

# National Hip Fracture Database (NHFD)

## An analysis of 30-day mortality in 2014

Annual report supplement 2015

In association with:

Commissioned by:



## **National Hip Fracture Database mortality supplement 2016**

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NHFD data collection webtool and [www.nhfd.co.uk/](http://www.nhfd.co.uk/) are provided by Crown Informatics <http://crowninformatics.com/>

## **Falls and Fragility Fracture Audit Programme**

The NHFD is commissioned by the Healthcare Quality Improvement Partnership (HQIP) and managed by the Royal College of Physicians (RCP) as part of the Falls and Fragility Fracture Audit Programme (FFFAP) alongside the Fracture Liaison Service Database (FLS-DB) and Falls Pathway workstream. FFFAP aims to improve the delivery of care for patients having falls or sustaining fractures through effective measurement against standards and feedback to providers.

## **Healthcare Quality Improvement Partnership**

The Healthcare Quality Improvement Partnership (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, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP hosts the contract to manage and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP). Their purpose is to engage clinicians across England and Wales in systematic evaluation of their clinical practice against standards and to support and encourage improvement in the quality of treatment and care. The programme comprises more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions.

## **Royal College of Physicians**

The Royal College of Physicians plays a leading role in the delivery of high-quality patient care by setting standards of medical practice and promoting clinical excellence. It provides physicians in over 30 medical specialties with education, training and support throughout their careers. As an independent charity representing 30,000 fellows and members worldwide, it advises and works with government, patients, allied healthcare professionals and the public to improve health and healthcare.

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## Introduction

The National Hip Fracture Database (NHFD) grew out of a collaboration between the British Orthopaedic Association (BOA) and the British Geriatrics Society (BGS) in 2007, and is managed by the Clinical Effectiveness and Evaluation Unit (CEEU) of the Royal College of Physicians (RCP).

The NHFD has described and challenged variation in practice around the country, helping to develop a consensus about care for the frail and older people who suffer a hip fracture.

Every hospital in England, Wales and Northern Ireland that provides acute hip fracture care is actively participating in this audit, and in September 2015 our annual report described the process, performance and outcome of care in these hospitals.<sup>1</sup> Each year this report includes an analysis of mortality – casemix adjusted to ensure that reported mortality figures are appropriate to the demographics of the local patient population.

Some hospitals participating in the NHFD do not actively follow-up patients after discharge, so we use validated, third-party, data of death from the Office for National Statistics (ONS) to calculate 30-day mortality. This year the NHFD, along with other national clinical audits, experienced delays in access to ONS data. Consequently, we were unable to include mortality results in our annual report as in previous years.

ONS date of death data were finally available in November 2015, which enabled this analysis. This report complements the descriptions of performance and patient outcomes in our 2015 annual report.<sup>1</sup>

## Using NHFD data to drive improvements

A number of examples of hospitals using NHFD data to drive improvements in care are showcased in our annual reports, including the following.

*In 2013 Watford General Hospital (WAT) were alerted by the NHFD that they were an outlier, with 12% mortality over 3 years. After reviewing their NHFD data and carrying out a comprehensive review of the hip fracture pathway, Watford reduced their mortality to 5.4% in 2014.*

*After a retrospective audit of all deaths within 30 days, key changes were put in place, including:*

- *Appointment of a hip fracture nurse specialist, leading to more effective use of existing resources from admission to discharge, and ensuring more robust data entry.*
- *Development of a dedicated hip fracture unit.*
- *Time of admission from A&E to this unit fell from 13.4 hours in 2012/13 to 7.1 hours in 2014.*
- *Significantly more patients receive iliofascial nerve blocks, up from 27% in 2012/13 to 81% in 2014.*
- *Use of spinal anaesthesia improved from 12.2% in 2012/13 to 63% in 2014.*
- *New policies saw the number of cancelled operations fall from 36% in 2012/13 to 23% in 2014.*

*Changes were also made in the recovery unit, including near patient 'haemacue' testing of postoperative haemoglobin, earlier transfusions to ensure hemodynamic stability and*

*patients staying in recovery so they are stable before transfer to the hip fracture unit. In addition out-of-hours outreach support was improved to ensure that this stability was maintained throughout the immediate postoperative period.*

*In November 2015, the Trust (West Hertfordshire Hospitals NHS Trust) won the Patient Safety Award at the Health Service Journal's annual awards for their hip fracture pathway transformation, with the judges commenting that Watford's success 'demonstrated collective ownership, outcomes and experience', describing their approach as 'value driven and patient centred ... delivered with inspirational leadership'.*

### **30-day mortality after hip fracture**

The age and frailty of hip fracture patients mean that up to a third will die within a year of the hip fracture. Only half of the deaths occurring within a few months of hip fracture can be directly attributed to the injury, hospitalisation and surgery – but patients, their families and carers often recognise the impact of hip fracture in precipitating or complicating a patient's final illness.

In its guideline *The management of hip fracture in adults* (CG124), the National Institute for Health and Care Excellence (NICE) identified prompt surgery and coordinated multidisciplinary orthogeriatric care as key factors in improving patient outcomes, including mortality after hip fracture.<sup>2</sup> The NHFD has particularly focused on promoting implementation of the NICE guideline.

Independent evaluation using non-NHFD data has shown trends in 30-day mortality have responded since the NHFD's inception in 2007, when the figure was 10.9%, falling to 8.5% in 2011.<sup>3</sup>

### **Casemix adjustment model**

Outcome after a hip fracture is greatly influenced by the health of the individual patient.

Regional variations in the age and sex composition of the population, in levels of socioeconomic deprivation and in patterns of public health are well recognised. Fair comparisons of outcome between hospitals should take such variation in casemix into account.

Most patients with hip fracture are older people, but age is only one marker of frailty. Inter-hospital variation in patients' anaesthetic (American Society of Anesthesiologists – ASA) grade, usual place of residence, walking ability, fracture type and mental test score have all been described in our previous annual reports. The NHFD uses casemix adjustment to help ensure that hospitals dealing with an older or a frailer case load are judged fairly against others with younger and/or fitter patients.

In 2014, we commissioned the Clinical Effectiveness Unit (CEU) at the Royal College of Surgeons of England (RCS) to examine these and other fields within the NHFD dataset – in order to improve the statistical robustness of the casemix adjusted (risk) model for 30-day mortality that is used in our annual reports.

The RCS methodology report (2014) describes the work to develop a refined risk model and can be viewed at [www.nhfd.co.uk](http://www.nhfd.co.uk).<sup>4</sup>

## Casemix adjusted analysis of 30-day mortality

Between November and December 2015, we performed a casemix adjusted analysis of 30-day mortality using externally validated data from the ONS and Northern Ireland.

- NHFD records were included as long as they identified patients aged 60 years or older presenting with hip fracture during the 2014 calendar year.
- We excluded duplicate records, as well as those where the dates of death and admission were inconsistent, or could not be matched to ONS or Northern Ireland death data.
- Crude rates of mortality within 30 days of presentation were calculated. Information on crude mortality is already available to participating hospitals in NHFD run charts: **[www.nhfd.co.uk](http://www.nhfd.co.uk)**.
- Casemix adjustment with the NHFD–RCS model uses six variables: age, anaesthetic (ASA) grade, sex, source of admission, mobility and fracture type.
- We used funnel plots of crude and adjusted hospital mortality rates to compare the performance of hospitals.
- All hospitals with adjusted mortality rates falling outside of the funnel plot's 99.8% (three standard deviations – 3SD) control limits were identified as outliers, and the completeness and quality of casemix data submitted by these hospitals were reviewed.

All 180 units providing acute hip fracture care in England, Wales and Northern Ireland were included in the analyses. Our 2015 annual report presented results from 64,102 patients who were admitted for hip fracture during 2014.<sup>1</sup> After exclusions (see above), 64,049 patients were included in the analysis of 30-day mortality.

The overall mortality rate within 30 days of hip fracture in 2014 was 7.5% (n=4,821/64,049). This continues a pattern of progressive improvement from 8.5% in 2011.

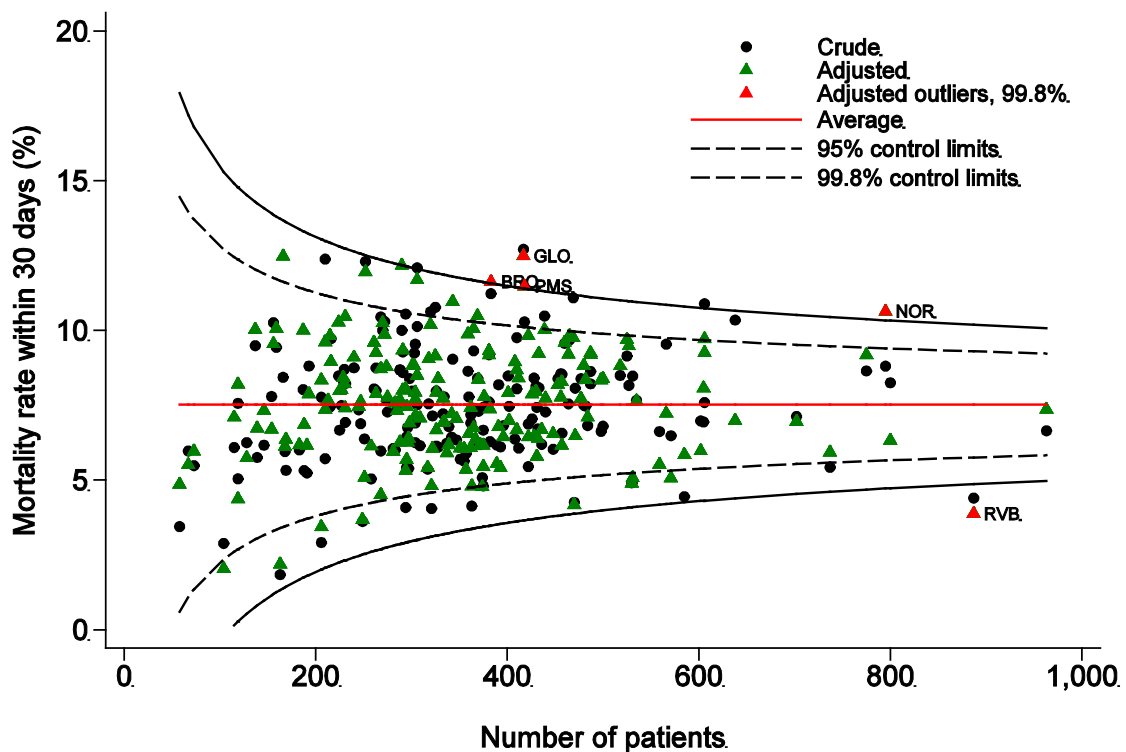
The availability of run-charts on the NHFD website means that the findings of this analysis should not come as a surprise to units that were identified as outliers from the funnel plot, since their crude mortality figures have been available to them throughout the last year.

All hospitals identified as showing mortality rates outside the 95% control limits have been contacted prior to publication of this report. We have recommended a thorough investigation of these findings and suggested that they consider requesting a multidisciplinary service review from the BOA and the BGS.

## 1 Hospitals with increased 30-day mortality

After casemix adjustment, we identified four hospitals as 'outliers' – with 30-day mortality rates above the upper 99.8% (3SD) control limit.

- The crude mortality rate at Gloucestershire Royal Hospital (GLO) has remained above the NHTD average for a number of years. Its adjusted mortality was 12.5% in 2014.
- In the last 3 years, the crude mortality rate at the Princess Royal University Hospital, Bromley (BRO) has been consistently higher than the NHTD average. In 2014, we recorded an adjusted figure of 11.6%.
- The crude mortality rate at the Great Western Hospital, Swindon (PMS) has been higher than the NHTD average in recent years, except in 2012. The adjusted mortality rate for this unit was 11.5% in 2014.
- The crude mortality figure at Norfolk and Norwich Hospital (NOR) has been comparable to the NHTD average in recent years. However, data quality remains a concern for this unit, and will have contributed to an adjusted rate of 10.6% in 2014.



**Fig 1 Funnel plot of crude and adjusted mortality rates within 30 days (2014)**

We identified a further seven hospitals with adjusted mortality rates above the upper 95% (2SD) control limit. However, observations at this significance level should be interpreted with caution. In an analysis of 180 hospitals, we would expect a few hospitals to fall outside these control limits by chance – simply as a result of expected statistical variation.

- One of these units was Medway Maritime Hospital (MDW), which we had also identified as having an adjusted mortality rate above the upper 95% limit in our 2014 annual report.<sup>5</sup>
- The adjusted mortality rates in Bristol Royal Infirmary (BRI), North Middlesex Hospital (NMH), the Royal Cornwall Hospital (RCH) and St Thomas' Hospital (STH) were above the upper 95% limit for the first time in 2014, but had not been high in the previous 3 years.
- For Hereford County Hospital (HCH), the adjusted mortality of 12.2% places it outside the 95% limit, but this may be explained in part by poor data quality.
- In the Royal Shrewsbury Hospital (RSS), we noted an adjusted mortality figure of 10.5%. This appears to reflect the higher proportion of patients receiving non-operative management in this unit.

All hospitals, but in particular those with high mortality rates, should reflect on their findings in the context of their local clinical governance structures. Using NHFD run charts to continuously monitor both mortality trends and other quality metrics will help them to interpret mortality rates in the context of local structures and processes.

Sites that we have identified as having increased mortality have been informed of this finding prior to publication, and have been encouraged to develop an action plan to analyse performance and instigate improvement programmes.

Case-note review of patients who have died within 30 days is one approach, and commonly identifies these individuals to have been very frail. However, our findings are casemix adjusted, so this early mortality should not be accepted as inevitable, and we would recommend that sites question whether there are elements of care that could have been delivered better.

We would also encourage these sites to discuss this issue with their local commissioners and any health and social care providers who are responsible for delivering post-discharge care, to ensure that high-quality care is delivered throughout the patient pathway. Many hospitals who have been mortality outliers over the last few years have benefited from a multidisciplinary service review led by the BOA, and we would encourage clinical teams and trust boards to consider this independent review as a useful improvement tool.

## 2 Hospitals with low 30-day mortality

After casemix adjustment, we identified one hospital as an 'outlier' – with a mortality rate below the lower 99.8% limit.

- Data submitted by the Royal Victoria Hospital, Belfast (RVB) have not previously been externally validated, but in 2014 the crude mortality rate (4.4%) and adjusted rate (3.9%) for this unit both lay well below the 7.5% average for the NHFD.

In addition, we found nine hospitals in which the adjusted 30-day mortality in 2014 was better than in the majority of units, as indicated by rates falling below the lower 95% limit.

- Bronglais General Hospital (BRG) was identified as an outlier in 2013 on the basis of a very low mortality rate – falling below the lower 99.8% limit.
- In 2014 we identified adjusted mortality rates below the lower 95% limit in Bedford Hospital (BED), the Royal Derby Hospital (DER), the Royal Liverpool University Hospital



(RLU), James Cook University Hospital, Middlesbrough (SCM) and South Tyneside District Hospital (STD).

- The low adjusted mortality rate in the John Radcliffe Hospital, Oxford (RAD) appears to arise from the poor quality of casemix data – specifically their incomplete coding of patients’ anaesthetic (ASA) grade.
- Similarly, the low adjusted mortality rates in the Royal Sussex County Hospital (RSC) and West Wales General (WWG) may have arisen from incomplete coding of patients who were managed non-surgically.

### **3 Other hospitals**

The remaining 159 hospitals (88%) had adjusted 30-day mortality figures that lay within the 95% control limits. Figures for these units are detailed in the summary of hospital mortality rates table below. Local teams should review these alongside their online run charts so that they can identify temporal trends in outcome since 2014.

The table should also inform local review of data quality, especially if a marked difference between crude and adjusted mortality figure suggests the possibility of poor quality data for the casemix variables – age, ASA grade, sex, source of admission, mobility and fracture type.

## Discussion

The NHFD's annual reporting cycle primarily serves as a review of the live web-based data that we make available to drive the clinical governance process in individual hospitals. Delays in the availability of ONS data, for reasons that were beyond our control, mean that local practice and policies may have changed since the period on which we report here.

Access to mortality data has now improved, and our 2015 mortality analysis is planned to take place later this summer. It is now possible to link NHFD records with Health Episode Statistics (HES) data, and this will help to improve our validation of case ascertainment for individual units.

Regardless of whether they have been identified as a 30-day mortality outlier for 2014, hospitals should look at how their outcome figures have changed in subsequent months, so that they can anticipate their results from the forthcoming 2015 mortality analysis.

Data quality issues continue to cast doubt on the results reported by a small number of units. In particular, we have challenged a number of units that were failing to record all cases presenting to them, or not reporting all those managed without surgery.

We subsequently carried out sensitivity analyses, which have reassured us that such factors would not have affected which units were identified as outliers in this mortality analysis. However, if units wish to monitor and improve their performance and patient outcomes then poor data quality will limit the usefulness of the data portfolio and web-based charts that the NHFD provides to support local clinical governance.

## References

- 1 Royal College of Physicians. *National Hip Fracture Database annual report 2015*. London: RCP, 2015.
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- 4 Tsang C, Cromwell D. *Statistical methods developed for the National Hip Fracture Database annual report, 2014: a technical report*. London: The Royal College of Surgeons of England, 2014.
- 5 Royal College of Physicians. *National Hip Fracture Database annual report 2014*. London: RCP, 2014.

## Summary of hospital mortality rates

Hospital name	NHFD code	Case ascertainment (%)	Total cases (n)	Deaths within 30 days (n)	Crude 30-day mortality rate (%)	Adjusted 30-day mortality rate (%)
Addenbrooke's Hospital	ADD	74.6	376	28	7.4	7.8
Royal Albert Edward Infirmary	AEI	95.8	320	34	10.6	10.2
Airedale General Hospital	AIR	99.6	272	28	10.3	9.9
Altnagelvin Hospital	ALT	96.0	363	15	4.1	4.8
Wansbeck General Hospital	ASH	111.0	362	26	7.2	7.4
Barnsley District General Hospital	BAR	86.3	251	16	6.4	5.1
Basildon Hospital	BAS	94.8	402	30	7.5	7.0
Royal United Hospital Bath	BAT	88.7	535	41	7.7	7.6
Bedford Hospital	BED	63.1	*	*	1.8	2.2
Broomfield Hospital, Chelmsford	BFH	101.3	482	36	7.5	8.4
Royal Blackburn Hospital	BLA	90.9	439	46	10.5	10.0
Barnet General Hospital	BNT	122.9	381	29	7.6	9.2
Royal Bolton Hospital	BOL	90.8	334	26	7.8	7.0
Bradford Royal Infirmary	BRD	94.8	325	35	10.8	9.1
Bronglais General Hospital	BRG	97.2	*	*	2.9	2.0
Bristol Royal Infirmary	BRI	81.6	306	37	12.1	11.7
Princess Royal University Hospital Bromley	BRO	171.0	383	43	11.2	11.6
Queen's Hospital, Burton upon Trent	BRT	106.8	328	20	6.1	8.4
Bassetlaw District General Hospital	BSL	76.5	156	16	10.3	9.6
Conquest Hospital	CGH	125.8	464	35	7.5	9.2
Chesterfield Royal Hospital	CHE	85.6	375	18	4.8	6.2
Cheltenham General Hospital	CHG	76.3	225	15	6.7	8.0
Glan Clwyd Hospital, Rhyl	CLW	87.9	304	29	9.5	7.9
Cumberland Infirmary	CMI	98.1	457	30	6.6	6.2
Countess of Chester Hospital	COC	86.0	306	23	7.5	8.5
Colchester General Hospital	COL	90.7	525	48	9.1	9.7
Craigavon Area Hospital	CRG	103.2	258	13	5.0	6.1
Darlington Memorial Hospital	DAR	145.1	322	23	7.1	6.1
Royal Derby Hospital	DER	99.5	571	37	6.5	5.1
Eastbourne District General Hospital	DGE	29.5	128	8	6.3	5.7
Doncaster Royal Infirmary	DID	98.4	430	35	8.1	8.0
University Hospital of North Durham	DRY	137.9	360	28	7.8	6.5
Darent Valley Hospital	DVH	102.0	362	25	6.9	6.1
Ealing Hospital	EAL	100.0	159	15	9.4	10.1
Birmingham Heartlands Hospital	EBH	72.5	382	24	6.3	7.4
Queen Elizabeth II Hospital	ENH	109.5	460	44	9.6	9.6
East Surrey Hospital	ESU	92.4	500	34	6.8	8.4
University Hospital Aintree	FAZ	94.8	381	35	9.2	9.3
Furness General Hospital	FGH	71.2	119	6	5.0	4.4
Frimley Park Hospital	FRM	92.1	422	29	6.9	9.8
Southmead Hospital, Bristol	FRY	90.7	440	32	7.3	7.7
St George's Hospital	GEO	80.3	245	18	7.3	7.5
Diana Princess of Wales Hospital	GGH	86.2	268	28	10.4	8.7
Good Hope General Hospital	GHS	77.4	304	19	6.3	7.7
Gloucestershire Royal Hospital	GLO	91.1	417	53	12.7	12.5
<b>NHFD overall</b>	-	93.5	<b>64,049</b>	<b>4,821</b>	<b>7.5</b>	-

\*Hospitals with fewer than six deaths have had both numerator and denominator suppressed to avoid identification.

Hospital name	NHFD code	Case ascertainment (%)	Total cases (n)	Deaths within 30 days (n)	Crude 30-day mortality rate (%)	Adjusted 30-day mortality rate (%)
Grantham and District General Hospital	GRA	36.0	*	*	3.4	4.9
Royal Gwent Hospital	GWE	74.5	295	16	5.4	5.7
Queen Elizabeth Hospital Woolwich	GWH	150.0	268	16	6.0	4.5
Ysbyty Gwynedd Hospital	GWY	91.4	318	24	7.5	9.1
Harrogate District Hospital	HAR	85.5	247	17	6.9	7.6
Hereford County Hospital	HCH	90.6	290	29	10.0	12.2
Hillingdon Hospital	HIL	106.4	215	16	7.4	9.8
Hinchingbrooke Hospital	HIN	85.0	191	10	5.2	6.2
Homerton University Hospital	HOM	73.4	*	*	6.0	5.5
Horton General Hospital	HOR	86.7	183	11	6.0	6.2
Hull Royal Infirmary	HRI	95.0	566	54	9.5	7.2
Huddersfield Royal Infirmary	HUD	100.6	477	40	8.4	7.7
St Mary's Hospital Newport	IOW	84.2	229	19	8.3	8.4
The Ipswich Hospital	IPS	93.1	456	39	8.6	7.8
James Paget Hospital	JPH	114.2	410	40	9.8	8.7
King's College Hospital	KCH	74.5	146	9	6.2	7.3
Kettering General Hospital	KGH	97.4	367	23	6.3	6.4
King's Mill Hospital	KMH	112.2	396	27	6.8	6.4
Kingston Hospital	KTH	76.7	294	12	4.1	5.3
Luton and Dunstable Hospital	LDH	91.4	309	19	6.1	7.1
Leicester Royal Infirmary	LER	95.7	775	67	8.6	9.2
University Hospital Lewisham	LEW	99.0	188	10	5.3	6.9
Leighton Hospital	LGH	85.2	298	25	8.4	6.9
Leeds General Infirmary	LGI	106.7	702	50	7.1	7.0
Lincoln County Hospital	LIN	102.3	355	20	5.6	6.0
Royal London Hospital	LON	83.7	154	12	7.8	6.7
Macclesfield District General Hospital	MAC	85.0	231	16	6.9	7.4
Croydon University Hospital	MAY	86.2	263	21	8.0	9.3
Medway Maritime Hospital	MDW	87.3	343	31	9.0	11.0
Milton Keynes General Hospital	MKH	87.5	230	20	8.7	8.2
Morrison Hospital	MOR	100.6	527	43	8.2	9.5
Taunton and Somerset Hospital	MPH	100.5	426	30	7.0	7.9
Manchester Royal Infirmary	MRI	105.5	193	17	8.8	7.9
New Cross Hospital	NCR	89.3	375	25	6.7	5.5
North Devon District Hospital	NDD	87.0	261	21	8.0	9.6
Nevill Hall Hospital	NEV	95.0	288	25	8.7	7.7
Northern General Hospital	NGS	105.6	638	66	10.3	7.0
North Hampshire Hospital	NHH	102.9	285	21	7.4	7.3
North Manchester General Hospital	NMG	84.7	333	24	7.2	6.9
North Middlesex University Hospital	NMH	165.8	252	31	12.3	12.0
Noble's Hospital	NOB	72.3	*	*	5.5	6.0
Norfolk and Norwich University Hospital	NOR	95.6	795	70	8.8	10.6
Northwick Park Hospital	NPH	81.6	283	17	6.0	7.6
University Hospital of North Tees	NTG	101.5	410	33	8.0	6.7
Northampton General Hospital	NTH	100.0	365	27	7.4	6.7
<b>NHFD overall</b>	-	<b>93.5</b>	<b>64,049</b>	<b>4,821</b>	<b>7.5</b>	-

\*Hospitals with fewer than six deaths have had both numerator and denominator suppressed to avoid identification.

Hospital name	NHFD code	Case ascertainment (%)	Total cases (n)	Deaths within 30 days (n)	Crude 30-day mortality rate (%)	Adjusted 30-day mortality rate (%)
North Tyneside Hospital	NTY	98.7	306	31	10.1	8.5
Ulster Hospital	NUH	93.9	357	21	5.9	5.4
George Eliot Hospital	NUN	90.2	275	20	7.3	7.8
Newham General Hospital	NWG	102.6	119	9	7.6	8.2
Royal Oldham Hospital	OHM	90.7	359	31	8.6	9.9
Queen's Hospital Romford	OLD	95.1	585	26	4.4	5.8
Princess Alexandra Hospital	PAH	97.0	351	20	5.7	6.1
Prince Charles Hospital	PCH	87.0	213	16	7.5	7.7
Peterborough City Hospital	PET	96.0	436	27	6.2	6.7
Poole General Hospital	PGH	112.2	963	64	6.6	7.4
Pilgrim Hospital	PIL	97.4	342	22	6.4	7.2
Pinderfields General Hospital	PIN	93.5	559	37	6.6	5.5
Derriford Hospital	PLY	78.1	484	33	6.8	7.1
The Great Western Hospital	PMS	94.8	418	43	10.3	11.5
Princess of Wales Hospital	POW	81.4	227	17	7.5	8.0
Queen Alexandra Hospital	QAP	89.8	737	40	5.4	5.9
Queen Elizabeth Hospital Edgbaston	QEB	87.0	432	29	6.7	6.4
Queen Elizabeth Hospital Gateshead	QEG	89.5	291	27	9.3	8.0
Queen Elizabeth The Queen Mother Hospital	QEQ	101.5	480	36	7.5	8.8
Queen Elizabeth Hospital King's Lynn	QKL	95.9	372	23	6.2	6.2
John Radcliffe Hospital	RAD	92.5	531	45	8.5	5.1
Royal Berkshire Hospital	RBE	92.3	422	23	5.5	6.4
Royal Cornwall Hospital	RCH	92.4	606	66	10.9	9.7
Royal Devon and Exeter Hospital	RDE	100.8	606	46	7.6	9.3
The Alexandra Hospital	RED	105.8	291	25	8.6	9.3
Royal Free Hospital	RFH	89.0	169	9	5.3	6.4
Royal Glamorgan	RGH	125.1	224	19	8.5	10.3
Royal Hampshire County Hospital	RHC	109.8	281	17	6.0	6.0
Royal Lancaster Infirmary	RLI	83.4	270	27	10.0	10.2
Royal Liverpool University Hospital	RLU	90.8	374	19	5.1	4.8
Rotherham General Hospital	ROT	88.1	296	20	6.8	6.3
Royal Preston Hospital	RPH	106.9	448	27	6.0	6.5
Royal Sussex County Hospital	RSC	93.8	530	26	4.9	4.9
Royal Shrewsbury Hospital	RSS	94.6	369	31	8.4	10.5
Royal Surrey County Hospital	RSU	80.4	295	19	6.4	7.5
Russells Hall Hospital	RUS	93.5	487	42	8.6	9.2
Royal Victoria Hospital, Belfast	RVB	93.7	887	39	4.4	3.9
Royal Victoria Infirmary	RVN	98.9	428	36	8.4	6.5
Salisbury District Hospital	SAL	92.3	274	21	7.7	8.8
Sandwell District Hospital	SAN	95.9	347	22	6.3	7.0
Scarborough General Hospital	SCA	95.8	297	16	5.4	6.4
James Cook University Hospital	SCM	94.8	470	20	4.3	4.2
Scunthorpe General Hospital	SCU	84.3	210	26	12.4	9.6
County Hospital, Stafford	SDG	69.6	168	10	6.0	6.1
Southend Hospital	SEH	62.0	321	13	4.0	4.8
<b>NHFD overall</b>	-	<b>93.5</b>	<b>64,049</b>	<b>4,821</b>	<b>7.5</b>	-

\*Hospitals with fewer than six deaths have had both numerator and denominator suppressed to avoid identification.

Hospital name	NHFD code	Case ascertainment (%)	Total cases (n)	Deaths within 30 days (n)	Crude 30-day mortality rate (%)	Adjusted 30-day mortality rate (%)
Southampton General Hospital	SGH	96.3	605	42	6.9	8.1
St Helier Hospital	SHC	91.7	431	32	7.4	5.8
Stepping Hill Hospital	SHH	100.0	389	24	6.2	5.5
Salford Royal Hospital	SLF	104.6	294	31	10.5	8.1
Stoke Mandeville Hospital	SMV	86.7	370	27	7.3	8.4
Southport and Formby District General Hospital	SOU	83.5	288	25	8.7	6.3
St Peter's Hospital	SPH	103.0	412	25	6.1	8.4
South Tyneside District Hospital	STD	87.7	206	6	2.9	3.4
St Thomas' Hospital	STH	76.5	166	14	8.4	12.5
St Mary's Hospital Paddington	STM	63.5	231	19	8.2	10.5
Royal Stoke University Hospital	STO	92.5	602	42	7.0	6.0
St Richard's Hospital	STR	93.6	393	24	6.1	5.4
Sunderland Royal Hospital	SUN	95.4	391	32	8.2	6.8
Tameside General Hospital	TGA	77.9	240	21	8.8	9.1
Princess Royal Hospital Telford	TLF	48.2	137	13	9.5	10.0
Torbay Hospital	TOR	104.0	471	38	8.1	6.5
Tunbridge Wells Hospital	TUN	82.3	498	33	6.6	8.3
University College Hospital	UCL	96.5	139	8	5.8	6.7
University Hospital Coventry	UHC	98.3	518	44	8.5	8.8
University Hospital Queen's Medical Centre	UHN	113.5	800	66	8.3	6.3
University Hospital of Wales	UHW	97.8	453	38	8.4	8.2
Blackpool Victoria Hospital	VIC	82.4	408	26	6.4	8.9
Warwick Hospital	WAR	111.3	326	20	6.1	6.7
Watford General Hospital	WAT	91.7	433	35	8.1	9.2
Warrington District General Hospital	WDG	75.3	304	21	6.9	7.1
Dorset County Hospital	WDH	101.0	301	24	8.0	8.8
Chelsea and Westminster Hospital	WES	94.4	187	15	8.0	10.0
Wexham Park Hospital	WEX	88.8	365	34	9.3	10.1
Weston General Hospital	WGH	91.0	303	28	9.2	8.8
Whipps Cross Hospital	WHC	98.8	317	17	5.4	5.4
William Harvey Hospital	WHH	100.0	487	40	8.2	9.2
Whiston Hospital	WHI	91.6	401	34	8.5	7.9
Whittington Hospital	WHT	111.7	115	7	6.1	7.1
Arrowe Park Hospital	WIR	95.9	465	45	9.7	9.8
Manor Hospital	WMH	97.4	337	21	6.2	5.9
West Middlesex University Hospital	WMU	94.6	210	12	5.7	7.4
Worcestershire Royal Hospital	WRC	97.5	457	39	8.5	8.3
Worthing Hospital	WRG	93.1	469	52	11.1	9.8
Maelor Hospital	WRX	83.1	216	21	9.7	9.0
West Suffolk Hospital	WSH	108.7	326	26	8.0	7.9
West Wales General Hospital	WWG	68.2	249	9	3.6	3.7
Withybush General Hospital	WYB	106.2	206	16	7.8	8.3
Wythenshawe Hospital	WYT	110.1	339	23	6.8	6.2
York District Hospital	YDH	73.5	333	24	7.2	7.7
Yeovil District Hospital	YEO	83.8	263	23	8.7	7.9
<b>NHFD overall</b>	-	<b>93.5</b>	<b>64,049</b>	<b>4,821</b>	<b>7.5</b>	-

\*Hospitals with fewer than six deaths have had both numerator and denominator suppressed to avoid identification.

# Falls and Fragility Fracture Audit Programme (FFFAP)

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)**

