



Improving understanding

The National Hip Fracture Database report on 2021

In association with



British Orthopaedic
Association



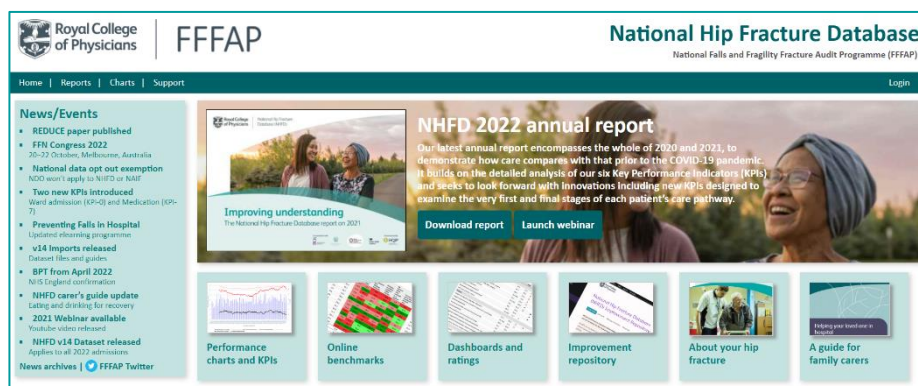
Commissioned by



Introduction

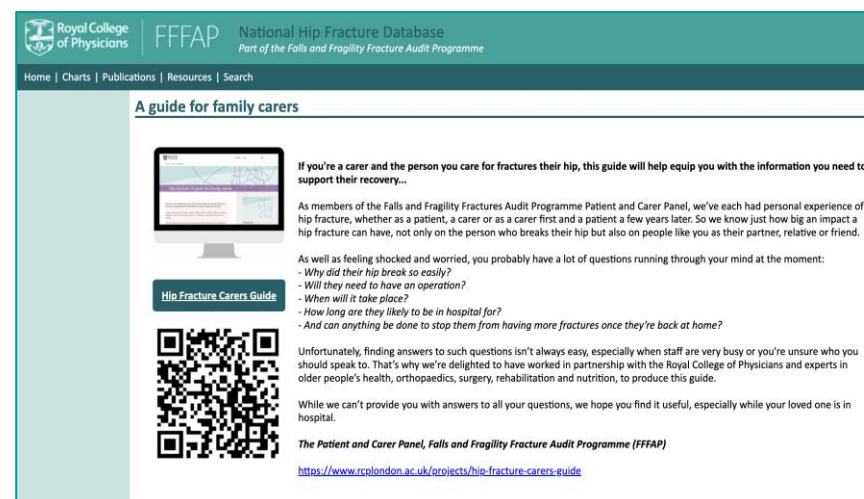
A broken hip or 'hip fracture' is a serious injury, which each year in the UK leads to around 75,000 people needing hospital admission, surgery and anaesthesia, followed by weeks of rehabilitation in hospital and the community. Since the injury typically affects older people, it is a particular challenge for those with pre-existing physical and mental health problems.

The [National Hip Fracture Database \(NHFD\)](#) seeks to pull together details of patients presenting with hip fracture in England and Wales, the care they receive and how quickly and completely they recover.



This information is collected as a routine part of patients' clinical care and [our website](#) analyses and compares the quality of care provided by 163 hospitals in England and Wales. As a direct result, [previous NHFD annual reports](#) have described major improvements in the quality of hip fracture care since the NHFD was set up in 2007.

The NHFD is one of three projects that make up the [Falls and Fragility Fracture Audit Programme \(FFFAP\)](#) at the [Royal College of Physicians \(RCP\)](#) and its work is guided and supported by a wide group of stakeholders, which includes [FFFAP's Patient and Carer Panel](#).



Members of the panel have personal experience of hip fracture and how big an impact it can have, not only on the person who breaks their hip but also on people like their partner, relative or friend.

The panel has developed resources to help support people with hip fracture, which are freely available from the [NHFD website](#).

This year they updated the ['eating and drinking' section](#) of our existing [carer's guide](#), explaining the importance of nutrition for patients and how their families and carers can contribute to this aspect of their care and recovery from a hip fracture. If you are a carer and the person you care for breaks their hip, this guide will provide information so you can help to support their recovery.

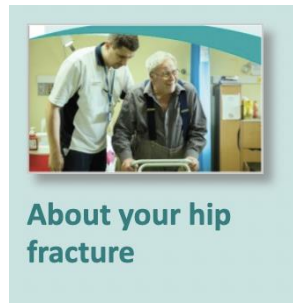
Signposting NHTD resources to clinical colleagues and managers

The NHTD seeks to help hospitals monitor and improve the care that they are offering, and to provide patients, their families and carers with information to help them understand this injury and the way in which it is treated by surgeons, anaesthetists, doctors, nurses and therapists.

What is a broken hip?

A hip fracture or broken hip is the commonest serious injury affecting older people that requires them to have emergency anaesthesia and surgery.

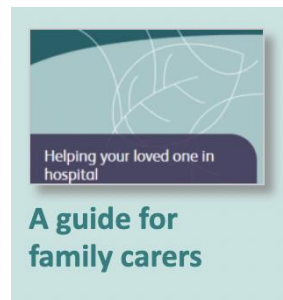
The [NHTD](#) is guided by a [Patient and Carer Panel](#), which has developed resources ([Your hip fracture](#); [Hip fracture: a guide for family carers](#)) to help people understand this injury, and the surgery and rehabilitation that will help to get them back on their feet.



We understand how great an impact a hip fracture can have, not only on the person who breaks their hip but also on their partner, relatives and friends.

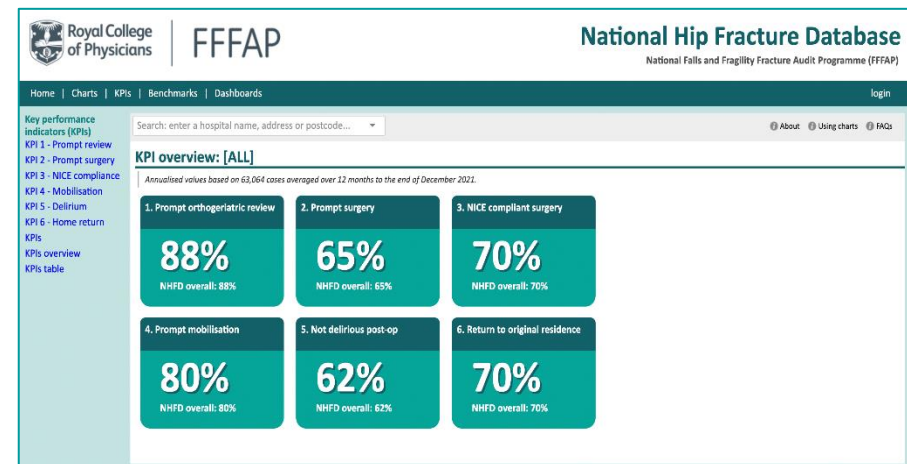
The support of informal carers is vital to many people even before they suffered a hip fracture. Our carer's guide provides information so they can continue to support their loved one's recovery.

We hope you find our resources useful, especially while you or your loved one is in hospital.



How well is my local hospital doing?

Click on this picture and type in the name of your hospital to see how it is performing in looking after people with hip fracture, using key performance indicators (KPIs):



KPI 1 tells you how many patients in this hospital receive combined care from an orthopaedic surgeon and a specialist in medicine for older people.

KPI 2 and **KPI 3** tell you how quickly people receive the type of hip operation recommended by the [National Institute for Health and Care Excellence \(NICE\)](#).

KPI 4 and **KPI 5** tell you how many people are able to get out of bed by the day after surgery and are checked to ensure that they are not confused in hospital.

KPI 6 reports how many people can expect to return to live in their previous home after care for hip fracture in this hospital.

Key findings

Key changes since the start of 2020

A report focused on 2021 would largely be a comparison of the first and second years of the COVID-19 pandemic. The complexities of each year and the implications of the pandemic for patients with hip fracture have been reviewed in our [BJJ editorial](#), and are reported in real time on [our website](#).

This annual report builds on the detailed analysis of our existing set of six KPIs in the [NHFD annual report 2021](#) and seeks to look forward.

Rather than just considering 2021, we have therefore extended this analysis to encompass both 2020 and 2021. This will allow readers to see how current care 'since COVID-19' compares with the baseline of 2019, 'before COVID-19', to review how resilient their service has proved.

The graph and table on the next page summarise the national picture and show that services have generally succeeded in getting patients out of bed by the day after surgery and then returning them to their original residence.

Provision of orthogeriatric assessment and screening for/prevention of postoperative delirium both temporarily deteriorated, in parallel with successive waves of the pandemic, but have since returned to baseline.

In contrast, there has been a more progressive and persistent deterioration in the promptness with which patients receive surgery and the extent to which the operation is consistent with the [recommendations of NICE](#).

Quality improvement platform

The NHFD has changed the landscape of hip fracture care, in part through its roles in developing and delivering [Best Practice Tariff \(BPT\)](#) for NHS England since 2011 and in driving the Welsh Government's system of performance management since 2019.

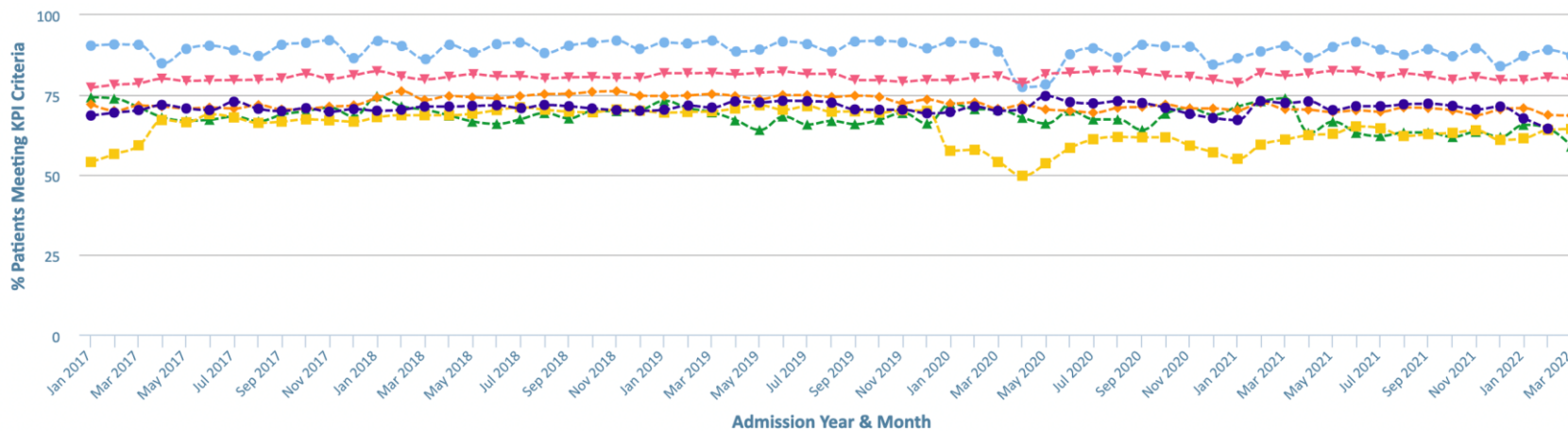
However, enormous variation in the quality and outcome of care persists around the country and this will only improve if all hospitals establish effective governance and QI linked to their NHFD data.

The NHFD is no longer an annual audit of services, but has developed into an online QI platform. Performance and outcome data for individual hospitals are freely available on [our website](#) and continuously updated, so local teams can see the immediate effect of service changes and QI work.

A major study linking NHFD website data, facilities surveys and HES data has confirmed the key role of monthly hip fracture service governance meetings ([REDUCE 2022](#)). The structure of hip fracture service governance meetings in different hospitals will depend on the organisation of the multidisciplinary team (MDT).

The NHFD recommends that governance meetings of surgical, orthogeriatric, anaesthetic, nursing, therapy and management leads should take place on at least a monthly basis.

Most metrics and KPIs will not vary significantly from month to month, so hip fracture service governance meetings should review their performance on a quarterly basis. The intervening meetings provide an opportunity to establish and monitor the impact of local QI initiatives.



- Prompt orthogeriatric review % (k1)
- Prompt surgery % (k2)
- NICE compliant surgery % (k3)
- Prompt mobilisation % (k4)
- Not delirious post-op % (k5)
- Return to original residence % (k6)

Changes in KPIs for hip fracture across 2 years of the COVID-19 pandemic

Comparing NHFD data for 2019 and 2021

KPI	Before COVID-19 data for 2019	Since COVID-19 data for 2021		
1	Will I see both a surgeon and a medical specialist after breaking my hip?	91%	88%	Prompt assessment was affected in the first wave, with isolation, illness and redeployment of orthogeriatricians to COVID-19 work, but hospitals rapidly re-established orthogeriatric support, reducing the impact of subsequent waves so that KPI 1 remained at nearly 90% when averaged over the whole of the two years.
2	Will my operation be done today or tomorrow?	68%	66%	Non-operative management increased only transiently at the start of the first wave. KPI 2 was unaffected over 2020, but there was an abrupt change (from 74% to 63%) between March and April 2021, perhaps reflecting the impact of increased attention to elective orthopaedic services around this time.
3	Will my surgeon offer the operation recommended by NICE?	74%	71%	The first wave led to a small reduction in the number of people receiving total hip replacement, compounding an existing trend in response to recent trial data, but 2021 saw a slight increase in THR use. The rate of intramedullary nails for A1/A2 trochanteric fracture increased slightly across both years.
4	Will I be able to get out of bed by the day after my operation?	81%	81%	The start of COVID-19 led to a huge collaborative effort by hospital teams, families, carers and others so that length of stay fell at the height of the first wave. The focus on a prompt start to rehabilitation has been maintained, and KPI 4 continued to be unaffected by later waves; remaining at 81% across the whole of these two years.
5	Will you check that I do not become confused?	58%	62%	This KPI was made more rigorous in January 2020; requiring 4AT within 72 hours of surgery. Disruption during the first and second waves was an additional challenge but 4AT screening improved over 2021, so that across the two years we can report a 4% increase in how many patients were known not to have developed delirium.
6	Will you check that I get back to live in my usual home?	71%	70%	Patients view returning home as a priority. Collaborative working means that despite the pressures on hospital teams, community services and care homes through the course of 2020, hip fracture teams continued to record that 70% of people still achieved this in 2021.

Key recommendations

The NHFD is moving to a quarterly reporting cycle. This annual report seeks to encourage local teams, hospital managers and health service leadership to move from the traditional focus on an annual report.

[Benchmarking tables](#) and [mortality data](#) will be updated every quarter, so every third month the hip fracture team's governance meeting should take time to review their performance and outcome.

Some teams are still not confident in using our website as a basis for governance and QI, so we are launching a [Quarterly Governance Tool](#) to help them make the best use of their data. This tool includes links to help anyone attending governance meetings to navigate the appropriate pages of the NHFD website, allowing hip fracture team members, trainees and rotational staff to learn rapidly how to examine the completeness and quality of the data they are providing.

It also gives advice on how these data should be interpreted and suggestions as to how teams might respond to failings they identify. A screen shot of the tool can be seen on the following page.

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- 1 Hip fracture teams should use quarterly governance meetings to review the quality and outcome of the care they provide.
 - 2 Where performance is significantly below average (red in the caterpillar plots), units should formally discuss possible reasons for this within their regular MDT meeting, and plan a QI project to address it.
 - 3 Quarterly governance meetings should be taken as an opportunity for team members and trainees from all disciplines to make use of the [NHFD website](#) as a driver for QI; the new Quarterly Governance Tool is designed to help them do this.
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But it is vital that the momentum of QI is maintained between these quarterly reviews of progress.

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- 4 The NHFD recommends that governance meetings of surgical, orthogeriatric, anaesthetic, nursing, therapy and management leads should take place on at least a monthly basis.
 - 5 Monthly governance meetings should be used to plan appropriate QI interventions, and to monitor the impact of these using the real-time data reported in the [NHFD run charts](#).
 - 6 Hip fracture teams should use their [KPI caterpillar plots](#) to identify better-performing neighbouring units, so they can share best practice and network with them in designing QI work.
 - 7 Hip fracture teams should use [KPI 0](#) as a marker of initial care and a driver to improve the provision of local anaesthetic nerve blocks and fast-tracking of patients to an appropriate ward. Performance should be considered alongside the figures for their unit in the [Anaesthesia run chart](#) and [Assessment benchmarking table](#).
 - 8 To help patients avoid further fragility fractures, hip fracture team governance meetings should review KPI 7 alongside their Bone Medication Table and arrangements for 120-day follow-up.
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This report seeks to show how the vast range of patient and service information freely available on the [NHFD website](#) can be used to improve our understanding of this challenging clinical condition.

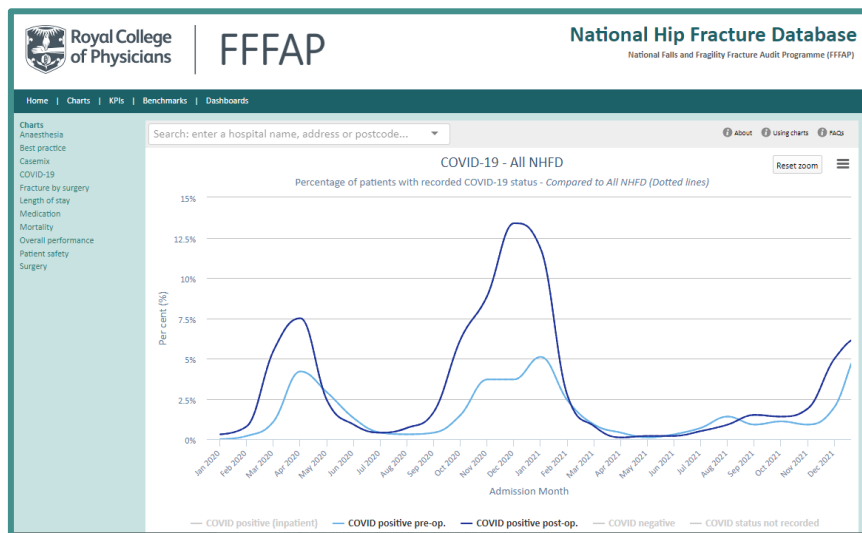
- 9 Hip fracture teams should signpost patients, their families and carers to the NHFD website resources designed to help them understand their care and recovery following a hip fracture.
 - 10 Hip fracture teams should use monthly governance meetings to review their policies and protocols, and to compare these with those in other units as described in the Facilities Survey.
 - 11 Hip fracture teams should minimise inequalities in health care; specifically by reviewing whether support and information are provided in formats and languages appropriate to their patients.
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A structure to guide review of data and performance in quarterly governance meetings of hip fracture teams

Quarterly Governance Meeting review tool: 2. How good is our performance?		
Click:	Ask:	QI recommendation:
KPI Overview ... and look up your hospital's name	How are we performing in terms of NHFD Key Performance Indicators? Are we below the national average on any of the Key Performance Indicators? Which KPIs should be a focus for attention in our hospital?	Make below average KPIs a focus for clinical governance
KPI Benchmarking ... and look up others in your region	How did our hospital's performance compare with others last year? Are we significantly below the national average on any of the KPIs? Are we significantly above the national average on any of the KPIs?	Make KPIs that are significantly low the focus for local QI
How does our hospital's performance compare with others in the country?		
... flick through the caterp learn or with whom you m	Quarterly Governance Meeting review tool: 1. How good are our NHFD data?	
Click:	Ask:	QI recommendation:
Attention to comfort	How confident are we that we are submitting data on all of our patients?	
Orthogeriatric Review	Does the total number of people presenting with hip fracture (blue bar chart) fit with previous years?	If there is a problem than consider a review of case finding to ensure you're not missing patients who should have been entered
Prompt Surgery	Does the total number presenting with hip fracture (blue bar chart) fit with any recent change in your service?	
NICE Compliant Surger	How confident are we of the quality of the data we are submitting?	
Prompt Mobilisation	Is 'missing data' (solid black line) as good as the national average (dashed black line)	
Delirium Free	Are key 'casemix data' (red, yellow, green, blue lines) broadly consistent with the national picture If not then is this something that you'd expect given what you know about your local population? Or might it suggest errors in the data being collected and submitted by your local team?	If you find a problem then consider a review of how relevant data are recorded in patient notes, collected and submitted
Returned Home	How are we performing in terms of casemix adjusted 30 day mortality?	
Bone protection	Is there a substantial difference between crude (dotted black line) and casemix adjusted (solid black line) 30 day mortality	If so then this may reflect a problem with the completeness or quality of submitted data (see above)
KPI Runchart	Is casemix adjusted mortality is above 95% (blue) control line your clinical leads will be notified to address this before it reaches 'outlier' status (below). If remains above 99.8% (red) line for two quarters then clinical leads and hospital execs. will be informed about formal outlier management process Is your casemix adjusted mortality below the lower control limits?	Root cause analysis may help to identify avoidable or preventable factors which might play a part in individual cases and which might provide a focus for local QI work. If so then this is an achievement to celebrate with your local team
120 day follow-up questionnaire ... review feedback you have received	What do our patients think of the care they received? How do our patients rate their care on the NHS Friends and Family Test? What issues and suggestions do they mention in their feedback questionnaire? Do patients report problems, eg. with obtaining prescriptions or side-effects of bone strengthening treatment?	Encourage trainees to collate and present patient feedback so a team action plan can be discussed at monthly governance meeting

Understanding COVID-19

Individual hospitals have access to the detail of COVID-19 infection among their inpatients in the form of a run chart showing how successive waves of the pandemic affected their patients, both before and after surgery. The national picture is demonstrated in this image.



Detailed work linking NHFD data to COVID-19 swab results from Public Health England allowed an analysis of over 100,000 people with hip fracture, half of them presenting during the pandemic ([Holleyman 2022](#)).

This identified a twofold increase in mortality for people with COVID-19 at presentation, a 2.5-fold increase in risk when the infection arose 8 to 30 days after presentation, and 1,273 excess deaths within 90 days of hip fracture in the first half of 2020. Malnutrition and non-operative treatment were the only modifiable risk factors for death in COVID-19-positive patients.

The global pandemic demonstrated the need for healthcare to learn from the experience of other countries, with this being most effective when allowing for direct comparisons to be made for similar patient groups in different countries. This was demonstrated when the [Scottish Hip Fracture Audit](#) directed its energies to a series of [COVID-19-related projects](#), including an international audit of hip fracture in 112 centres across 14 countries between March and May 2020 ([IMPACT Global](#)).

During the first wave of the pandemic, 9% of patients had COVID-19 and this was associated with a threefold increase in 30-day mortality, especially among men and those with kidney or lung disease.

Hip fracture provides a unique tool with which to understand the complex pathway faced by older people presenting to modern healthcare systems. Standardisation of audit methodology will aid international comparisons and help new countries to set up their own audits ([Johansen 2022](#)).

The recent [ICCONIC study](#) used hip fracture as a 'high-need' condition to compare the care of older people in 11 countries and suggested that hip fracture mortality in England was higher than in the 10 other countries, but based this on a sample of just 7% of English patients.

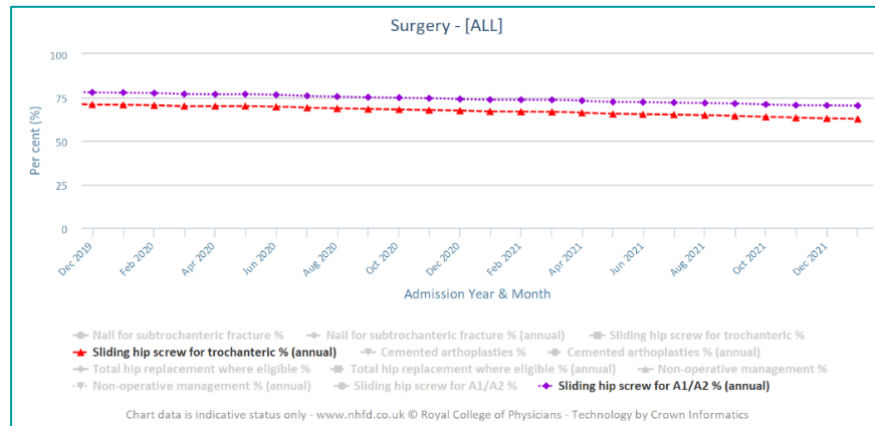
In contrast, the NHFD uses data collected by the clinical staff looking after over 92% of patients, and improvement since the database was established in 2007 means that mortality in England was just 6.6% prior to the COVID-19 pandemic in 2020, a figure that is better than the average figure of 7.1% reported across all the countries of the [ICCONIC study](#).

Understanding surgery

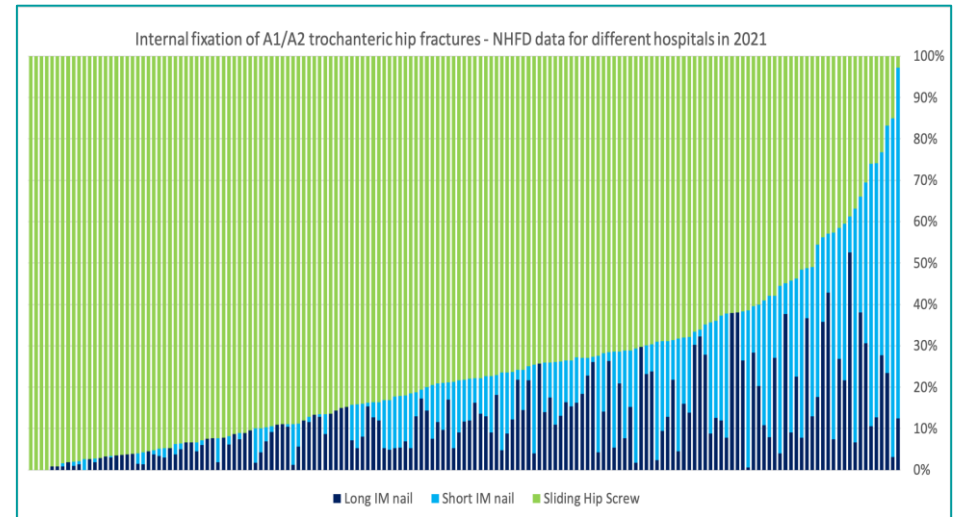
Two management philosophies can be considered when surgical options for the fixation of trochanteric hip fractures are discussed.

Such fractures may be reduced and then held with a plate and screws (sliding hip screw or SHS), or by placing a nail down the middle of the bone and up into the femoral neck (cephalomedullary nail).

Both options are safe and effective, but for more straightforward fractures (AO types A1 and A2), the long-established evidence base and national guidelines advise the use of SHS.



It would be expected that SHS would be the implant of choice for simple fracture types and that variability in implant use should be minimal. However, as the two graphs on this page, and data on our website, demonstrate that this is not the case, and that the use of nails is becoming more marked as the years pass.



An SHS is used in 76% of A1 and A2 fractures, but compliance with NICE guidelines varies hugely. Some hospitals exclusively use SHS, but 16 hospitals reported using them in less than 50% of eligible patients.

In addition to compliance with long-established evidence, there are also considerable cost implications.

With nearly 20,000 patients presenting with this type of trochanteric fracture, the cost difference of several hundred pounds between cheaper SHS and much more expensive cephalomedullary nail will add to an additional implant cost of over £2 million each year.

This stark variance in practice is now the focus of a study to further explore implications for patients and hospitals, and illustrates the value of NHFD data in highlighting noteworthy areas for enquiry in clinical practice.

Understanding hip fracture outcome

Mortality

As described in our [last annual report](#), the NHFD has moved to run its analysis of casemix-adjusted 30-day mortality as soon as mortality data are received from NHS Digital. The results of this analysis are published in the form of a ground breaking [casemix-adjusted mortality run chart](#) and outlier units are notified of their position at the earliest opportunity, without the need to wait for the next annual report.

The annual report no longer needs to include the traditional funnel plot of casemix adjusted 30-day mortality. The priority given by NHS Digital to understanding COVID-19 means that there has been a delay of over a year in receiving mortality data. As soon as it arrives we will update the run charts and restart the quarterly process of notifying and supporting units identified as having raised 30-day mortality.

The results of this process will be summarised in a mortality appendix to this annual report, which will provide details of the casemix-adjustment model, our outlier policy and the names of outlier units, and will provide the basis on which this information will be shared with relevant organisations such as [NHS England and Improvement](#), the [Care Quality Commission](#) and the [Welsh Government](#).

Regaining independence

Analysis of data that are freely available on [our website](#) shows better outcomes to be associated with hospital-level service characteristics such as hip fracture research trial involvement, larger hip fracture volumes, and the use of theatre lists dedicated to hip fracture surgery ([Farrow 2021](#)).

However, mortality is just one aspect of the quarterly review of NHFD data that hospitals should build into their clinical governance cycle. Older people commonly report being more concerned with avoiding dependency and care home placement than they are about dying after a hip fracture. This is why the NHFD focuses on successful return home as a marker of performance and care quality, and the absence of mortality data allows this year's report to focus on other aspects of the care and outcomes.

Work using NHFD data for people previously living in their own home has identified factors associated with returning there ([Hawley 2022](#)). Two-thirds (65%) of people returned home, but two of 11 geographical regions achieved this for significantly more patients. Receiving a nerve block before surgery improved the chance of this, while cognitive impairment, malnutrition, early morning admission and surgery delayed by anticoagulants or logistical reasons made it less likely for people to return to their homes.

The [REDUCE cohort study](#) goes much further, with more detailed analysis of patient-level data, alongside NHFD annual and facilities reports and [BOA](#) reviews of individual hospitals ([Patel 2021](#)). Ten aspects of hospital organisation predicted 30-day mortality; for example, discussion of patient experience feedback at clinical governance meetings, and provision of prompt surgery to over 80% of patients, were each associated with 10% lower mortality ([Patel 2022](#)). Length of stay was 1.5 days shorter in hospitals where all patients received an orthogeriatric assessment within 72 hours. Hip fracture teams in all units are encouraged to set aside time to reflect on the [REDUCE cohort study](#) findings, as these are published in the months ahead.

Understanding health inequalities

The [Physio Sprint Audit](#) run in 2017 with the [Chartered Society of Physiotherapy](#) continues to inform our understanding of patient care.

Recent work based on this audit has shown prompt mobilisation to be associated with a 50% increase in indoor walking by day 30 ([Goubar 2021](#), [Sheehan 2021](#)) and a doubling of patients' chances of discharge ([Sheehan 2020](#)).

This work suggests that, in an average UK hospital caring for 375 patients a year, if all patients received physiotherapy on days 6 or 7 of the first week, the hospital would see length of stay fall by over a day, and would save 456 bed days.

However, different patient groups face very different experiences in terms of their hospital care and outcomes. This table, based on the same work ([Sheehan 2020](#)), provides a valuable insight into how important issues of equality may be within this population and shows ethnicity to be just one of many drivers of health inequalities in healthcare.

It must be a cause for concern that rates of postoperative mobilisation appear to be affected by the patient's background; for instance, that the difference observed between 'White' patients and those of 'Caribbean or African or any mixed Black background' was greater than that between patients admitted from 'own home' and those admitted from a 'care home'.

However, it is not simple to disentangle the effect of ethnicity from those of related factors such as socio-economic deprivation, which are already known to affect both the [incidence](#) and [outcome](#) of hip fracture adversely. The age and sex distribution of patients and the extent of physical and mental comorbidity will also differ between ethnic groups.

Success in getting out of bed by 36 hours post-surgery for 135,105 patients with hip fracture

		% in each subgroup	% up by 36 hours
Age (years)	60–74	17.7	83.5
	75–84	35.2	80.0
	85–94	41.3	76.9
	≥95	5.7	73.5
Sex	Women	72.7	79.4
	Men	27.3	77.8
Pre-fracture residence	Own home/sheltered housing	79.9	81.4
	Nursing care/residential care	18.1	69.6
Pre-fracture mobility	Freely mobile without aids	38.4	84.8
	Mobile outdoors with one aid	22.3	80.5
	Mobile outdoors with two aids or frame	14	77.4
	Some indoor mobility but never outside without help	22.8	70.3
	No functional mobility	1.3	60.0
ASA grade	I	2.3	90.8
	II	27.1	86.0
	III	55.4	77.8
	IV	12.6	67.2
	V	0.2	58.1
	Missing	2.4	80.5
Ethnicity	White	70.7	79.5
	Caribbean or African or any mixed Black background	0.2	65.6
	Asian or Asian British or any mixed Asian background	0.9	76.6
	Any other mixed background	0	76.0
	Missing	28.3	77.6
	Deprivation	Least deprived quintile	14.7
Less deprived		16.5	77.5
Middle quintile		18.4	78.6
More deprived		18.3	79.3
Most deprived quintile		17.4	80.4
Missing		14.6	80.7

Understanding the impact of ethnicity

Hip fracture is an ideal test of the wider pattern of healthcare received by patients from different ethnic backgrounds, as the NHFD can capture their experience of a pathway through emergency services, surgery, rehabilitation, secondary prevention and return to the community.

Hip fracture teams should minimise inequalities in healthcare, specifically by reviewing whether support and information are provided in formats and languages appropriate to their patients.

The NHFD will run its next annual facilities survey in autumn 2022. This will question units' approach to different ethnic groups, but in the meantime, ethnicity would be a useful focus for local governance and QI work.

Local review of patient information and protocols

Teams should anticipate the facilities survey by reviewing the extent to which forms, patient information leaflets and other resources are available in accessible formats and in the languages appropriate to their local population.

Routine 120-day follow-up is an opportunity for local teams to ask patients or their families to comment on the care they received while in hospital.

Local surveys of patient experience

- > Were you given information in a way you can understand?
- > What steps were taken to ensure that you understood your care and were able to comply with treatment/physiotherapy?
- > Do you feel that your care was compromised due to your ethnic background or language barrier?

This process might be expanded to capture the experience of different ethnic groups.

The NHFD website makes it easy for hospitals to extra questions alongside the dataset that they routinely collect and submit, so they can examine topics of local interest, one of which might be ethnicity. Addition of a custom field to define patients' ethnic group (like that in the [National Cancer Patient Experience Survey 2021](#)) would allow the results of such local projects to be analysed alongside routine NHFD data.

The same approach might allow local teams to compare hip fracture KPIs and outcome for the different ethnic groups in their catchment area.

Local audit of care or outcomes by ethnicity

- > Collect ethnicity from local electronic records (if available)
- > If not, use a 'show card', allowing patients to indicate their own ethnic group from a list of options, set out in appropriate languages
- > Record this data as a 'custom field' alongside local NHFD data
- > Export the field along with local NHFD data and analyse the association of ethnicity with performance measures such as KPIs

On a national scale, a similar approach might allow us to collect ethnicity data as a part of routine NHFD data collection, but this would be very challenging for local teams, patients and their families:

- > When collecting ethnicity data, it is vital that patients or their relatives select the option that they consider appropriate, rather than staff being allowed to try and do this on their behalf
- > Patients may need a family member to help, or to do this for them, if they have a cognitive or communication problem
- > Staff need to be sensitive to literacy issues, not least as ethnic minorities are often concentrated in socio-economically deprived areas

- > Staff need to be sensitive to patient concerns about why they are being asked such questions, especially since all other NHFD data are taken from the routine patient record without direct patient questioning.

NHFD metrics need to be set against reliable data on individuals' ethnicity if we are to understand disparities in healthcare and outcome. But these challenges of local data collection argue that the impact of ethnicity needs to be examined on a larger, national scale.

This is a complex topic and even results based on national data may prove misleading unless potential confounding factors have been addressed:

- > The age and sex distribution of different ethnic groups needs to be considered, since men and older patients have poorer outcomes
- > There is huge variation in hip fracture incidence between countries, but little is known of variation between ethnic groups in the UK
- > Cultural, behavioural and patient mobility factors may affect fall rates
- > The majority of the UK's South Asian population is vitamin D deficient
- > The distribution of factors such as hip axis length may affect the type of fracture and consequently the care needed in different ethnic groups.

One way of achieving the statistical power to address all of these issues would be through linkage of NHFD data to [HES](#) and [Patient Episode Database for Wales \(PEDW\)](#). However, the ethnicity data in these datasets are limited by inaccuracies and incompleteness. For example: in the previous table ([Sheehan 2020](#)), people who were coded as of 'Other mixed background' made up just 0.0002% of all patients, and ethnicity data were missing for over a quarter of patients (28.3%). Fortunately FFFAP has established systems allowing external researchers to [request access to NHFD data](#), and data have already been released to permit a detailed analysis of ethnicity's impact on hip fracture care and outcome.

Understanding quality improvement

FFFAP QI collaboratives

To support local teams in running QI projects, in November 2021 FFFAP launched a [6-month QI course](#) based on the [Institute for Healthcare Improvement's breakthrough collaborative model](#).

Four NHFD MDTs participated, alongside five [National Audit of Inpatient Falls \(NAIF\)](#) teams.



- > Luton & Dunstable University Hospital
- > Aneurin Bevan University Health Board
- > Calderdale and Huddersfield NHS Foundation Trust
- > Peterborough City Hospital

The programme consisted of three half-day virtual learning sessions, and QI support in between the learning sessions for teams to progress their project within their organisation, where teams were provided with coaching calls to help guide them and develop their own improvement capabilities.

The main aim of the collaboratives was to improve teams' ability to deliver effective QI: making this easier, with good practice shared and outputs recorded. Teams received support in refining their aims, how to use and measure their data, understanding the wider impacts of improvement projects and the tools needed to implement further QI projects locally.

Alongside the training, learning sessions were an opportunity to network and share learning with other similar services. Each session aimed to support local teams to deliver QI activities using real-time data available on the webtools and by providing bespoke QI training to participating teams.

New key performance indicators

Key performance indicator ‘zero’

Will you make sure I am comfortable after my hip fracture?

Definition: Is the patient provided with a nerve block to relieve their pain, and admitted to an appropriate orthopaedic or orthogeriatric ward within 4 hours of presenting with hip fracture?

Patients’ earliest experiences often provide their strongest memories of care after a hip fracture, and KPI 0 combines two aspects of care:

- > Prompt consideration of a nerve block to manage hip fracture pain
- > Prompt admission to an appropriate orthopaedic/orthogeriatric ward

Local anaesthetic nerve blocks are an excellent way to relieve the pain of a broken hip and avoid the excessive use of opioid painkillers and the side effects these can cause. In January 2017, we started recording blocks in the emergency department or on the ward prior to surgery. Since then, the number of patients receiving blocks has improved from 36% to 64% on average across 2021, but this varies from 1% to 99% in different hospitals.

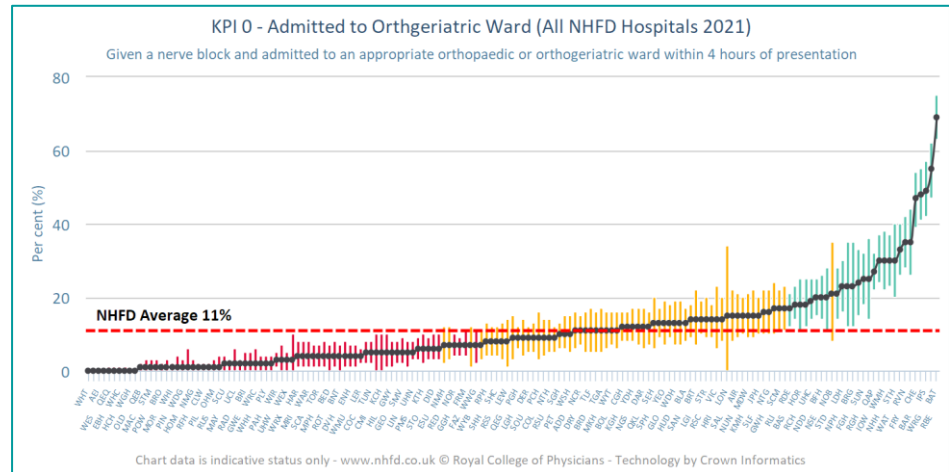
The emergency department is not an appropriate environment for frail people with hip fracture. Prompt admission to an MDT’s care on an orthopaedic/orthogeriatric ward is important to their comfort.

Pressures to move patients out of the emergency department have led to the creation of a variety of surgical assessment wards. Such wards should only be recorded as ‘an appropriate orthopaedic/orthogeriatric ward’ if the local NHFD clinical leads agree that they are configured in a way that is entirely suitable to the multidisciplinary needs of their patients.

In 2021, on average just 17% of patients presenting with hip fracture reached an appropriate ward within 4 hours (18% in England and 8% in Wales), but this varied from 0% to 75% in different units.

KPI 0 demonstrates the extent of variation in how seriously different units take the care of people presenting with this frightening, painful injury.

Two units (Royal United Hospital, Bath and the Royal Berkshire Hospital, Reading) reported that half of their patients received a nerve block and were admitted to an appropriate ward within 4 hours – but most units achieved this for less than a quarter of patients, and six units for none. The [KPI 0 table](#) shows the performance of individual hospitals in 2021.

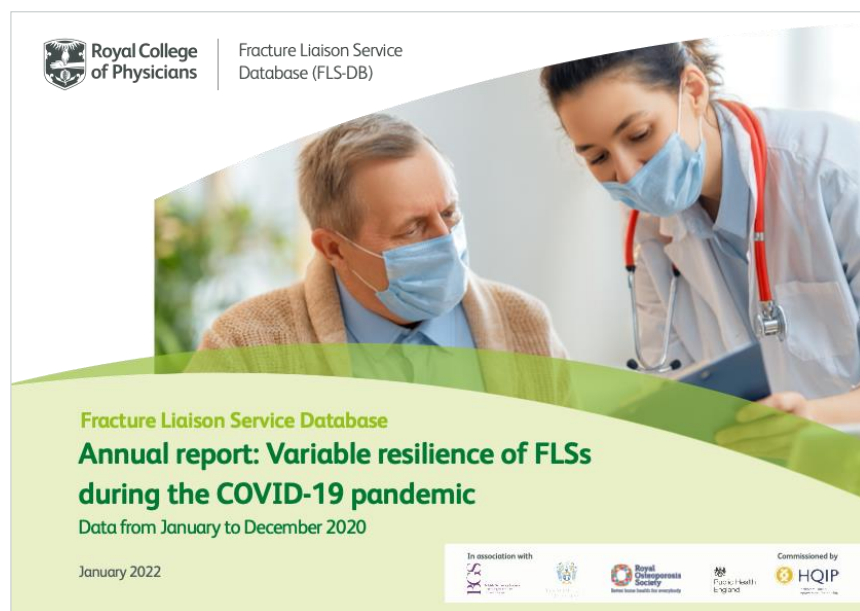


Hip fracture teams should use [KPI 0](#) as a marker of initial care and a driver to improve the provision of local anaesthetic nerve blocks and fast-tracking of patients to an appropriate ward. Performance should be considered alongside their figures for their unit in the [Anaesthesia run chart](#) and [Assessment benchmarking table](#).

Where performance is significantly below average (red in the caterpillar plots), units should formally discuss possible reasons for this within their regular MDT meeting, and plan a QI project to address it.

Understanding secondary prevention

The NHFD followed up over 40,000 patients recorded by our sister audit the [Fracture Liaison Service Database \(FLS-DB\)](#) in 2017 to identify those who went on to have a subsequent hip fracture between 2017 and 2020.



Nearly 10,000 of these people had sustained a hip fracture in 2017 and, despite receiving the support of a fracture liaison service (FLS), one in 20 of these went on to suffer a second hip fracture within 4 years. The risk of hip fracture was similar if the initial fracture was of the spine, but lower for other sites.

This highlights the need for effective anti-osteoporotic management to rapidly decrease the risk of hip fracture, and implies that levels of risk are even higher for people living in areas which are still not served by an FLS.

Data freely available from the [NHFD website](#) define trends in oral and injectable medication across a quarter of a million patients presenting with hip fracture between 2016 and 2020, and more detailed information on the individual type of medication prescribed for the 63,705 patients from 171 hospitals who presented in 2020.

Most people (88%) were not taking anti-osteoporosis medication (AOM) when they presented. Half (51%) were prescribed AOM by discharge, but the proportion deemed 'inappropriate for AOM' varied hugely (from 0.2% to 83.6%) in different hospitals.

To help their patients avoid further fragility fractures, hip fracture team governance meetings should review KPI 7 alongside their Bone Medication Table and arrangements for 120-day follow-up.

Nearly two-thirds (64%) of those who were previously taking an oral bisphosphonate were simply discharged on the same type of medication. The total number of patients discharged on oral medication fell by over a quarter between 2016 and 2020.

The number discharged on injectables increased by nearly three-quarters to 14.2% over the same period, but remains hugely variable across the country, with rates ranging from 0% to 67% across different units.

A recent hip fracture is a strong risk factor for future fractures. If teams are to learn from each other's experience and patients are to be protected against further fragility fractures, the huge variability in approaches, and in particular the use of injectables, in different trauma units across England and Wales requires further investigation.

Key performance indicator 7

Will I stay on bone-strengthening treatment to avoid another fracture?

Definition: Is the patient provided with a suitable form of bone-strengthening treatment and followed up to ensure that they are still receiving this protection at 120 days after their hip fracture?

Staff in trauma units all too often readmit patients with further fragility fractures of the hip or other bones, often within months of the first injury.

The huge variation in practice described above means that many patients are not being assessed for bone protection, are not being provided with appropriate medication, or are not being followed up appropriately. In developing KPI 7, we are seeking to challenge units to ensure that the care they offer is not confined to the surgery and rehabilitation after this injury, but extends to the avoidance of the next.

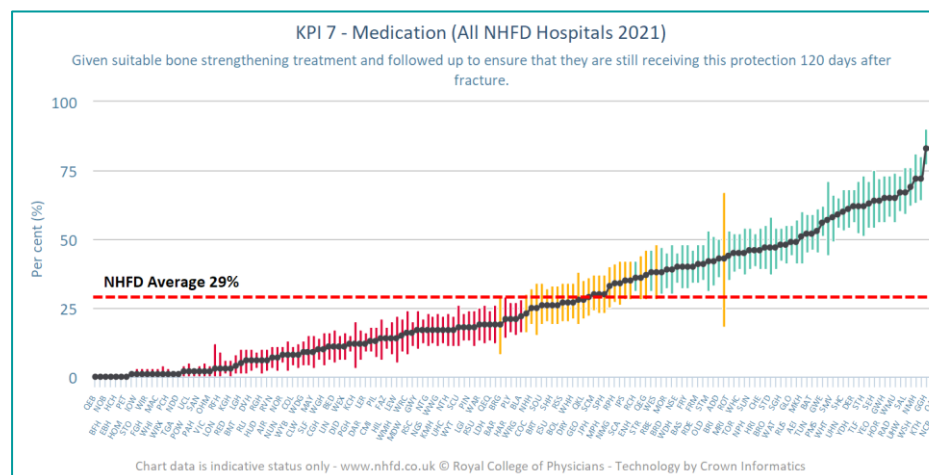
Ongoing support, either by the hip fracture team or by a local FLS, is vital if patients are to continue taking effective medication.

KPI 7 will combine NHFD data on bone treatment with 120-day follow-up data that are already being collected, and use these to profile whether:

- > Teams in different units know that their patients are being promptly started on effective treatment, and
- > Appropriate 120-day follow-up and support are in place to help their patients to continue taking this treatment, or to swap to an alternative form of medication if necessary.

Follow-up data are crucial if clinical teams are to understand the outcome of the care they provide, the extent to which this restores patients' mobility and independence, and whether their patients successfully return to their original residence. This final question is already key to KPI 6, and is

most patients' principal concern when they present with hip fracture. Staff in the quarter of units (26%) which fail to collect any 120-day follow-up data on medication should consider how this might be arranged, building on the [postal questionnaire](#) that accompanied the NHFD's 2019 annual report.



The [KPI 7 table](#) shows the performance of individual hospitals in 2021 and the huge variation between them. Eight units (Queen Alexandra Hospital, Portsmouth; Diana, Princess of Wales Hospital, Grimsby; New Cross Hospital, Wolverhampton; Kingston Hospital, Surrey; North Middlesex Hospital, London; West Suffolk Hospital, Bury St. Edmunds; Salisbury District Hospital; and University Hospital of Wales, Cardiff) were able to report that more than two thirds of their patients were on bone-strengthening treatment at 120 days. In contrast, seven units could not say this for any of their patients.

Where performance is significantly below average (red in the caterpillar plots), units should formally discuss possible reasons for this within their regular MDT meeting, and plan a QI project to address it.

Understanding other femoral fractures

Shaft, distal and periprosthetic fractures

As the following table shows, we now have two complete years of data for patients presenting with femoral fractures at sites other than the hip, for all the hospitals of England and Wales.

	Periprosthetic fracture (related to THR/TKR)	Distal femur fracture	Femoral shaft fracture
2020	2,606 (2,411)	1,378	1,017
2021	3,509 (3,216)	1,737	1,114

THR = total hip replacement; TKR = total knee replacement

The total number of patients recorded for all three groups has increased considerably in 2021. This is likely to represent more complete data submission in the second year as people become familiar with the dataset, rather than a surge in the number of patients suffering these injuries.

The patients presenting with these fractures and the priorities for their care are obviously different from those with hip fracture, and direct comparisons may be misleading.

However, a sense of how the care of such patients differs from that which the NHFD has championed for people with hip fracture over the past 15 years can be gathered from these tables presenting individual hospitals' KPI figures for patients with fractures of the [femoral shaft](#) and fractures of the [distal femur](#).

Periprosthetic femoral fracture

Patient and facilities data for 2021

Definition: A fracture of the femur around any orthopaedic implant (nail, plate, screw or joint replacement)

The largest increase in reporting was in periprosthetic femoral fracture (PPFF), where the total number of recorded fractures around orthopaedic implants increased by a third from 2,606 to 3,509. 146 of the 163 hospitals (90%) that contribute data to the NHFD submitted data on PPFFs in the last reporting year. There were 3,216 fractures reported around a hip or knee replacement in 2021, with the majority (72%) being around a hip replacement.

The performance of individual hospitals is presented in this table of [KPIs for PPFF](#), but some of these still need to be viewed with caution, as the number of patients reported as being looked after in different units ranged from just 1 to 101.

Understanding of PPFF is still in its early stages and the NHFD is contributing one of the largest bodies of evidence to this. The infographic on this page shows how performance in care for patients with PPFF compares with that for patients with hip fracture.

Twenty-four hospitals admitted that they were not yet submitting data on PPFF, the overriding reasons for this being lack of administrative support or the fact that BPT is not yet paid for these patients.

Prompt orthogeriatric review

74%

NHFD overall
0–100%



Prompt mobilisation

68%

NHFD overall
37–100%



Prompt surgery

26%

NHFD overall
6–96%



Not delirious post-operation

59%

NHFD overall
0–93%



Return to original residence

67%

NHFD overall
28–89%



Huge progress in our understanding of PPF has come from the results of the [2021 facilities survey](#), which this year focused on these injuries. We are grateful to the 146 hospitals that were then contributing data. A key finding of the survey is the extent to which networks are developing in order to care for patients with these injuries. Approximately a quarter of hospitals transfer patients with PPFs for surgical care in another hospital:

- > 41 hospitals reported transferring patients with fractures around a total hip replacement.
- > 35 hospitals reported transferring patients with fractures around a total knee replacement.
- > Only six hospitals reported doing this for all patients with PPF, all doing so directly from the Emergency Department.

In contrast, only 16 hospitals transfer patients with hip fracture – usually individual patients needing specialist services such as renal dialysis, but on occasion, this is as a result of theatre or specialist surgeon availability.

In our [2021 annual report](#), we identified delay to theatre beyond 36 hours as a key feature in the surgical management of patients with PPF. The facilities survey showed that the commonest reason for this was surgeon availability (40%), with theatre (27%) and kit (14%) availability also common reasons; patient optimisation was the rarest cause for delay (9%).

The facilities survey used a hypothetical clinical question to examine the different units' approach to the care of a patient with a typical injury: a fracture around a cemented total hip replacement stem.

- > Responses identified considerable variation in several aspects of care, such as whether the patient would be treated with fixation alone (46%), revision surgery (21%) or a combination of both (29%).
- > It is reassuring that only two hospitals would have kept the patient non-weightbearing after the operation, and that only 10% would have needed loan kit to complete their management strategy.

Conclusion

In future, the NHFD intends to move to a quarterly reporting cycle. This report shows how this national clinical audit has advanced from the traditional model of retrospective reporting on a year that is past (and often long past) to provide a QI platform delivering real-time information to clinical teams, hospital and health service managers, and researchers.

This report is therefore less a summary of a year's data, and more a guide to help navigate the wealth of detail presented on the NHFD website – data with which effective local and national leadership teams should be engaging on at least a quarterly basis if they are to maintain momentum in improving care for this key group of frail, older people.

Links to key resources

[Quarterly Governance Tool](#)

[Facilities audit data](#)

[KPI tables for PPF, shaft and distal femur](#)

[NHFD references 2022](#)

National Hip Fracture Database 2022 report

Citation

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References

The references for this and previous annual reports are all available in the [NHFD references](#)

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- > Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford www.ndorms.ox.ac.uk

NHFD data collection webtool and performance tables are provided by Crown Informatics www.crowninformatics.com

Falls and Fragility Fracture Audit Programme

The NHFD is run by the Care Quality Improvement Directorate (CQID) of the Royal College of Physicians (RCP). It is part of the Falls and Fragility Fracture Audit Programme (FFFAP); one of three workstreams, alongside the Fracture Liaison Service Database (FLS-DB) and National Audit of Inpatient Falls (NAIF). The programme is commissioned by the Healthcare

Quality Improvement Partnership (HQIP) and works within a governance structure that includes the Programme's Board, Advisory Group and Patient and Carer Panel.

Healthcare Quality Improvement Partnership

The Falls and Fragility Fracture Audit Programme is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement in patient outcomes and, in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage and develop NCAPOP, comprising around 40 projects covering care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh government and, with some individual projects, other devolved administrations and crown dependencies www.hqip.org.uk/national-programmes

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