



British Orthopaedic Association



**HQIP**

Healthcare Quality  
Improvement Partnership



# The National Hip Fracture Database National Report 2010

In partnership with:



FOR HEALTH AND SOCIAL CARE 





# The National Hip Fracture Database National Report 2010

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# Foreword

Hip fracture is the most common serious injury of older people, and the tracer condition for the current epidemic of fragility fractures in both the developed and the developing world. Improving its care and prevention is an urgent clinical and public health priority.

The facts about the clinical impact of hip fracture, and about its epidemiology and its costs, are daunting. It is a major cause of mortality, morbidity, dependency and loss of home for older people. Around 76,000 cases occur every year in the UK. NHS costs amount to around £1.4 billion – a figure that is approximately doubled when the social care costs of hip fracture - related dependency are taken into account.

The improvement of hip fracture care and the reduction of its incidence by effective secondary prevention are therefore major goals not just for the NHS but for society as a whole; and since its launch in 2007 the National Hip Fracture Database has led the way in raising the profile of hip fracture care; in promoting improved care provision and secondary prevention; and in providing clinicians and managers with useful data about the care they offer and the outcomes they achieve.

There is now clear evidence that fracture services can use the synergy of the National Hip Fracture Database audit and the standards set out in the *Blue Book on the care of patients with fragility fracture* to improve the quality of care in measurable ways. And at the same time overall costs can be reduced by the elimination of unnecessary and often damaging delay, and by improved rehabilitation that can meet patients' wishes for a safe and early return home. At a time of increasing pressures on NHS funding, this demonstration that quality and cost-effectiveness can be improved together is particularly welcome.

As this 2010 NHFD report shows, the number of actively participating hospitals has increased greatly: to more than 90% of all those eligible; and with a commensurate increase in number of cases on the database - currently more than 72,000.

All this represents considerable progress in the clinical governance of hip fracture care at a national level within the UK, and this success has been recognised in April 2010 by the Department of Health's introduction of a Best Practice Tariff for hip fracture care: a development made possible only by the widespread adoption by fracture services of the National Hip Fracture Database and its associated care standards. In turn, the BPT resource enables targeted investment in services that will bring about higher quality and better cost-effectiveness.

NHFD depends for its success on the close involvement of practising clinicians in its strategic development, implementation and day-to-day running; and such progress in only three years represents a remarkable achievement on the part of the large and enthusiastic coalition of clinicians from many disciplines who have worked together to ensure that NHFD is now a central and established contributor to improved clinical governance and better clinical care of hip fracture patients.

This report provides welcome evidence that clinicians and managers can work together – using audit and standards together – to provide higher quality care that is also more cost-effective: an achievement that now requires to be replicated more widely across the NHS.



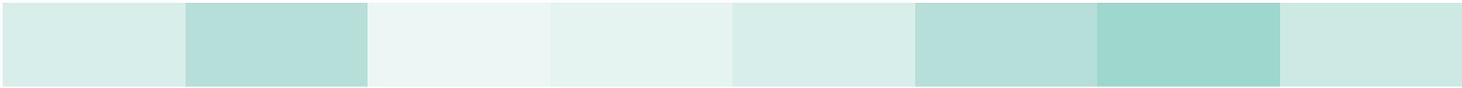
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National Clinical Director  
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# Executive summary

- The National Hip Fracture Database (NHFD) is a clinically led, web-based audit of hip fracture care and secondary prevention. Its main aim is to improve such care.
- Hospitals in England, Wales, Northern Ireland and the Channel Islands participate by uploading case records in a standard dataset format, and receive nationally benchmarked feedback that enables clinicians and managers to monitor and improve the care they provide for their hip fracture patients.
- The NHFD – recognised in 2009 for national clinical audit status, with resultant central funding awarded for three years – was set up jointly by the British Orthopaedic Association and the British Geriatrics Society, and launched in 2007 along with a jointly sponsored *Blue Book on the care of patients with fragility fracture*<sup>1</sup>
- The Blue Book sets out six auditable standards: prompt admission to orthopaedic care; surgery within 48 hours; nursing care aimed at minimising the development of pressure ulcers; routine access to ortho-geriatric medical care; assessment and appropriate treatment to promote bone health; and falls assessment.
- This 2010 NHFD National Report sets out the considerable progress made since 2007. 97% of the 193 eligible hospitals are now registered with NHFD, and 87% regularly submit data. Currently around 4000 cases – about two-thirds of the possible maximum – are uploaded each month [making the NHFD almost certainly the largest and fastest growing hip fracture audit in the world.]
- The report covers casemix▲, care and outcomes of 36,556 cases submitted between 1 April 2009 and 31 March 2010 by 129 hospitals meeting the case threshold of 100 (or a 100% submission rate in smaller hospitals). In the key charts which cover compliance with the six Blue Book standards, hospitals are in rank order; and, for the first time in an NHFD report, are identifiable throughout by name.
- In terms of those standards:
  1. 57% of patients are now admitted to an orthopaedic ward within 4 hours
  2. 80% receive surgery within 48 hours
  3. Only 6% are reported as having developed pressure ulcers
  4. 31% are assessed preoperatively by an ortho-geriatrician, with an additional 32% having other forms of medical assessment
  5. 57% are discharged on bone protection medication, with another 7% awaiting a bone scan or bone clinic appointment. A further 11% were assessed but no bone protection medication was needed or appropriate.
  6. 60% receive a falls assessment by the time they are discharged, with a further 3% awaiting a falls clinic appointment.
- Other evidence of the NHFD's favourable impact on care comes from reports of participating hospitals' use of continuous audit to monitor the impact of service change. Examples include: time to theatre reduced by standardising procedures around theatre list planning (Berkshire); pressure ulcer incidence falling by 80% as a result of the work of a project team (Salford); and mortality reduced following the introduction of daily ortho-geriatrician ward-rounds (Basildon).

- 
- In the case of two highly significant outcomes – namely time taken for patients admitted from home to return home, and mortality at 30 days – data is case-mix adjusted, and displayed not in rank order but in the more statistically valid and accessible format of a funnel-plot<sup>2</sup> (or Shewart chart<sup>3</sup>).
  - Growing interest and participation in the NHFD have facilitated in England the implementation of the Department of Health’s Payment by Results<sup>4</sup> initiative<sup>4</sup>, and with it the new Best Practice Tariff<sup>4</sup> for hip fracture care. For the first time in the NHS, enhanced tariff rates, paid on a case-by-case basis, are on offer for care that meets clinically determined standards which will be monitored using the NHFD. It is likely that uptake will be high, and consequent improvements in care substantial.
  - The extra funding on offer for compliance with the Best Practice Tariff is creating opportunities for investment in service improvement. There are a growing number of solutions to bottlenecks in patient pathways, identified in individual fracture units from their NHFD feedback.
  - The NHFD, with its now extensive database on casemix, care and outcomes, has been recognised as having considerable potential to add to the knowledge-base that will inform further progress in hip fracture care. A Scientific and Publications Committee has been set up, and a number of studies are currently at the planning stage.

# Introduction

## The National Hip Fracture Database

The National Hip Fracture Database (NHFD), a web-based hip fracture audit, was set up as a collaborative venture by the British Orthopaedic Association (BOA) and the British Geriatrics Society (BGS) and launched along with the *BOA/BGS Blue Book on the care of patients with fragility fracture* in 2007. In 2009 the NHFD was recognised by the National Clinical Audit Advisory Group as eligible for central funding as a national clinical audit, with resultant three year support from the Health Quality Improvement Partnership.

The purpose of the NHFD is to improve the quality and the cost-effectiveness of hip fracture care, and to reduce its subsequent incidence by improved secondary prevention. A more detailed account of the structure, governance and funding of the NHFD can be found in Appendix A.

## The 2010 NHFD National Report

This publication, the 2010 NHFD National Report, describes the considerable progress made since that documented in the Preliminary National Report in 2009. It provides details on the case-mix, care and outcomes of 36,556 cases of hip fracture from the 129 hospitals that submitted more than 100 cases over the year 1st April 2009 to 31st March 2010; and from three smaller hospitals with fewer than 100 cases, but with 100% of cases submitted. This report shows how the care provided matches up to the standards set out in the *Blue Book*, and thus offers a larger and much more detailed - but still incomplete - picture of hip fracture care in England, Wales, Northern Ireland and the Channel Islands in 2009/10.

In the charts that comprise the bulk of the report, data from participating hospitals is displayed comparatively, and in its first section describes casemix: in terms of age, sex-ratio, place of residence, ASA grade, walking ability, and fracture type. The next section follows the journey of care from initial admission through to discharge, with details of time to ward and to surgery, medical assessment, development of any pressure ulcers, secondary prevention measures, length of acute hospital stay and destination on discharge. Finally, two key outcomes - namely percentage of patients

returning home by 30 days, and mortality at 30 days – are reported not in terms of the raw data but by the use of a case-mix adjustment methodology that takes account of the inter-hospital variation in patients treated.

Although direct comparisons between the findings of the 2009 and 2010 NHFD Reports should be treated cautiously because of the widely differing numbers of hospitals and cases involved (64 vs. 129 hospitals; 12,983 vs. 36,556 cases), they are nevertheless of some interest, in particular in relation to compliance with Blue Book standards – which has risen in at least four instances (% to theatre in 48 hrs - up 5%; preoperative assessment - up 21%; bone health assessment and treatment - up 15%; and falls assessment - up 19%).

In a departure from previous practice, the 2010 National Report identifies participating hospitals by name. This is in keeping with the growing culture of transparency in the NHS, and obviously facilitates comparisons at local, regional and national level. Such comparisons can be valuable, promoting awareness of quality in the care of hip fracture and stimulating interest in its improvement. However, it is important to note that the underlying data is in some instances still of a standard of completeness and quality that renders such comparisons indicative rather than definitive.

## NHFD and the Blue Book – using audit and standards to improve the quality and cost-effectiveness of care

The NHFD was developed over the period 2004-2007 by clinicians drawn mainly from the BOA and the BGS, and builds on previous work on large-scale hip fracture audit in Sweden<sup>5</sup> and Scotland<sup>6</sup>, and on various single-hospital audits in England, Wales and Northern Ireland. Its web-based technology owes much to the highly successful Myocardial Infarction National Audit Project (MINAP)<sup>7</sup> and the support of the NHS Information Centre, which together have helped to make NHFD a comprehensive and technically advanced clinically led audit that enables clinical teams to document, monitor and improve the

care they provide for hip fracture patients.

The NHFD was launched along with the jointly produced *BOA/BGS Blue Book on the care of patients with fragility fracture*: a practical 75-page handbook produced by a broadly-based multidisciplinary authorship group that had reviewed current evidence on all aspects of fragility fracture care. As well as setting out the research base for good practice, the Blue Book included six clinical standards for hip fracture care that had been agreed by the authorship group and the NHFD Executive. These are: prompt admission to orthopaedic care; early surgery; prevention of pressure ulcers; access to acute orthogeriatric care; assessment for bone protection therapy; and falls assessment - the latter two standards reflecting the importance of secondary prevention in reducing the risk of subsequent fractures.

Used together, NHFD and the Blue Book provide the synergy of audit, standards and feedback to promote better care and secondary prevention. Participating units can measure their own performance against the Blue Book standards; benchmark the care they provide against national data; use NHFD as the basis of local audit to assess specific aspects of care; and evaluate the impact on care outcomes of local changes in clinical practice and in service organisation designed to improve care.

Together, NHFD and the Blue Book aim to raise the quality and reduce the costs of hip fracture care; and it should be clearly noted that in hip fracture care quality and cost-effectiveness are not in conflict. Prompt surgery, good medical care, early rehabilitation and robust early supported discharge arrangements will all serve to increase patient satisfaction and lower cost per case. Conversely, delay at any stage, poor medical care, and inadequate rehabilitation arrangements will diminish quality, and can greatly increase costs. An important message emerges: in the words of the Blue Book, 'Looking after hip fracture patients well is cheaper than looking after them badly'.

### **Participation in the NHFD; data collection, completeness and quality**

Since its launch in 2007 the NHFD has grown steadily, with a database of more than 72,800

cases of hip fracture now documented. The number of hospitals actively involved has increased and now approaches complete coverage. Of the 193 hospitals eligible to participate, 188 (97%) are now registered with NHFD. Of these, 89% are actively participating, with cases submitted in the last 3 months.

The NHFD's web-based technology facilitates information transfer, data handling, analysis and feedback; and advice and user support are available from the website and the project team. But the basic responsibility for the funding and organisation of data collection lies with the participating hospitals. The continuous capture of comprehensive, high-quality data is a major challenge and there is considerable variation across hospitals in both the approach to data collection and the completeness and quality of the resulting data.

While it is reassuring that the current quarterly upload of cases exceeds 12,000, that figure still represents only around two-thirds of the estimated total caseload of the registered hospitals; and it is clear also that for participating hospitals there is significant variance in the proportion of the total hip fracture caseload that is uploaded to the NHFD. Further work is required if the ideal coverage of a national audit – all cases from all hospitals – is to be achieved.

Ideally, all cases entered into the NHFD would have each of the 18 data fields mainly used in this report fully completed. In practice, data completeness at this level is 98% which is encouraging rather than ideal, as can be seen in Chart 01 (for detailed information see Appendix B) While data quality is improving across all fields in the NHFD dataset, there are still some concerns, and these are currently being addressed.

There is some evidence that full coverage within hospitals, and high levels of data completeness and quality, can best be delivered by specifically employed, tasked, trained and supported staff with a clinical (almost always nursing) background. The resource commitments required are significant, but the cost of acquiring information that can lead to higher quality and cost-effectiveness in the care of an injury with average hospital costs in excess of £12,000 can be justified. Were PCTs to commission full and

adequately financed NHFD participation as part of the commissioning of hip fracture care, it is likely that accountability for – and improvements in – the quality and cost-effectiveness of that care would result; and that these would far outweigh the cost of data collection.

## Reporting procedures

If audit is to influence practice, the feedback it provides to participating units must be prompt and reliable. The NHFD's web-based systems recognise these needs, and its reporting mechanisms are predominantly web-based – providing individual units with centrally processed and readily accessed rolling monthly and yearly electronic reports.

Clinicians want information that allows them to monitor and improve practice, and perhaps the most immediately useful form such information can take is that of serial local data showing trends in case volume and casemix; in critical clinical metrics such as delay to theatre; and in key patient-focussed outcomes such as rate of return home and mortality. Such data can highlight service issues, document resource constraints, facilitate informed discussion, and more generally provide service management data for week to week or month to month service monitoring.

And for units who wish to evaluate planned service changes, preliminary baseline data and post-intervention process and outcome measures provide robust quantitative evidence – of as much interest to clinical managers as to clinicians – on the impact of measures such as additional orthogeriatrician sessions or a new approach to theatre list planning. The NHFD has supported many such impact evaluations and, for the first time, a number of case-studies that offer evidence of real improvement following service change are included in this report.

Procedures are being developed to facilitate access to summary NHFD data by NHS organisations (Trusts, PCTs, and SHAs) as part of work towards an entirely public-facing website by 2012.

However, despite the advantages of the immediacy, precise targeting and minimal cost that web-based reporting brings, there remains a need for published reports such as this: to make

the work of the NHFD known beyond its network of participants; to raise the profile of hip fracture; and to demonstrate by means of nation-wide comparative data what has been achieved in promoting quality and cost-effectiveness in hip fracture care – and what still remains to be done.

## Recent developments in the national clinical governance of hip fracture care

Since the publication of the NHFD Preliminary National Report in early 2009 there have been two major national-level developments in the clinical governance of hip fracture care. These relate to the recognition and funding by the Health Quality Improvement Partnership of the NHFD as a national clinical audit; and to the NHFD's role in promoting improvements in care through Payment by Results (PBR) as part of the Department of Health's Best Practice Tariff (BPT) initiative.

NHFD was supported through its development phase and until 2009 mainly by generous industry funding channelled through the ABPI and the ABHI, the professional bodies of the pharmaceutical and implant industries respectively; and by a substantial Department of Health grant that supported regional NHFD meetings and aspects of project development.

When procedures for the selection of topics for national audit, and for the funding of such audits, were clarified in 2008, the new National Clinical Audit Advisory Group (NCAAG) was given the former role, and HQIP the latter. Under these procedures, NHFD submitted tendering documents, and hip fracture was recognised as a suitable topic for funded national audit with three-year central funding for NHFD was secured from 2009.

The existence of a clinically led and nationally funded audit of hip fracture care that was capable of delivering specific and reliable case-based information on the quality of hip fracture care greatly facilitated the early selection of hip fracture as a topic for the PBR within the BPT initiative. An enhanced tariff will be paid for care that meets agreed standards relating to early surgery, orthogeriatric input, rehabilitation and secondary prevention. For the first time ever in the NHS, a clear financial incentive is offered in return for the

meeting of professionally determined quality standards on a case by case basis.

As a result of these two developments, the NHFD's central role in the clinical governance of hip fracture care at national level has been clearly established, and together they have resulted in continuing expansion to near-complete national coverage in terms of hospital registration, and steady growth in the database through increased participation. Importantly, there is now a clear perception that the NHFD is beginning to have an impact in its primary purpose of improving hip fracture care and secondary prevention, and this report includes a number of vignettes that demonstrate how initiatives in individual hospitals, making use of baseline and post-intervention NHFD data to document change, have delivered measurable improvements in care and outcomes.

Since its launch as a web-based audit, NHFD has succeeded in creating a 'virtual clinical community' of hip fracture care enthusiasts for which data is uploaded and analysed, outcomes benchmarked, and – through the website and a helpdesk facility – expertise and examples of good practice are shared. But in addition to that, and as another important factor in NHFD's growing reach and impact, a wide range of well-attended and productive meetings have succeeded in bringing clinicians and NHFD staff together at local, regional and national levels. These include workshops, led by the NHFD's two project coordinators, on participation and data collection; regional meetings organised to promote senior clinician and managerial interest in NHFD; and a recent series of meetings arranged jointly with the Department of Health to bring Payment by Results and the Best Practice Tariff for hip fracture care to the notice of SHA leadership, managers and clinicians in advance of its implementation – with useful discussion and resultant agreement on many important practical details.

### **The NHFD: adding to knowledge in hip fracture care**

The primary purpose of the NHFD is the direct improvement of hip fracture care and secondary prevention. However, with its large and growing database of detailed and standardised information on casemix, care and outcomes of a significant and costly injury, it also offers significant

opportunities to expand the knowledge base upon which best-practice care depends. This potential has been recognised, and a small NHFD sub-group, the Scientific and Publications Committee, has recently been established to support the use of NHFD data in projects aimed ultimately at elucidating some of the many unresolved issues in hip fracture care. Options include simple observational studies, more elaborate statistical analyses, multicentre sprint audits on aspects of care, and - in due course – it is expected that the NHFD will be capable of supporting full-scale and separately funded research projects on major topics.

### **NHFD: the future**

From a modest start in 2007, the NHFD, has already grown to become the world's largest national hip fracture audit, and is advancing rapidly towards complete national coverage. As a result, clinicians in England, Wales, Northern Ireland and the Channel Islands can monitor and improve their care of a common, costly and serious injury; a robust system of clinical governance has brought new transparency about quality of care; and – in England – enabled a ground-breaking implementation of Best Practice Tariff to reward hospitals that can demonstrate that their care is indeed of high quality.

With funding secure in the short term, and provisional plans in place for sustainable funding when HQIP support is discontinued in 2012, the NHFD is now well placed to build on this progress. In the immediate future the implementation of the Best Practice Tariff, with wide participation expected, is likely to bring measurable improvements in care and outcomes.

Subsequently, the NHFD will continue to work for a broad levelling-up of care standards; continuing advances in the quality and cost-effectiveness of care; and eventual reduced incidence of subsequent fractures through the widespread implementation of secondary prevention measures of proven effectiveness that avert the human and financial costs of avoidable injury.

# Participating hospitals

Indicates inclusion in this report n=129; indicates participating in NHFD but not submitting sufficient data to be included in report n=53

Addenbrooke's Hospital, Cambridge	ADD	Hillingdon Hospital	HIL
Airedale General Hospital,		Hinchingbrooke Hospital	
Altnalgelvin Hospital	ALT	Homerton University Hospital	
Arrowe Park Hospital, Wirral		Horton Hospital, Banbury	
Barnet Hospital		Huddersfield Royal Infirmary	HUD
Barnsley Hospital	BAR	Hull Royal Infirmary	HRI
Basildon and Thurrock University Hospital	BAS	James Cook University Hospital	SCM
Bassetlaw District General Hospital		James Paget University Hospital	JPH
Bedford Hospital		Jersey General Hospital	
Birmingham Heartlands	EBH	John Radcliffe, Hospital, Oxford	RAD
Bradford Royal Infirmary	BRD	Kent & Sussex Hospital, Tunbridge Wells	KSX
Bristol Royal Infirmary	BRI	Kettering General Hospital	
Bronglais General Hospital, Aberystwyth	BRG	King's College Hospital	KCH
Broomfield Hospital	BFH	King's Mill Hospital, Sutton in Ashfield	KMH
Charing Cross Hospital	CCH	Kingston Hospital	KTH
Chase Farm Hospital		Leeds General Infirmary	LGI
Chelsea and Westminster Hospital		Leicester Royal Infirmary	LER
Cheltenham General Hospital	CHG	Leighton Hospital, Crewe	LGH
Chesterfield Royal Hospital		Lincoln County Hospital	LIN
Colchester General Hospital		Lister Hospital, Stevenage	LIS
Conquest Hospital, Hastings		Luton and Dunstable Hospital	LDH
Countess of Chester Hospital	COC	Macclesfield General Hospital	
County Hospital, Hereford		Maelor Hospital, Wrexham	WRX
Craigavon Area Hospital		Maidstone Hospital	MAI
Cumberland Infirmary, Carlisle	CMI	Manchester Royal Infirmary	MRI
Darent Valley Hospital, Dartford		Manor Hospital, Walsall	
Darlington Memorial Hospital		Mayday University Hospital	MAY
Derriford Hospital, Plymouth	PLY	Medway Maritime Hospital	MDW
Dewsbury and District Hospital	DEW	Milton Keynes Hospital	
Diana Princess of Wales Hospital, Grimsby	GGH	Morrison Hospital, Swansea	MOR
Doncaster Royal Infirmary,		Nevill Hall Hospital	
Dorset County Hospital	WDH	New Cross Hospital, Wolverhampton	NCR
Ealing Hospital		Newcastle General	NEW
East Surrey Hospital, Redhill	ESU	Newham General Hospital	
Eastbourne District General Hospital	DGE	Nobles Hospital, Isle of Man	NOB
Fairfield Hospital, Bury		Norfolk and Norwich University Hospital	NOR
Frenchay Hospital, Bristol	FRY	North Devon District Hospital	
Friarage Hospital, Northallerton	FRH	North Hampshire Hospital, Basingstoke	NHH
Frimley Park Hospital, Camberley		North Middlesex University Hospital	NMH
Furness General Hospital, Barrow-in-Furness		North Tyneside General Hospital	NTY
George Eliot Hospital, Nuneaton		Northampton General Hospital	NTH
Glan Clwyd Hospital, Rhyl		Northern General Hospital, Sheffield	NGS
Gloucestershire Royal Hospital	GLO	Peterborough District Hospital	
Good Hope Hospital	GHS	Pilgrim Hospital, Boston	PIL
Grantham and District Hospital		Pinderfields General Hospital, Wakefield	PIN
Gwynedd Ysbyty, Bangor	GWY	Poole General Hospital	PGH
Harrogate District Hospital	HAR	Prince Charles Hospital, Merthyr	

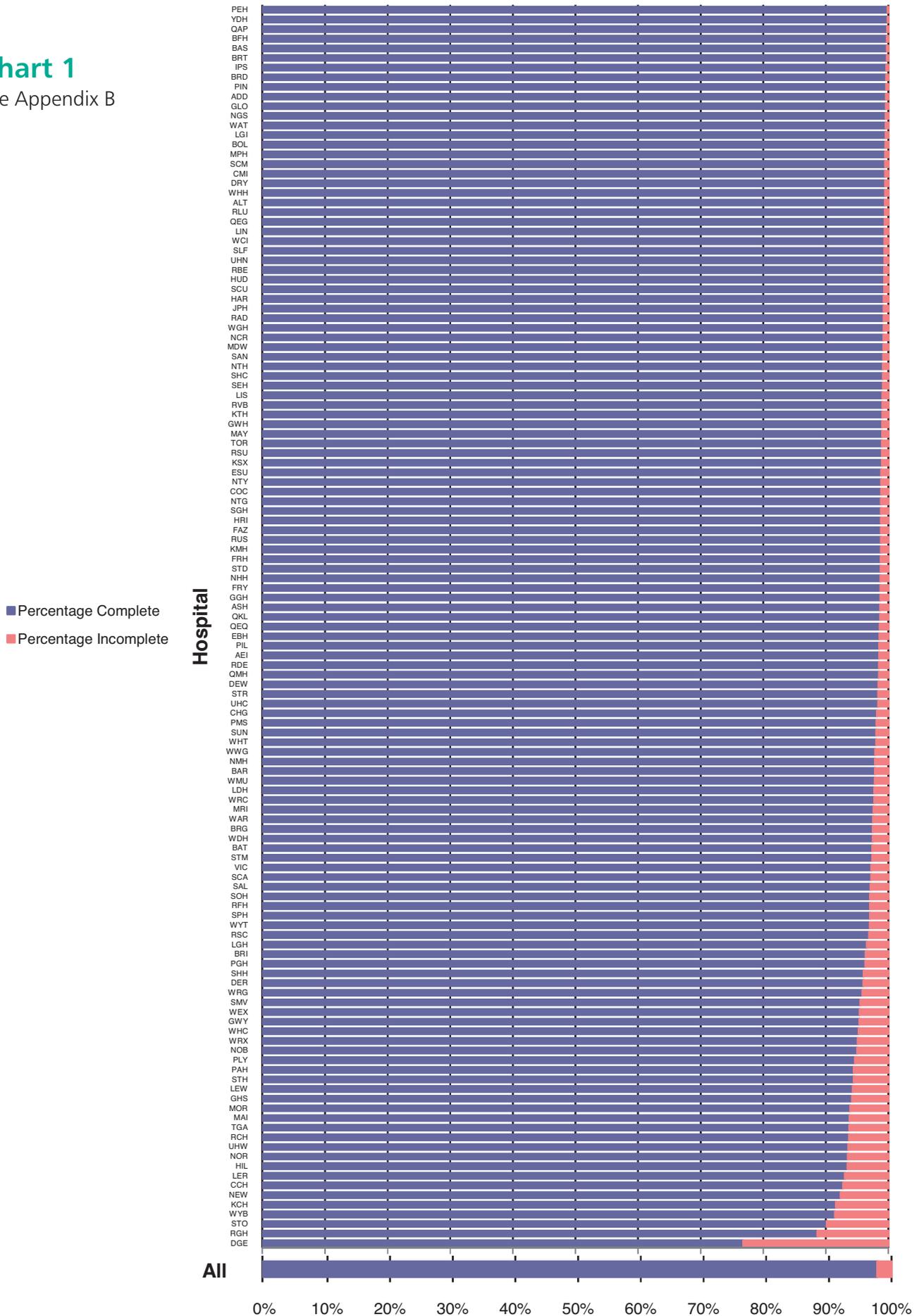
Princess Elizabeth Hospital, Guernsey	PEH	The Alexandra Hospital	
Princess Royal Hospital, Telford		The Great Western Hospital, Swindon	PMS
QEQM Hospital, Margate	QEQ	The Ipswich Hospital	IPS
Queen Alexandra Hospital, Portsmouth	QAP	The Princess Alexandra Hospital, Harlow	PAH
Queen Elizabeth Hospital, Gateshead	QEG	Torbay District General Hospital	TOR
Queen Elizabeth Hospital, King's Lynn	QKL	Trafford General Hospital	
Queen Elizabeth Hospital, Woolwich	GWH	Ulster Hospital, Belfast	
Queen Mary's Hospital, Sidcup	QMH	University College Hospital, London	
Queens Hospital, Burton upon Trent	BRT	University Hospital Aintree	FAZ
Queen's Hospital, Romford		University Hospital Coventry	UHC
Rotherham District General Hospital		University Hospital Lewisham	LEW
Royal Albert Edward Infirmary, Wigan	AEI	University Hospital of North Staffordshire	STO
Royal Berkshire Hospital, Reading	RBE	University Hospital of North Durham	DRY
Royal Blackburn Hospital		University Hospital of North Tees	NTG
Royal Bolton Hospital	BOL	University Hospital of Wales, Cardiff	UHW
Royal Cornwall Hospital	RCH	University Hospital of Nottingham	UHN
Royal Derby Hospital	DER	Victoria Hospital, Blackpool	VIC
Royal Devon and Exeter Hospital	RDE	Wansbeck Hospital	ASH
Royal Free Hospital	RFH	Warrington Hospital	
Royal Glamorgan Hospital, Llantrisant	RGH	Warwick Hospital	WAR
Royal Hampshire County Hospital		Watford General Hospital	WAT
Royal Lancaster Infirmary		West Cumberland Hospital, Whitehaven	WCI
Royal Liverpool University Hospital	RLU	West Middlesex University Hospital	WMU
Royal London Hospital		West Suffolk Hospital, Bury St Edmonds	
Royal Shrewsbury Hospital		West Wales General Hospital, Carmarthen	WWG
Royal Surrey County Hospital, Guildford	RSU	Weston General Hospital,	
Royal Sussex County Hospital, Brighton	RSC	Weston-Super-Mare	WGH
Royal United Hospital, Bath	BAT	Wexham Park Hospital, Slough	WEX
Royal Victoria Hospital, Belfast	RVB	Whipps Cross University Hospital	WHC
Russells Hall Hospital, Dudley	RUS	Whiston Hospital, Prescot.	
Salford Royal Hospital	SLF	Whittington Hospital	WHT
Salisbury District Hospital	SAL	William Harvey Hospital, Ashford	WHH
Sandwell General Hospital	SAN	Withybush Hospital, Haverford West	WYB
Scarborough General Hospital	SCA	Worcestershire Royal Hospital	WRC
Scunthorpe General Hospital	SCU	Worthing and Southlands Hospital	WRG
Selly Oak Hospital, Birmingham	SOH	Wythenshawe Hospital, Manchester	WYT
South Tyneside District Hospital	STD	Yeovil District Hospital	
Southampton General Hospital	SGH	York Hospital	YDH
Southend University Hospital	SEH		
Southport District General Hospital			
St. George's Hospital			
St. Helier Hospital, Carshalton	SHC		
St. Peter's Hospital, Chertsey	SPH		
St. Richard's Hospital, Chichester	STR		
St. Mary's Hospital, Isle of Wight			
St. Mary's Hospital, Paddington	STM		
St. Thomas' Hospital	STH		
Stafford General Hospital			
Stepping Hill Hospital, Stockport	SHH		
Stoke Mandeville Hospital, Aylesbury	SMV		
Sunderland Royal Hospital	SUN		
Tameside General Hospital, Manchester	TGA		
Taunton and Somerset Hospital	MPH		

*Not all participating hospitals appear in the charts in this report. This is because they failed to meet the 100 case threshold introduced to avoid anomalous and misleading conclusions. The exceptions to this are three small centres that treat less than 100 hip fractures/year but have entered all fractures admitted. In all the following charts hospitals are identified by their unique three letter code.*

# Completeness of data submitted for the 2010 National Report

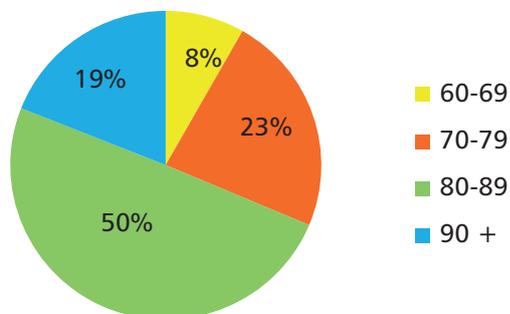
## Chart 1

See Appendix B

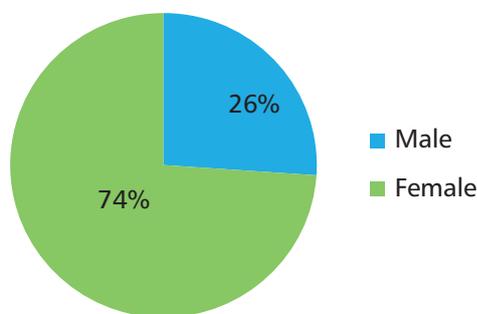


The pie charts below demonstrate at national level the distribution of casemix characteristics described. For Trust level data see the full on-line pdf report at [www.nhfd.co.uk](http://www.nhfd.co.uk)

**Chart 2. Age at admission**

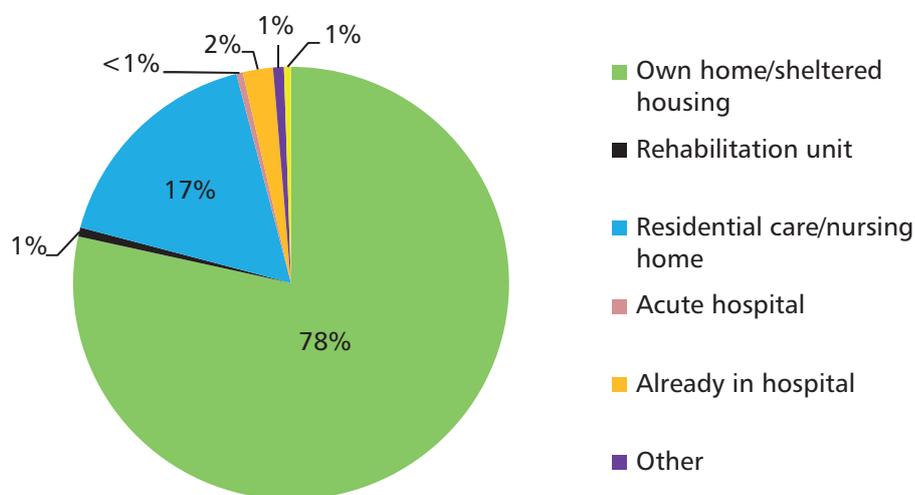


**Chart 3. Sex**



Both age and sex are important casemix factors▲, with significant influence on outcomes. In general terms, older and oldest patients have poorer outcomes in terms of return home if admitted from home, and of survival. 74% of our cases were female. Male patients, though generally presenting younger (average age male 83.02, female 84) tend to have greater co morbidity▲ and hence poorer outcomes.

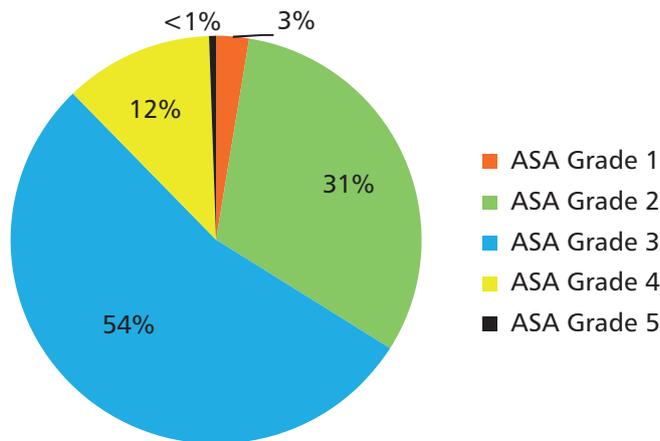
**Chart 4. Admitted from**



Seventy eight percent of patients were admitted from their own homes (this term is taken to include sheltered housing). Outcomes for such patients are generally better than those at admitted from other settings.

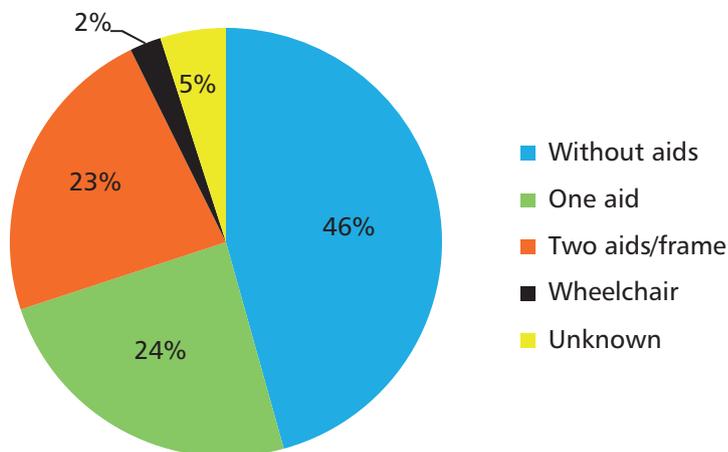
Patients admitted to orthopaedic care from other forms of hospital care, and patients from nursing and residential care homes, are to some extent already disadvantaged, e.g. by comorbidities, dependency, frailty, and cognitive impairment. Mortality for such patients is higher, and many will have little potential for rehabilitation (mainly because of previous disability and/or cognitive impairment). Care needs may increase: e.g. patients from residential care may subsequently require nursing care.

Chart 5. ASA Grade



ASA Grades▲ are a widely used means of categorising pre-operative risk. They range from 1 (healthy) to 5 (moribund, unlikely to survive 24 hours). It is noteworthy that 66% of hip fracture patients present with grades of 3 (severe systemic disease with functional limitation) or higher. Not surprisingly, mortality is most likely in patients in the higher risk grades. As noted in the introduction, concerns about completeness of current NHFD data are recognised. ASA grades are among the more commonly missed data items.

Chart 6. Walking ability



Forty six percent of patients presenting with hip fracture were previously mobile without a walking aid (e.g. walking stick). Loss of mobility – and hence independence – is an outcome greatly feared by patients. Maximum restoration of mobility is therefore a major goal of rehabilitation. However, around half of all hip fracture patients do not regain their previous level of mobility: e.g. will require a walking stick having previously walked independently, or will graduate from using a stick to using a walking frame.

## Chart 7. Fracture type

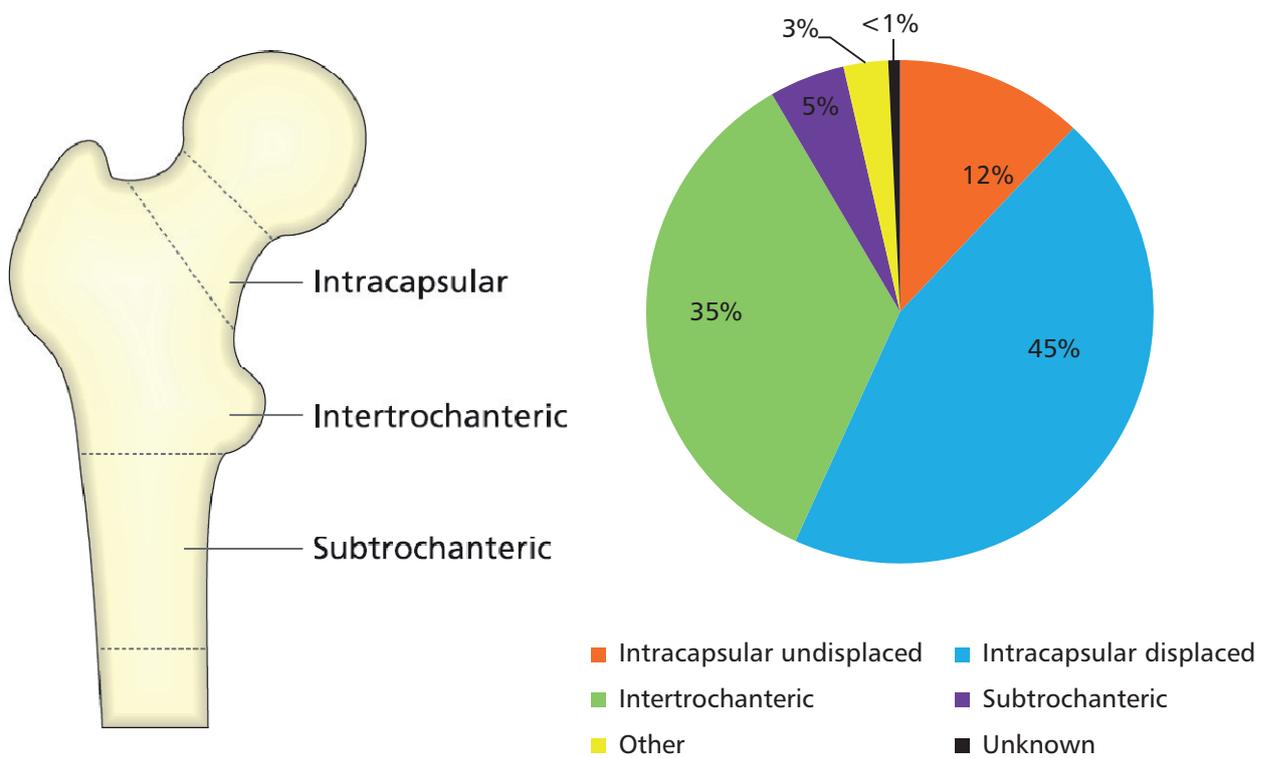


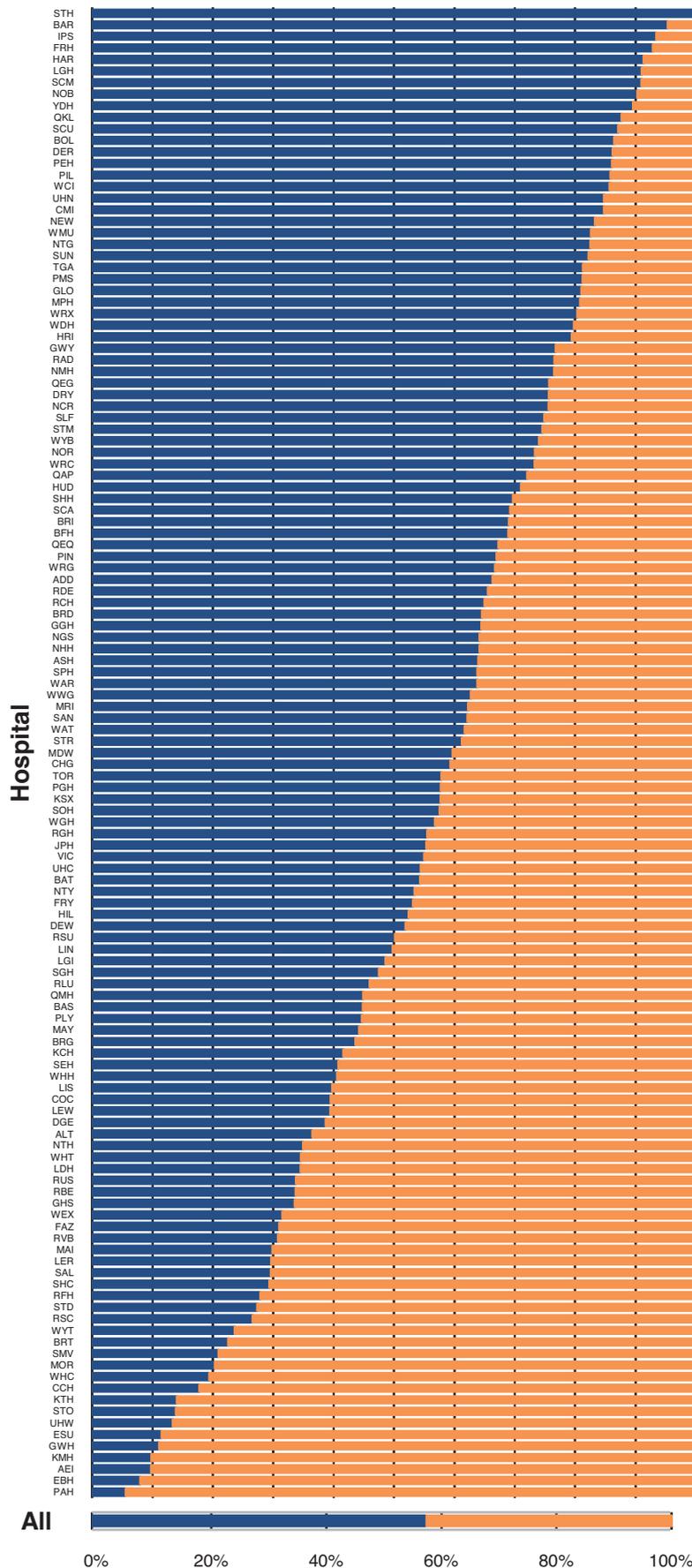
Fig 1

The distribution of fracture type is very similar to that in the Preliminary National Report. The type of fracture <sup>Fig 1</sup> is important as it determines the surgical procedure a patient requires. For a more detailed explanation see full on-line report

A&E to orthopaedic ward in 4 hrs (Blue Book Standard 1)

Chart 8

■ Orth Ward Admission in 4 hours  
■ Orth Ward Admission > 4 hours

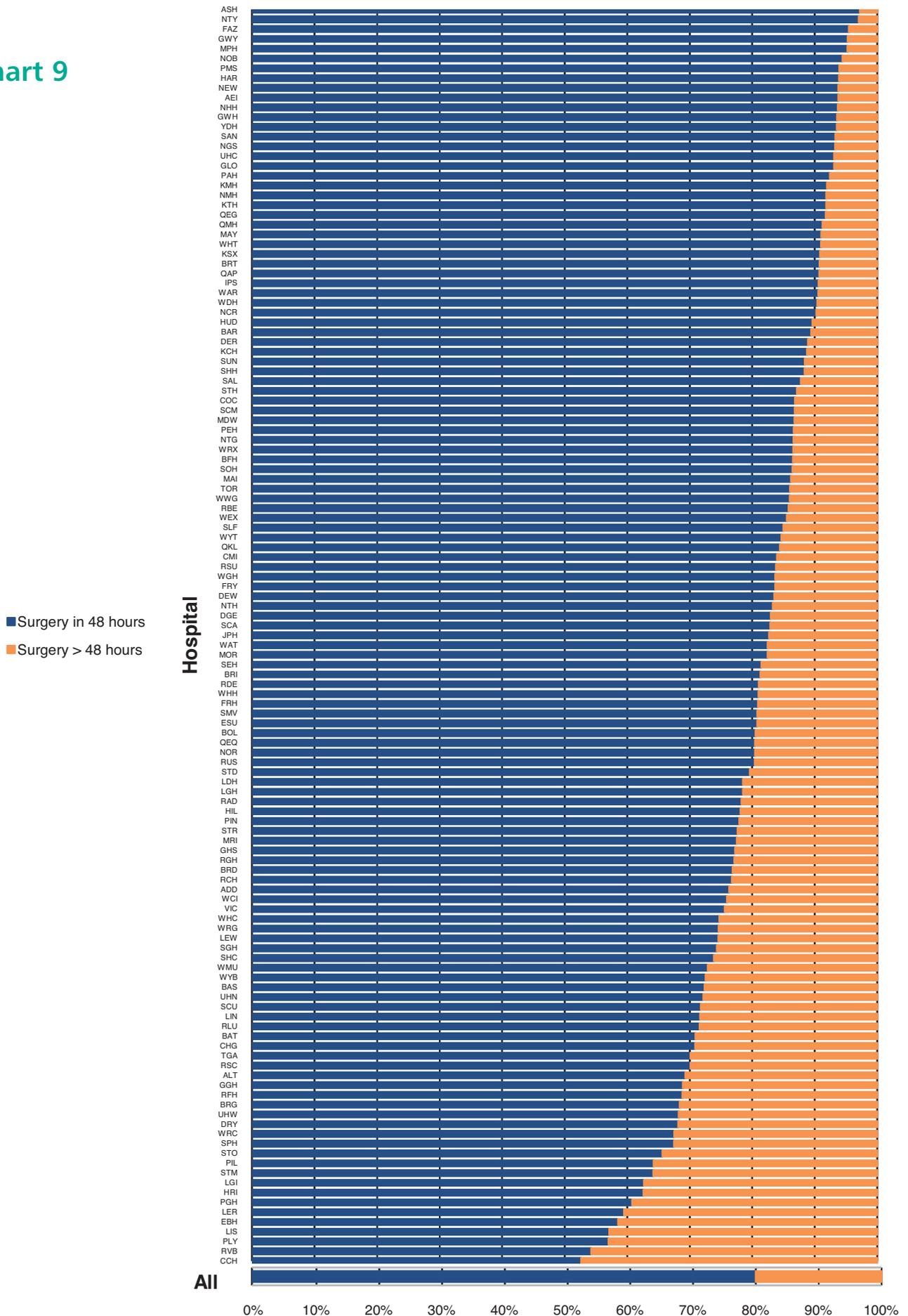


**James Paget  
University Hospital**

The James Paget orthopaedic unit used an Innovation in Nursing & Midwifery Project to address the question 'Could a key worker enhance care provided for patients with a fractured neck of femur from admission through to discharge?' The key worker, a senior nurse, led the design and implementation of an A&E Fast Track Guideline, and a Fracture Booklet to promote integrated documentation of patient care; made use of the NHFD to monitor progress; and introduced Patient Feedback Cards to improve communication and prompt further service developments. Clinical standards in hip fracture care have risen, and adverse incidents have been reduced.

# Surgery in 48 hours and during normal working hours (Blue Book Standard 2)

Chart 9



## Reason for no operation in 48 hours

Chart 10



Prompt admission to orthopaedic care (Chart 8) inspires confidence in patients and their carers, reduces the number of inter-ward transfers, minimises the risk of unnecessary delay and establishes the momentum and urgency that characterises good care.

Prompt surgery within normal working hours▲ is recommended for almost all cases. Delay to surgery (Chart 9) is simple to measure, though reasons for delay (Chart 10) may be complex, multiple and cumulative (e.g. when delay awaiting theatre time leads to medical problems such as pneumonia or electrolyte disturbance, with further

resultant 'medical' delay). So the categories used here are necessarily simplistic, and in practice not mutually exclusive. However, they can be used locally to highlight problems (e.g. the need for orthogeriatrician input; or inadequate – or inefficiently used – theatre time). Hence the real value of NHFD participation lies in using information to assess and address the main causes of delay. Avoidable delay can be minimised and care improved, and feedback data will show this.

### **Gloucestershire Hospitals NHS Foundation Trust**

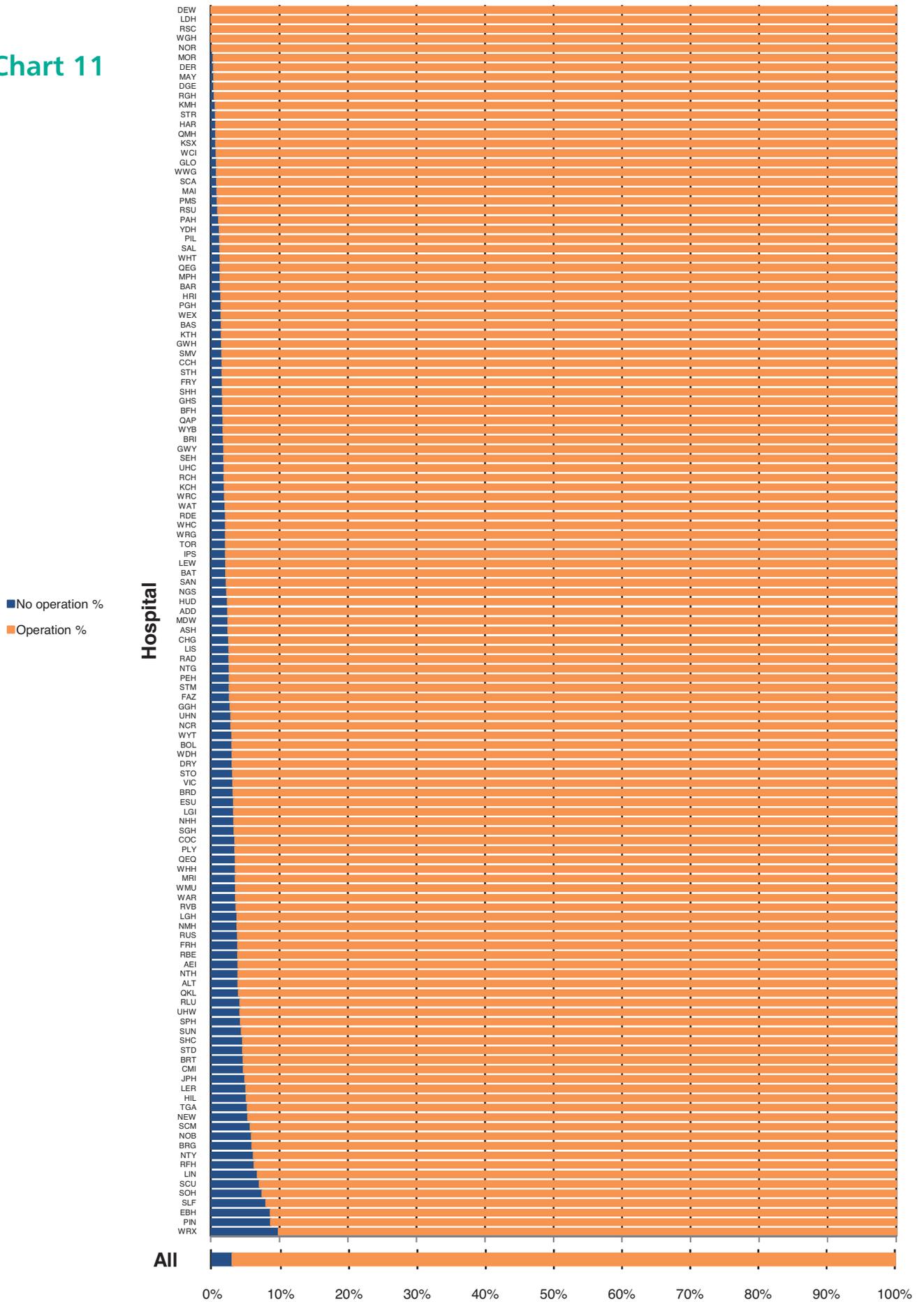
*"The NHFD has been very useful in improving our service, and has certainly helped to focus minds and reduce our time to theatre. Our in-hospital mortality has steadily fallen as Elderly Medicine and Orthopaedics worked more closely together, so that we are now at 7.3% compared to a national average of 9.25%. We believe this is because hip fracture patients are being given greater priority by clinical and managerial staff."*

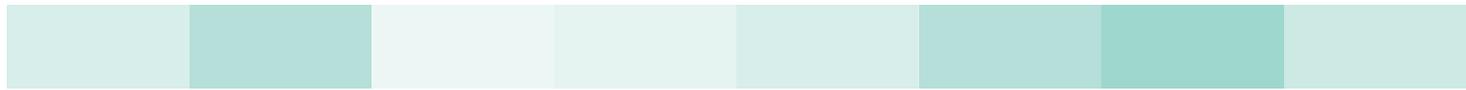
### **Royal Berkshire Hospital**

*In 2007, with 30% of hip fracture patients not going to surgery within 48 hours, the Royal Berkshire Hospital appointed a fulltime orthogeriatrician with junior staff support to improve medical care, introduced multidisciplinary team working, and established a separate ortho-geriatric rehabilitation unit. A multidisciplinary steering group - with, trauma surgeon, trauma anaesthetist, nursing, physiotherapy and other inputs – introduced standardised documentation and procedures covering theatre list planning, pre-operative and operative care. By 2009, NHFD data showed that only 15% of patients waited longer than 48 hours for surgery.*

# Patients treated without surgery

Chart 11





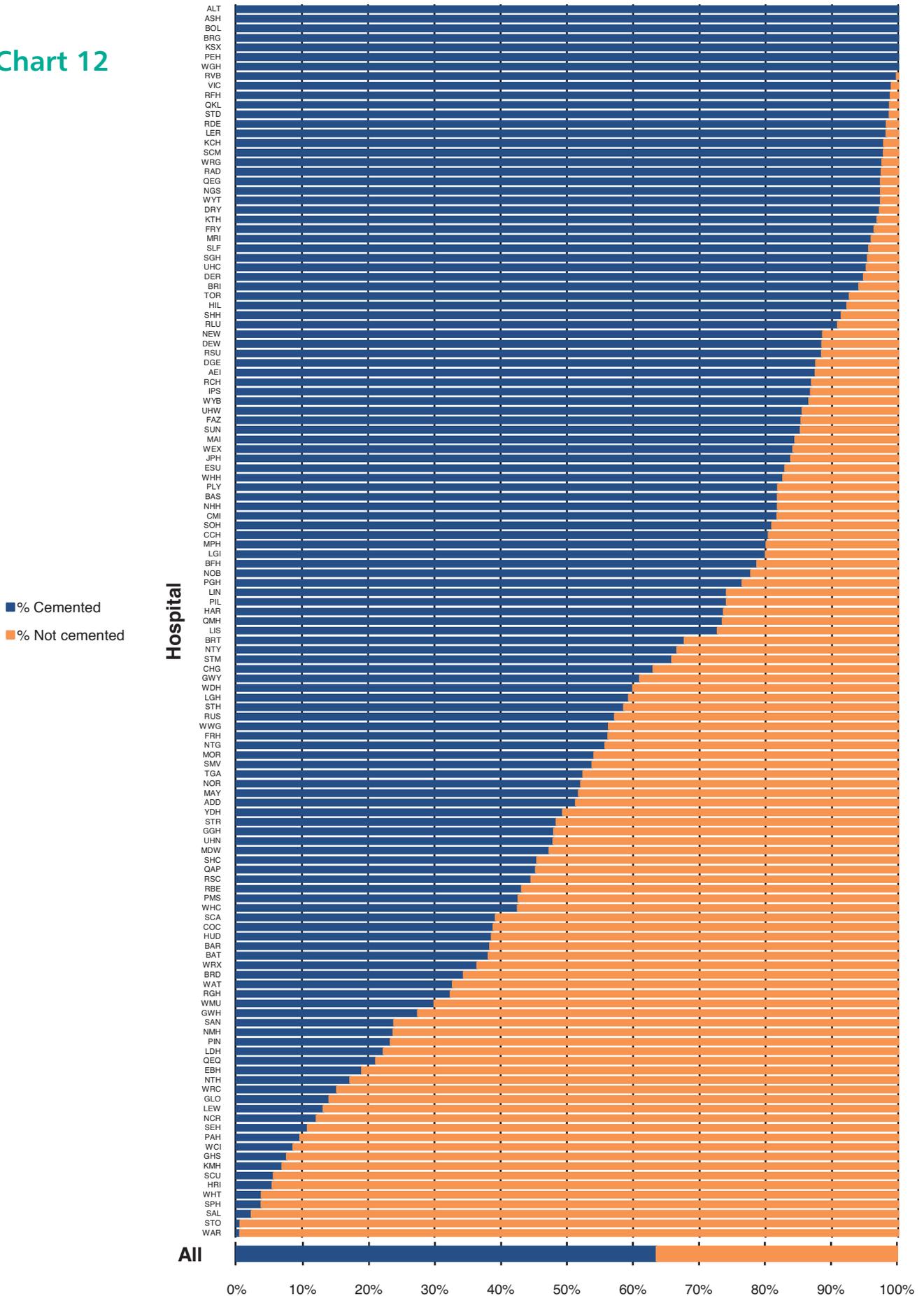
Very few hip fracture patients do not undergo surgery (Chart 11). However, very occasionally patients present with a fracture that is already healing; or are in such poor health that surgery would offer no benefits and an end of life care pathway may be preferable.

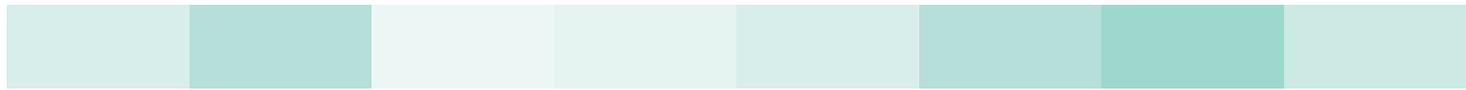
It is therefore encouraging that currently, only 3% of patients are having non operative treatment compared with 3.8% in the Preliminary National

Report. However, the range varies from 0-10%. Hospitals having a high percentage of patients treated non-operatively should review their preoperative assessment process. Further information regarding the preoperative optimisation of patients is available in the Blue Book from the NHFD website.

# Cementing of arthroplasties

Chart 12





Sixty three percent (range 1 – 100%) of arthroplasties are cemented in place (Chart 12). Since the available evidence suggests a marginal advantage to cementing arthroplasties▲ in hip fracture surgery, with a reduction in pain and an increase in mobility<sup>8</sup>, it is encouraging that this figure has risen in comparison with the 56% seen in the Preliminary National Report.

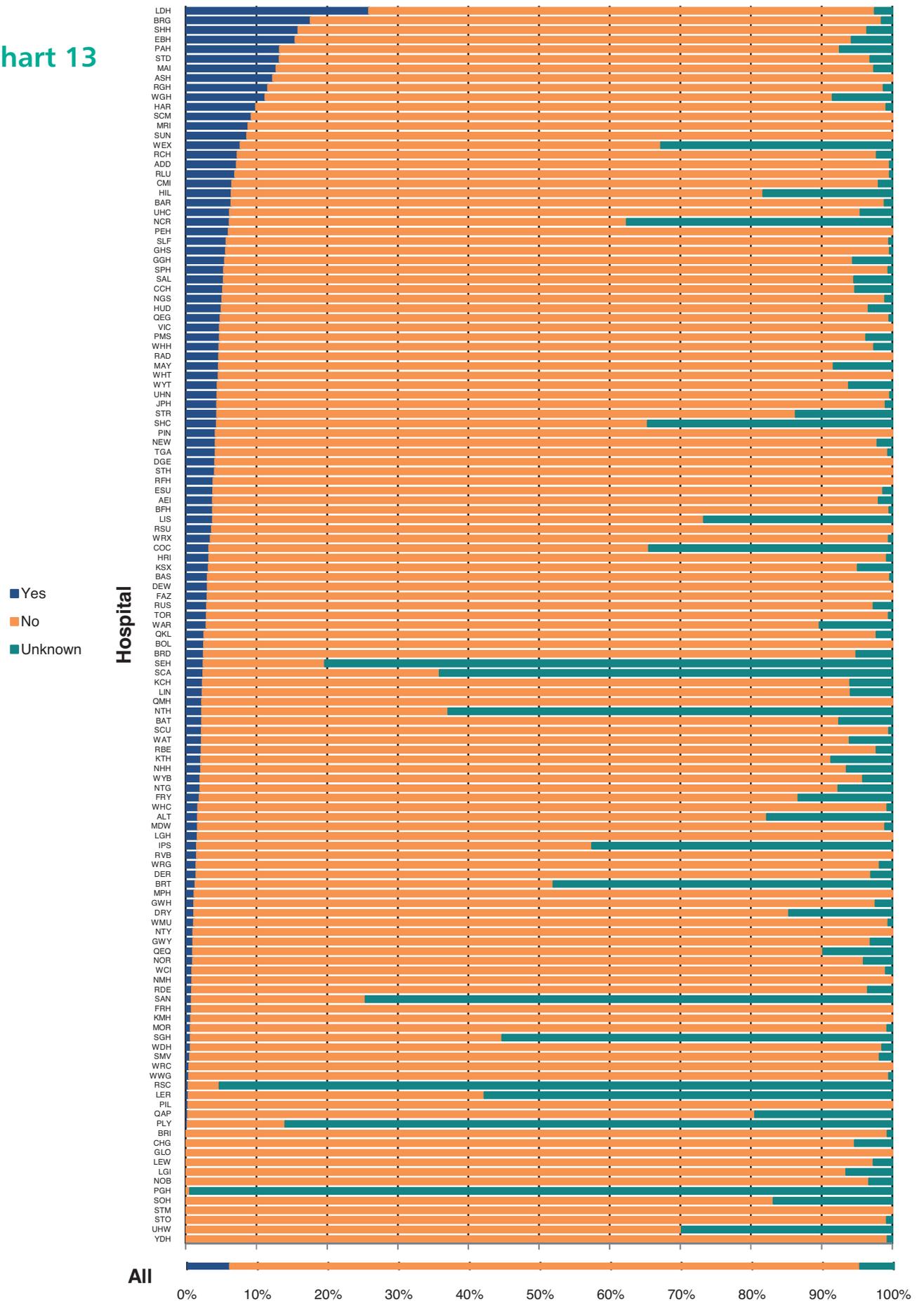
While there are concerns regarding the rare but potentially fatal bone cement▲ implantation syndrome which led to the National Patient Safety Agency issuing a directive that all perioperative death or harm in patients treated with a hip hemiarthroplasty▲ should be reported to the

Agency, the risk of perioperative mortality may be reduced by appropriate measures in cementation.<sup>9,10,11</sup>

The NHFD's Scientific and Publications Committee has already undertaken preliminary work to scope a study based on relevant fracture type, operation and cement use, and on any related ONS mortality data, which may, by virtue of the large number of cases in the NHFD database, serve to further elucidate this problem.

## Development of pressure ulcers (Blue Book Standard 3)

Chart 13





Good nursing care includes the assessment of risk to pressure areas at the time of admission and thereafter a meticulous and proactive approach to pressure area care. The rate of pressure ulcer development (Chart 13) is seen as a useful measure of good nursing care. From the available data it appears that the development of a new pressure ulcer (grade 2 or above) is a relatively infrequent occurrence (6%). However, the chart

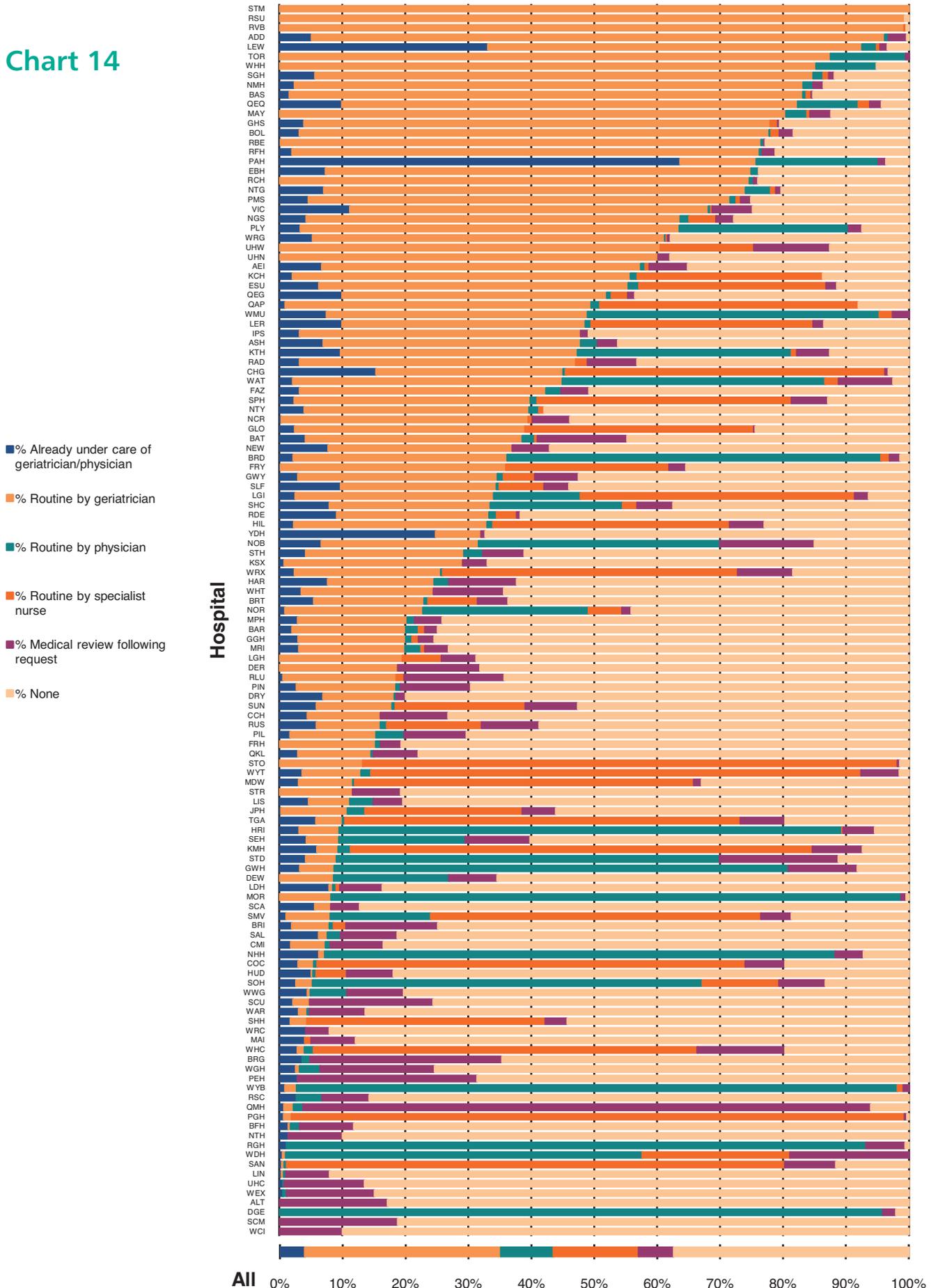
shows many 'unknowns', perhaps with paradoxical results: reporting of ulcer development may be less likely where pressure area care and awareness is poor.

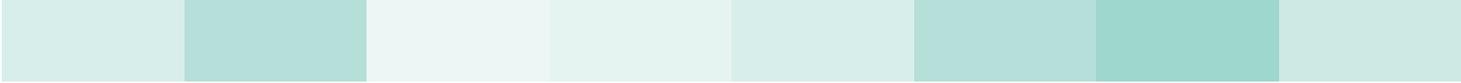
### ***Salford Royal Foundation Trust***

*Salford Royal has participated in the NHFD since October 2007. A project team responded to an early finding of a high incidence of pressure ulcers, and introduced prompt and regular Waterlow assessments, a directorate-wide training programme, and a management protocol that resulted in better use of the skills of a tissue viability nurse. Over a 12-month period the incidence of pressure ulcers was reduced by 80%. This project was one of only three short-listed from 148 entries for an HQIP 'local improvement following national audit participation' award in 2010.*

## Preoperative medical assessment (Blue Book Standard 4)

Chart 14





The RCP (London) report of 1989<sup>12</sup> describes a model of hip fracture care that included “medical advice via a geriatrician” prior to surgery, and many subsequent recommendations to this effect have followed. The greater involvement of orthogeriatricians in hip fracture care has been one of the main objectives of the NHFD, and this chart demonstrates the extent to which this has become routine practice.

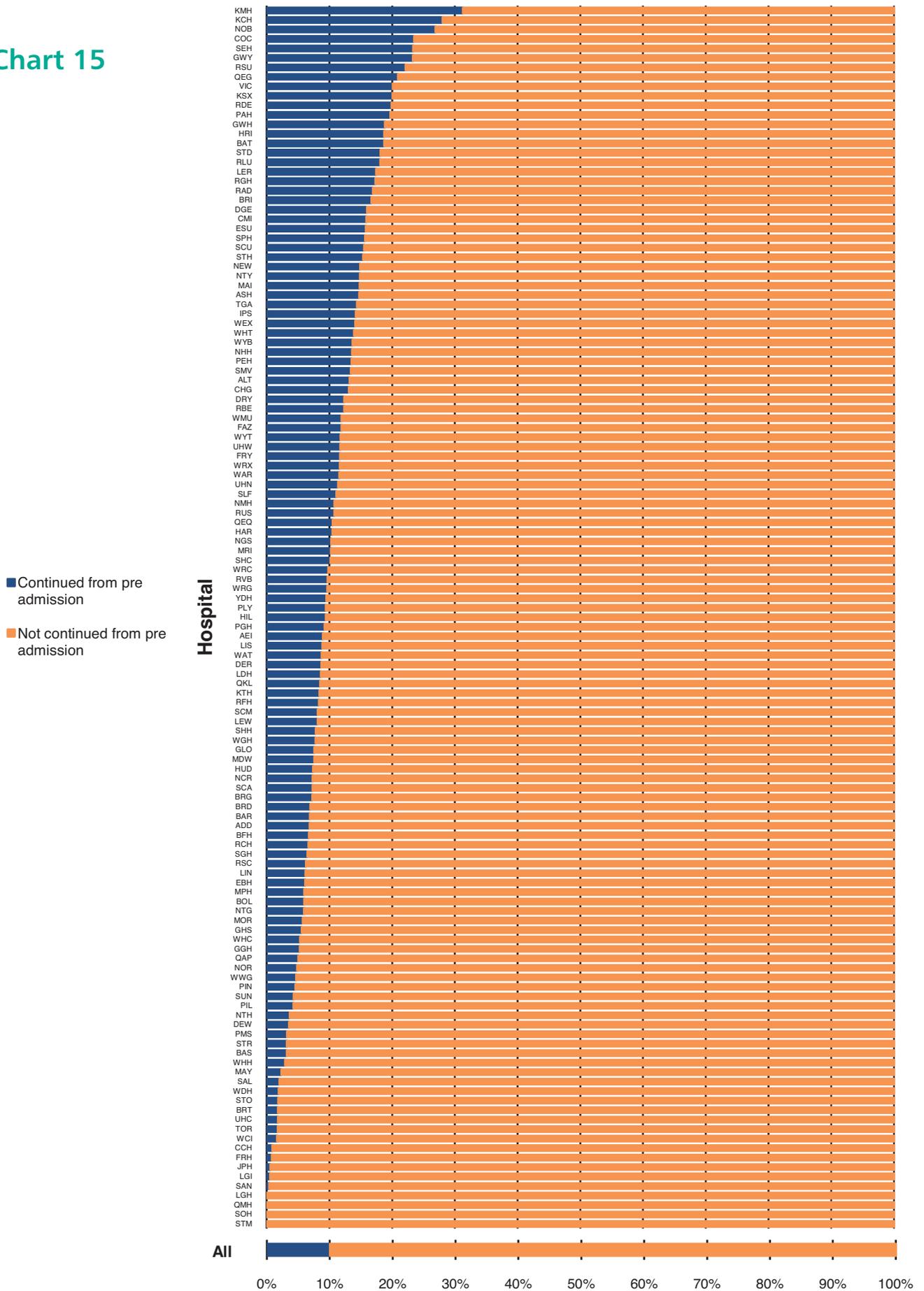
It is encouraging that 31% of patients have a routine assessment by a geriatrician compared with 24% in last year's report, with overall medical assessment increasing from 42% to 63% of patients.

***Basildon University Hospital***

*'In 2007, Basildon hospital's annual in-hospital mortality rate was consistently above 14%. A new orthogeriatrician was appointed with a job plan that included daily Orthogeriatric ward rounds with middle grade support. As a consequence there has been a sustained fall in the annual in-hospital mortality rate to the current level of 6.1%. Casemix adjusted 30 day mortality is now 4.9% compared with the national average of 7.7%.'*

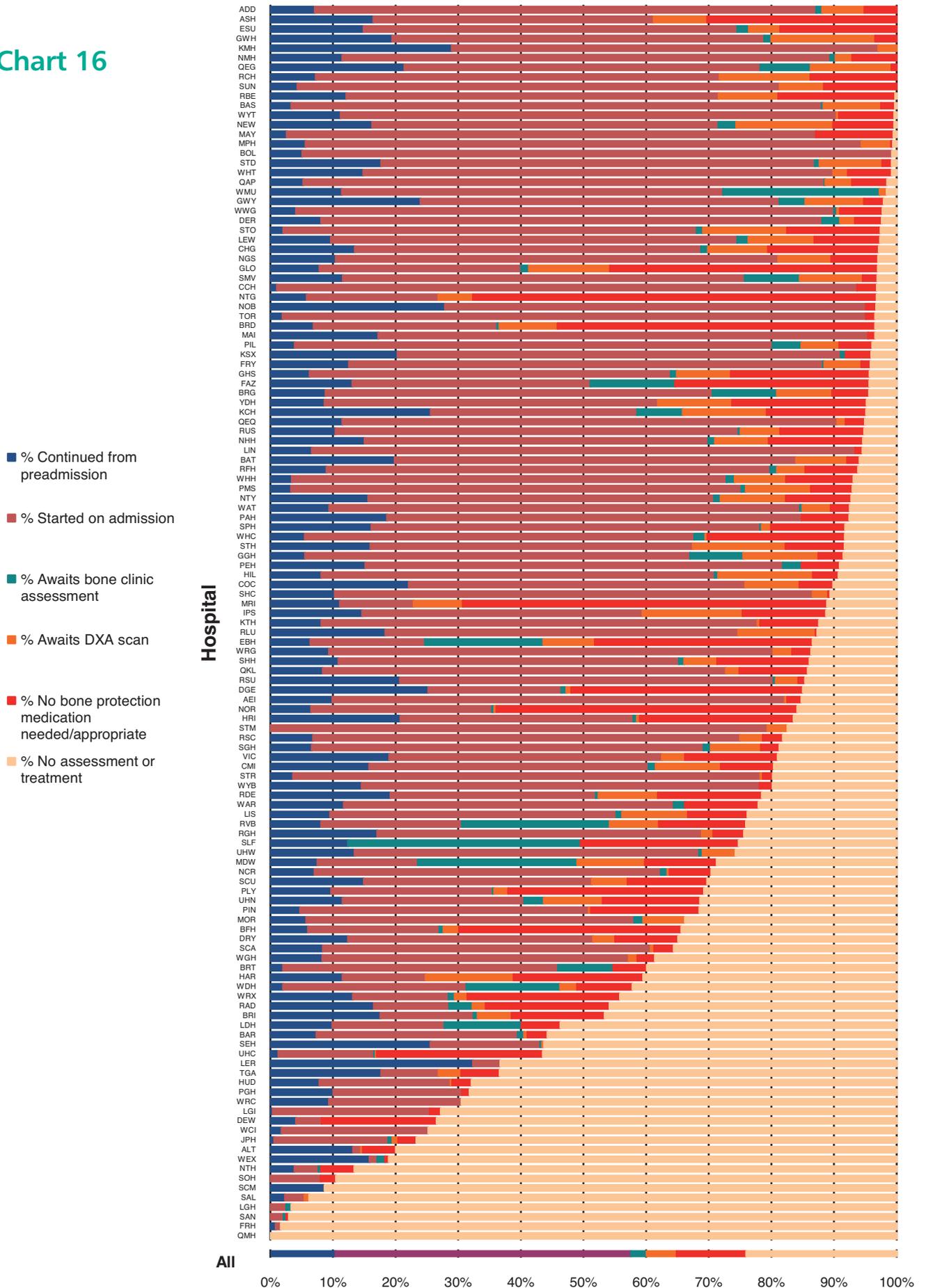
## Bone protection medication at admission

Chart 15



# Bone health assessment and treatment at discharge (Blue Book Standard 5)

Chart 16



NHFD seeks not only to improve the care of hip fracture but to diminish its incidence. Bone protection therapy – usually in the form of antiresorptive medication that increases bone mineral density – has been shown to be both effective and cost effective in the prevention of future fractures.

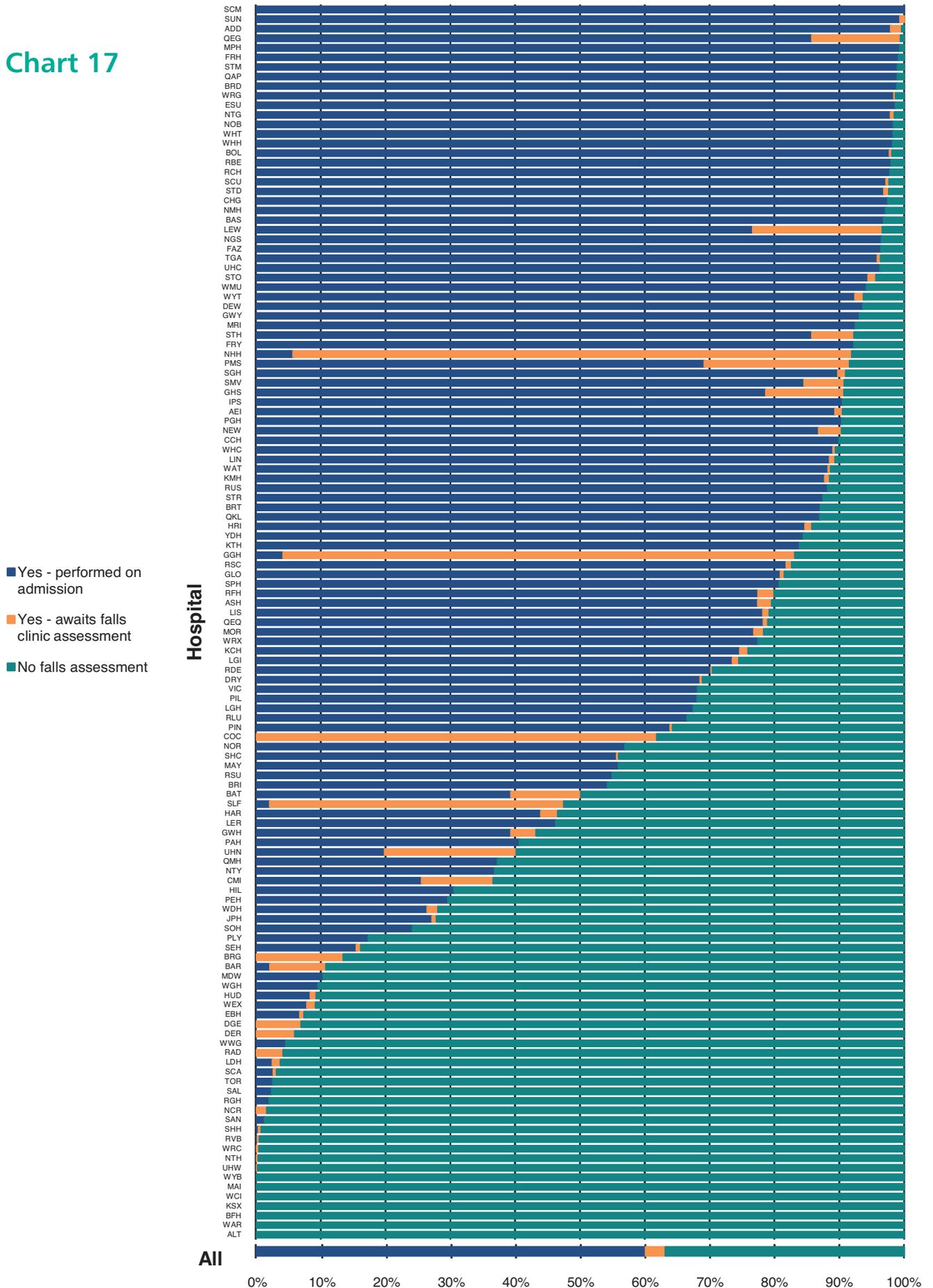
It is of interest that 10% of patients were taking bone protection medication prior to their fracture (Chart 15).

It is encouraging that 57% hip fracture patients are now being discharged from acute care with prescribed bone protection medication▲, with 7% awaiting further assessment (Chart 16).

However, since good compliance – continuing with regular treatment – is essential, further work by NHFD is required to assess this.

# Specialist falls assessment (Blue Book Standard 6)

Chart 17



Following a fracture all frail elderly patients should have a falls assessment (Chart 17). Currently 60% of patients are assessed during admission and a further 3% are referred to a falls clinic. Thirty seven percent have no documented assessment.

Specialist falls assessment▲ – followed by appropriate interventions such as exercise, home modifications, and simplification of medication – has been shown to reduce the subsequent incidence of falls.

Together with bone protection medication (see Chart 16) it is an effective component of the prevention of future fractures.

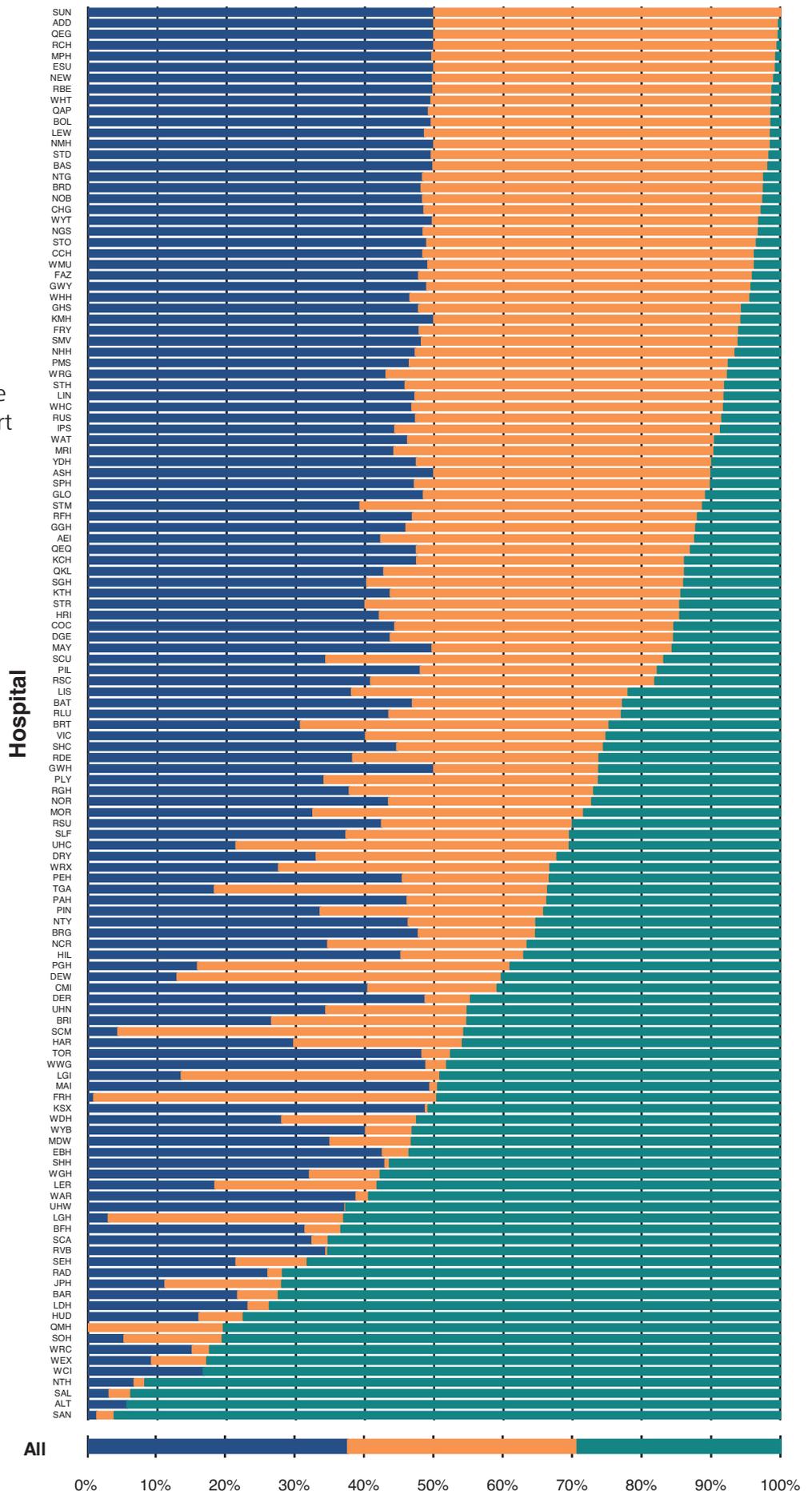
Ideally, comprehensive secondary prevention following hip fracture would be readily accessible and patient-focused, with bone protection and falls assessment provided within a single service. The Fracture Liaison Service▲ model achieves these goals far more effectively than other relevant UK initiatives, and should be more widely adopted.

## Secondary prevention overview

### Chart 18

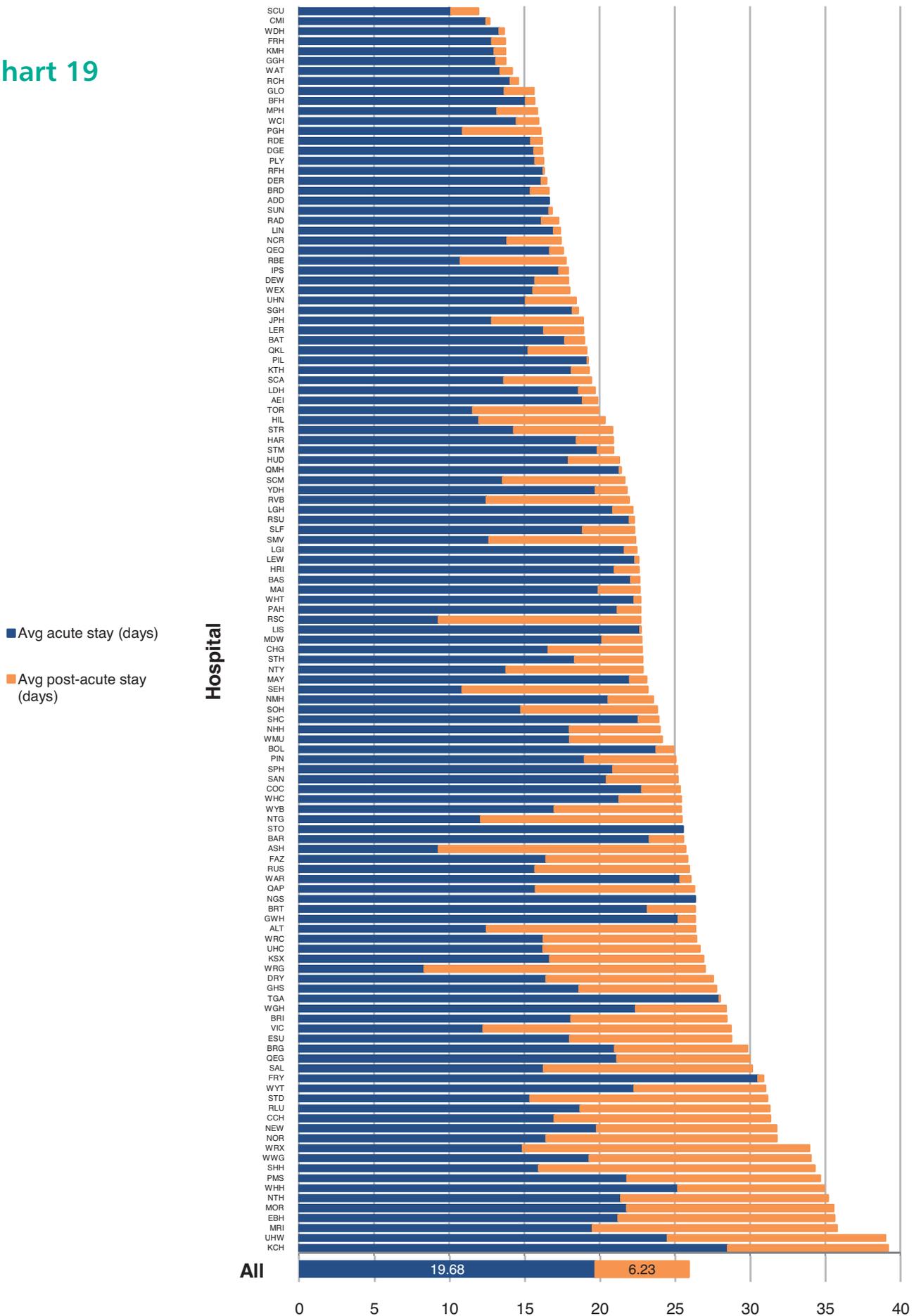
Ideally all patients should have both a bone protection and falls assessment (Chart 18). This occurs variably across the reporting hospitals, but encouragingly, the percentage of patients discharged without either has fallen from 45% in the Preliminary National Report to 29%.

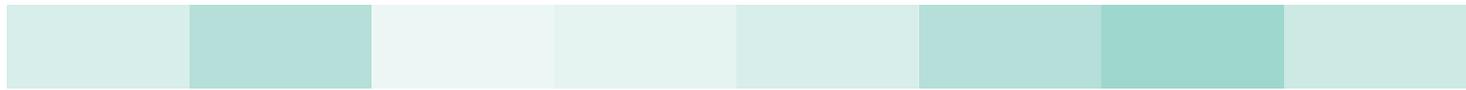
- Osteoporosis
- Falls Assessment
- No Secondary Prevention



# Trust length of stay

Chart 19





Total length of hospital stay is important largely because it is the main determinant of the overall cost of hip fracture care. NHFD therefore seeks to document it accurately despite the difficulties that arise in doing so

Trust length of stay (Chart 19) is calculated from the day of admission to the trust to the day of discharge (26 days, range 12 - 38) in line with DoH length of 'spell'. Length of stay commonly includes both acute ward stay and a further period in a post-acute ward within the same trust. However, as Chart 20 shows, documentation of discharge destination from Trust is poor.

'Superspell', the entire length of the NHS treatment including rehabilitation in other NHS hospitals, is more difficult to measure as it requires data collection across trust boundaries. However, work now being undertaken by HES should soon provide more robust data on 'superspell, and will be of value in assessing the economic impact of improving care.

For less frail patients, early rehabilitation in the acute setting, backed up by ready access to Early Supported Discharge schemes▲ offering care and continuing rehabilitation at home, will promote shorter overall stay and also meet the aspiration of the majority of patients to return home as soon as possible. This cost-effective model of care should be much more widely available.

Access to down-stream multi-disciplinary rehabilitation▲ is of value for frailer patients from home requiring sustained rehabilitation to maximise their chances of return home, but such access varies greatly between hospitals. Where it is limited, much of the necessary rehabilitation will be carried out in the acute setting, resulting in longer stay there.

It should however be noted that an over-zealous focus on the reduction of acute care stay - driven by acute sector bed pressures and achieved by transfer of a large proportion of patients to post-acute care elsewhere – is likely to add to overall length of stay and hence costs, and also fails to meet patients' wishes to get home quickly.

Whatever rehabilitation structures are provided in the local care system, what matters most to patients – and what mainly determines the overall cost of their care – is the total length of inpatient stay following hip fracture.

NHFD coverage of this should improve in future, with better access to linked 'superspell' data. This, and the contribution of NHFD audit and feedback, together with the recommendations of the Blue Book, should assist in promoting care that is not only of higher quality but also more cost effective.

### **Royal Surrey Hospital**

*'The Royal Surrey Hospital joined NHFD in 2007. Early data showed 80% of patients operated within 48 hours, an average length of stay of 25.3 days, and mortality of 10.6%. To improve care, a business case was put forward for additional trauma lists, daily orthogeriatrician ward rounds, an integrated care pathway, a patient care handbook, and a 'virtual FNoF Unit'. As a result, joint ortho-geriatrician and surgical care was established. 95% of patients had surgery within 48 hours, average length of stay was reduced by 6 days, and mortality by more than 3%. An economic evaluation showed additional costs for ortho-geriatrician input and trauma lists of around £220,000 and bed-day savings estimated at over £450,000.'*

### **James Cook University Hospital**

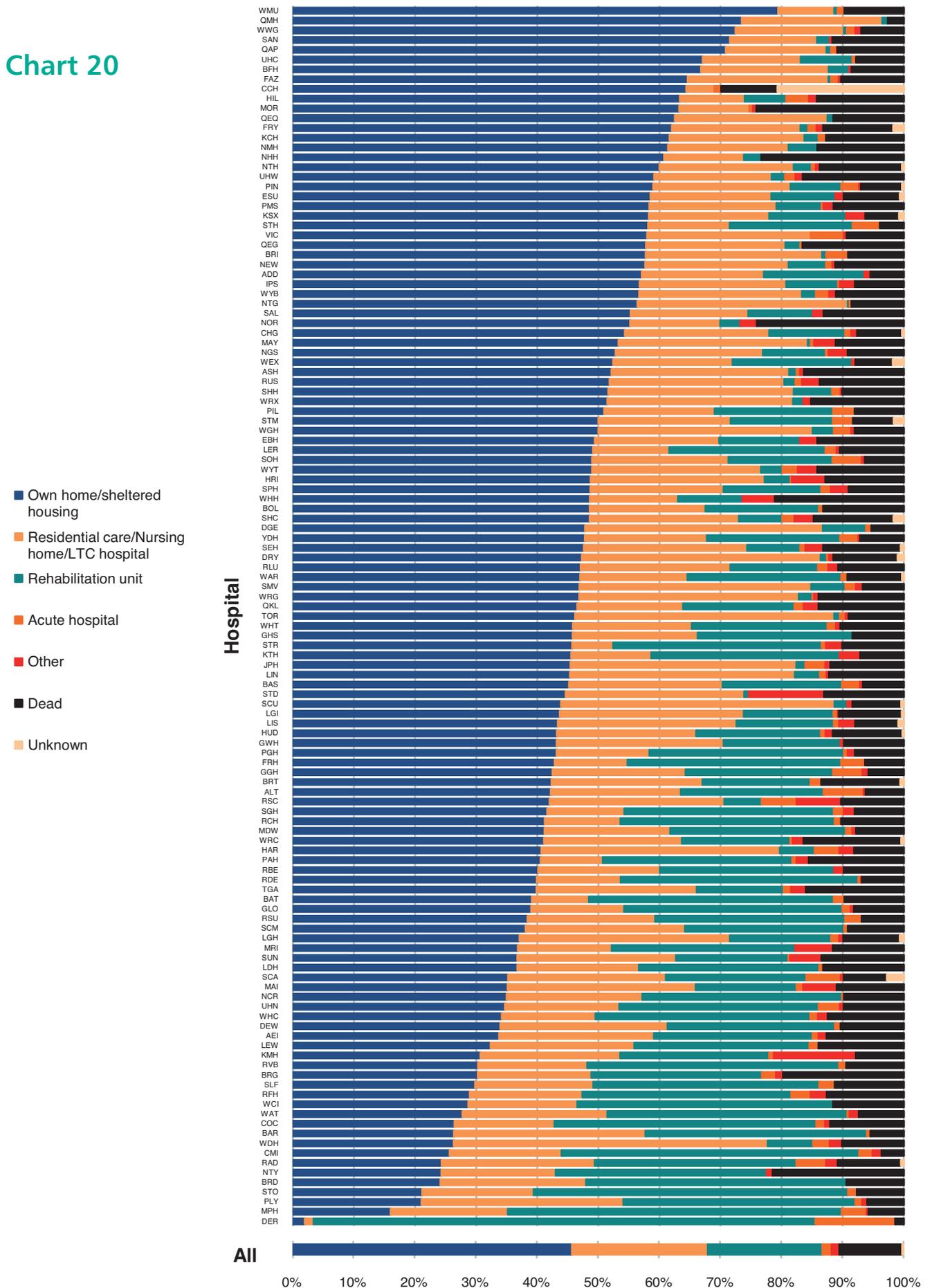
*In South Tees clinicians used NHFD to track the progress and impact of a broadly-based multi-disciplinary and interdepartmental initiative to improve their care of hip fracture patients. They reviewed the patient pathway and – with the support of the NHS Institute for Innovation and Improvement – addressed in detail many aspects of care. Percentages of patients being fast-tracked through the A&E rose from 50% to 80%, and of those having surgery within 48 hrs rose from 62% to 81%. More patients were mobilised on the first post-operative day. With these and other improvements in care, the average length of acute orthopaedic stay fell from 18 days in 2007 to 12.6 in 2009.*

### **Mayday University Hospital**

*When a local audit of hip fracture care in Mayday University Hospital in 2007 revealed both substantial pre-operative delay and a comparatively long average acute stay, a multi-disciplinary Trauma Group was set up with the aims of reducing time to surgery to less than 48 hours for 80% of patients and reducing acute length of stay. NHFD participation from September 2009 supported an evaluation process. With pathway mapping, close scrutiny of delays exceeding 48 hours, and the implementation of improved procedures, mean time to theatre fell from 58.8 hours to 28.9, with 87% of patients waiting less than 48 hrs; and mean length of acute stay fell from 32.6 days to 22.*

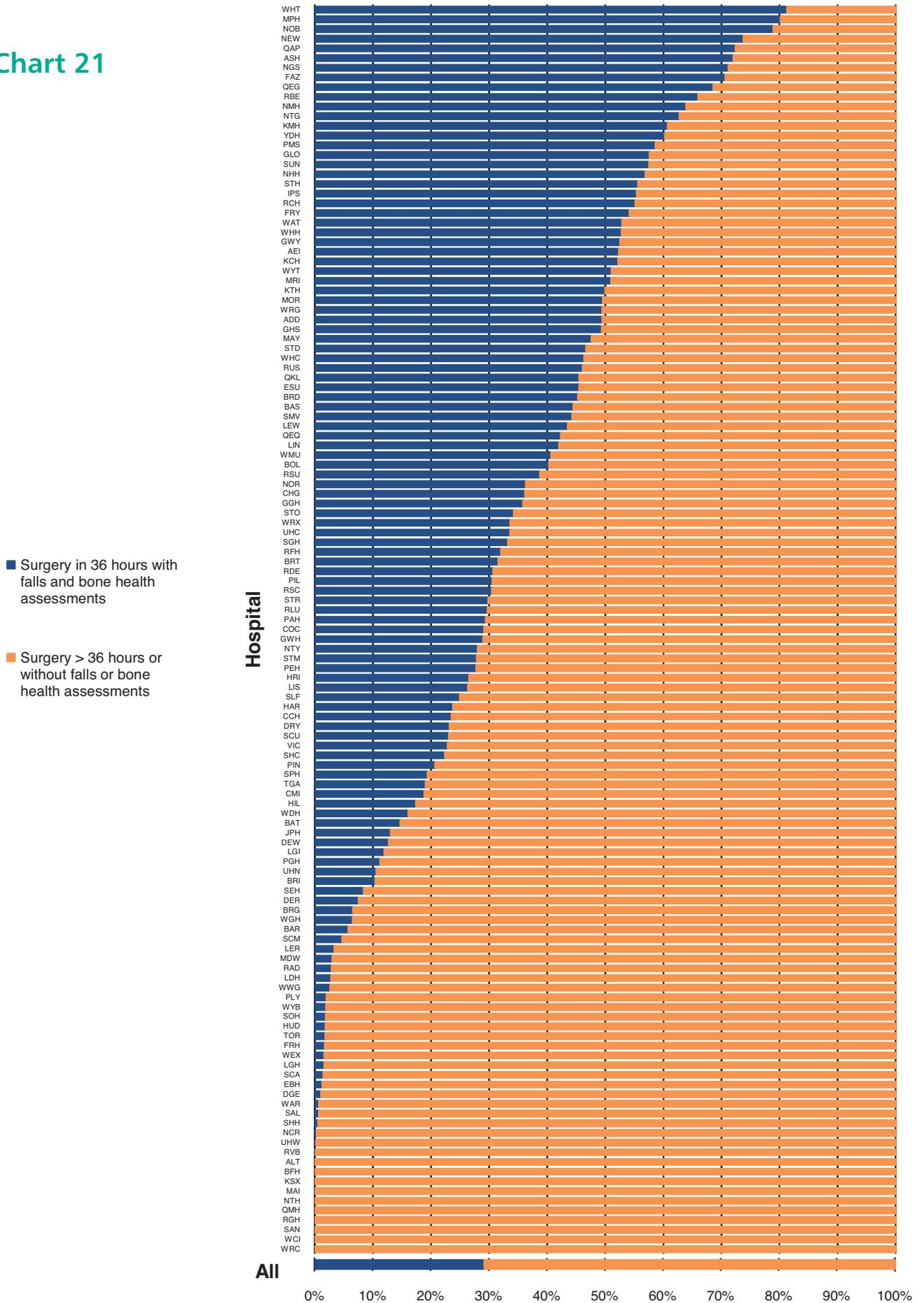
# Discharge destination from Trust

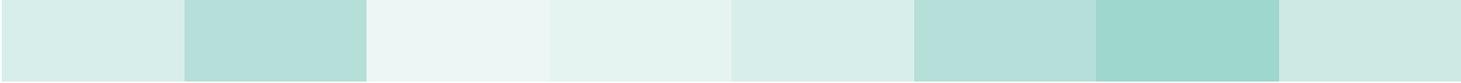
Chart 20



## Surgery in 36 hrs, with falls and bone health assessments

Chart 21





## Surgery within 36 hours, with falls and bone health assessments

The introduction of Payment by Results: Best Practice Tariff for hip fracture care means that, for the first time in the NHS, part of the case by case payment for treatment will depend upon the patient having care including the following key clinical characteristics of best practice.

These are:

- Joint care between an orthopaedic surgeon and geriatrician
- Admitted according to a joint protocol agreed by the surgeons, anaesthetists and geriatricians
- Operated on within 36 hours of admission
- Seen by a senior orthogeriatrician within 72 hours of admission
- Post operative geriatrician directed multidisciplinary rehabilitation team
- Fracture prevention assessments (falls and bone health)

To document these, the NHFD introduced the necessary additional fields in April 2010, and the 2011 National Report will in due course show how participating hospitals are responding to the challenges of the new tariff.

Meantime, using the existing dataset and 2009/10 data available in this report, it is possible to identify hospitals and cases where three of the key criteria (early surgery, falls and bone health assessments) have been met. Currently, of the 36,556 cases analysed, around 30% met these three of the six criteria listed above.

It is recognised that only 85-90% of patients will be fit for surgery within 36 hours and the tariff is adjusted for that.

# Casemix adjusted outcomes:

Casemix adjustment of outcomes allows for a fair comparison of individual units. Both 'Return home from home at 30 days' (Chart 22) and '30 day mortality' (Chart 23) have been presented as funnel plots. Simple ranking of outcomes is considered to be misleading, and funnel plots allow a fairer comparison of hospital performance. If the outcome lies within the inner funnel, then variation in the outcome may be assumed to be within acceptable limits, and the hospital is performing as expected.

If a hospital's outcome lies between the inner and outer funnel, that may merit further scrutiny as such performance may reflect especially good or bad practice. Outcomes outside the second funnel are considered to have 'special cause' variability and should therefore be subject to closer review.

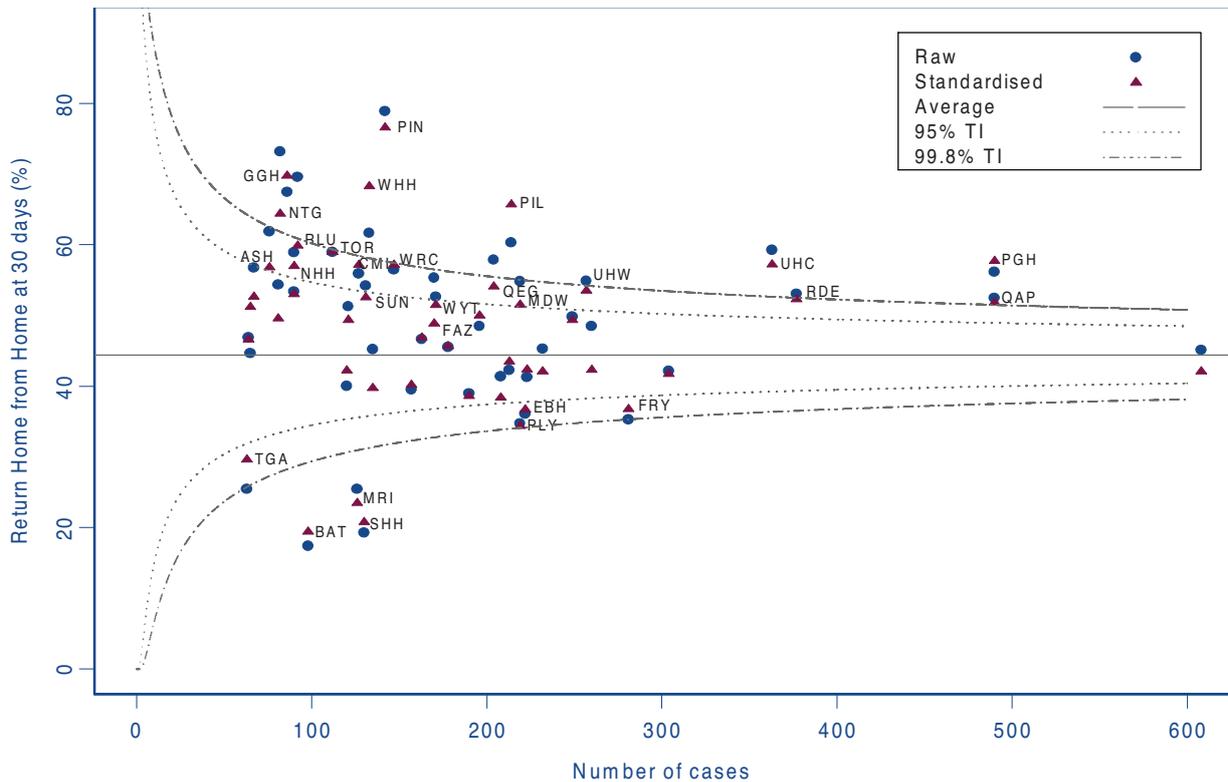
The funnel plots below show casemix-adjusted outcomes for 'from home to home within 30 days' and 'mortality at 30 days'. The relevant classification trees (Appendix D) are broadly similar to those in the Preliminary National Report.

**ASA Grade and Outdoor walking ability** are important casemix factors for both return home and mortality; and the return home analysis depends critically on the availability of data on **residential status at 30 days**. In the dataset used for this report, the percentages of missing data for these three values were respectively 15.2%, 17.3% and 55.8%.

While it is hoped that the utility of such funnel plots will be increased in future reports by greater data completeness, the limitations imposed by the current dataset should be taken into account in the context of this report.

# Funnel plot for return home from home at 30 days

Chart 22



This chart shows the percentage of patients admitted from home who have returned home within 30 days. While the Office of National Statistics (ONS) data on 30-day mortality (see chart 23) is robust, NHFD data on return home by 30 days is much less so, and available in only around 44% of cases. However, the spread of data is striking, with implications for both the quality and the cost of care. Given the increasing emphasis on outcomes of care, a goal for NHFD in 2010-11 is that of improving the completeness and quality of 30-day follow-up on place of residence and on mobility.



# Strategic Health Authority Summary Tables

## Channel Islands

Average length of Trust stay (days)			23.4
Average length of acute stay (days)			17.7
% Falls assessment	38.7	38.7	61.8
% Bone health medication assessment	90.3	90.3	74.0
% Bone health medication at admission	13.5	13.5	10.1
% Pre-operative assessment by geriatrician	0.0	0.0	33.1
% Patients developing pressure ulcers	6.1	6.1	3.9
% Arthroplasties cemented	100	100	63.1
% Patients treated without surgery	2.7	2.7	2.9
% Surgery within 48hrs	86.7	86.7	81.0
% Surgery within 36hrs	72.2	72.2	57.3
% Data completeness of reporting fields	99.8	99.8	97.4
% Cases submitted/ Facilities Audit estimate	86.0	86.0	79.4
Number of cases submitted	37	37	36556
Estimated number of hip fractures (Facilities Audit)	43	43	44767
Hospital Name	Princess Elizabeth Hospital, Guernsey	SHA	NATIONAL
Hospital Code	PEH		

## East Midlands

Average length of Trust stay (days)	13.7	13.0	16.3	17.4	35.2	19.2	16.4	18.4	19.9	23.4
Average length of acute stay (days)	13.0	16.3	17.0	21.4	19.2	16.1	15.1	16.9	17.7	
% Falls assessment	88.5	46.5	89.3	0.4	68.1	13.1	40.2	49.4	61.8	
% Bone health medication assessment	100.0	36.7	94.5	8.5	95.9	97.5	63.3	70.9	74.0	
% Bone health medication at admission	31.3	17.4	6.2	3.7	4.2	8.7	11.3	11.8	10.1	
% Pre-operative assessment by geriatrician	3.6	43.4	0.4	0.0	14.5	18.8	60.1	20.1	33.1	
%Patients developing pressure ulcers	0.8	0.4	2.4	2.3	0.4	1.5	4.5	1.7	3.9	
% Arthroplasties cemented	7.0	98.0	74.0	17.0	74.0	95.0	48.0	59.0	63.1	
% Patients treated without surgery	0.7	5.1	6.8	4.0	1.3	0.5	3.0	3.0	2.9	
% Surgery within 48hrs	91.9	59.5	71.7	83.3	64.2	88.9	72.2	76.0	81.0	
% Surgery within 36hrs	71.1	24.1	48.3	59.3	44.3	72.2	37.0	50.9	57.3	
Data completeness of reporting fields	98.8	93.1	99.4	99.1	98.5	96.0	99.3	97.7	97.4	
% Cases submitted/Facilities Audit Estimate	34.0	73.0	66.0	91.0	100.0	86.0	99.0	78.4	79.4	
Number of cases submitted	144	585	292	301	309	439	776	2846	36556	
Estimated number of hip fractures (Facilities Audit)	420	800	440	330	300	500	780	3570	44767	
Hospital Name	King's Mill Hospital, Sutton in Ashfield	Leicester Royal Infirmary	Lincoln County Hospital	Northampton General Hospital	Pilgrim Hospital, Boston	Royal Derby Hospital	University Hospital of Nottingham	SHA	NATIONAL	
Hospital Code	KMH	LER	LIN	NTH	PIL	DER	UHN			

## East of England

Average length of Trust stay (days)	16.6	16.6	15.7	18.9	22.7	19.7	31.8	19.1	23.2	17.9	22.7	14.1	20.4	23.4
Average length of acute stay (days)	16.6	22.1	15.1	12.8	22.7	18.6	16.4	15.3	10.9	17.3	21.2	13.4	16.9	17.7
% Falls assessment	99.7	96.9	0.0	30.3	80.0	6.2	57.7	87.0	18.3	94.2	40.7	88.7	58.3	61.8
% Bone health medication assessment	100	99.7	46.7	21.1	73.7	42.8	75.0	84.1	43.7	87.0	91.8	92.2	71.5	74.0
% Bone health medication at admission	6.8	3.2	6.7	0.6	8.8	8.6	4.8	8.5	23.3	14.1	19.7	8.7	9.5	10.1
% Pre-operative assessment by geriatrician	96.6	83.3	0.4	10.9	7.1	0.6	30.1	12.1	6.8	46.1	71.4	76.3	36.8	33.1
% Patients developing pressure ulcers	7.2	3.1	3.8	4.4	3.8	25.9	1.0	2.6	2.5	1.6	13.3	2.3	6.0	3.9
% Arthroplasties cemented	51	82	79	84	73	22	52	99	11	87	10	33	57	63.1
% Patients treated without surgery	2.5	1.6	1.8	5.0	2.7	0.0	0.2	4.1	1.9	2.2	1.2	2.1	2.1	2.9
% Surgery within 48hrs	76.3	72.4	86.5	82.7	57.1	78.5	80.4	84.4	81.5	90.6	92.5	82.5	80.5	81.0
% Surgery within 36hrs	49.5	45.9	66.8	51.7	34.5	54.5	74.0	60.1	56.0	69.2	71.2	59.5	57.7	57.3
% Data completeness of reporting fields	99.6	99.7	99.7	99.2	99.0	97.7	93.5	98.6	99.1	99.6	94.4	99.5	98.3	97.4
% Cases submitted/ Facilities Audit estimate	77.0	100	73.0	99.0	57.0	61.0	81.0	100	63.0	100	52.0	64.0	77.3	79.4
Number of cases submitted	323	379	284	360	113	186	518	318	360	410	173	286	3710	36556
Estimated number of hip fractures (Facilities Audit)	420	352	390	365	200	306	640	300	571	397	333	450	4724	44767
Hospital Name	Addenbrooke's Hospital, Cambridge	Basildon and Thurrock University Hospital	Broomfield Hospital	James Paget University Hospital, Norfolk	Lister Hospital, Stevenage	Luton and Dunstable Hospital	Norfolk and Norwich University Hospital	Queen Elizabeth Hospital, King's Lynn	Southend University Hospital	The Ipswich Hospital	The Princess Alexandra Hospital, Harlow	Watford General Hospital	SHA	NATIONAL
Hospital Code	ADD	BAS	BFH	JPH	LIS	LDH	NOR	QKL	SEH	IPS	PAH	WAT		

## London

Average length of Trust stay (days)	31.3	17.0	12.0	20.3	39.2	19.3	23.1	23.5	26.3	21.4	16.3	23.9	20.9	22.8	22.6	24.1	25.4	22.7	23.9	23.4
Average length of acute stay (days)	17.0	12.0	20.3	39.2	19.3	23.1	23.5	26.3	21.4	16.3	23.9	20.9	22.8	22.6	24.1	25.4	22.7	23.9	23.4	
% Falls assessment	90.0	31.4	75.9	83.8	68.8	97.3	47.3	37.3	81.8	57.5	99.0	92.3	99.1	94.3	89.7	98.4	98.4	77.8	61.8	
% Bone health medication assessment	96.7	90.3	94.2	86.3	99.4	100	100	0.0	93.3	89.3	82.5	90.8	97.1	98.4	92.1	99.2	98.4	88.1	74.0	
% Bone health medication at admission	0.8	9.4	28.0	8.4	2.3	10.8	18.8	0.0	8.3	10.2	0.0	15.3	8.1	11.9	5.3	13.9	99.2	9.5	10.1	
% Pre-operative assessment by geriatrician	12.1	31.8	55.4	66.9	83.3	84.2	22.2	1.5	76.2	36.0	100	27.1	92.0	89.9	1.2	21.7	13.9	50.1	33.1	
%Patients developing pressure ulcers	5.3	6.5	2.4	2.2	4.7	0.9	1.19	2.3	3.9	4.4	0.0	4.1	0.0	1.1	1.8	4.7	4.7	2.8	3.9	
% Arthroplasties cemented	80	92	98	97	52	24	28	73	99	46	66	59	13	30	43	4	56	63.1		
% Patients treated without surgery	1.7	5.2	2.0	1.6	0.5	3.8	1.6	0.8	6.3	4.7	2.7	1.7	2.2	3.6	2.2	1.4	2.6	2.9		
% Surgery within 48hrs	52.6	78.1	88.8	91.8	91.1	91.8	93.6	91.3	68.8	73.9	64.2	87.2	74.6	72.9	74.7	91.0	80.4	81.0		
% Surgery within 36hrs	69.9	52.2	75.6	62.8	74.5	64.8	63.1	78.0	39.7	44.5	37.5	62.7	46.0	44.0	57.0	84.2	59.8	57.3		
Data completeness of reporting fields	92.7	93.5	91.6	99.0	99.0	97.8	99.0	98.4	97.0	99.1	97.4	94.4	94.3	97.8	95.2	98.0	96.5	97.4		
% Cases submitted/Facilities Audit Estimate		96.0	100	63.0	72.0	93.0	100		100	100	67.0	80.0	68.0	100		100	87.6	79.4		
Number of cases submitted	118	192	100	251	216	130	186	133	205	364	110	176	136	193	322	144	2771	36556		
Estimated number of hip fractures (Facilities Audit)		200	100	400	300	140	180		200	365	165	220	200	191		110	2858	44767		
Hospital Name	Charing Cross Hospital	Hillingdon Hospital	King's College Hospital	Kingston Hospital	Mayday University Hospital	North Middlesex University Hospital	Queen Elizabeth Hospital, Woolwich	Queen Mary's Hospital, Sidcup	Royal Free Hospital	St. Helier Hospital, Carshalton	St. Mary's Hospital, Paddington	St. Thomas' Hospital	University Hospital, Lewisham	West Middlesex University Hospital	Whipps Cross University Hospital	Whittington Hospital	SHA	NATIONAL		
Hospital Code	CCH	HIL	KCH	KTH	MAY	NMH	GWH	QMH	RFH	SHC	STM	STH	LEW	WMU	WHC	WHT				

## North East

Average length of Trust stay (days)	13.7
Average length of acute stay (days)	12.8
% Falls assessment	99.2
% Bone health medication assessment	1.7
% Bone health medication at admission	0.8
% Pre-operative assessment by geriatrician	15.5
%Patients developing pressure ulcers	0.8
% Arthroplasties cemented	56.0
% Patients treated without surgery	3.9
% Surgery within 48hrs	81.0
% Surgery within 36hrs	64.0
Data completeness of reporting fields	98.8
% Cases submitted/Facilities Audit Estimate	86.0
Number of cases submitted	127
Estimated number of hip fractures (Facilities Audit)	147
Hospital Name	Frirage Hospital, Northallerton
Hospital Code	FRH
Hospital Name	James Cook University Hospital
Hospital Code	SCM
Hospital Name	Newcastle General
Hospital Code	NEW
Hospital Name	North Tyneside General Hospital
Hospital Code	NTY
Hospital Name	Queen Elizabeth Hospital, Gateshead
Hospital Code	QEG
Hospital Name	South Tyneside District Hospital
Hospital Code	STD
Hospital Name	Sunderland Royal Hospital
Hospital Code	SUN
Hospital Name	University Hospital Of North Durham
Hospital Code	DRY
Hospital Name	University Hospital of North Tees
Hospital Code	NTG
Hospital Name	Wansbeck Hospital
Hospital Code	ASH
Hospital Name	SHA
Hospital Code	
Hospital Name	NATIONAL
Hospital Code	

## North West

Hospital Code	Hospital Name	Estimated number of hip fractures (Facilities Audit)	Number of cases submitted	% Cases submitted/Facilities Audit Estimate	Data completeness of reporting fields	% Surgery within 36hrs	% Surgery within 48hrs	% Patients treated without surgery	% Arthroplasties cemented	%Patients developing pressure ulcers	% Pre-operative assessment by geriatrician	% Bone health medication at admission	% Bone health medication assessment	% Falls assessment	Average length of acute stay (days)	Average length of Trust stay (days)
<b>COC</b>	Countess of Chester Hospital	300	341	100.0	98.8	51.1	86.8	3.5	39.0	3.3	2.6	23.5	89.3	77.5	22.8	25.3
<b>CMI</b>	Cumberland Infirmary, Carlisle	300	271	90.0	99.5	63.5	84.0	4.8	82.0	6.6	5.7	15.9	78.6	36.6	12.4	12.7
<b>LGH</b>	Leighton Hospital, Crewe	250	130	52.0	96.6	62.3	78.5	3.9	59.0	1.7	19.5	0.0	5.9	67.5	20.9	22.2
<b>MRI</b>	Manchester Royal Infirmary	180	166	92.0	97.6	60.7	77.5	3.6	96.0	8.8	7.9	10.2	73.4	92.5	19.5	35.8
<b>NOB</b>	Nobles Hospital, Isle of Man	100	67	67.0	95.0	84.2	94.4	6.0	78.0	0.0	45.5	26.9	96.7	98.4		
<b>AEI</b>	Royal Albert Edward Infirmary, Wigan	350	302	86.0	98.5	69.3	93.8	4.0	88.0	3.8	54.7	8.9	84.4	90.7	18.9	19.8
<b>BOL</b>	Royal Bolton Hospital	350	319	91.0	99.5	43.0	80.5	3.1	100.0	2.6	77.3	6.0	99.3	98.2	23.8	24.9
<b>RLU</b>	Royal Liverpool University Hospital	380	349	92.0	99.4	48.4	71.6	4.3	91.0	7.0	18.1	18.1	87.3	66.6	18.7	31.3
<b>SLF</b>	Salford Royal Hospital	246	235	96.0	99.3	42.2	85.0	8.1	96.0	5.7	27.6	11.1	66.2	64.6	18.9	22.3
<b>SHH</b>	Stepping Hill Hospital, Stockport	372	346	93.0	96.0	62.8	88.4	1.7	91.0	15.9	2.7	7.8	83.7	0.8	15.9	34.3
<b>TGA</b>	Tameside General Hospital, Manchester	350	223	64.0	93.7	45.4	70.1	5.4	52.0	4.2	4.5	14.3	32.5	96.4	27.9	28.0
<b>FAZ</b>	University Hospital Aintree	400	252	63.0	98.8	75.1	95.5	2.8	85.0	3.1	41.5	11.9	93.7	96.4	16.4	25.8
<b>VIC</b>	Victoria Hospital, Blackpool	471	459	97.0	97.3	42.4	75.6	3.3	99.0	4.8	64.4	20.0	77.7	68.2	12.3	28.7
<b>WCI</b>	West Cumberland Hospital, Whitehaven	137	124	91.0	99.3	53.4	76.0	0.8	9.0	0.9	0.0	1.6	27.5	0.0	14.5	15.9
<b>WYT</b>	Wythenshawe Hospital, Manchester	337	289	86.3	97.0	56.7	84.7	3.1	97.0	4.5	9.9	11.8	99.6	94.0	22.3	31.0
	SHA	4523	3873	84.0	97.8	57.4	82.8	3.9	77.5	4.9	25.5	12.5	73.0	69.9	18.9	25.6
	NATIONAL	44767	36556	79.4	97.4	57.3	81.0	2.9	63.1	3.9	33.1	10.1	74.0	61.8	17.7	23.4

## Northern Ireland

Average length of Trust stay (days)		26.2	21.9	24.1	23.4
Average length of acute stay (days)		12.5	12.5	12.5	17.7
% Falls assessment		0.0	0.6	0.3	61.8
% Bone health medication assessment		15.6	72.1	43.9	74.0
% Bone health medication at admission		13.2	9.7	11.5	10.1
% Pre-operative assessment by geriatrician		0.0	99.2	49.6	33.1
% Patients developing pressure ulcers		1.7	1.6	1.7	3.9
% Arthroplasties cemented		100	100	100	63.1
% Patients treated without surgery		4.0	3.7	3.9	2.9
% Surgery within 48hrs		69.3	54.2	61.8	81.0
% Surgery within 36hrs		33.3	21.4	27.4	57.3
% Data completeness of reporting fields		99.4	99.0	99.2	97.4
% Cases submitted/ Facilities Audit estimate		84.0	84.0	84.0	79.4
Number of cases submitted		326	808	1134	36556
Estimated number of hip fractures (Facilities Audit)		389	963	1352	44767
Hospital Name	Altnagelvin Hospital		Royal Victoria Hospital, Belfast	SHA	NATIONAL
Hospital Code	<b>ALT</b>	<b>RVB</b>			

## South Central

Average length of Trust stay (days)	17.2	17.2	24.0	26.3	17.7	18.5	22.4	18.0	20.6	23.4
Average length of acute stay (days)	16.2	18.0	15.7	10.8	18.2	12.6	15.6	15.3	17.7	17.7
% Falls assessment	4.2	92.5	99.0	98.0	91.0	91.2	14.3	70.0	61.8	61.8
% Bone health medication assessment	42.9	93.7	98.4	99.7	80.7	96.8	18.4	75.8	74.0	74.0
% Bone health medication at admission	16.9	13.6	5.0	12.3	6.5	13.4	14.1	11.7	10.1	10.1
% Pre-operative assessment by geriatrician	45.3	7.1	49.8	76.8	85.3	8.5	0.0	39.0	33.1	33.1
% Patients developing pressure ulcers	4.7	2.2	0.3	2.2	0.7	0.6	7.7	2.6	3.9	3.9
% Arthroplasties cemented	97	82	45	43	95	54	84	71	63.1	63.1
% Patients treated without surgery	2.7	3.4	1.8	4.0	3.4	1.7	1.6	2.7	2.9	2.9
% Surgery within 48hrs	78.3	93.7	90.7	85.8	74.4	80.8	85.5	84.2	81.0	81.0
% Surgery within 36hrs	50.9	70.6	75.9	67.8	45.3	49.9	67.6	61.1	57.3	57.3
% Data completeness of reporting fields	99.2	98.7	99.8	99.3	98.8	95.5	95.4	98.1	97.4	97.4
% Cases submitted/ Facilities Audit estimate	83.0	100	100	100	78.0	88.0	58.0	86.7	79.4	79.4
Number of cases submitted	414	118	661	455	465	359	192	2664	36556	36556
Estimated number of hip fractures (Facilities Audit)	500	100	618	450	600	409	330	3007	44767	44767
Hospital Name	John Radcliffe Hospital, Oxford	North Hampshire Hospital, Basingstoke	Queen Alexandra Hospital, Portsmouth	Royal Berkshire Hospital, Reading	Southampton General Hospital	Stoke Mandeville Hospital, Aylesbury	Wexham Park Hospital, Slough	SHA	NATIONAL	NATIONAL
Hospital Code	<b>RAD</b>	<b>NHH</b>	<b>QAP</b>	<b>RBE</b>	<b>SGH</b>	<b>SMV</b>	<b>WEX</b>			



## South West

Hospital Code	Hospital Name	Estimated number of hip fractures (Facilities Audit)	Number of cases submitted	% Cases submitted/ Facilities Audit estimate	% Data completeness of reporting fields	% Surgery within 36hrs	% Surgery within 48hrs	% Patients treated without surgery	% Arthroplasties cemented	% Patients developing pressure ulcers	% Pre-operative assessment by geriatrician	% Bone health medication at admission	% Bone health medication assessment	% Falls assessment	Average length of acute stay (days)	Average length of Trust stay (days)
BRI	Bristol Royal Infirmary	350	162	46.0	96.3	59.7	81.3	1.9	94	0.0	6.1	16.7	45.2	54.3	18.1	28.4
CHG	Cheltenham General Hospital	280	306	100	98.1	39.0	70.9	2.6	63	0.0	35.3	13.1	96.6	97.5	16.6	22.8
PLY	Derriford Hospital, Plymouth	458	426	93.0	94.7	27.4	57.0	3.5	82	0.3	86.3	9.4	55.2	17.3	15.7	16.2
WDH	Dorset County Hospital	225	158	70.0	97.5	79.9	90.4	3.2	60	0.7	1.2	1.9	53.7	30.4	13.3	13.6
FRY	Frenchay Hospital, Bristol	500	462	92.0	98.7	60.1	83.7	1.7	96	2.0	35.9	11.7	95.8	92.3	30.5	30.9
GLO	Gloucestershire Royal Hospital	356	357	100	99.6	68.0	93.1	0.8	14	0.0	37.5	7.6	94.7	81.6	13.7	15.6
PGH	Poole General Hospital	925	716	77.0	96.3	36.3	60.8	1.5	76	0.0	1.3	9.2	31.0	90.4	10.9	16.1
RCH	Royal Cornwall Hospital, Truro	500	151	30.0	93.7	58.6	76.7	2.0	87	7.3	75.2	6.6	100	98.5	14.1	14.6
RDE	Royal Devon and Exeter Hospital	633	509	80.0	98.5	46.6	81.1	2.2	98	0.9	27.0	19.8	74.2	70.5	15.4	16.2
BAT	Royal United Hospital, Bath	550	497	90.0	97.4	41.0	70.9	2.2	38	2.3	36.7	18.7	93.9	53.3	17.7	19.0
SAL	Salisbury District Hospital	440	149	34.0	97.1	74.8	87.8	1.3	2	5.4	1.5	2.0	6.2	3.2	16.3	30.1
MPH	Taunton and Somerset Hospital	400	352	88.0	99.5	82.6	95.3	1.4	80	1.2	18.2	6.0	99.4	99.4	13.2	15.8
PMS	The Great Western Hospital, Swindon	350	309	88.0	98.1	68.9	94.0	1.0	43	4.8	71.0	3.2	92.5	92.3	21.8	34.6
TOR	Torbay District General Hospital	330	228	69.0	99.0	48.6	86.0	2.2	93	3.0	99.5	1.8	96.5	7.0	11.6	19.9
WGH	Weston General Hospital, Weston-Super-Mare	430	155	36.0	99.2	56.9	83.7	0.0	100	11.3	0.7	7.7	63.8	9.6	22.4	28.4
	SHA	6727	4937	72.9	97.6	56.6	80.8	1.8	68	2.6	35.6	9.0	73.2	59.8	16.8	21.5
	NATIONAL	44767	36556	79.4	97.4	57.3	81.0	2.9	63.1	3.9	33.1	10.1	74.0	61.8	17.7	23.4



## West Midlands

Average length of Trust stay (days)	35.6
Average length of acute stay (days)	21.2
% Falls assessment	7.8
% Bone health medication assessment	79.4
% Bone health medication at admission	6.1
% Pre-operative assessment by geriatrician	73.9
%Patients developing pressure ulcers	15.5
% Arthroplasties cemented	19.0
% Patients treated without surgery	8.7
% Surgery within 48hrs	58.5
% Surgery within 36hrs	27.1
Data completeness of reporting fields	98.5
% Cases submitted/Facilities Audit Estimate	69.0
Number of cases submitted	344
Estimated number of hip fractures (Facilities Audit)	500
Hospital Name	Birmingham Heartlands
Hospital Code	EBH
Hospital Name	Good Hope Hospital, Sutton Coldfield
Hospital Code	GHS
Hospital Name	New Cross Hospital, Wolverhampton
Hospital Code	NCR
Hospital Name	Queens Hospital, Burton upon Trent
Hospital Code	BRT
Hospital Name	Russells Hall Hospital, Dudley
Hospital Code	RUS
Hospital Name	Sandwell General Hospital
Hospital Code	SAN
Hospital Name	Selly Oak Hospital, Birmingham
Hospital Code	SOH
Hospital Name	University Hospital Coventry
Hospital Code	UHC
Hospital Name	University Hospital of North Staffordshire
Hospital Code	STO
Hospital Name	Warwick Hospital
Hospital Code	WAR
Hospital Name	Worcestershire Royal Hospital
Hospital Code	WRC
Hospital Name	SHA
Hospital Code	
Hospital Name	NATIONAL
Hospital Code	

## Yorks & Humber

Average length of Trust stay (days)	25.5	23.3	15.4	17.9	13.7	20.9	21.3	22.6	22.4	26.3	25.0	19.4	11.9	21.8	20.4	23.4
Average length of acute stay (days)	23.3	15.4	17.9	13.7	20.9	21.3	22.6	22.4	26.3	25.0	19.4	11.9	21.8	20.4	23.4	
% Falls assessment	10.8	98.9	93.7	83.2	48.8	9.3	86.4	74.6	96.9	64.3	4.2	63.8	97.7	85.4	65.7	61.8
% Bone health medication assessment	42.4	93.0	10.0	91.7	49.0	30.0	79.2	25.9	96.8	61.9	63.8	65.3	97.7	93.9	61.7	74.0
% Bone health medication at admission	6.8	6.9	3.5	5.2	10.4	7.4	18.7	0.5	10.3	4.5	7.2	15.5	9.6	9.5	8.2	10.1
% Pre-operative assessment by geriatrician	18.8	88.9	10.6	17.8	18.8	0.3	37.3	37.7	63.0	16.4	2.7	2.7	2.7	9.6	25.0	33.1
%Patients developing pressure ulcers	6.4	2.5	3.1	5.6	9.9	5.0	3.3	0.0	5.1	4.2	2.5	2.3	0.0	0.0	3.8	3.9
% Arthroplasties cemented	38	34	89	48	74	39	6	80	97	23	39	6	49	48	63.1	
% Patients treated without surgery	1.5	3.3	0.0	2.9	0.7	2.5	1.5	3.4	2.3	8.8	0.9	7.1	1.3	2.8	2.9	
% Surgery within 48hrs	89.4	76.9	83.5	68.9	93.9	89.7	62.6	62.7	93.3	78.0	82.9	71.8	93.5	80.5	81.0	
% Surgery within 36hrs	59.2	48.4	62.7	50.0	76.2	70.9	31.6	34.6	73.7	41.5	61.8	31.8	71.3	54.9	57.3	
Data completeness of reporting fields	97.8	99.6	98.4	98.7	99.2	99.3	98.8	99.5	99.5	99.6	97.2	99.3	99.8	99.0	97.4	
% Cases submitted/Facilities Audit Estimate	67.0	86.9	75.3	75.0	85.4	96.7	83.5		31.9	90.6	67.0	85.7	79.3	77.0	79.4	
Number of cases submitted	205	304	113	210	134	407	459	563	214	308	221	239	317	3694	36556	
Estimated number of hip fractures (Facilities Audit)	306	350	150	280	157	421	550		670	340	330	279	400	2019	44767	
Hospital Name	Barnsley Hospital	Bradford Royal Infirmary	Dewsbury & District Hospital	Diana Princess of Wales Hospital, Grimsby	Harrrogate District Hospital	Huddersfield Royal Infirmary	Hull Royal Infirmary	Leeds General Infirmary	Northern General Hospital, Sheffield	Pinderfields General Hospital, Wakefield	Scarborough General Hospital	Scunthorpe General Hospital	York Hospital	SHA	NATIONAL	
Hospital Code	BAR	BRD	DEW	GGH	HAR	HUD	HRI	LGI	NGS	PIN	SCA	SCU	YDH			

# Glossary

Term	Definitions
Arthroplasty	Any replacement of the upper femur including unipolar hemi-arthroplasties, bipolar hemiarthroplasties and total hip replacements
ASA grades	<p>American Society of Anesthesiologists<sup>15</sup> (ASA) physical status classification :-</p> <ol style="list-style-type: none"> <li>1. A normal healthy patient</li> <li>2. A patient with a mild systemic disease</li> <li>3. A patient with a severe systemic disease that limits activity, but is not incapacitating</li> <li>4. A patient with an incapacitating systemic disease that is a constant threat to life</li> <li>5. A moribund patient not expected to survive 24 hours with or without operation</li> </ol> <p>This grading does not take into account acute illness, hence a patient can be ASA 1 and 'unfit'.</p>
Best Practice Tariff	This means that the NHS will pay an uplift, in addition to the base tariff, for care that meets defined criteria (see page 40).
Bone cement	Polymethyl methacrylate is a plastic that may be used to hold hip replacements in place. It is introduced into the reamed bone before prostheses are inserted. The 'cement' sets in a few minutes.
Bone protection medication	<p><b>1. Bisphosphonates</b>            Etidronate            Alendronate            Risedronate            Ibandronate            Zoledronate            Pamidronate</p> <p><b>2. HRT and SERMS</b>            HRT (various)            Tibolone            Raloxifene</p> <p><b>3. Parathyroid hormone</b>            PTH 1-34            PTH 1-84</p> <p><b>4. Strontium</b>            Strontium ranelate</p> <p><b>5. Calcium and vitamin D</b>            Calcitriol            Calcium and vitamin D – various            Alpha-calcidol (or one alpha)</p> <p><b>6. Calcitonin</b></p>

Term	Definitions
Casemix factors	Demographic and functional information about patient. e.g. Age, sex, mobility, deprivation status , ASA and previous living circumstances (for mortality data only)
Co-morbidity	The presence of one or more disorders (or diseases) in addition to the hip fracture at the time of admission.
Early Supported Discharge Schemes	Early supported discharge (ESD) schemes use specialist staff assessments (schemes vary but the teams tend to include designated medical, nursing, physiotherapy, occupational therapy and social work personnel). Their role is to assess patients on admission and identify those suitable for supported discharge. They facilitate early mobilisation and rehabilitation and arrange appropriate support on discharge and follow up.
Fracture liaison nurse / service	A nurse whose primary purpose is to ensure that both inpatients and outpatients with low impact fractures are screened for falls and osteoporosis
HA Coating (of implants)	Hydroxyapatite (HA) is a compound present in healthy bone. Coating metal hip replacements with HA at the time of manufacture may help to produce a bond between the patient's bone and the metal of the replacement, increasing the chances of a good functional outcome
Hemiarthroplasty /Bipolar hemiarthroplasty	A half hip replacement that is either: Unipolar – replacement of the femoral head and neck Bipolar – replacement of the femoral head and neck, with the addition of an acetabular cup that is not attached to the pelvis.
Multidisciplinary rehabilitation team	A group of people of different professions (and including as a minimum a physiotherapist, occupational therapist, nurse and doctor) with job plan responsibilities for the assessment and treatment of hip fracture patients, and who convene (including face to face or virtual ward round) regularly (and at least weekly) to discuss patient treatment and care, and plan shared clinical care goals.
NCEPOD	The National Confidential Enquiry into Perioperative Deaths. A Department of Health funded independent organisation that makes recommendations on the safe management of surgical cases.
Normal working hours	08:00 – 19:59hrs The NCEPOD reports of 1997 and 2003 <sup>16,17</sup> define "out of hours" as any time outside 08:00 to 17:59 on weekdays, and any time on a Saturday or Sunday. The 1999 report states that "There should be sufficient, fully-staffed, daytime theatre and recovery facilities to ensure that no patient requiring an urgent operation waits for more than 24 hours once fit for surgery. This includes weekends." The NCEPOD website includes a section on 'urban myths' acknowledging that patterns of work will vary, dependent upon local arrangements, and for these reasons, and because this definition is currently in use in Scotland, we have adopted 08:00 to 19:59 seven days a week as being 'normal working hours'

Term	Definitions
Payment by Results	Under this process, instead of being commissioned through block agreements as previously, hospitals (and other providers) are paid for the activity that they undertake. Payment will be linked to activity and adjusted for casemix.
Pressure ulcer	A pressure ulcer is an area of localised damage to the skin and underlying tissue caused by pressure, shear or friction forces, or a combination of these.
Pressure ulcer grades <sup>18</sup>	Grade 1 = skin inflammation without blanching Grade 2 = Skin blistering/superficial damage Grade 3 = Skin broken/serous discharge Grade 4 = Deep ulcer, underlying fascia, bone, muscle affected ref
Specialist falls assessment	A systematic assessment by a suitably trained person e.g. Geriatrician or a specialist trained nurse which must cover the following domains:- Falls history (noting previous falls), cause of index fall (including medication review), risk factors for falling and injury (including fracture) and from this information formulate and document a plan of action to prevent further falls.

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# Appendix A

## Structure and governance

NHFD is overseen by a large and broadly-based **Steering Group** representing the core clinical specialties and other relevant professionals, and including also representation from a patient group. A smaller **Implementation Group**, based in the BGS headquarters, deals with project development, data monitoring and analysis, and the generation of reports. Recruitment and support of participating centres, and day-to-day organisational matters, are in the hands of a project manager and two project coordinators. A **Data-Set Subgroup** is responsible for the monitoring and development of the NHFD standard data set, and its recent adaptation for use with BPT. A **Scientific and Publications Committee** oversees access to, and use of, NHFD data; and promotes audit-based studies and publications relating to hip fracture care and service development. Details of the current membership of these groups are set out below.

Links with the Information Centre are close, with senior IC presence on the Implementation Group, and the support of an IC software developer working half-time with NHFD.

## Funding

Early development of NHFD depended on generous funding from the ABPI and ABHI, the professional bodies of the pharmaceutical and devices industries respectively; and on a substantial development grant from the Department of Health supported regional meetings, publications, and statistical consultancy inputs to case-mix adjusted outcome reporting. From April 2009, and for a period of three years, the central costs of the NHFD are being met by funding from HQIP totalling c. £1.4 million. This covers staffing costs, contracts with the Information Centre and with Quantics, office rental and services, communications, meetings and publications, and sundries.

## NHFD Steering Group

### Co-Chairs

#### David Marsh

Professor of Clinical Orthopaedics, UCL, Royal National Orthopaedic Hospital

#### Finbarr Martin

Consultant Geriatrician, Guys and St. Thomas' NHS Foundation Trust, London. President Elect British Geriatrics Society

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#### Guy Broome

Consultant Orthopaedic Surgeon,  
Cumberland Infirmary, Carlisle

#### Juliette Brown

Public Affairs and Policy Manager,  
National Osteoporosis Society

#### David Cunningham\*

Technical Project Manager,  
NHS Information Centre

#### Colin Currie \*

Consultant Geriatrician, NHS Lothian, and Clinical  
Lead for Geriatric Medicine, NHFD

#### James Elliott

Consultant Orthopaedic Surgeon, Belfast

#### Colin Esler

Consultant Orthopaedic Surgeon, Leicester

#### Stewart Fleming\*

Software Developer, NHS Information Centre

#### Karen Hertz

Advanced Nurse Practitioner, University Hospital of  
North Staffordshire NHS Trust

#### Antony Johansen

Consultant Orthogeriatrician and Senior Lecturer  
in Public Health, Cardiff & Vale NHS Trust

#### Helen Laing

Contracts & Commissioning Manager, Healthcare  
Quality and Improvement Partnership

#### Paul Mitchell

Associate Lecturer, University of Derby

#### Chris Moran

Professor of Orthopaedic Trauma Surgery,  
Queen's Medical Centre, Nottingham

#### Maggie Partridge \*

NHFD Project Manager

#### Mike Pearson

Professor of Clinical Evaluation,  
University of Liverpool

#### Margit Physant

Policy Adviser for Health and Wellbeing, Age UK

#### Fay Plant\*

NHFD Coordinator (North)

#### Opinder Sahota

Professor in Orthogeriatric Medicine & Consultant  
Physician, Queen's Medical Centre, Nottingham

#### Bob Smith

Patient Representative

#### Jonathan Trembl

Consultant Geriatrician, Selly Oak Hospital.  
RCP Falls & Bone Health Audit Lead

#### Rob Wakeman\*

Consultant Orthopaedic Surgeon, Basildon  
University Hospital, and Clinical Lead for  
Orthopaedic Surgery, NHFD

#### Keith Willett

Professor of Orthopaedic Trauma Surgery, John  
Radcliffe Infirmary, Oxford, and National Clinical  
Director for Trauma Care, Department of Health

#### Andy Williams\*

NHFD Project Coordinator (South)

\* NHFD Implementation Group

## NHFD Data sub group

### Chair

Colin Currie, Consultant Geriatrician, NHS Lothian

---

### **Gary Cook,**

Consultant in Public Health Medicine, Stockport

### **David Cunningham**

Technical Project Manager, NHS Information Centre

### **James Elliott**

Consultant Orthopaedic Surgeon, Royal Victoria Hospital, Belfast

### **Stewart Fleming**

Software Developer, NHS Information Centre

### **Antony Johansen**

Consultant Orthogeriatrician and Senior Lecturer in Public Health, Cardiff & Vale NHS Trust

### **Rob Wakeman**

Consultant Orthopaedic Surgeon, Basildon University Hospital

### **Andy Williams**

NHFD Project Coordinator (South)

## NHFD Scientific & Publications Committee

### Chair

Colin Currie, Consultant Geriatrician NHS Lothian

---

### **Matt Costa,**

Associate Clinical Professor in Orthopaedics, Warwick Medical School & University Hospitals Coventry and Warwick

### **James Elliott**

Consultant Orthopaedic Surgeon, Royal Victoria Hospital, Belfast

### **Stewart Fleming**

Software Developer, NHS Information Centre

### **Karen Harding**

Consultant Orthogeriatrician, Frenchay Hospital, Bristol

### **Janet Lippett**

Consultant in Elderly Care, Royal Berkshire NHS Foundation Trust

### **Michael Pearson**

Professor of Clinical Evaluation, University of Liverpool

### **Neil Pendleton**

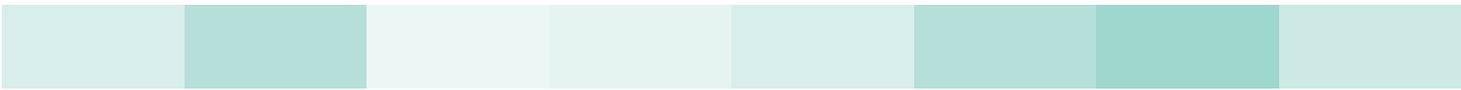
Senior Lecturer in Geriatric Medicine, The University of Manchester

### **Rob Wakeman**

Consultant Orthopaedic Surgeon, Basildon University Hospital

### **Andy Williams**

NHFD Project Coordinator (South)



# Appendix B

## Data completeness

The percentage of data completed was calculated by considering all draft and completed records for included hospitals.

Nineteen fields were considered and the points for each record were added and divided by the total number of records for a hospital to give the percentage data completeness.

Fields used:

Hospital; Age at Event (based on DOB); Sex; Admitted From; ASA Grade; Walking Ability Preadmission; Orthopaedic Ward admission; Fracture Type; Operation Performed; Surgery; Reason 48 hours; Reason 24 Hours; Pressure Ulcers; Preoperative Medical Assessment; Antiresorptive Therapy; Time and date Discharge from Ward; Time and date discharge from Trust; Discharge Trust Destination; Specialist Falls Assessment.

# Appendix C

## Chart specification for National Report 2010

Admission data slice: Patients admitted on or between 1 April 09 - 31 March 10 inclusive and age  $\geq$  60 (Those over 107 are excluded)

Discharge data slice: Patients discharged on or between 1st April 2009 - 31st March 2010 inclusive and age  $\geq$  60 (Those over 107 are excluded)

Hospitals to be included if 100 or more records submitted during time slice or  $>90\%$  completion  
Hospitals identified by three letter code.

Pool averages from included hospitals only, in all bar/column charts for 'National', as figures or percentages for 'Hospital'

Data for presentation in quartiles in the summary sheet to be presented as Excel worksheets e.g data quality, number of cases submitted, % to theatre  $<$  48 hours, % to theatre  $<$  36 hrs, % patients treated without surgery, % arthroplasties cemented, % pressure ulcers, % preoperative assessment by orthogeriatrician, % antiresorptive therapy at admission, % antiresorptive assessments, % falls assessment, average length of stay, [home from home, mortality at 30 days]; SHA and National Figures.

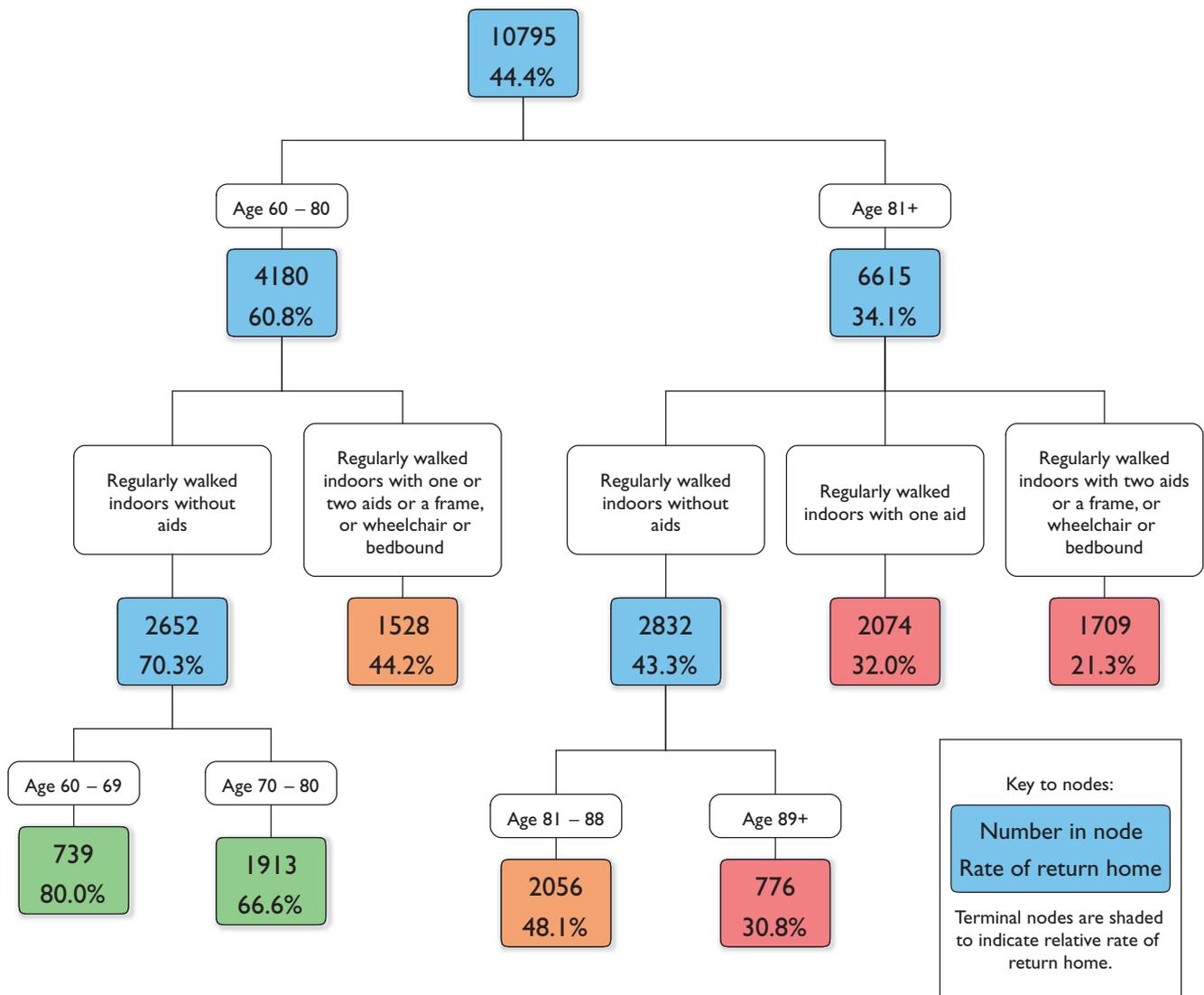
Chart	Metric	Calculation	Filters
1	Data completeness	% fields completed where unknown equals null. Total possible score of 17 for each record, then totalled and expressed as %	All fields used in calculation
2	Age at Admission	% in 10 year blocks 60-90+,m Stacked bar/column, youngest on the left/bottom ranked by $<$ 90	EXCLUDE [DOB] = null
3	Sex	Stacked bar/column as %	EXCLUDE [Sex] = null If [Admitted From] is null, classify as "Unknown"
4	Admitted From	Count of [Admitted From] expressed as % ranked by "Own home.	EXCLUDE [ASA grade] = null
5	ASA	% ASA grades ranked in order of (ASA Grades 1+2+3) with additional (matched) chart showing known vs unknown as %	If [Walking ability indoors pre admission] is null, classify as "Unknown"
6	Walking ability	% walking ability indoors pre admission expressed as %; ranked by ("Without aids" + "One aid")	[Type of fracture] is null, classify as "Unknown"
7	Fracture type	[Fracture type] expressed as %; ranked by (Contains "Intracapsular")	EXCLUDE [Admitted to orthopaedic ward]=null
8	A&E to orthopaedic ward within 4hrs	% of patients admitted to orthopaedic ward with companion chart showing $<$ 4hrs vs $>$ 4hrs	EXCLUDE [Time of Surgery] = null OR [Operation] = null OR [Operation] = "No operation performed" OR [AdmittedFrom] = "Already in Hospital" OR [ReasonDelay $>$ 48 hours] starts with "medically unfit" OR [ReasonDelay $>$ 48 hours] = 'Dead'
9	Surgery within 48 hours and during normal working hours	Express as % of all cases operated on ranked bar/column, highest on left/bottom Delay to Surgery = [time of surgery] - [Admission date/time] For [Admission date/time] use [AEdmissionDate] else use [WardAdmissionDate] Count all cases where Delay to Surgery $\leq$ 48 hours and Operation Time $\geq$ 8:00 hrs and Operation Time $\leq$ 20:00 hrs	EXCLUDE [Operation] = null OR [ReasonForDelay $>$ 48 hrs] = null OR "No delay" OR Delay $<$ 48 hours
10	Reason for no operation within 48 hours	Express counts of [Reason if delay $>$ 48 hrs] values as %, ranked by (Contains "Medically Unfit")	EXCLUDE [Operation] = null

Chart	Metric	Calculation	Filters
11	<b>Patients treated without surgery</b>	Count [Operation] = "No operation performed" expressed as % of all cases	EXCLUDE [Operation] = null
12	<b>Cementing of Arthroplasties</b>	Count of records containing "(cemented)" as % of all Arthroplasty cases.	[Operation Performed] contains "Arthroplasty" EXCLUDE [Operation Performed] = null
13	<b>Development of Pressure Ulcers</b>	Ranked ascending "Yes" count	EXCLUDE [PressureUlcers] = null OR [DischargeWardDestination] = "Dead" OR [DischargeTrustDestination] = "Dead"
14	<b>Preoperative Medical Assessment</b>	Count [Preop Assessment] expressed as % of total ranked by [Routine by geriatrician] AND [routine by specialist nurse] AND [medical review requested] AND [no preoperative assessment]	EXCLUDE [PreOp Assessment] = null OR [AgeAtEvent] < 65
15	<b>Bone Protection Medication at admission</b>	% of all patients where Antiresorptive therapy = [Continued from pre admission]	
16	<b>Bone health assessment and treatment at discharge</b>	% Antiresorptive therapy [Continued from preadmission] AND [Started on admission] AND [Awaits bone clinic assessment] AND [Awaits DXA scan]AND [No Anti-Resorptive Therapy]	EXCLUDE [AntiResorptive Therapy] is not null OR [DischargeWardDestination] = "Dead" OR [DischargeTrustDestination] = "Dead"
17	<b>Specialist Falls Assessment</b>	Count [Falls Assessment] expressed as % of total ranked by (Contains "Yes")	EXCLUDE [FallsAssessment] = null OR [DischargeWardDestination] = "Dead" OR [DischargeTrustDestination] = "Dead"
18	<b>Secondary Prevention Overview</b>	Count of [Falls Assessment] AND [Antiresorptive Therapy] with "No Falls Assessment" and "No Antiresorptive therapy" grouped together	EXCLUDE [AntiResorptive Therapy] is not null OR [FallsAssessment] = null OR [DischargeWardDestination] = "Dead" OR [DischargeTrustDestination] = "Dead"
19	<b>Length of Stay</b>	Composite chart: [Length of stay in acute setting] is the difference between A&E Admission and discharge from acute orthopaedic ward with [Length of stay in Trust] is the difference between A&E admission to discharge from Trust]	Uses Discharge Data Slice EXCLUDE [AdmittedFrom] = "Already in Hospital"
20	<b>Discharge destination from trust</b>	Count of discharge destination as %, ranked by "Own home/sheltered housing" + "Residential care/nursing home" + "Rehabilitation Unit" + "Acute hospital" + "other" + "dead"	Uses Discharge Data Slice EXCLUDE [Discharge from trust] = null
21	<b>Surgery within 36 hours with falls and bone health assessment</b>	Express as % of all cases operated on ranked bar/column, highest on left/bottomDelay to Surgery = [time of surgery] - [Admission date/time]. For [Admission date/time] use [AEAdmissionDate]. [Falls Assessment] use [Yes-performed on this admission/Yes-awaits falls clinic assessment/Yes-further intervention not appropriate] Bone health assessment] use [started on this admission/continued from pre admission/awaits DXA scan/assessed - no bone protection needed or appropriate/awaits bone clinic assessment]	EXCLUDE [Time of Surgery] = null OR [Operation] = null and [Operation] = "No operation performed" OR [AdmittedFrom] = "Already in Hospital" OR [ReasonDelay >24 hours] = "Dead" OR [AntiResorptive Therapy] is not null and [DischargeWardDestination] = "Dead" OR [DischargeTrustDestination] = "Dead" OR [FallsAssessment] = null

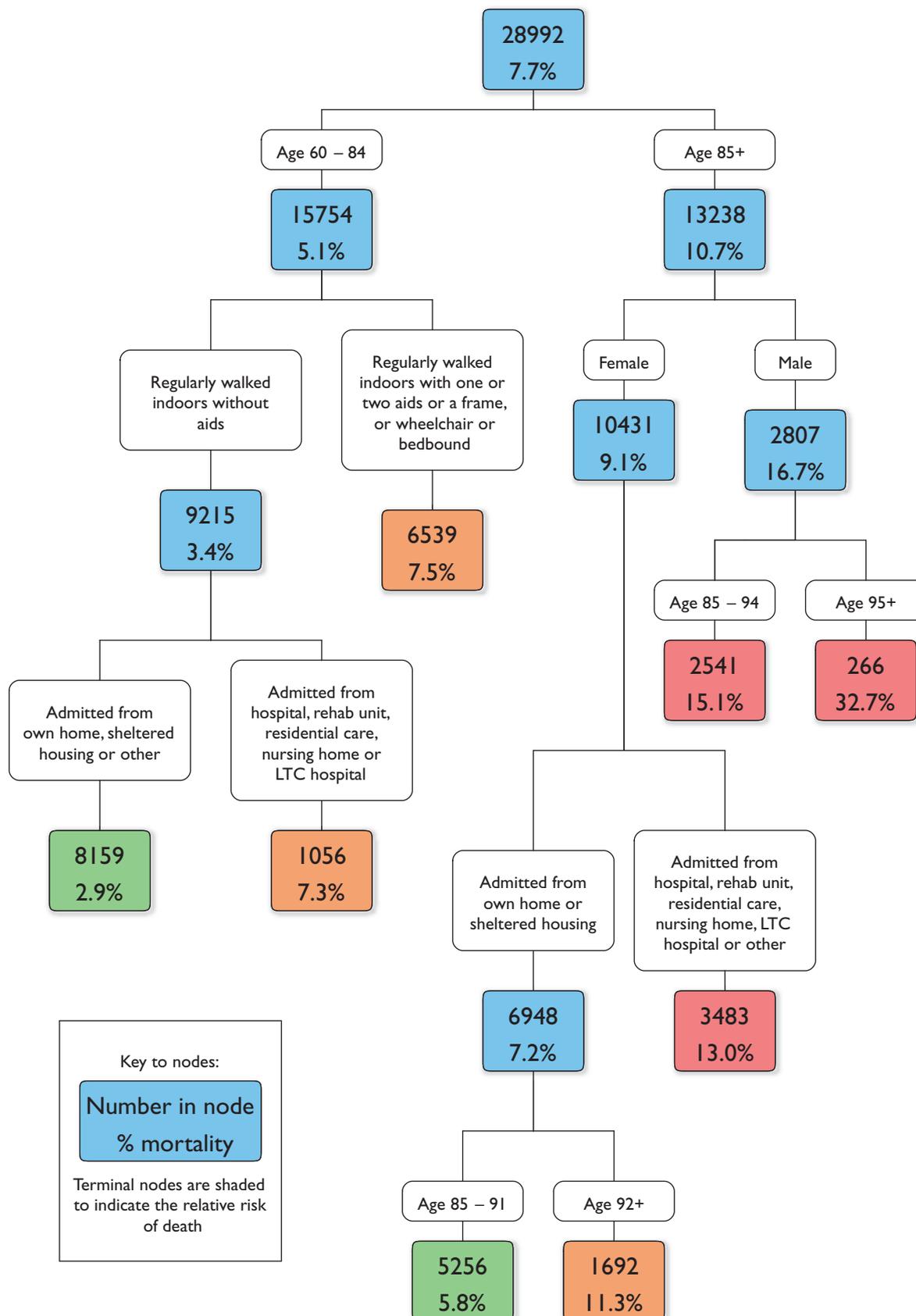
# Appendix D

## Classification trees<sup>19</sup>

Rate of return home from home at 30 days.



## Mortality at 30 days



# Appendix E

## Using audit to improve care

### Gloucestershire Hospitals NHS Foundation Trust

The NHFD has been very useful in improving our service, and has certainly helped to focus minds and reduce our time to theatre. Our in-hospital mortality has steadily fallen as Elderly Medicine and Orthopaedics worked more closely together, so that we are now at 7.3% compared to a national average of 9.25%. We believe this is because hip fracture patients are being given greater priority by clinical and managerial staff.

### James Cook University Hospital

In South Tees clinicians used NHFD to track the progress and impact of a broadly based multi-disciplinary and inter-departmental initiative to improve their care of hip fracture patients. They reviewed the patient pathway and – with the support of the NHS Institute for Innovation and Improvement – addressed in detail many aspects of care. Percentages of patients being fast-tracked through the A&E rose from 50% to 80%, and of those having surgery within 48 hrs rose from 62% to 81%. More patients were mobilised on the first post-operative day. With these and other improvements in care, the average length of acute orthopaedic stay fell from 18 days in 2007 to 12.6 in 2009.

### James Paget University Hospital

The James Paget orthopaedic unit used an Innovation in Nursing & Midwifery Project to address the question 'Could a key worker enhance care provided for patients with a fractured neck of femur from admission through to discharge?' The key worker, a senior nurse, led the design and implementation of an A&E Fast Track Guideline, and a Fracture Booklet to promote integrated documentation of patient care; made use of the NHFD to monitor progress; and introduced Patient Feedback Cards to improve communication and prompt further service developments. Clinical standards in hip fracture care have risen, and adverse incidents have been reduced.

### Maidstone Hospital

The Department of Trauma and Orthopaedic Surgery at Maidstone Hospital developed a proforma-based pathway to improve hip fracture care and at the same time provide a suitable data collection tool for the NHFD. Audit of practice before and after the introduction of the proforma showed impressive improvements in A&E assessment and care, documentation of social history and mental test scores, time to ward, time to theatre, and osteoporosis treatment; though no improvement was seen in resuscitation status documentation and pressure area care. Following this work, a business case for orthogeriatrician involvement and dedicated trauma beds for hip fracture patients has been prepared; theatre delays and inefficiencies are being addressed; and formal incident reporting of pressure sore development has been instituted. NHFD data will be used to continue to monitor progress.

### Mayday University Hospital

When a local audit of hip fracture care in Mayday University Hospital in 2007 revealed both substantial pre-operative delay and a comparatively long average acute stay, a multi-disciplinary Trauma Group was set up with the aims of reducing time to surgery to less than 48 hours for 80% of patients and reducing acute length of stay. NHFD participation from September 2009 supported an evaluation process. With pathway mapping, close scrutiny of delays exceeding 48 hours, and the implementation of improved procedures, mean time to theatre fell from 58.8 hours to 28.9, with 87% of patients waiting less than 48 hrs; and mean length of acute stay fell from 32.6 days to 22.

## Royal Berkshire Hospital

In 2007, with 30% of hip fracture patients not going to surgery within 48 hours, the Royal Berkshire Hospital appointed a full-time orthogeriatrician with junior staff support to improve medical care, introduced multidisciplinary team working, and established a separate ortho-geriatric rehabilitation unit. A multidisciplinary steering group - with, trauma surgeon, trauma anaesthetist, nursing, physiotherapy and other inputs – introduced standardised documentation and procedures covering theatre list planning, pre-operative and operative care. By 2009, NHFD data showed that only 15% of patients waited longer than 48 hours for surgery.

## Royal Surrey County Hospital

The Royal Surrey Hospital joined NHFD in 2007. Early data showed 80% of patients operated within 48 hours, an average length of stay of 25.3 days, and mortality of 10.6%. To improve care, a business case was put forward for additional trauma lists, daily orthogeriatrician ward rounds, an integrated care pathway, a patient care handbook, and a 'virtual FNoF Unit'. As a result, joint ortho-geriatrician and surgical care was established. 95% of patients had surgery within 48 hours, average length of stay was reduced by 6 days, and mortality by more than 3%. An economic evaluation showed additional costs for orthogeriatrician input and trauma lists of around £220,000 and bed-day savings estimated at over £450,000.

## Salford Royal Foundation Trust

Salford Royal has participated in the NHFD since October 2007. A project team responded to an early finding of a high incidence of pressure ulcers, and introduced prompt and regular Waterlow assessments, a directorate-wide training programme, and a management protocol that resulted in better use of the skills of a tissue viability nurse. Over a 12-month period the incidence of pressure ulcers was reduced by 80%. This project was one of only three short-listed from 148 entries for an HQIP 'local improvement following national audit participation' award in 2010.

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## Acknowledgements:

NHFD participants: clinical and audit staff in all contributing hospitals

British Geriatrics Society

British Orthopaedic Association

Department of Health

Dr. Richard Keen, Metabolic Bone Unit, Royal National Orthopaedic Hospital

Healthcare Quality Improvement Partnership

National Clinical Audit Advisory Group

NHS Information Centre

Quantics Consulting Ltd

Synthesis Medical Communications





British Orthopaedic Association



**HQIP**

Healthcare Quality  
Improvement Partnership



# The National Hip Fracture Database National Report 2010

## Need to know more?

Further copies of this report in more extensive and detailed form may be downloaded from **[www.nhfd.co.uk](http://www.nhfd.co.uk)** or contact:

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Email: [helpdesk@nhfd.co.uk](mailto:helpdesk@nhfd.co.uk)

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