>
<tr>
<th>Pathological</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atypical bisphosphonate related subtrochanteric fracture</td>
<td>M</td>
</tr>
<tr>
<td>Malignancy</td>
<td>M</td>
</tr>
<tr>
<td>No</td>
<td>M</td>
</tr>
<tr>
<td>Unknown</td>
<td>M</td>
</tr>
</tbody>
</table>

**Type of fracture** - Please note that selecting the correct fracture type affects the measurement of compliance with NICE guidance.

<table>
<thead>
<tr>
<th>M</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intracapsular - displaced</td>
<td>M</td>
</tr>
<tr>
<td>Intracapsular - undisplaced</td>
<td>M</td>
</tr>
<tr>
<td>Intertrochanteric – grade A1/A2</td>
<td>M</td>
</tr>
<tr>
<td>Intertrochanteric – grade A3 (reverse oblique)</td>
<td>M</td>
</tr>
<tr>
<td>Subtrochanteric</td>
<td>M</td>
</tr>
</tbody>
</table>

### Delirium

**Post-operative 4AT (in the week following surgery)**

<table>
<thead>
<tr>
<th>4AT</th>
<th>........ /12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not done/patient refused</td>
<td></td>
</tr>
</tbody>
</table>

### Nutrition

**Nutritional risk assessment performed on admission**

<table>
<thead>
<tr>
<th>M</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>M</td>
</tr>
<tr>
<td>Yes - malnourished</td>
<td>M</td>
</tr>
<tr>
<td>Yes – at risk of malnutrition</td>
<td>M</td>
</tr>
<tr>
<td>Yes - normal</td>
<td>M</td>
</tr>
</tbody>
</table>
New run charts
New run charts

Surgery - [All]

Percent (%)

Admission Year & Month

Royal College of Physicians
Falls and Fragility Fracture Audit Programme
What robust Clinical Audit can provide

- Structured approach to reviewing care against standards
- Opportunity to refine/improve clinical practice
- Prioritised local audit programme reflecting national and local priorities
- Mechanism to promote clinical engagement and learning across care pathways
- Increased confidence about care delivery
- Identification of risk, resource and service development implications

However, clinical audit

- Requires there to be explicit standards against which to assess care
- Will only bring about improvements with the support of clinical/non-clinical leaders to manage the changes required
- Should not be confused with research or service evaluations
Clinical leadership

• Clinical leads serve a vital function
  – They ensure the quality of data submitted
  – They see that their department is aware of the metrics provided by online charting
  – They use the NHFD output to inform service improvement through Programme Governance Meetings

• However
  – In the year July 2014-2015, only 79% of orthogeriatrician lead clinicians and 40% of orthopaedic surgeon lead clinicians orthopaedic logged in.
Weekend effect?

- Time to theatre 31.2 hours for presentation on Sun/Mon
- Time to theatres 34.4 hours for presentation on Friday
- Time to theatre 34.7 hours for presentation on Saturday

- Statistically significant (p<0.001)
- but not associated with any significant variation in LOS
Weekend effect?

• These results do not suggest that investment in theatre staffing (or in 7-day orthogeriatrician working) would be justifiable simply as a means of reducing costs through reducing LOS.

• Patients undergoing surgery on Friday and Saturday are significantly less likely to be mobilised on the day of or day after their operation than those undergoing surgery between Sunday and Thursday (72.1% vs 79.3%, \( p<0.001 \)).

• Mortality?
Analysis of local download of NHFD dataset for patients in Cardiff 2012
A suite of linked national clinical audits, driving improvements in care; managed by the Royal College of Physicians.

- Falls Pathway Workstream
- Fracture Liaison Service Database (FLS-DB)
- National Hip Fracture Database (NHFD)