British Orthopaedic Association

HQIP
Healthcare Quality Improvement Partnership

BRITISH GERIATRICS SOCIETY

The **National Hip Fracture** Database
National Report 2010 – Extended version

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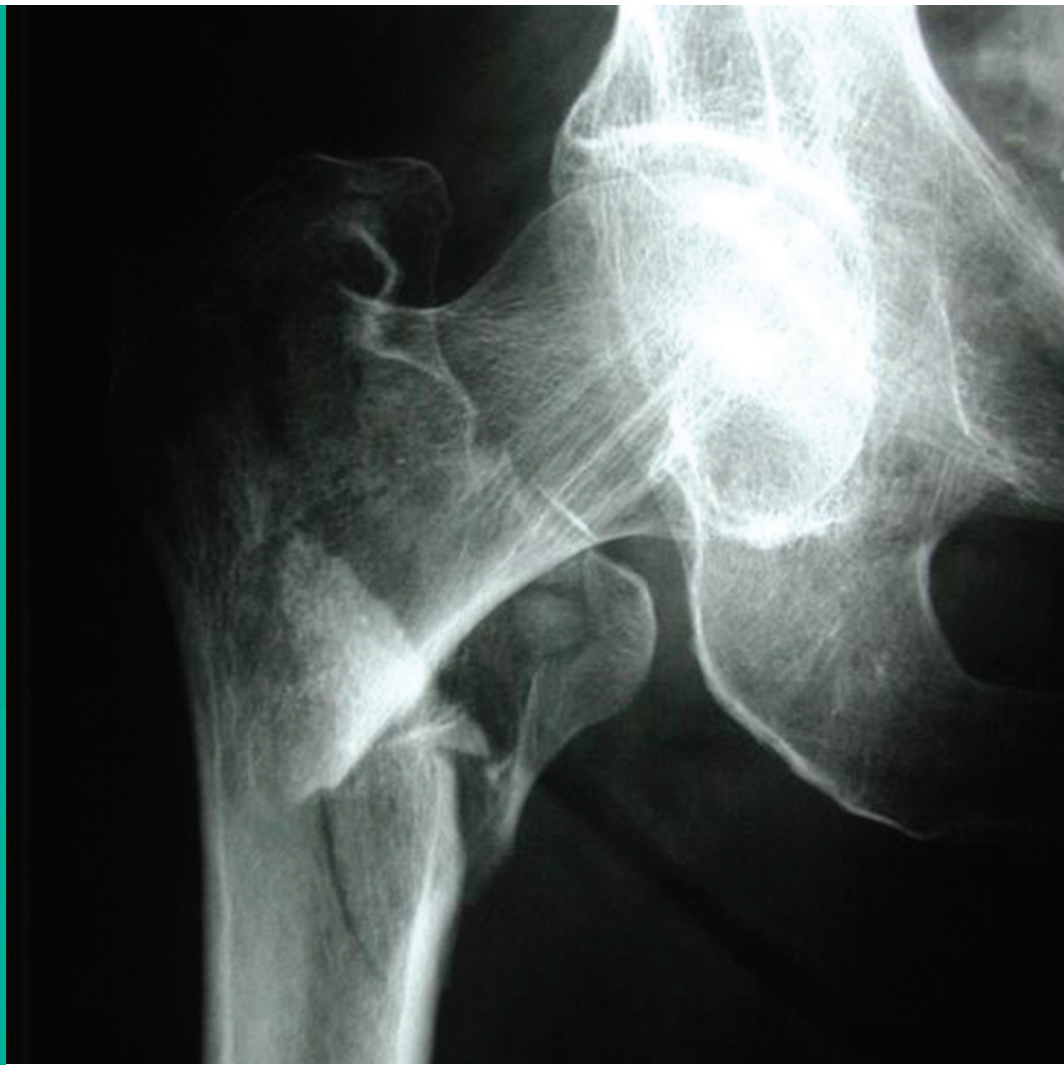

The **National Hip Fracture** Database National Report 2010

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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 costeffectiveness.

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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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*[1]

- 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[2] (or Shewart chart[3]).

- Growing interest and participation in the NHFD have facilitated in England the implementation of the Department of Health's Payment by Results▲ initiative[4], and with it the new Best Practice Tariff▲ 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[5] and Scotland[6], 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)[7] 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	Morriston 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
Gwynnedd Ysbyty, Bangor	GWY	Poole General Hospital	PGH
Harrogate District Hospital	HAR	Prince Charles Hospital, Merthyr	

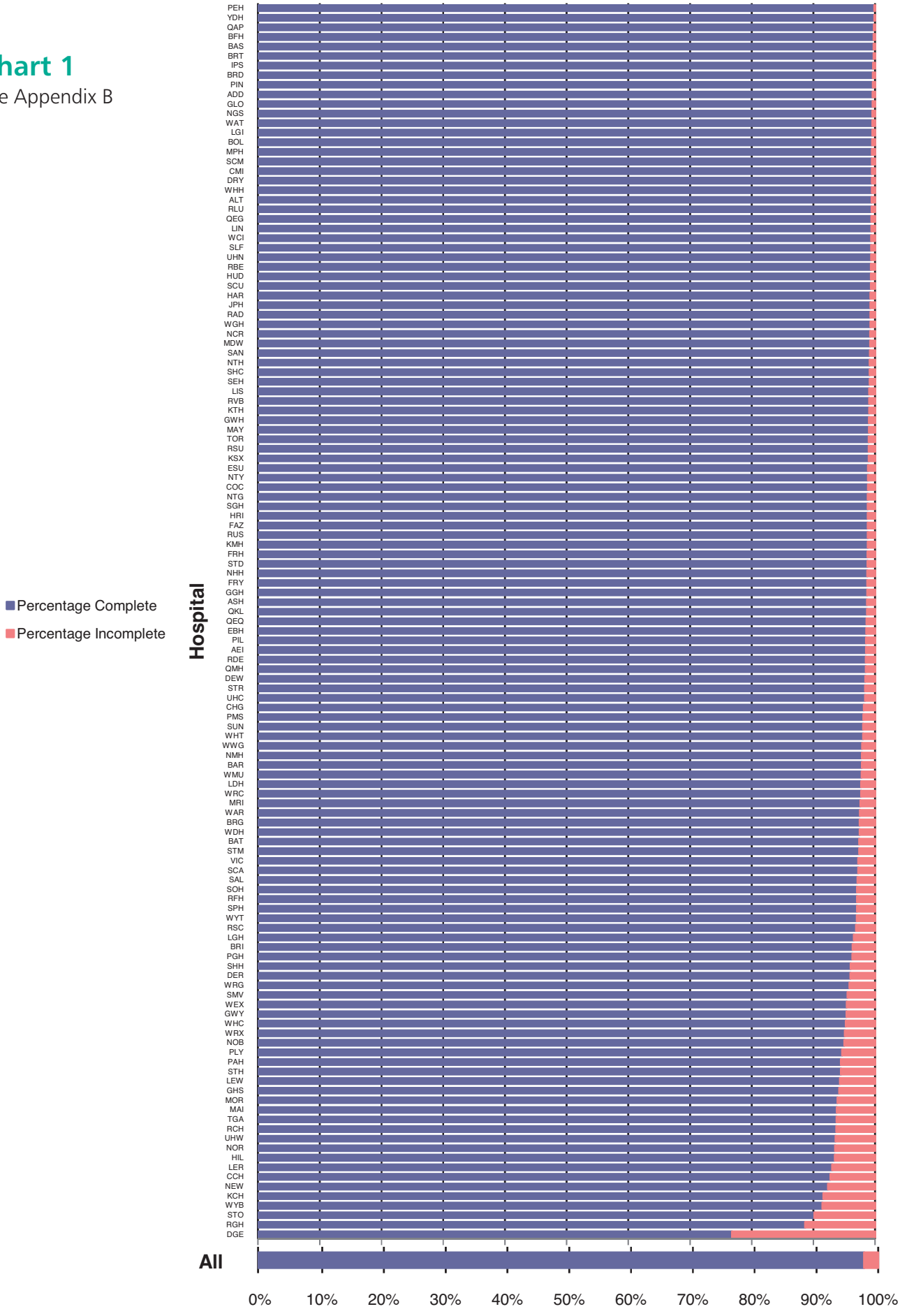
Princess Elizabeth Hospital, Guernsey	PEH
Princess Royal Hospital, Telford	
QEQM Hospital, Margate	QEQ
Queen Alexandra Hospital, Portsmouth	QAP
Queen Elizabeth Hospital, Gateshead	QEG
Queen Elizabeth Hospital, King's Lynn	QKL
Queen Elizabeth Hospital, Woolwich	GWH
Queen Mary's Hospital, Sidcup	QMH
Queens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

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



Casemix

The pie charts below demonstrate at national level the distribution of casemix characteristics described.

Chart 2. Age at admission

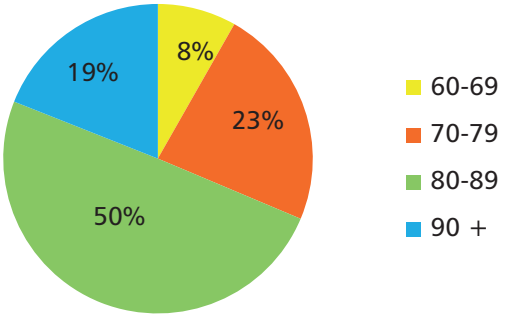
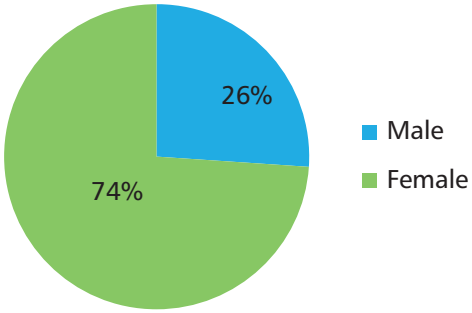
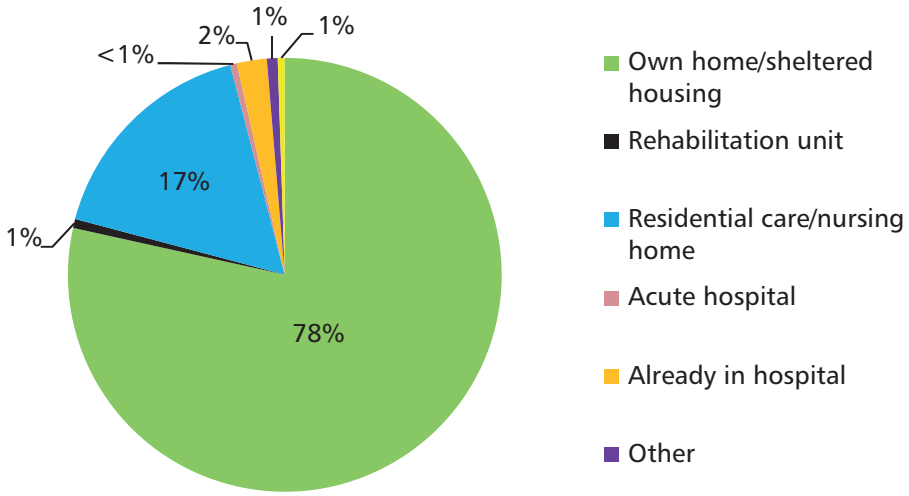


Chart 3. Sex



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.

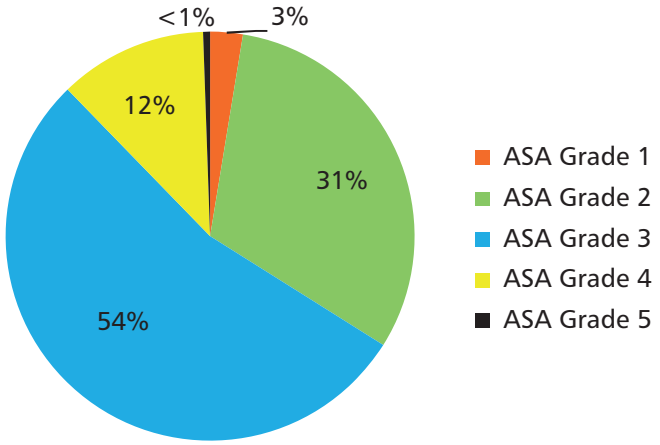
Chart 4. Admitted from



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.

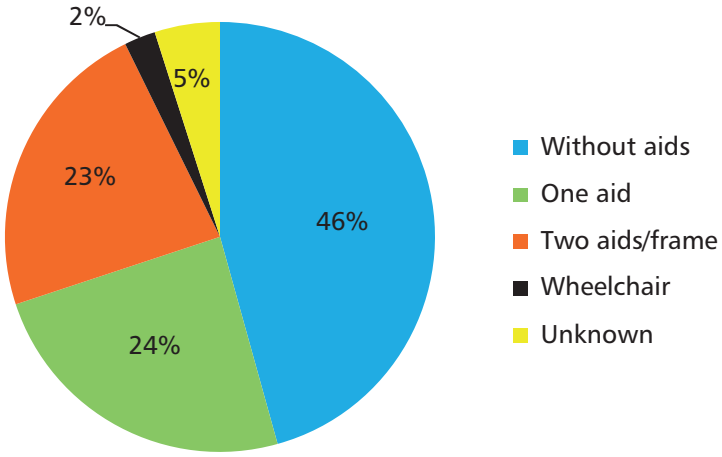
Patients admitted to orthopaedic care from other forms of hospital care, and patients from nursing and residential care homes, are to some extent already disadvantaged, e.g. by comorbidities, dependency, frailty, and cognitive impairment. Mortality for such patients is higher, and many will have little 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.

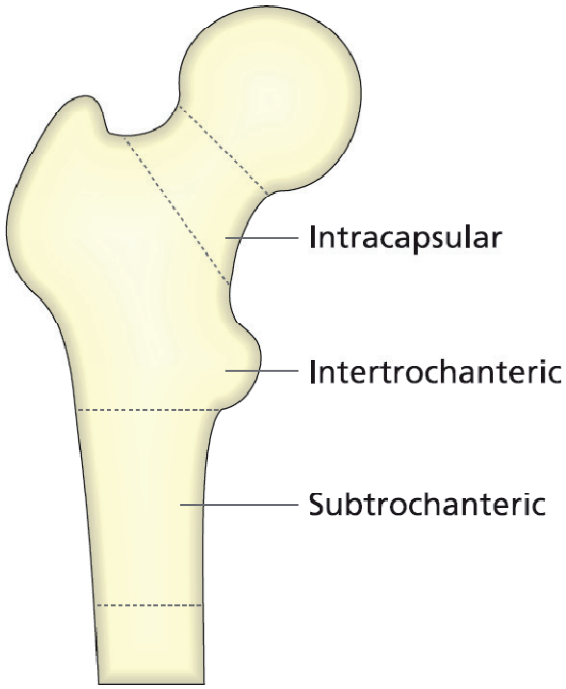
Chart 6. Walking ability



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.

For hospital level case mix charts see Appendix G

Chart 7. Fracture type



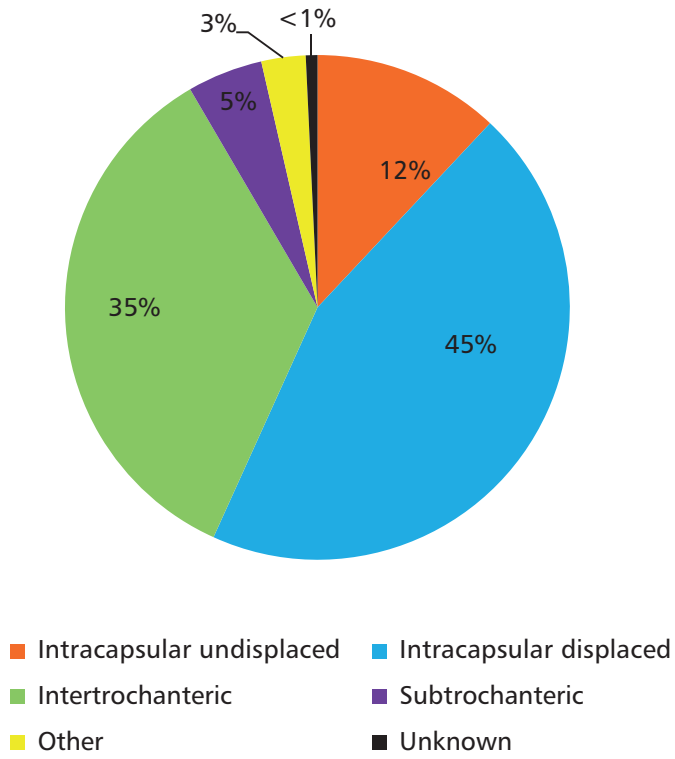
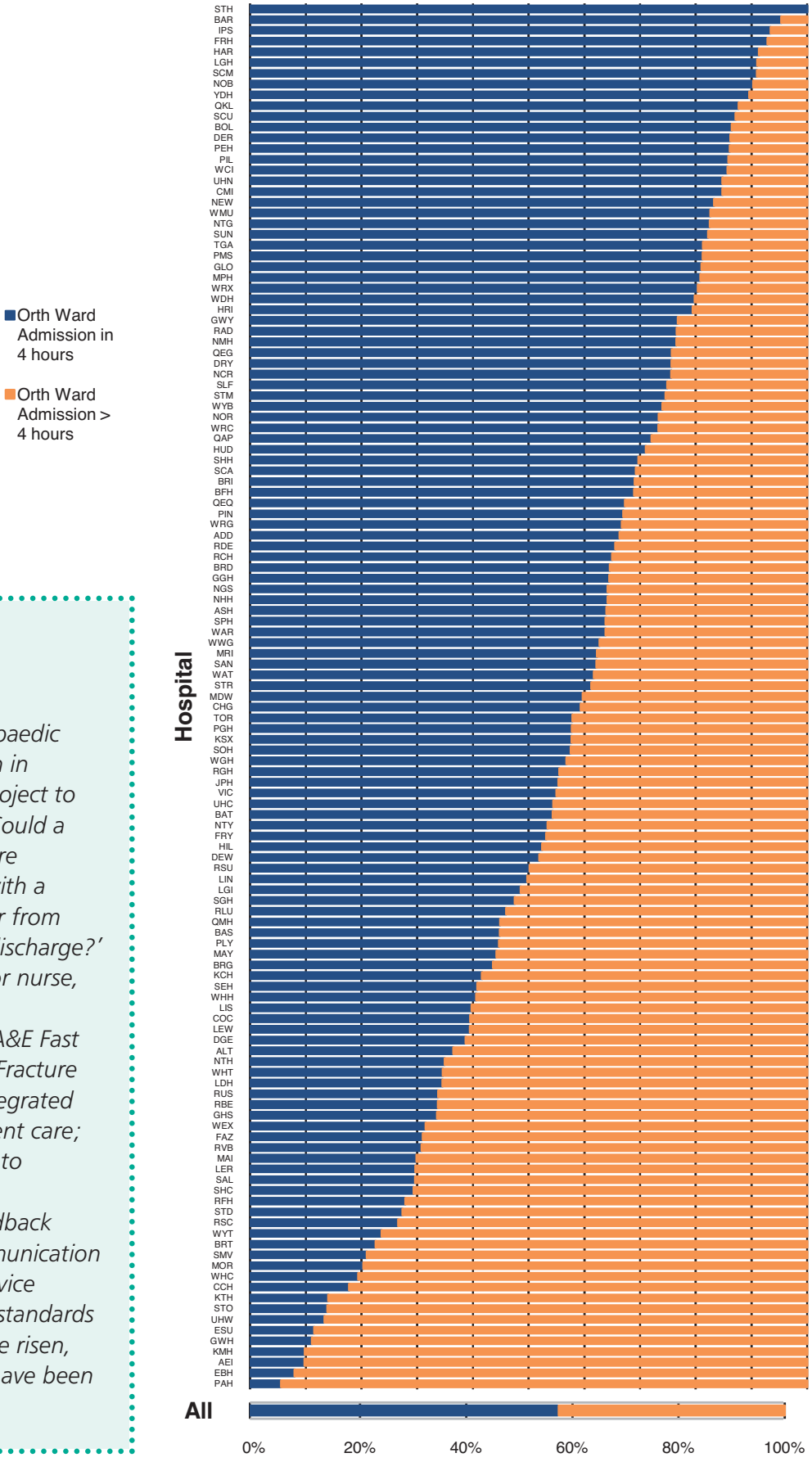


Fig 1

The distribution of fracture type is very similar to that in the Preliminary National Report. The type of fracture [Fig 1] is important as it determines the surgical procedure a patient requires.

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

Chart 8

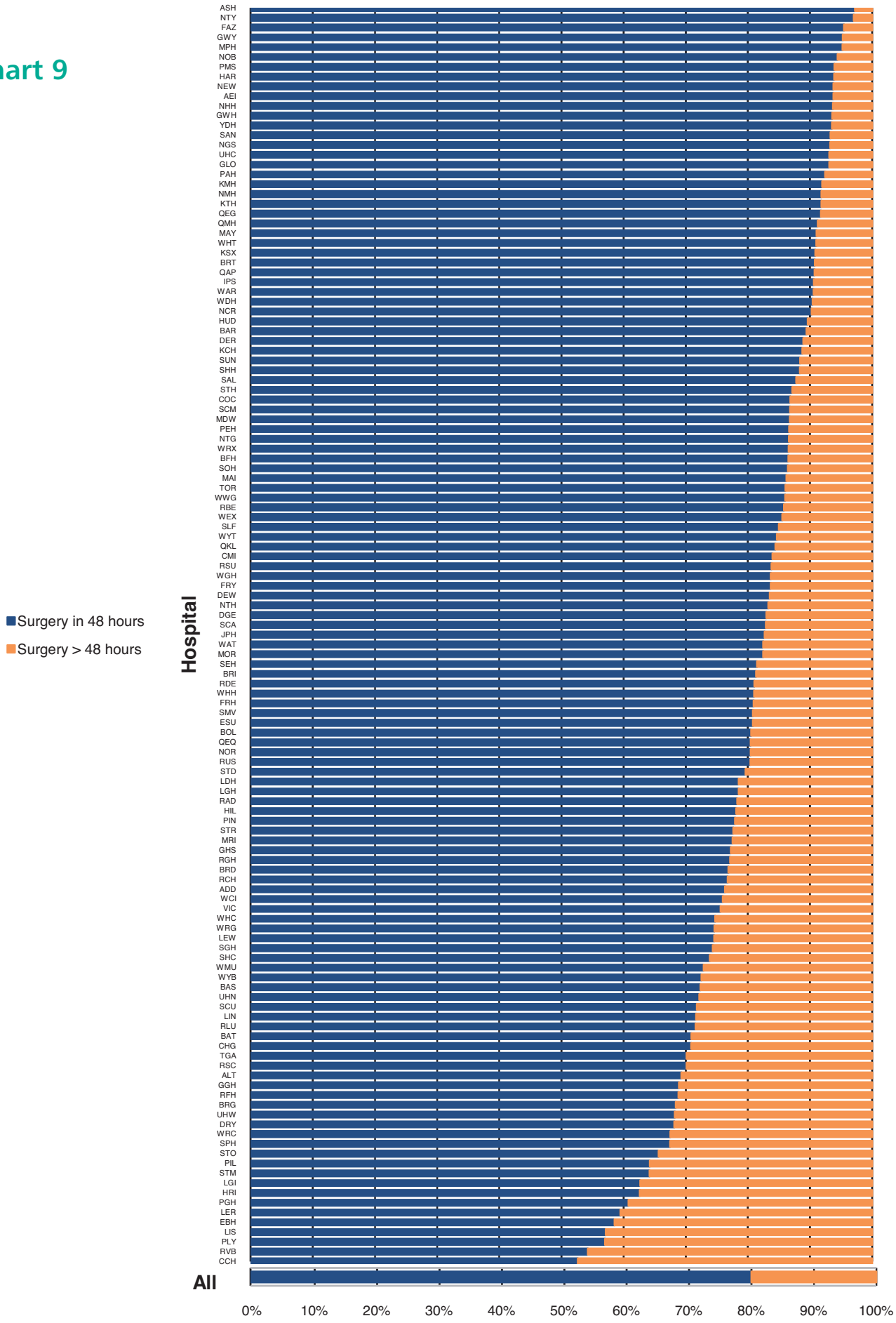


James Paget University Hospital

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.

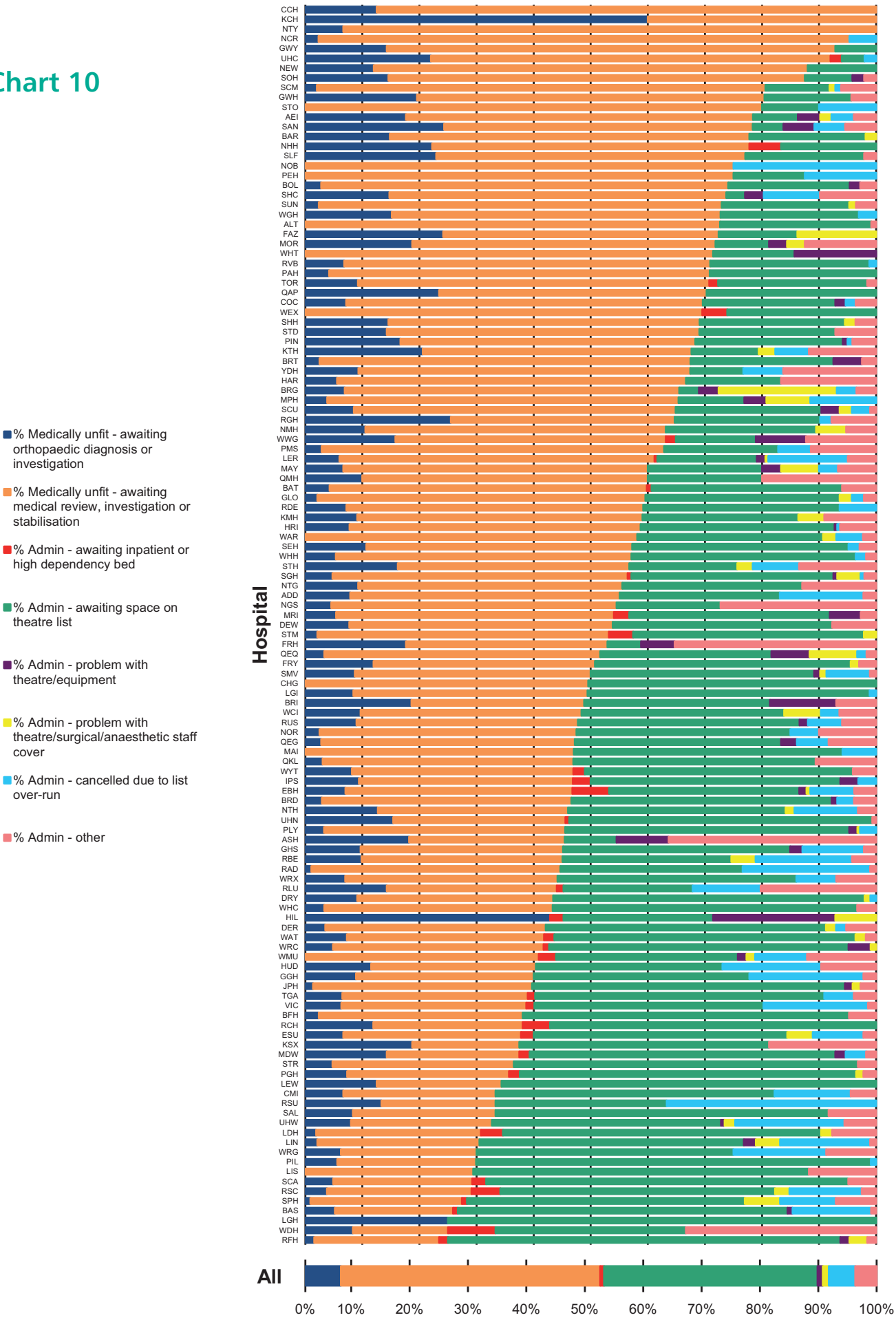
Surgery in 48 hours and during normal working hours (Blue Book Standard 2)

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.

Note: Time to theatre in 48 hours has been calculated by subtracting the date and time of admission to A&E from the date and time of primary surgery. All cases operated on after 8pm or before 8am are removed to conform to BB2 standard 2. Time to theatre in 36 hours is also calculated by subtracting the date and time of admission to A&E from the date and time of primary surgery. However, because this metric was produced to illustrate Best Practice Tariff, those patients having surgery outside normal working hours have been included in the calculation.

Gloucestershire Hospitals NHS Foundation Trust

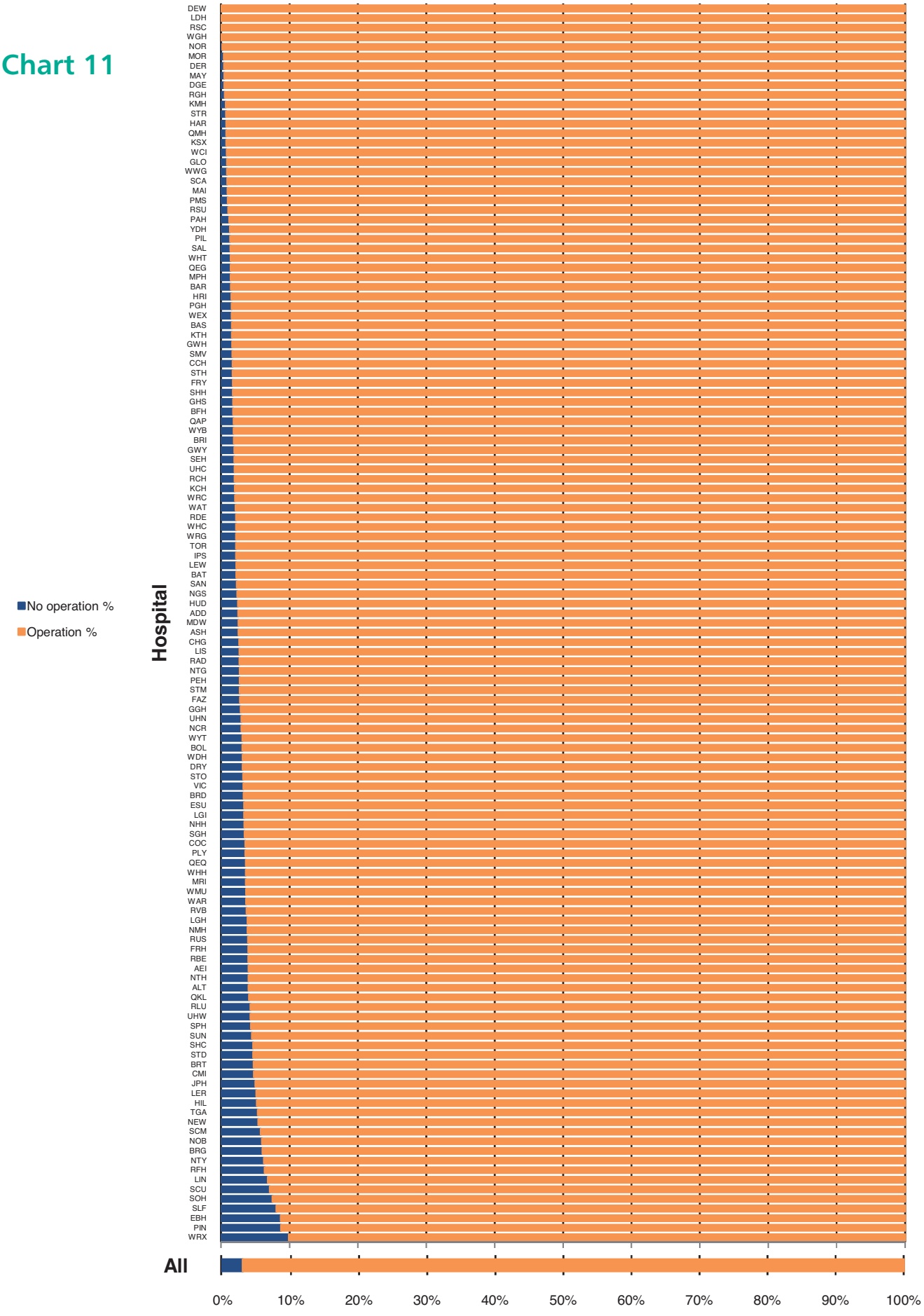
"The NHFD has been very useful in improving our service, and has certainly helped to focus minds and reduce our time to theatre. Our in-hospital mortality has steadily fallen as Elderly Medicine and Orthopaedics worked more closely together, so that we are now at 7.3% compared to a national average of 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

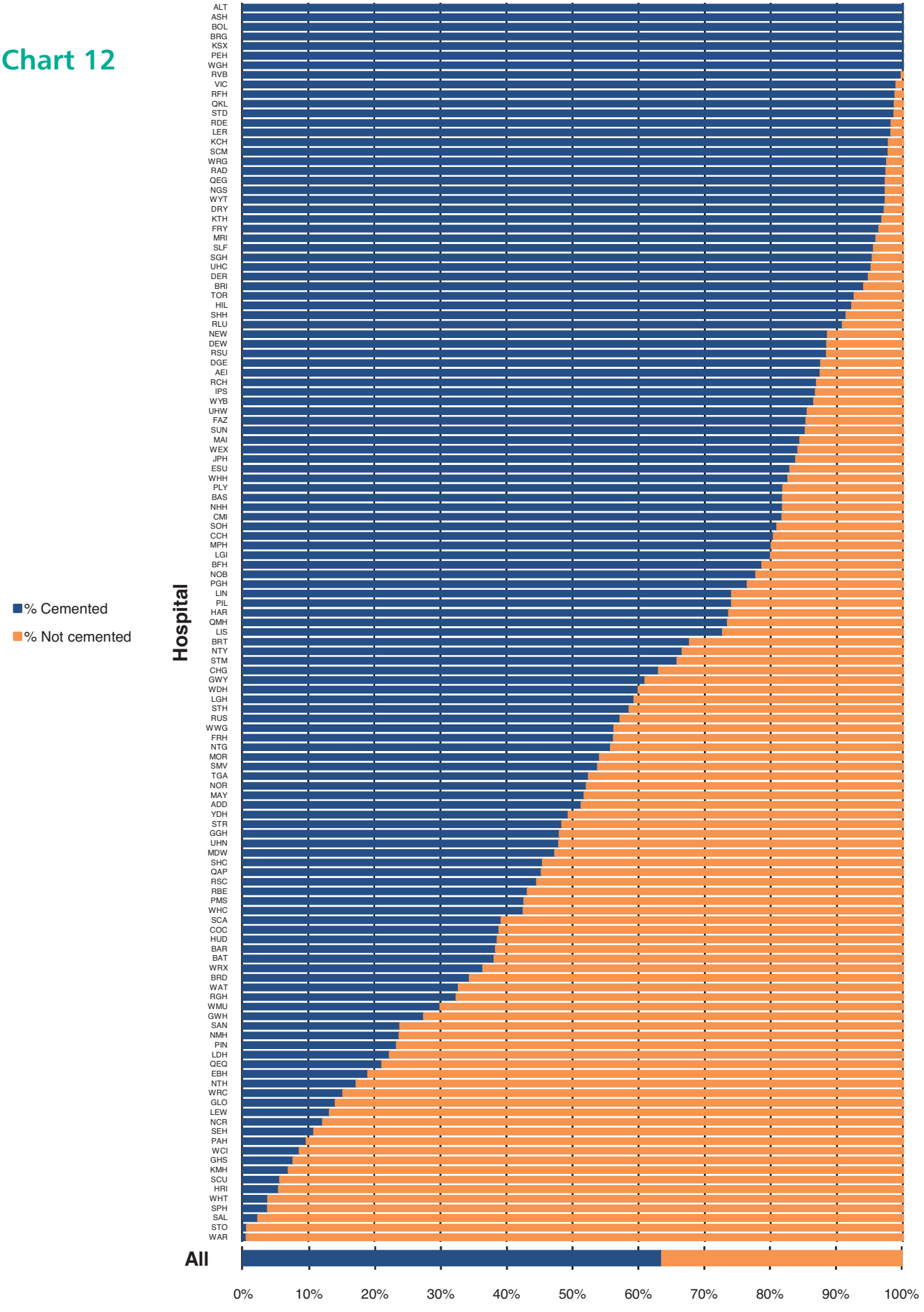


Very few hip fracture patients do not undergo surgery (Chart 11). However, very occasionally patients present with a fracture that is already healing; or are in such poor health that surgery would offer no benefits and an end of life care pathway may be preferable.

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[8], it is encouraging that this figure has risen in comparison with the 56% seen in the Preliminary National Report.

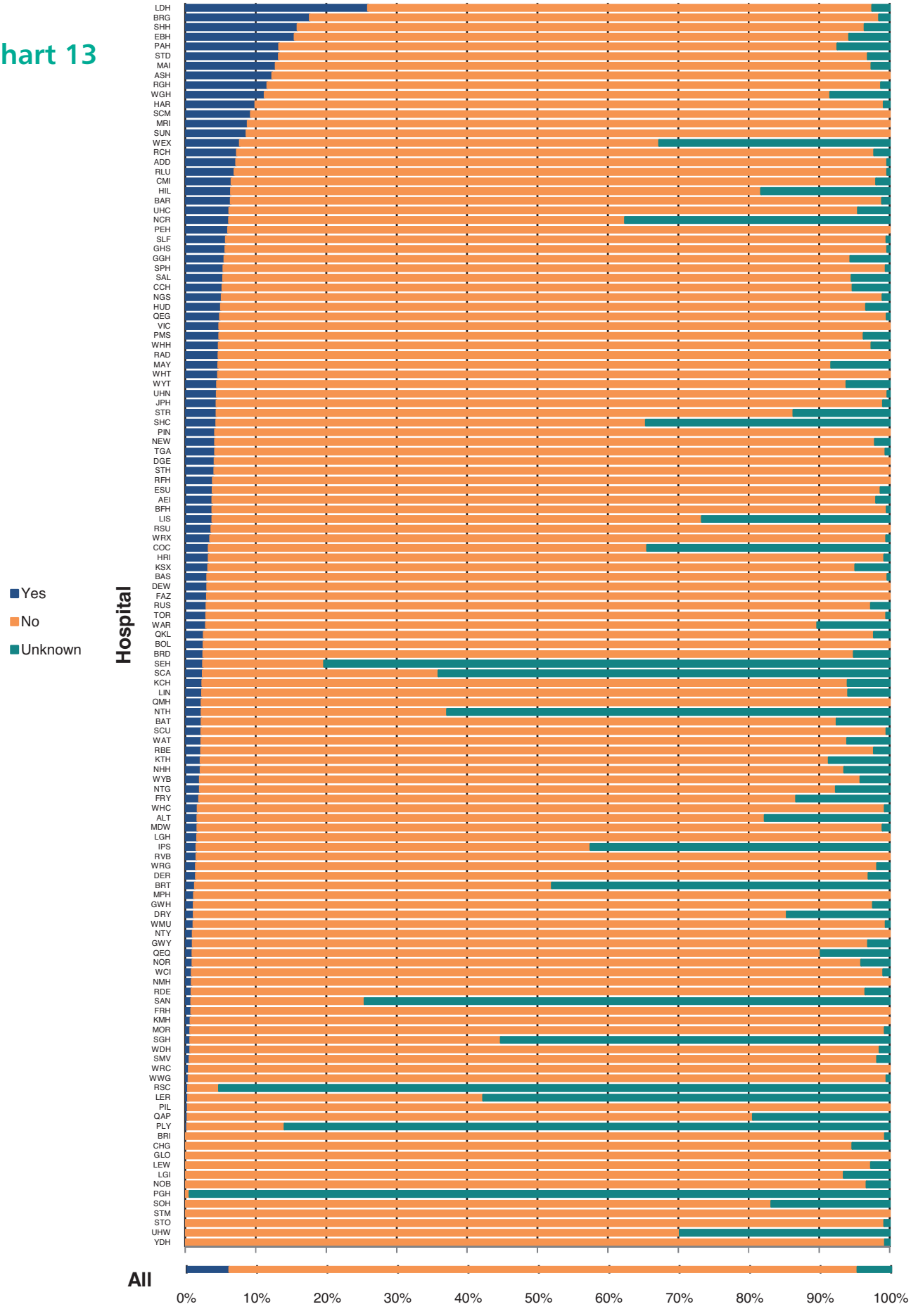
While there are concerns regarding the rare but potentially fatal bone cement▲ implantation syndrome which led to the National Patient Safety Agency issuing a directive that all perioperative death or harm in patients treated with a hip hemiarthroplasty▲ should be reported to the Agency, the risk or perioperative mortality may be reduced by appropriate measures in cementation.[9,10,11]

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.

In this report we have not distinguished between uncoated and coated uncemented arthroplasties due to the small numbers reported and issues of data quality.

Development of pressure ulcers (Blue Book Standard 3)

Chart 13



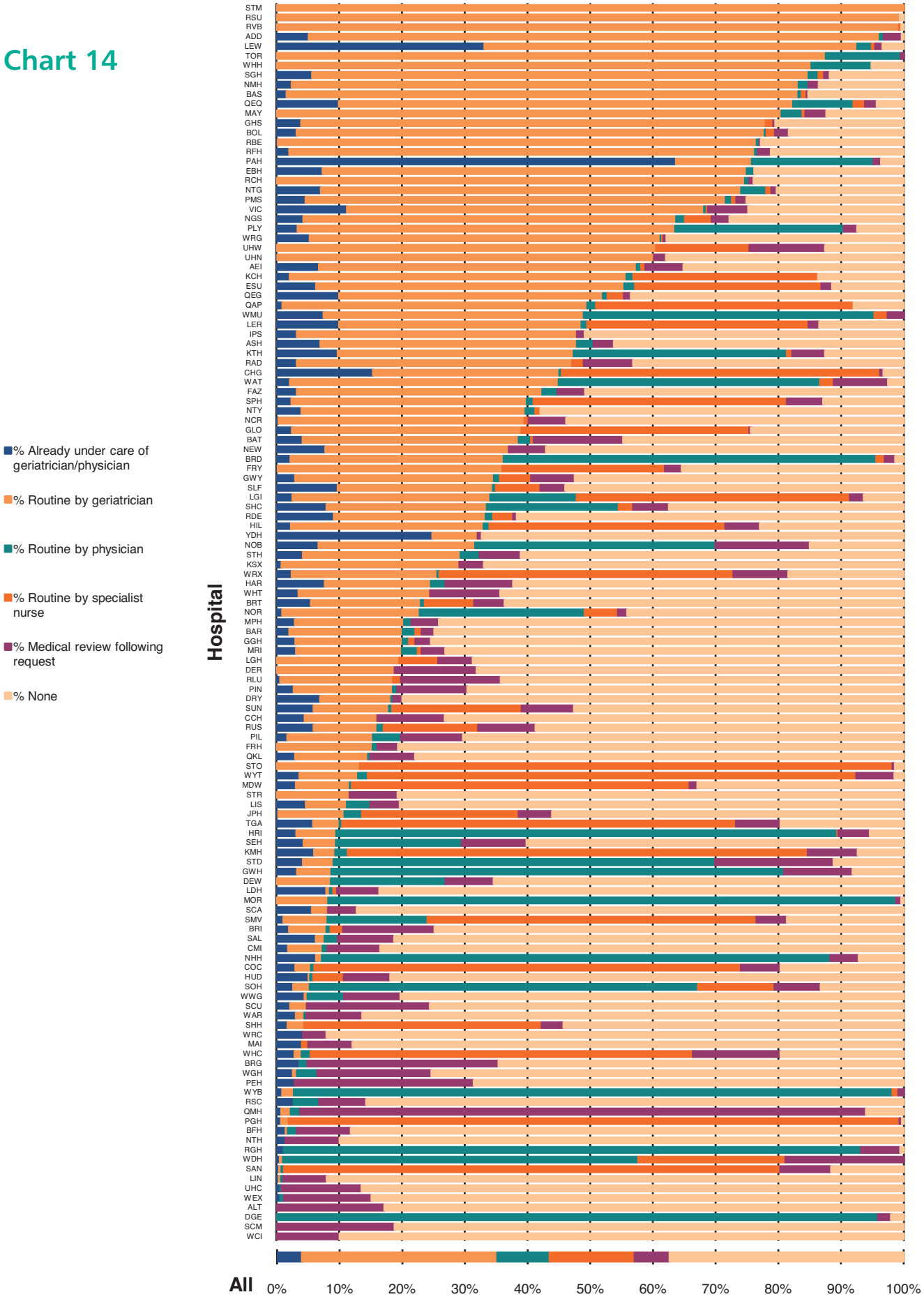
Good nursing care includes the assessment of risk to pressure areas at the time of admission and thereafter a meticulous and proactive approach to pressure area care. The rate of pressure ulcer▲ development (Chart 13) is seen as a useful measure of good nursing care. From the available data it appears 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[12] 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 ortho-geriatricians 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.

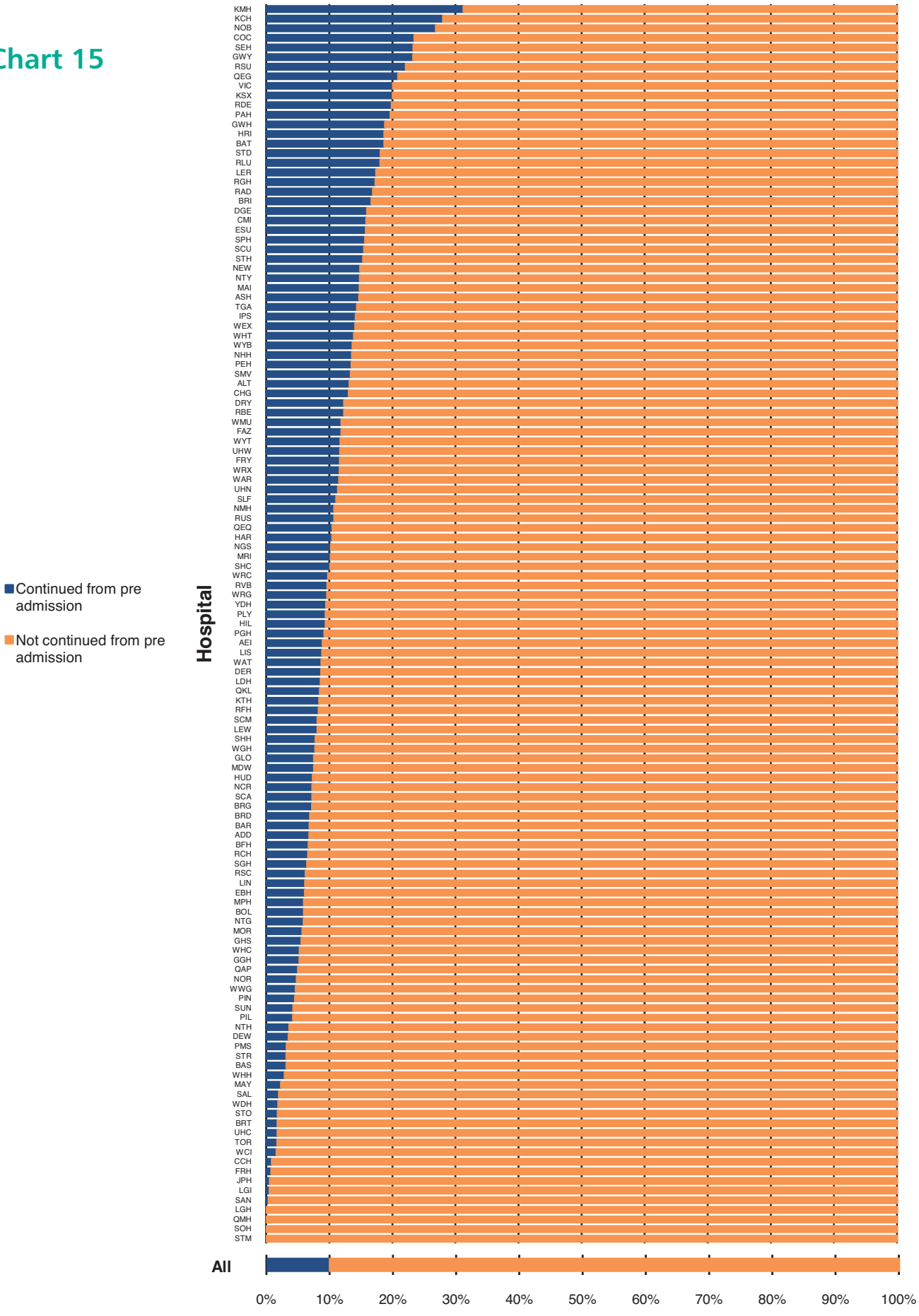
It is encouraging that 31% of patients have a routine assessment by a geriatrician compared with 24% in last year's report, with overall medical assessment increasing from 42% to 63% of patients.

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).

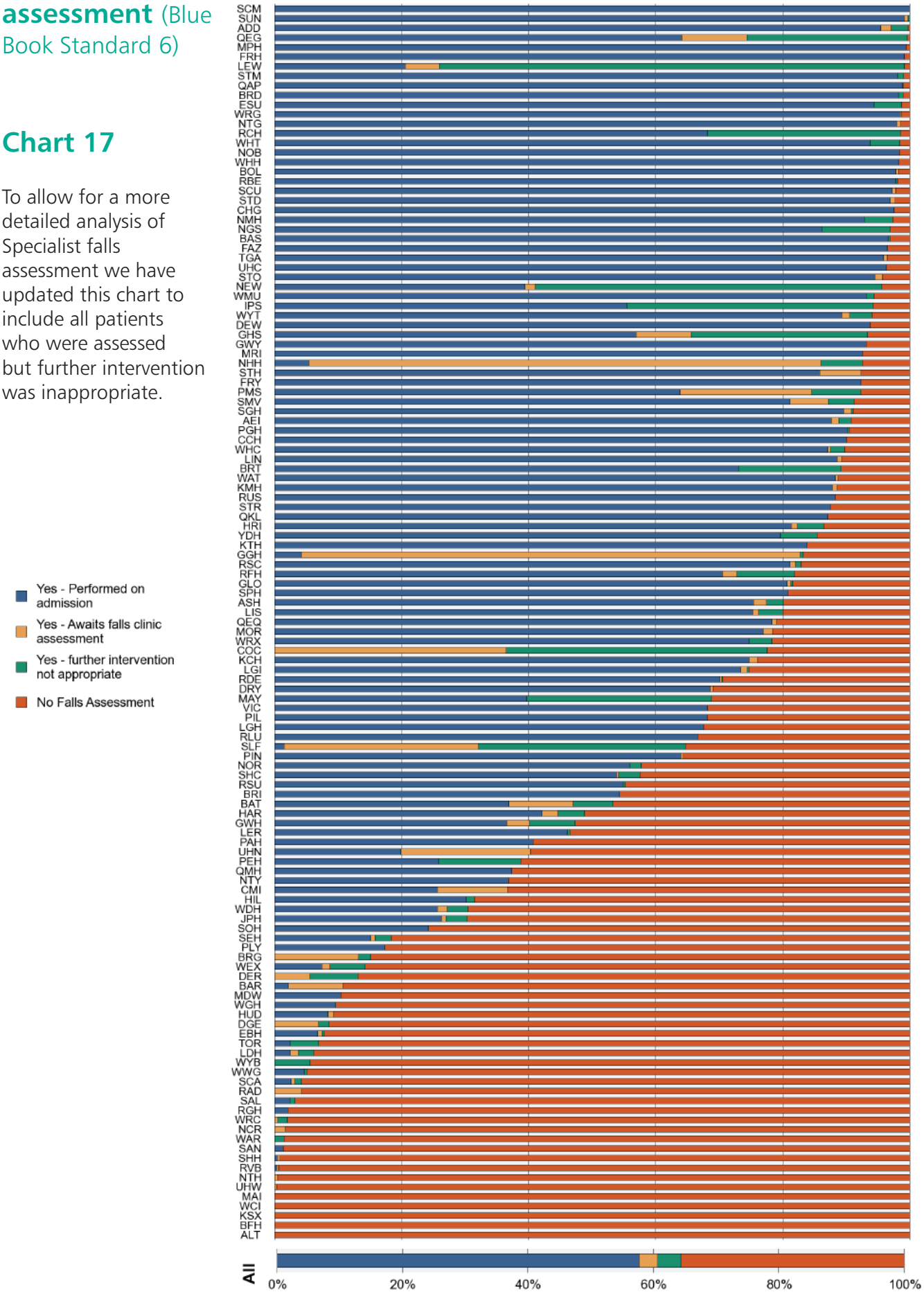
It is encouraging that 57% hip fracture patients are now being discharged from acute care with prescribed bone protection medication▲ , with 7% awaiting further assessment (Chart 16).

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

To allow for a more detailed analysis of Specialist falls assessment we have updated this chart to include all patients who were assessed but further intervention was inappropriate.



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.

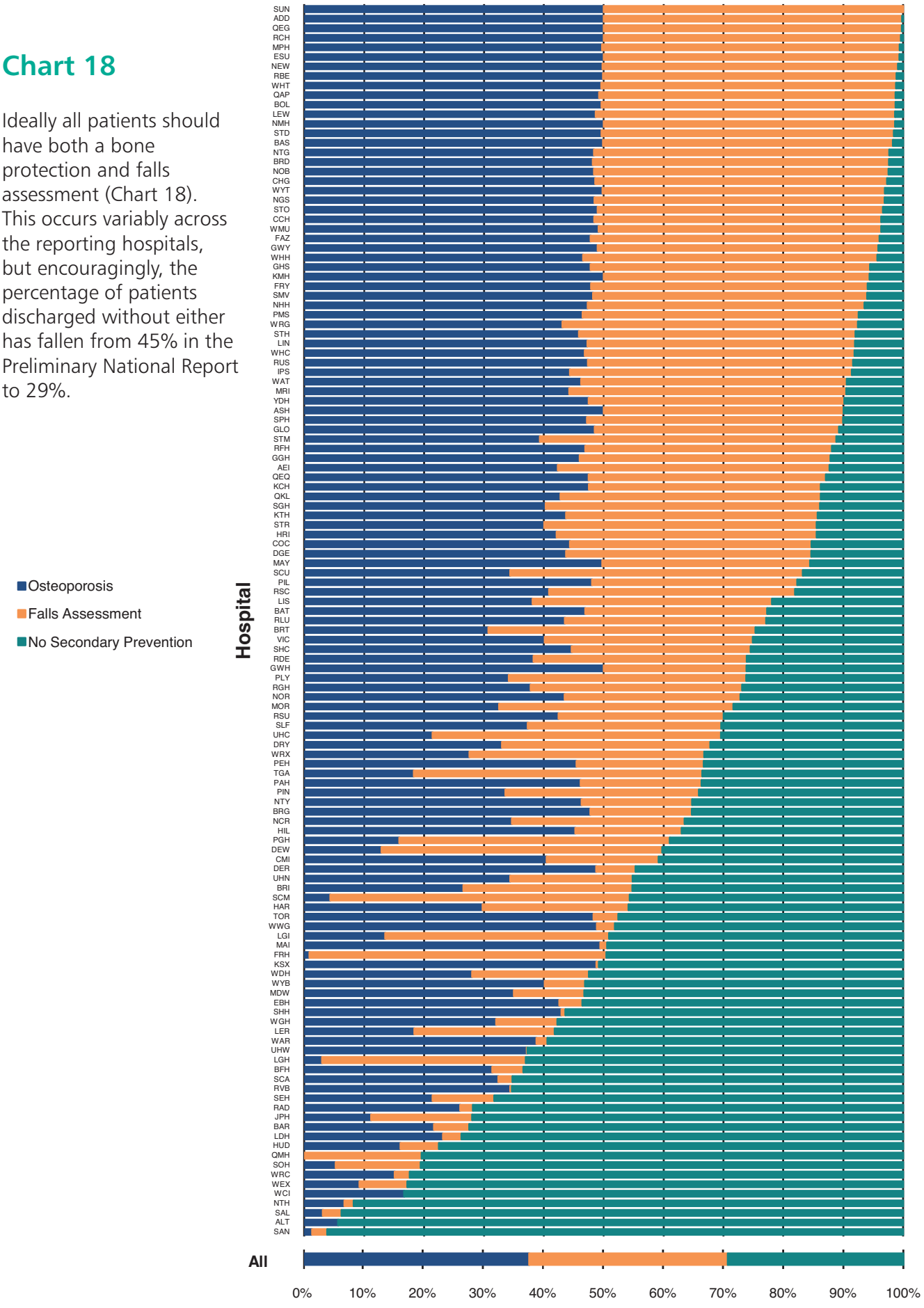
Together with bone protection medication (see Chart 16) it is an effective component of the prevention of future fractures.

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

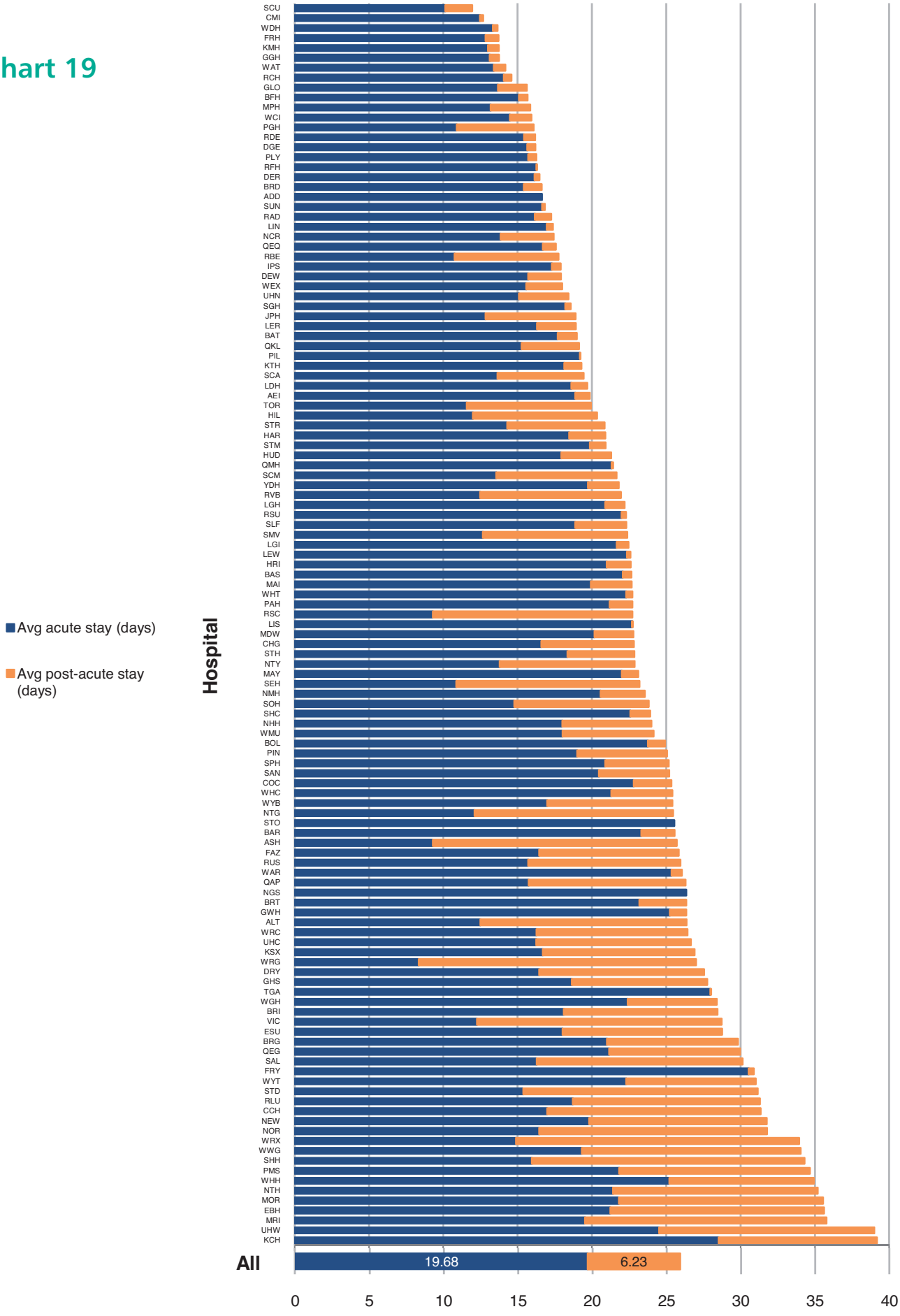
Chart 18

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%.



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.

Note: There is a variation between the national average length of stay illustrated in Chart 19 and the Strategic Health Authority summary tables (pages 44-56). This is because Chart 19 shows average length of stay calculated on an individual patient basis. The figure displayed in the tables was calculated by averaging the length of stay of each participating hospital. This has been done to aid hospital to hospital comparison.

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

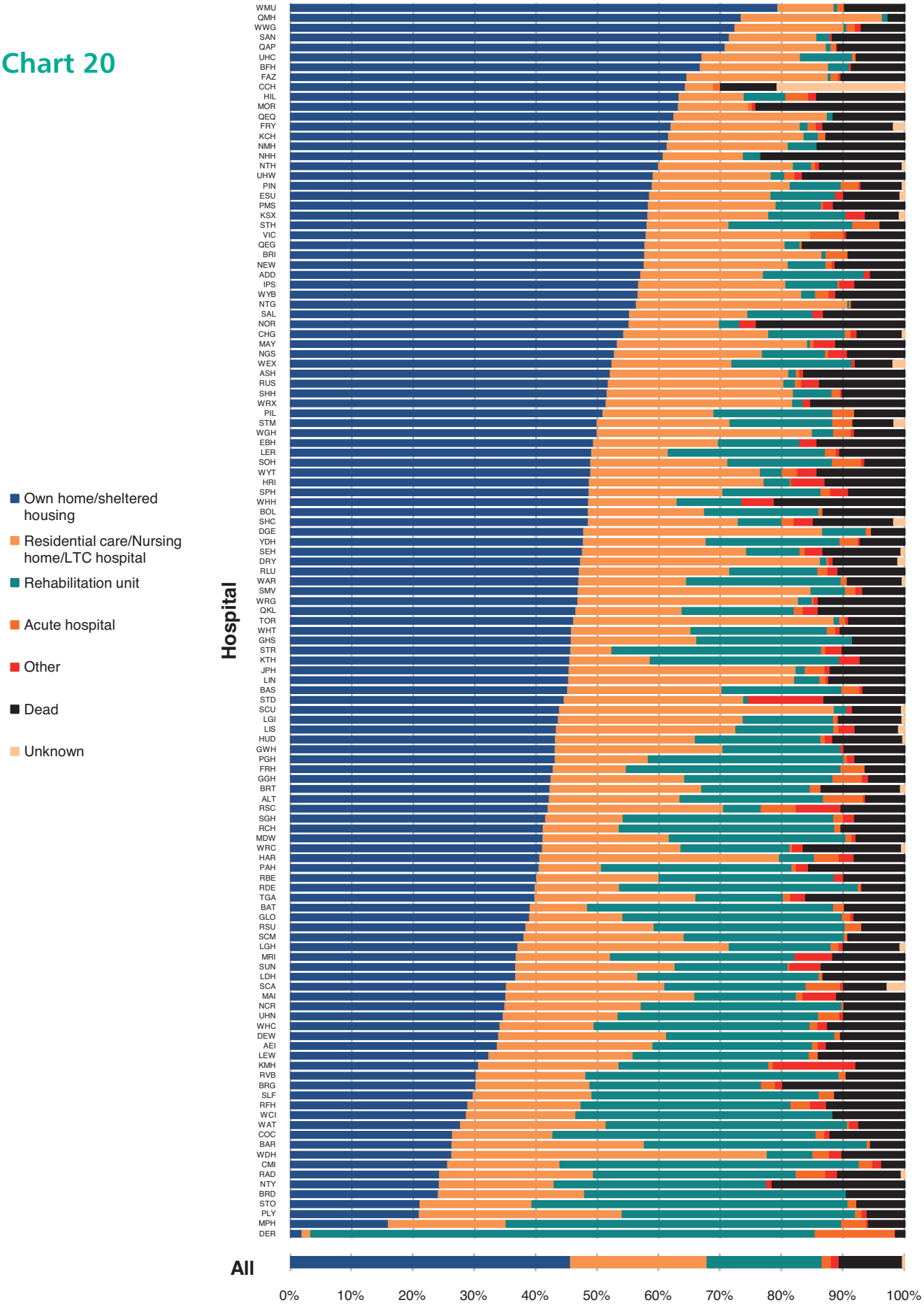
In South Tees clinicians used NHFD to track the progress and impact of a broadly-based multi-disciplinary and interdepartmental initiative to improve their care of hip fracture patients. They reviewed the patient pathway and – with the support of the NHS Institute for Innovation and Improvement – addressed 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.

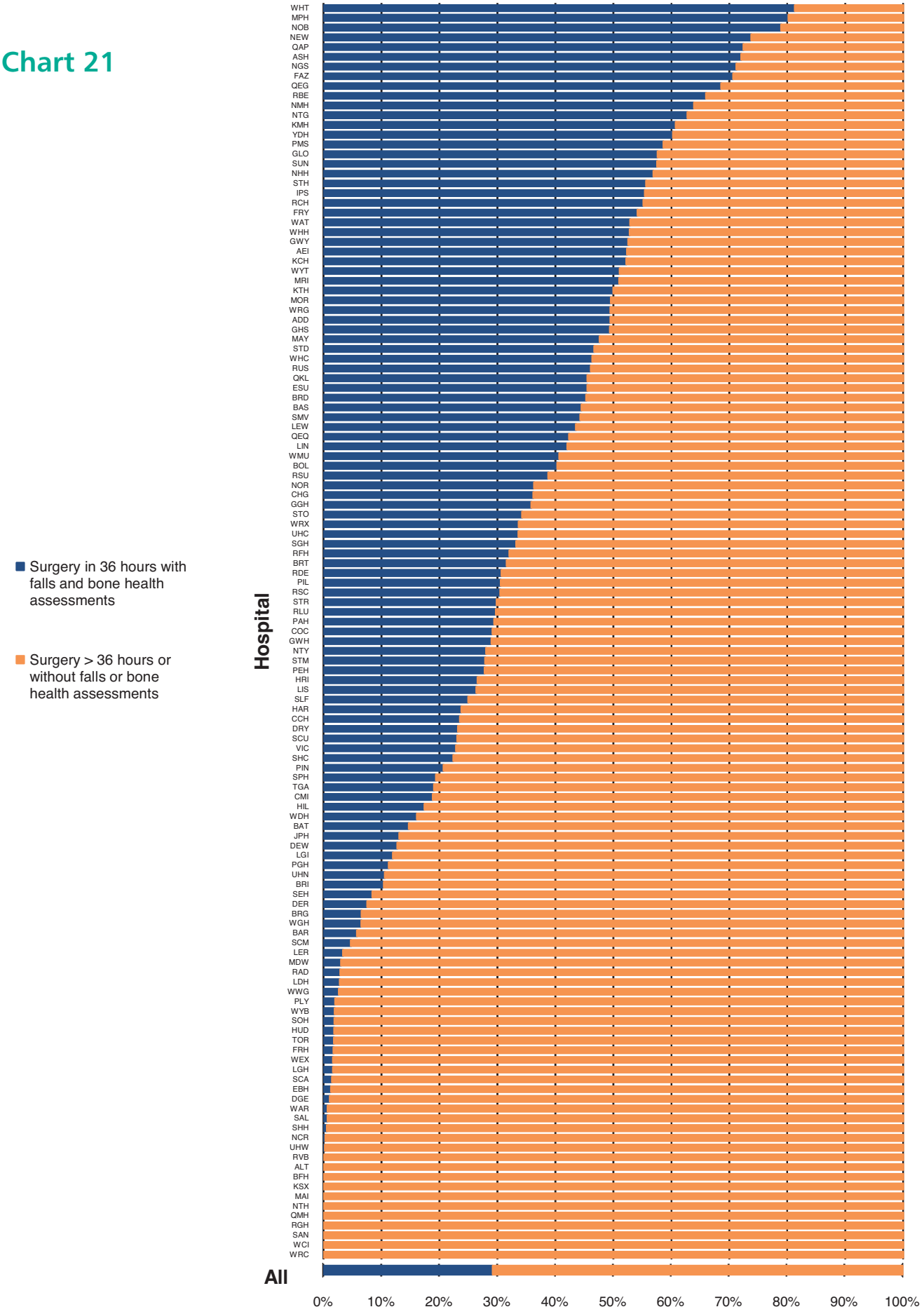
Discharge destination from Trust

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.

Note: Time to theatre in 36 hours is calculated by subtracting the date and time of admission to A&E from the date and time of primary surgery. However, because this metric was produced to illustrate Best Practice Tariff, those patients having surgery outside normal working hours have been included in the calculation.

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 hospitals 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.

Excluded hospitals from funnel plots

The following hospitals were excluded from the Return Home from Home at 30 days funnel plot due to lack of data

Addenbrooke's Hospital, Cambridge	ADD
Barnsley Hospital	BAR
Basildon and Thurrock University Hospital	BAS
Bristol Royal Infirmary	BRI
Bronglais General Hospital, Aberystwyth	BRG
Broomfield Hospital	BFH
Charing Cross Hospital	CCH
Cheltenham General Hospital	CHG
Countess of Chester Hospital	COC
Dewsbury and District Hospital	DEW
Dorset County Hospital	WDH
East Surrey Hospital, Redhill	ESU
Eastbourne District General Hospital	DGE
Friarage Hospital, Northallerton	FRH
Gwynnedd Ysbyty, Bangor	GWY
Hillingdon Hospital	HIL
Huddersfield Royal Infirmary	HUD
Hull Royal Infirmary	HRI
James Cook University Hospital	SCM
James Paget University Hospital	JPH
John Radcliffe, Hospital, Oxford	RAD
Kent & Sussex Hospital, Tunbridge Wells	KSX
King's College Hospital	KCH
King's Mill Hospital, Sutton in Ashfield	KMH
Kingston Hospital	KTH
Leeds General Infirmary	LGI
Leicester Royal Infirmary	LER
Leighton Hospital, Crewe	LGH
Lincoln County Hospital	LIN
Lister Hospital, Stevenage	LIS
Luton and Dunstable Hospital	LDH
Maelor Hospital, Wrexham	WRX
Maidstone Hospital	MAI
Mayday University Hospital	MAY
Morriston Hospital, Swansea	MOR
Newcastle General	NEW
Nobles Hospital, Isle of Man	NOB
Norfolk and Norwich University Hospital	NOR
North Middlesex University Hospital	NMH
Northern General Hospital, Sheffield	NGS
Princess Elizabeth Hospital, Guernsey	PEH
QEQM Hospital, Margate	QEQ
Queen Elizabeth Hospital, King's Lynn	QKL
Queen Mary's Hospital, Sidcup	QMH
Queens Hospital, Burton upon Trent	BRT
Royal Cornwall Hospital	RCH
Royal Derby Hospital	DER
Royal Free Hospital	RFH
Royal Glamorgan Hospital, Llantrisant	RGH
Royal Surrey County Hospital, Guildford	RSU
Royal Sussex County Hospital, Brighton	RSC
Russells Hall Hospital, Dudley	RUS
Salisbury District Hospital	SAL
Sandwell General Hospital	SAN
Scarborough General Hospital	SCA
Selly Oak Hospital, Birmingham	SOH
South Tyneside District Hospital	STD
Southampton General Hospital	SGH
Southend University Hospital	SEH
St. Helier Hospital, Carshalton	SHC
St. Peter's Hospital, Chertsey	SPH
St. Richard's Hospital, Chichester	STR
St. Mary's Hospital, Paddington	STM
Stoke Mandeville Hospital, Aylesbury	SMV
Taunton and Somerset Hospital	MPH
The Princess Alexandra Hospital, Harlow	PAH
University Hospital Lewisham	LEW
University Hospital of North Staffordshire	STO
University Hospital of North Durham	DRY
University Hospital of Nottingham	UHN
Watford General Hospital	WAT
West Cumberland Hospital, Whitehaven	WCI
West Middlesex University Hospital	WMU
West Wales General Hospital, Carmarthen	WWG
Weston General Hospital, Weston-Super-Mare	WGH
Wexham Park Hospital, Slough	WEX
Whipps Cross University Hospital	WHC
Whittington Hospital	WHT
Withybush Hospital, Haverford West	WYB
Worthing and Southlands Hospital	WRG

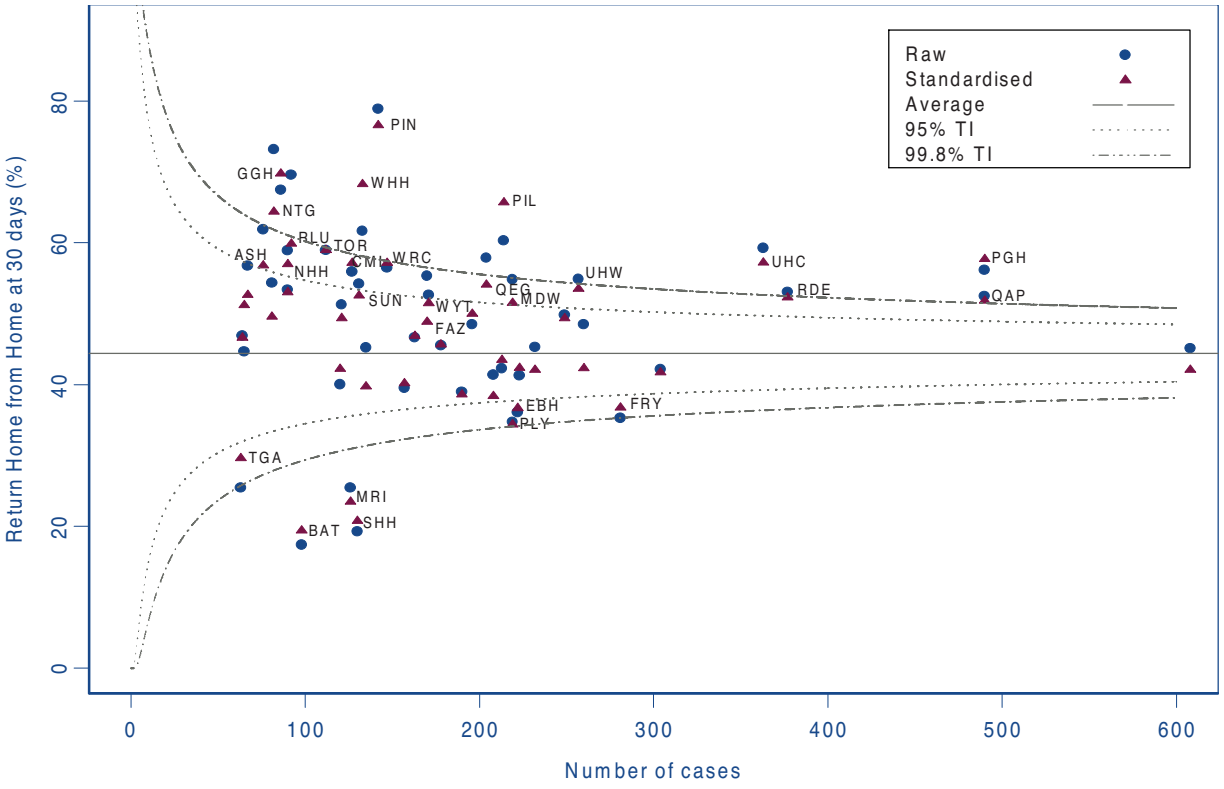
The following hospitals were excluded from the Mortality at 30 days funnel plot due to lack of data

Royal Victoria Hospital, Belfast	RVB
Altnalgelvin Hospital, NI	ALT
University Hospital Cardiff	UHW
University Hospital of North Staffordshire	STO
West Middlesex University Hospital	WMU

Note: NI cases not generally matched by the ONS
UHW, STO and WMU did not consistently supply NHS numbers

Funnel plot for return home from home at 30 days

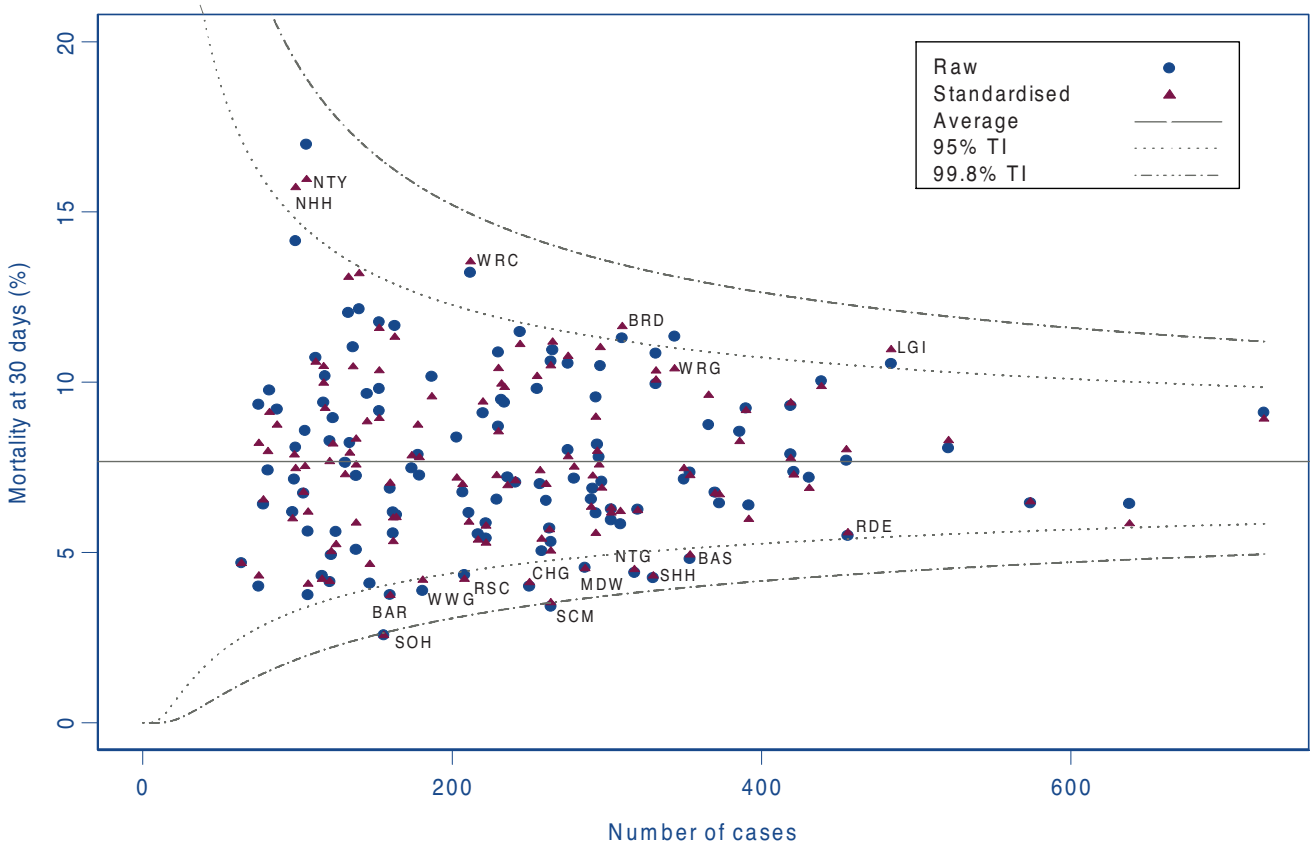
Chart 22



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.

Funnel plot for mortality at 30 days

Chart 23



Mortality

Hospital mortality has recently been criticised as unreliable; and this is certainly true for Hip Fracture care, where a shorter average length of acute stay – such as that arising from ready access to post-acute care – automatically leads to a misleadingly low figure[14].

As will be seen from the funnel plot, there is a considerable spread around the average figure of 7.7% - an improvement on the 8.3% recorded in the Preliminary National Report. Again, the vast majority of adjusted and unadjusted mortality falls within the 95% confidence limits shown as dotted lines.

Strategic Health Authority Summary Tables

Channel Islands

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)
PEH	Princess Elizabeth Hospital, Guernsey	43	37	86.0	99.8	72.2	86.7	2.7	100	6.1	0.0	13.5	90.3	38.7		
	SHA	43	37	86.0	99.8	72.2	86.7	2.7	100	6.1	0.0	13.5	90.3	38.7		
	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

East Midlands

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)
KMH	King's Mill Hospital, Sutton in Ashfield	420	144	34.0	98.8	71.1	91.9	0.7	7.0	0.8	3.6	31.3	100.0	88.5	13.0	13.7
LER	Leicester Royal Infirmary	800	585	73.0	93.1	24.1	59.5	5.1	98.0	0.4	43.4	17.4	36.7	46.5	16.3	18.9
LIN	Lincoln County Hospital	440	292	66.0	99.4	48.3	71.7	6.8	74.0	2.4	0.4	6.2	94.5	89.3	17.0	17.4
NTH	Northampton General Hospital	330	301	91.0	99.1	59.3	83.3	4.0	17.0	2.3	0.0	3.7	8.5	0.4	21.4	35.2
PIL	Pilgrim Hospital, Boston	300	309	100.0	98.5	44.3	64.2	1.3	74.0	0.4	14.5	4.2	95.9	68.1	19.2	19.2
DER	Royal Derby Hospital	500	439	86.0	96.0	72.2	88.9	0.5	95.0	1.5	18.8	8.7	97.5	13.1	16.1	16.4
UHN	University Hospital of Nottingham	780	776	99.0	99.3	37.0	72.2	3.0	48.0	4.5	60.1	11.3	63.3	40.2	15.1	18.4
	SHA	3570	2846	78.4	97.7	50.9	76.0	3.0	59.0	1.7	20.1	11.8	70.9	49.4	16.9	19.9
	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

East of England

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)
ADD	Addenbrooke's Hospital, Cambridge	420	323	77.0	99.6	49.5	76.3	2.5	51	7.2	96.6	6.8	100	99.7	16.6	16.6
BAS	Basildon and Thurrock University Hospital	352	379	100	99.7	45.9	72.4	1.6	82	3.1	83.3	3.2	99.7	96.9	22.1	22.6
BFH	Broomfield Hospital	390	284	73.0	99.7	66.8	86.5	1.8	79	3.8	0.4	6.7	46.7	0.0	15.1	15.7
JPH	James Paget University Hospital, Norfolk	365	360	99.0	99.2	51.7	82.7	5.0	84	4.4	10.9	0.6	21.1	30.3	12.8	18.9
LIS	Lister Hospital, Stevenage	200	113	57.0	99.0	34.5	57.1	2.7	73	3.8	7.1	8.8	73.7	80.0	22.7	22.7
LDH	Luton and Dunstable Hospital	306	186	61.0	97.7	54.5	78.5	0.0	22	25.9	0.6	8.6	42.8	6.2	18.6	19.7
NOR	Norfolk and Norwich University Hospital	640	518	81.0	93.5	74.0	80.4	0.2	52	1.0	30.1	4.8	75.0	57.7	16.4	31.8
QKL	Queen Elizabeth Hospital, King's Lynn	300	318	100	98.6	60.1	84.4	4.1	99	2.6	12.1	8.5	84.1	87.0	15.3	19.1
SEH	Southend University Hospital	571	360	63.0	99.1	56.0	81.5	1.9	11	2.5	6.8	23.3	43.7	18.3	10.9	23.2
IPS	The Ipswich Hospital	397	410	100	99.6	69.2	90.6	2.2	87	1.6	46.1	14.1	87.0	94.2	17.3	17.9
PAH	The Princess Alexandra Hospital, Harlow	333	173	52.0	94.4	71.2	92.5	1.2	10	13.3	71.4	19.7	91.8	40.7	21.2	22.7
WAT	Watford General Hospital	450	286	64.0	99.5	59.5	82.5	2.1	33	2.3	76.3	8.7	92.2	88.7	13.4	14.1
	SHA	4724	3710	77.3	98.3	57.7	80.5	2.1	57	6.0	36.8	9.5	71.5	58.3	16.9	20.4
	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

London

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)
CCH	Charing Cross Hospital		118		92.7	69.9	52.6	1.7	80	5.3	12.1	0.8	96.7	90.0	17.0	31.3
HIL	Hillingdon Hospital	200	192	96.0	93.5	52.2	78.1	5.2	92	6.5	31.8	9.4	90.3	31.4	12.0	20.3
KCH	King's College Hospital	100	100	100	91.6	75.6	88.8	2.0	98	2.4	55.4	28.0	94.2	75.9	28.5	39.2
KTH	Kingston Hospital	400	251	63.0	99.0	62.8	91.8	1.6	97	2.2	66.9	8.4	86.3	83.8	18.1	19.3
MAY	Mayday University Hospital	300	216	72.0	99.0	74.5	91.1	0.5	52	4.7	83.3	2.3	99.4	68.8	22.0	23.1
NMH	North Middlesex University Hospital	140	130	93.0	97.8	64.8	91.8	3.8	24	0.9	84.2	10.8	100	97.3	20.6	23.5
GWH	Queen Elizabeth Hospital, Woolwich	180	186	100	99.0	63.1	93.6	1.6	28	1.19	22.2	18.8	100	47.3	25.2	26.3
QMH	Queen Mary's Hospital, Sidcup		133		98.4	78.0	91.3	0.8	73	2.3	1.5	0.0	0.0	37.3	21.3	21.4
RFH	Royal Free Hospital	200	205	100	97.0	39.7	68.8	6.3	99	3.9	76.2	8.3	93.3	81.8	16.3	16.3
SHC	St. Helier Hospital, Carshalton	365	364	100	99.1	44.5	73.9	4.7	46	4.4	36.0	10.2	89.3	57.5	22.6	23.9
STM	St. Mary's Hospital, Paddington	165	110	67.0	97.4	37.5	64.2	2.7	66	0.0	100	0.0	82.5	99.0	19.9	20.9
STH	St. Thomas' Hospital	220	176	80.0	94.4	62.7	87.2	1.7	59	4.1	27.1	15.3	90.8	92.3	18.3	22.8
LEW	University Hospital, Lewisham	200	136	68.0	94.3	46.0	74.6	2.2	13	0.0	92.0	8.1	97.1	99.1	22.3	22.6
WMU	West Middlesex University Hospital	191	193	100	97.8	44.0	72.9	3.6	30	1.1	89.9	11.9	98.4	94.3	18.0	24.1
WHC	Whipps Cross University Hospital		322		95.2	57.0	74.7	2.2	43	1.8	1.2	5.3	92.1	89.7	21.3	25.4
WHT	Whittington Hospital	110	144	100	98.0	84.2	91.0	1.4	4	4.7	21.7	13.9	99.2	98.4	22.3	22.7
	SHA	2858	2771	87.6	96.5	59.8	80.4	2.6	56	2.8	50.1	9.5	88.1	77.8	20.4	23.9
	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

North East

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)
FRH	Friarage Hospital, Northallerton	147	127	86.0	98.8	64.0	81.0	3.9	56.0	0.8	15.5	0.8	1.7	99.2	12.8	13.7
SCM	James Cook University Hospital	387	346	89.0	99.5	47.8	86.8	5.8	98.0	9.3	0.0	8.1	8.7	100	13.5	21.6
NEW	Newcastle General	458	276	60.0	92.4	77.1	93.8	5.4	89.0	4.2	31.7	14.9	99.5	95.6	19.8	31.7
NTY	North Tyneside General Hospital	275	128	47.0	98.8	79.0	97.1	6.3	67.0	1.1	37.8	14.8	91.9	36.8	13.8	22.9
QEG	Queen Elizabeth Hospital, Gateshead	300	287	96.0	99.4	73.6	91.8	1.4	97.0	4.9	47.1	20.9	100	99.6	21.2	30.0
STD	South Tyneside District Hospital	225	149	66.0	98.7	50.4	79.6	4.7	99.0	13.3	14.0	18.1	99.2	97.7	15.4	31.1
SUN	Sunderland Royal Hospital	400	376	94.0	98.1	57.6	88.4	4.5	85.0	8.7	12.9	4.3	100	100	16.6	16.8
DRY	University Hospital Of North Durham	320	284	89.0	99.4	39.5	68.2	3.2	97.0	1.2	12.2	12.3	62.9	69.0	16.4	27.5
NTG	University Hospital of North Tees	380	371	98.0	98.8	67.4	86.6	2.7	56.0	2.1	75.3	5.9	91.0	98.5	12.1	25.4
ASH	Wansbeck Hospital	200	197	99.0	98.6	90.9	97.2	2.5	100	12.3	45.2	14.7	100.0	80.1	9.3	25.7
	SHA	3092	2541	82.4	98.3	64.7	87.0	4.0	84.4	5.8	29.2	11.5	75.5	87.7	15.1	24.6
	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

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)
COC	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
CMI	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
LGH	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
MRI	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
NOB	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		
AEI	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
BOL	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
RLU	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
SLF	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
SHH	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
TGA	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
FAZ	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
VIC	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
WCI	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
WYT	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

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)
ALT	Altnagelvin Hospital	389	326	84.0	99.4	33.3	69.3	4.0	100	1.7	0.0	13.2	15.6	0.0	12.5	26.2
RVB	Royal Victoria Hospital, Belfast	963	808	84.0	99.0	21.4	54.2	3.7	100	1.6	99.2	9.7	72.1	0.6	12.5	21.9
	SHA	1352	1134	84.0	99.2	27.4	61.8	3.9	100	1.7	49.6	11.5	43.9	0.3	12.5	24.1
	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

South Central

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)
RAD	John Radcliffe Hospital, Oxford	500	414	83.0	99.2	50.9	78.3	2.7	97	4.7	45.3	16.9	42.9	4.2	16.2	17.2
NHH	North Hampshire Hospital, Basingstoke	100	118	100	98.7	70.6	93.7	3.4	82	2.2	7.1	13.6	93.7	92.5	18.0	24.0
QAP	Queen Alexandra Hospital, Portsmouth	618	661	100	99.8	75.9	90.7	1.8	45	0.3	49.8	5.0	98.4	99.0	15.7	26.3
RBE	Royal Berkshire Hospital, Reading	450	455	100	99.3	67.8	85.8	4.0	43	2.2	76.8	12.3	99.7	98.0	10.8	17.7
SGH	Southampton General Hospital	600	465	78.0	98.8	45.3	74.4	3.4	95	0.7	85.3	6.5	80.7	91.0	18.2	18.5
SMV	Stoke Mandeville Hospital, Aylesbury	409	359	88.0	95.5	49.9	80.8	1.7	54	0.6	8.5	13.4	96.8	91.2	12.6	22.4
WEX	Wexham Park Hospital, Slough	330	192	58.0	95.4	67.6	85.5	1.6	84	7.7	0.0	14.1	18.4	14.3	15.6	18.0
	SHA	3007	2664	86.7	98.1	61.1	84.2	2.7	71	2.6	39.0	11.7	75.8	70.0	15.3	20.6
	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

South East

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)
DGE	Eastbourne District General Hospital	417	213	51.0	76.8	57.4	83.0	0.5	88	4.2	0.0	16.0	80.0	8.6	15.6	16.2
ESU	East Surrey Hospital, Redhill	500	178	36.0	98.9	45.5	80.8	3.4	83	3.8	53.4	15.7	100	98.7	18.0	28.7
KSX	Kent & Sussex Hospital, Tunbridge Wells	300	130	43.0	99.0	70.6	90.8	0.8	100	3.3	28.6	20.0	97.5	0.0	16.7	26.9
MAI	Maidstone Hospital	105	108	100	93.8	66.3	86.2	0.9	84	12.8	0.0	14.8	98.8	0.0	19.9	22.6
MDW	Medway Maritime Hospital	370	318	86.0	99.2	68.0	86.8	2.5	47	1.7	8.9	7.5	67.5	10.4	20.2	22.8
QEQ	QEQM Hospital, Margate	260	333	100	98.6	57.0	80.4	3.6	21	1.0	90.0	10.5	94.8	79.0	16.7	17.6
RSU	Royal Surrey County Hospital, Guildford	360	294	82.0	99.0	75.4	83.8	1.0	88	3.7	99.3	22.1	85.2	55.1	22.0	22.3
RSC	Royal Sussex County Hospital, Brighton	550	305	55.0	96.9	39.8	70.1	0.0	45	0.4	0.0	6.2	81.2	82.8	9.3	22.7
SPH	St Peter's Hospital, Chertsey	350	390	100.0	97.0	39.6	67.5	4.4	4	5.4	38.9	15.6	93.4	80.7	20.9	25.2
STR	St Richards Hospital, Chichester	400	284	71.0	98.4	54.0	77.6	0.7	48	4.4	11.6	3.2	79.9	87.5	14.3	20.8
WHH	William Harvey Hospital, Ashford	240	277	100	99.4	58.6	81.0	3.6	83	4.7	94.3	2.9	92.3	98.3	25.2	34.9
WRG	Worthing and Southlands Hospital	450	457	100	95.8	54.2	74.6	2.2	98	1.5	59.2	9.6	85.9	98.7	8.3	26.9
	SHA	4302	3287	77.0	96.1	57.2	80.2	2.0	66	3.9	40.4	12.0	88.0	58.3	17.3	24.0
	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

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

Wales

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)
BRG	Bronglais General Hospital, Aberystwyth	90	83	92.0	97.5	47.4	68.4	6.0	100	17.6	0.0	7.2	95.3	15.1	21.0	29.8
GWY	Gwynedd Ysbyty, Bangor	280	103	37.0	95.3	64.9	95.3	1.9	61	1.0	33.0	23.3	97.8	93.1		
WRX	Maelor Hospital, Wrexham	250	232	93.0	95.1	63.9	86.6	9.9	36	3.5	23.9	11.6	41.6	78.3	14.9	33.9
MOR	Morriston Hospital, Swansea	300	246	82.0	93.9	70.9	82.5	0.4	54	0.7	87.0	5.7	66.2	78.3	21.8	35.5
RGH	Royal Glamorgan Hospital, Llantrisant	300	179	60.0	88.6	50.9	77.1	0.6	32	11.7	0.0	17.3	75.0	2.1		
UHW	University Hospital of Wales, Cardiff	500	418	84.0	93.6	45.6	68.2	4.3	86	0.0	60.5	11.7	74.3	0.3	24.5	39.0
WWG	West Wales General Hospital, Carmarthen	240	235	96.0	97.9	61.7	86.0	0.9	56	0.5	0.5	4.7	97.6	5.1	19.3	34.0
WYB	Withybush Hospital, Haverfordwest	133	110	83.0	91.4	48.0	72.5	1.8	87	2.1	50.0	13.6	79.8	5.6	17.0	25.4
	SHA	2093	1606	78.4	94.2	56.7	79.6	3.2	64	4.6	31.9	11.9	78.5	34.7	19.8	32.9
	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

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)
EBH	Birmingham Heartlands	500	344	69.0	98.5	27.1	58.5	8.7	19.0	15.5	73.9	6.1	79.4	7.8	21.2	35.6
GHS	Good Hope Hospital, Sutton Coldfield	400	342	86.0	94.2	54.3	77.3	1.8	8.0	5.7	77.0	5.6	94.5	93.3	18.6	27.7
NCR	New Cross Hospital, Wolverhampton	400	301	75.0	99.2	68.0	90.2	3.0	12.0	6.2	39.3	7.3	68.3	1.7	13.9	17.4
BRT	Queens Hospital, Burton upon Trent	270	168	62.0	99.7	63.9	90.8	4.8	68.0	1.4	18.7	1.8	59.3	89.2	23.2	26.3
RUS	Russells Hall Hospital, Dudley	380	307	81.0	98.8	55.7	80.4	3.9	57.0	3.0	10.9	10.7	94.0	88.2	15.7	25.9
SAN	Sandwell General Hospital	350	264	75.0	99.2	67.3	93.3	2.3	24.0	0.8	0.4	0.4	2.5	1.3	20.5	25.2
SOH	Selly Oak Hospital, Birmingham	390	187	48.0	97.0	44.7	86.4	7.5	81.0	0.0	7.5	0.0	8.2	24.2	14.8	23.8
UHC	University Hospital Coventry	380	511	100	98.3	77.9	93.1	2.0	95.0	6.2	0.0	1.8	23.1	96.3	16.2	26.6
STO	University Hospital of North Staffordshire	550	278	51.0	90.2	54.3	65.6	3.2	1.0	0.0	13.3	1.8	97.6	95.7	25.5	25.5
WAR	Warwick Hospital	380	303	80.0	97.5	71.8	90.6	3.6	1.0	2.9	1.4	11.6	75.0	1.5	25.3	26.0
WRC	Worcestershire Royal Hospital	330	246	75.0	97.7	40.1	67.5	2.0	15.0	0.5	0.0	9.8	30.5	2.0	16.3	26.4
	SHA	4330	3251	72.9	97.3	56.8	81.3	3.9	34.6	3.8	22.0	5.2	57.5	45.6	19.2	26.0
	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

Yorks & Humber

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)
BAR	Barnsley Hospital	306	205	67.0	97.8	59.2	89.4	1.5	38	6.4	18.8	6.8	42.4	10.8	23.3	25.5
BRD	Bradford Royal Infirmary	350	304	86.9	99.6	48.4	76.9	3.3	34	2.5	88.9	6.9	93.0	98.9	15.4	16.6
DEW	Dewsbury & District Hospital	150	113	75.3	98.4	62.7	83.5	0.0	89	3.1	10.6	3.5	10.0	93.7	15.7	17.9
GGH	Diana Princess of Wales Hospital, Grimsby	280	210	75.0	98.7	50.0	68.9	2.9	48	5.6	17.8	5.2	91.7	83.2	13.1	13.7
HAR	Harrogate District Hospital	157	134	85.4	99.2	76.2	93.9	0.7	74	9.9	18.8	10.4	49.0	48.8	18.4	20.9
HUD	Huddersfield Royal Infirmary	421	407	96.7	99.3	70.9	89.7	2.5	39	5.0	0.3	7.4	30.0	9.3	17.9	21.3
HRI	Hull Royal Infirmary	550	459	83.5	98.8	31.6	62.6	1.5	6	3.3	37.3	18.7	79.2	86.4	21.0	22.6
LGI	Leeds General Infirmary		563		99.5	34.6	62.7	3.4	80	0.0	37.7	0.5	25.9	74.6	21.7	22.4
NGS	Northern General Hospital, Sheffield	670	214	31.9	99.5	73.7	93.3	2.3	97	5.1	63.0	10.3	96.8	96.9	26.3	26.3
PIN	Pinderfields General Hospital, Wakefield	340	308	90.6	99.6	41.5	78.0	8.8	23	4.2	16.4	4.5	61.9	64.3	19.0	25.0
SCA	Scarborough General Hospital	330	221	67.0	97.2	61.8	82.9	0.9	39	2.5	2.7	7.2	63.8	4.2	13.6	19.4
SCU	Scunthorpe General Hospital	279	239	85.7	99.3	31.8	71.8	7.1	6	2.3	2.7	15.5	65.3	97.7	10.1	11.9
YDH	York Hospital	400	317	79.3	99.8	71.3	93.5	1.3	49	0.0	9.6	9.5	93.9	85.4	19.7	21.8
	SHA	2019	3694	77.0	99.0	54.9	80.5	2.8	48	3.8	25.0	8.2	61.7	65.7	18.1	20.4
	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

Glossary

Term	Definitions
Arthroplasty	Any replacement of the upper femur including unipolar hemi-arthroplasties, bipolar hemiarthroplasties and total hip replacements
ASA grades	American Society of Anesthesiologists[15] (ASA) physical status classification :- 1. A normal healthy patient 2. A patient with a mild systemic disease 3. A patient with a severe systemic disease that limits activity, but is not incapacitating 4. A patient with an incapacitating systemic disease that is a constant threat to life 5. A moribund patient not expected to survive 24 hours with or without operation This grading does not take into account acute illness, hence a patient can be ASA 1and 'unfit'.
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	**1. Bisphosphonates** Etidronate Alendronate Risedronate Ibandronate Zoledronate Pamidronate **2. HRT and SERMS** HRT (various) Tibolone Raloxifene **3. Parathyroid hormone** PTH 1-34 PTH 1-84 **4. Strontium** Strontium ranelate **5. Calcium and vitamin D** Calcitriol Calcium and vitamin D – various Alpha-calcidol (or one alpha) **6. Calcitonin**

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 inplants)	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 [16,17] 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[18]	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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Jonathan Treml
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Rob Wakeman*
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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

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Antony Johansen
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Rob Wakeman
Consultant Orthopaedic Surgeon, Basildon University Hospital

Andy Williams
NHFD Project Coordinator (South)

NHFD Scientific & Publications Committee

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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 >= 60 (Those over 107 are excluded)

Discharge data slice: Patients discharged on or between 1st April 2009 - 31st March 2010 inclusive and age >= 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.

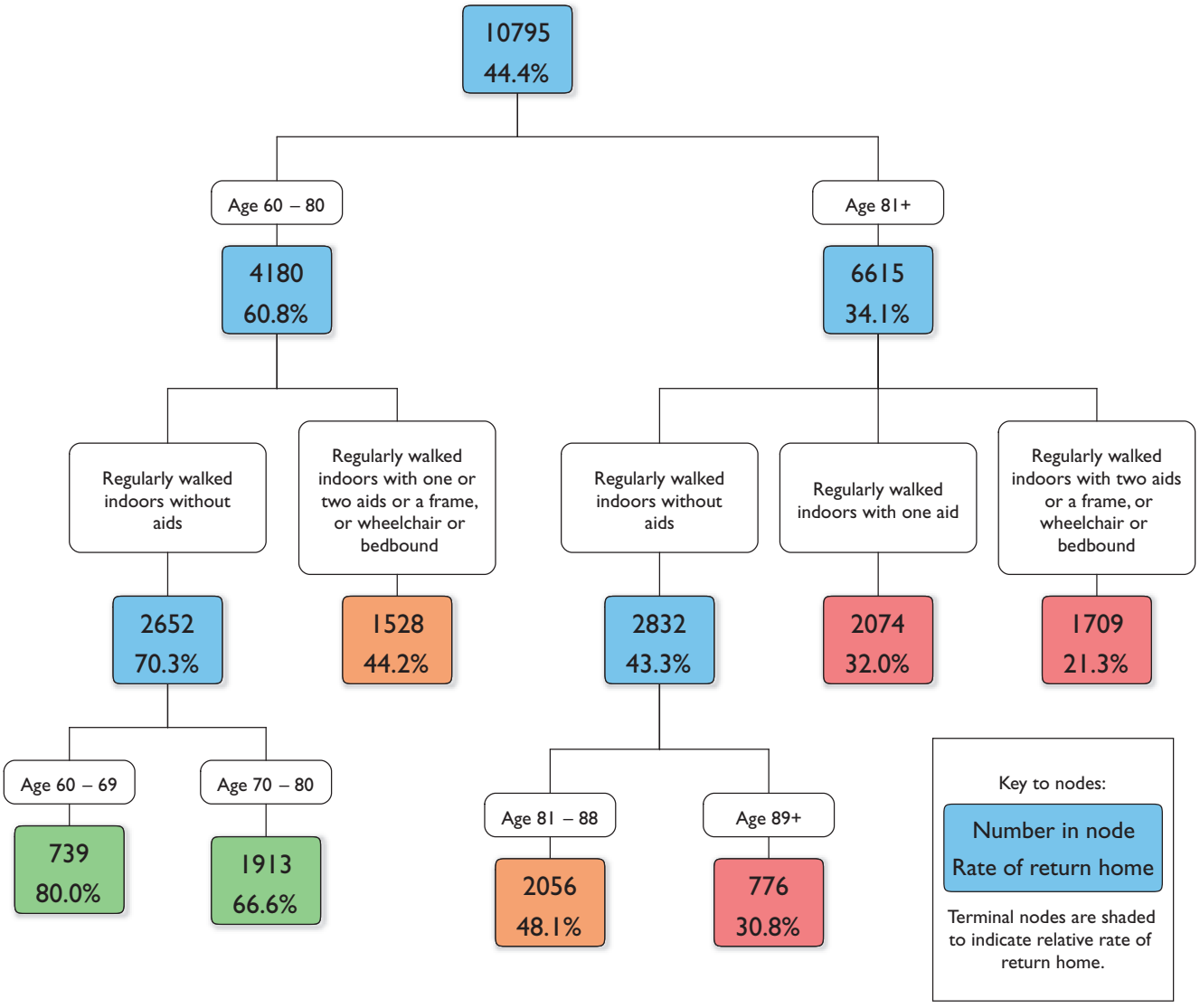
Chart	Metric	Calculation	Filters
1	Data completeness	% fields completed where unknown equals null. Total possible score of 17 for each record, then totalled and expressed as %	All fields used in calculation
2	Age at Admission	% in 10 year blocks 60-90+,m Stacked bar/column, youngest on the left/bottom ranked by <90	EXCLUDE [DOB] = null
3	Sex	Stacked bar/column as %	EXCLUDE [Sex] = null
4	Place of residence	Count of [Admitted From] expressed as % ranked by "Own home.	If [Admitted From] is null, classify as "Unknown"
5	ASA	% ASA grades ranked in order of (ASA Grades 1+2+3) with additional (matched) chart showing known vs unknown as %	EXCLUDE [ASA grade] = null
6	Walking ability	% walking ability indoors pre admission expressed as %; ranked by ("Without aids" + "One aid")	If [Walking ability indoors pre admission] is null, classify as "Unknown"
7	Fracture type	[Fracture type] expressed as %; ranked by (Contains "Intracapsular")	[Type of fracture] is null, classify as "Unknown"
8	A&E to orthopaedic ward within 4hrs	% of patients admitted to orthopaedic ward with companion chart showing <4hrs vs >4hrs	EXCLUDE [Admitted to orthopaedic ward]=null
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 [AEAdmissionDate] else use [WardAdmissionDate] Count all cases where Delay to Surgery <=48 hours and Operation Time >= 8:00 hrs and Operation Time <= 20:00 hrs	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'
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 OR EXCLUDE [ReasonForDelay > 48 hrs] = null OR "No delay" EXCLUDE delay < 48 hours

Chart	Metric	Calculation	Filters
11	**Patients treated without surgery**	Count [Operation] = "No operation performed" expressed as % of all cases	EXCLUDE [Operation] = null
12	**Cementing of Arthroplasties**	Count of records containing "(cemented)" as % of all Arthroplasty cases.	[Operation Performed] contains "Arthroplasty" EXCLUDE [Operation Performed] = null
13	**Development of Pressure Ulcers**	Ranked ascending "Yes" count	EXCLUDE [PressureUlcers] = null OR [DischargeWardDestination] = "Dead" OR [DischargeTrustDestination] = "Dead"
14	**Preoperative Medical Assessment**	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	**Bone Protection Medication at admission**	% of all patients where Antiresorptive therapy = [Continued from pre admission]	
16	**Bone health assessment and treatment at discharge**	% 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	**Specialist Falls Assessment**	Count [Falls Assessment] expressed as % ot total ranked by (Contains "Yes")	EXCLUDE [FallsAssessment] = null OR [DischargeWardDestination] = "Dead" OR [DischargeTrustDestination] = "Dead"
18	**Secondary Prevention Overview**	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	**Length of Stay**	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	**Discharge destination from trust**	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	**Surgery within 36 hours with falls and bone health assessment**	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

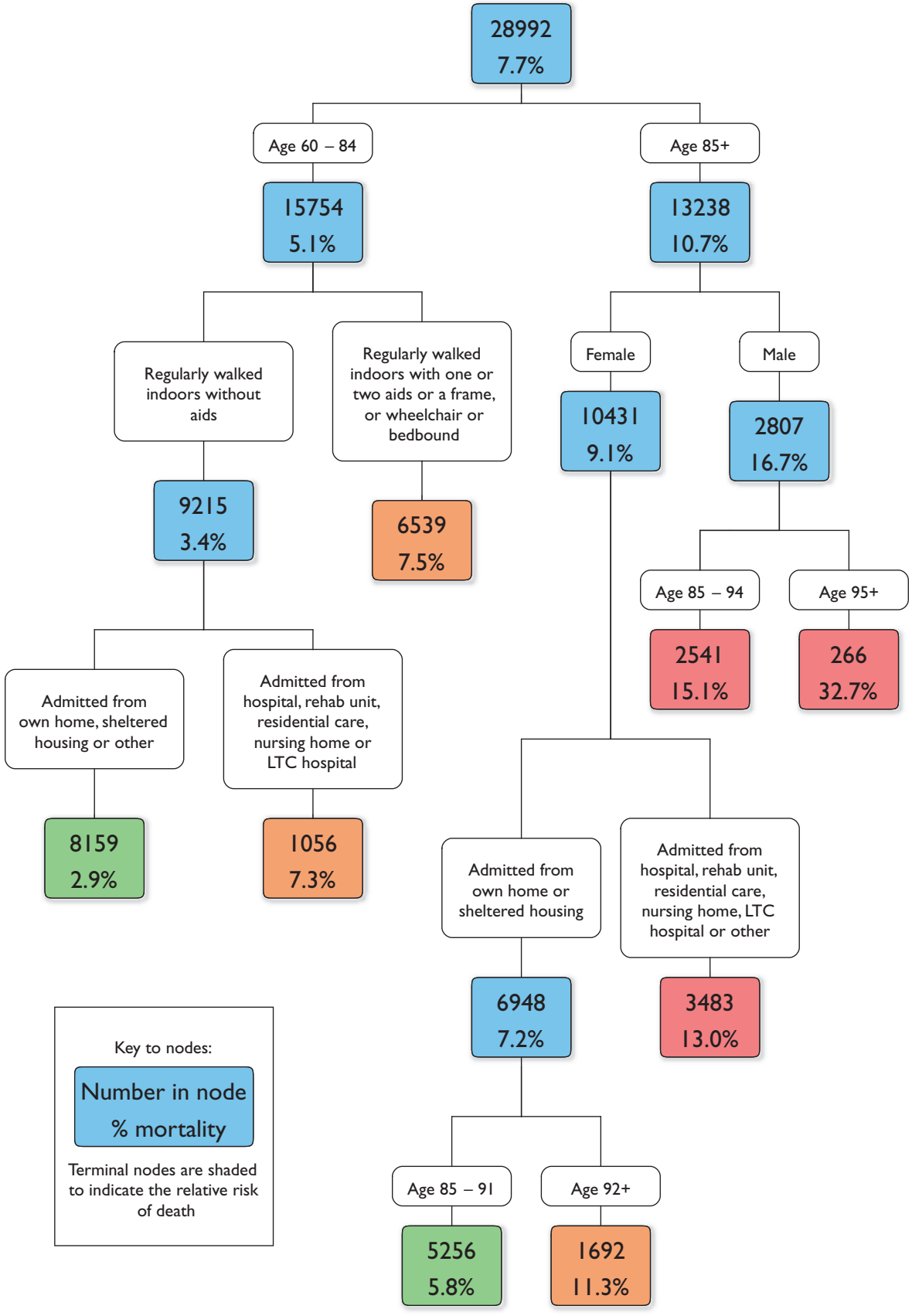
Appendix D

Classification trees[19]

Rate of return home from home at 30 days.



Mortality at 30 days



Appendix E

Using audit to improve care

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%.

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

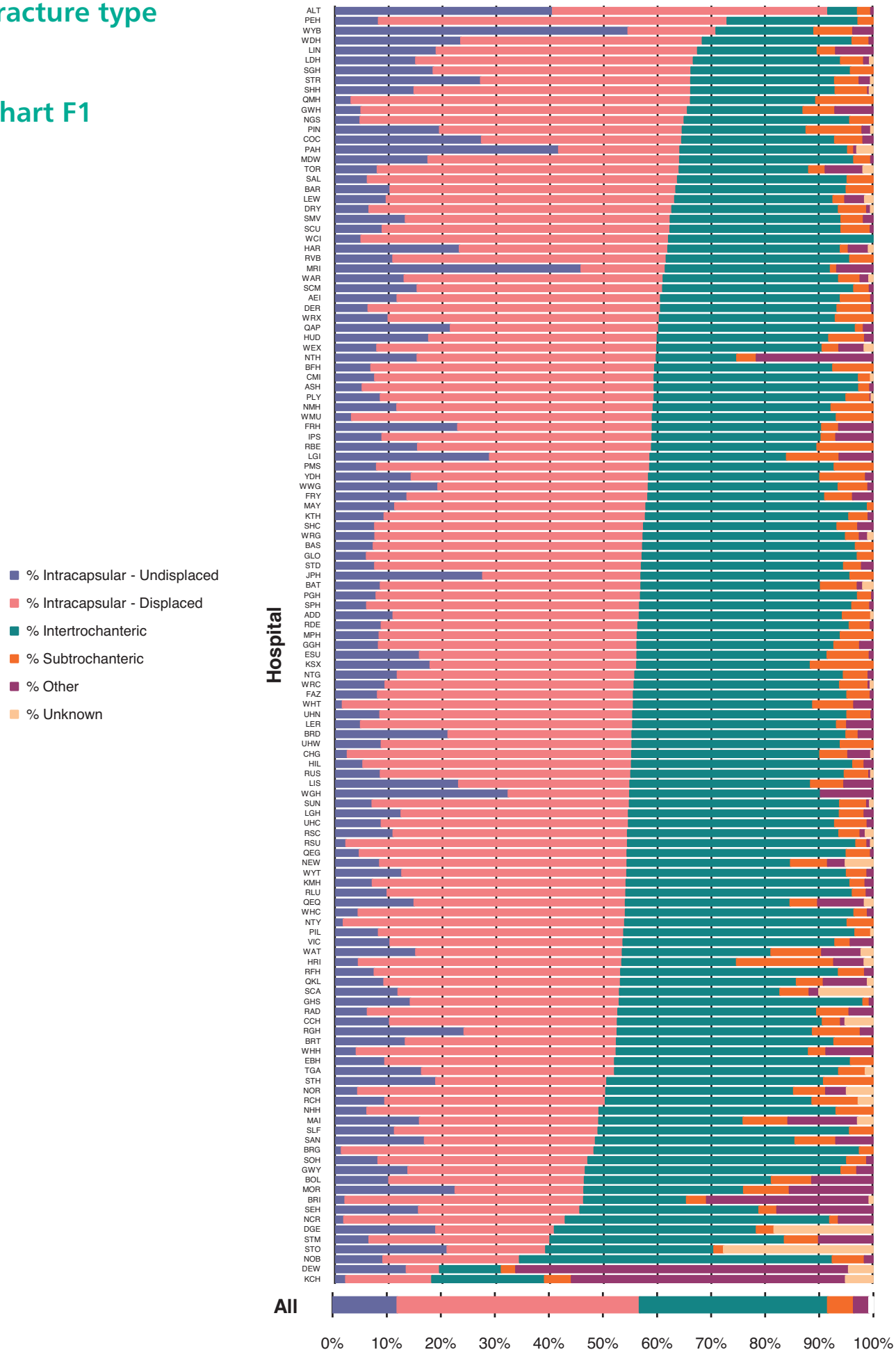
Salford Royal has participated in the NHFD since October 2007. A project team responded to an early finding of a high incidence of pressure ulcers, and introduced prompt and regular Waterlow assessments, a directorate-wide training programme, and a management protocol that resulted in better use of the 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.

Appendix F

Hospital level operations performed by fracture type

Fracture type

Chart F1



In general, the term 'hip fracture' is used to describe a number of fracture types involving the upper or proximal femur. The term excludes fractures of the pelvic side of the hip joint and fractures of the surface of the head of the femur or isolated fractures the muscular attachments (trochanteric avulsion). Although the different fracture types are generally treated by different surgical techniques, the generic term 'hip fracture' is well defined and widely recognised. Hip fracture patients have usually suffered a fall, commonly have previous frailty and often complex rehabilitation needs. Interestingly, casemix adjusted outcome analysis shows that fracture type is a relatively unimportant determinant of outcome (e.g. when compared to age, sex, or ASA grade).

Those fractures that occur within the joint itself are termed intracapsular (56.77% of total). These are divided into those in which the bones remain in their correct place – undisplaced (11.99% of total), and those which have moved to an extent that the blood supply to the bone is disrupted – displaced (44.78% of total). Fractures outside the joint are divided into those that occur between the major muscle insertions (the trochanters) which are termed intertrochanteric (34.82% of total), and those that occur further down the femur at the junction with the femoral shaft. These are termed subtrochanteric (4.83% of total). (see Fig 1.)

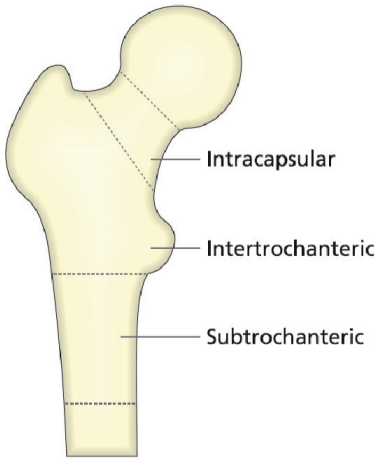


Fig 1

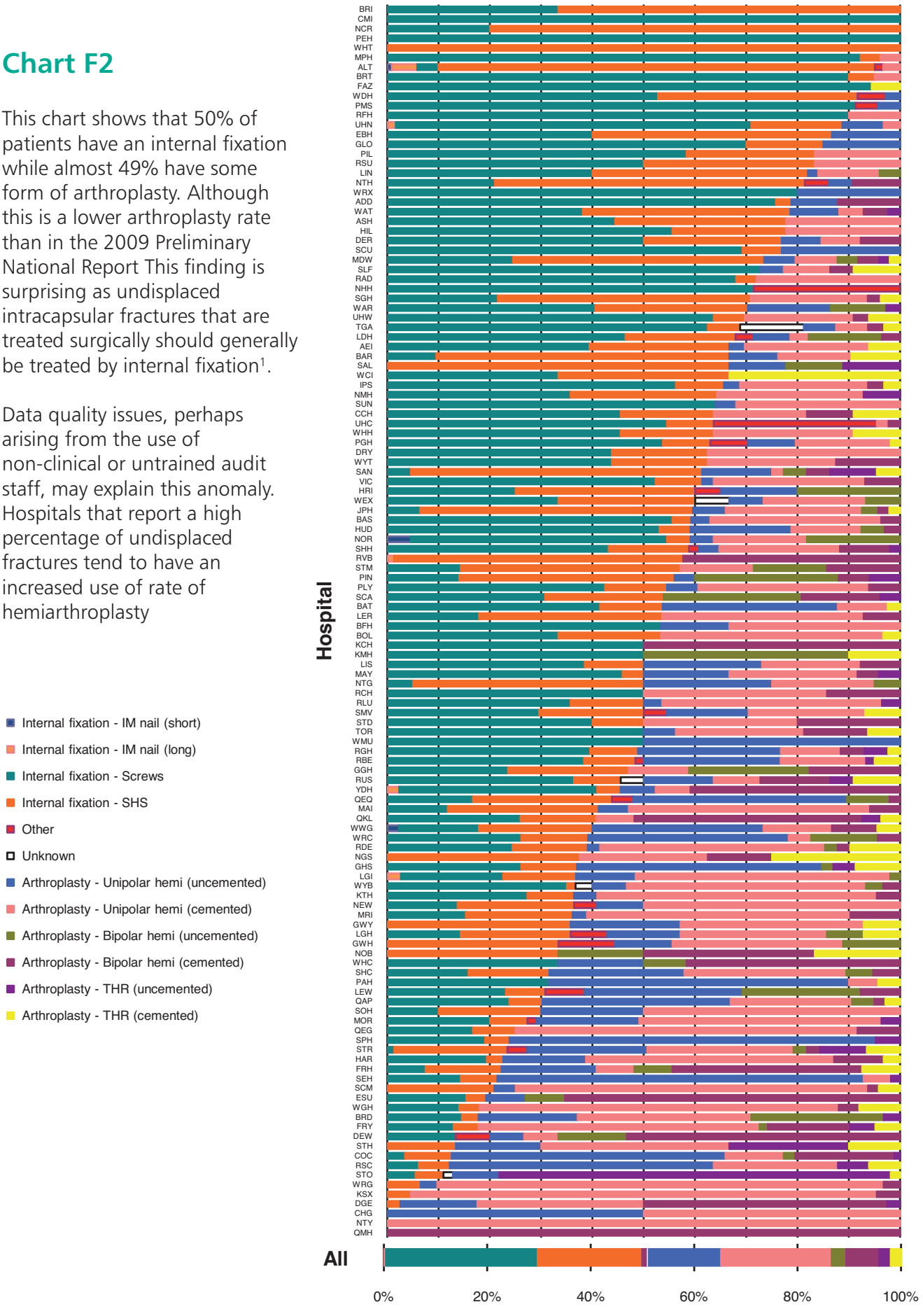
Within these categories, fracture patterns show considerable variation and there is likely to be a degree of disagreement in classification between observers, particularly in terms of fracture displacement and in the subtrochanteric region. Hospitals with an atypical pattern of fracture type, and those with a high proportion of fractures recorded as unknown or other, should increase the clinical input to data collection and validation. Further help on classification is available at **www.nhfd.co.uk** (E-learning)

Intracapsular undisplaced

Chart F2

This chart shows that 50% of patients have an internal fixation while almost 49% have some form of arthroplasty. Although this is a lower arthroplasty rate than in the 2009 Preliminary National Report This finding is surprising as undisplaced intracapsular fractures that are treated surgically should generally be treated by internal fixation[1].

Data quality issues, perhaps arising from the use of non-clinical or untrained audit staff, may explain this anomaly. Hospitals that report a high percentage of undisplaced fractures tend to have an increased use of rate of hemiarthroplasty



In contrast, 92% of displaced Intracapsular fractures are treated with some form of arthroplasty, while 8% have a reduction and internal fixation.

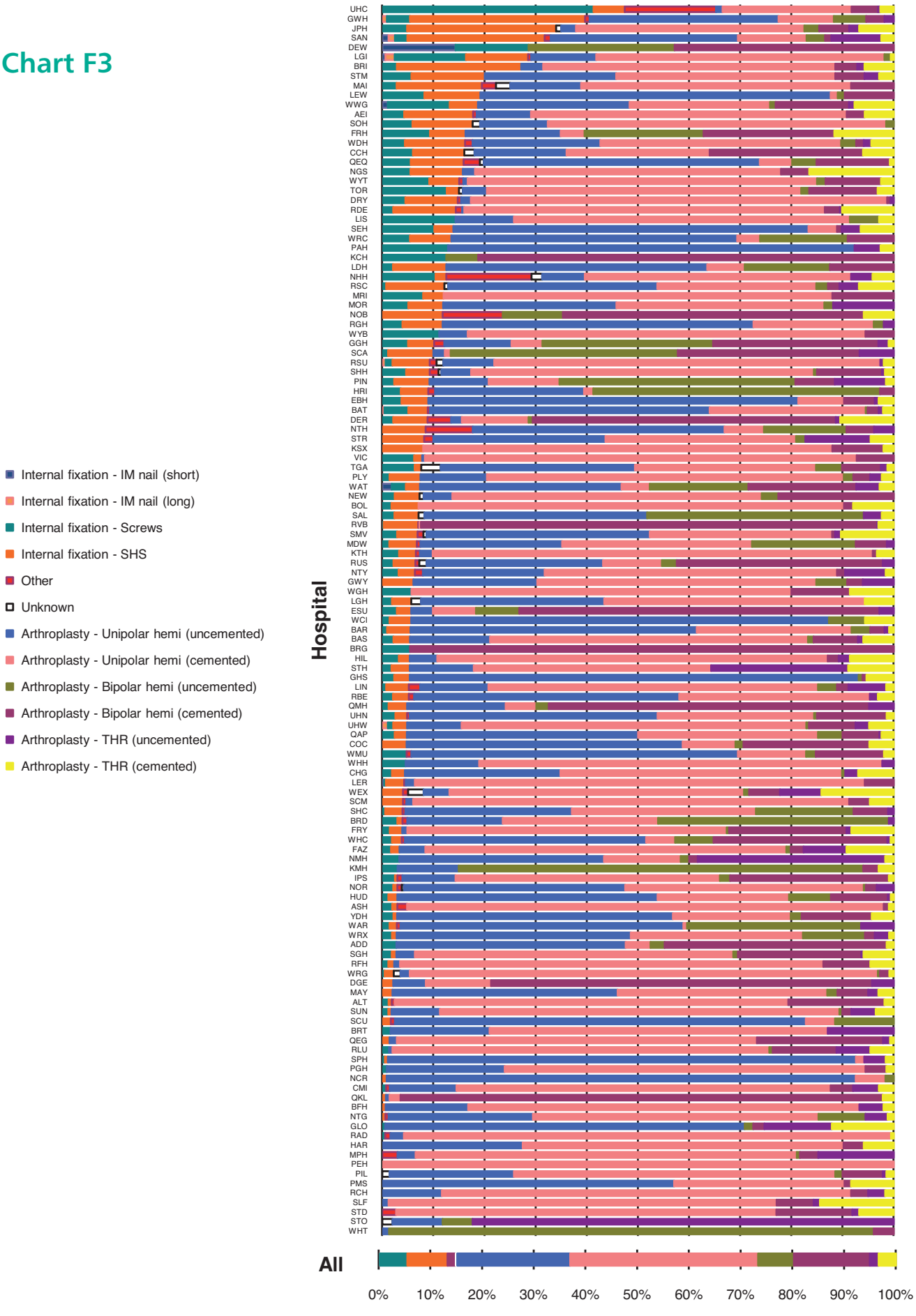
Because of the likely disruption of the blood supply to the femoral head patients older than 70 years are generally treated with an arthroplasty.

In younger patients, internal fixation may be attempted in order to avoid the longer term problems of arthroplasty.

These patients may require more revision operations in the short term.

Intracapsular displaced

Chart F3

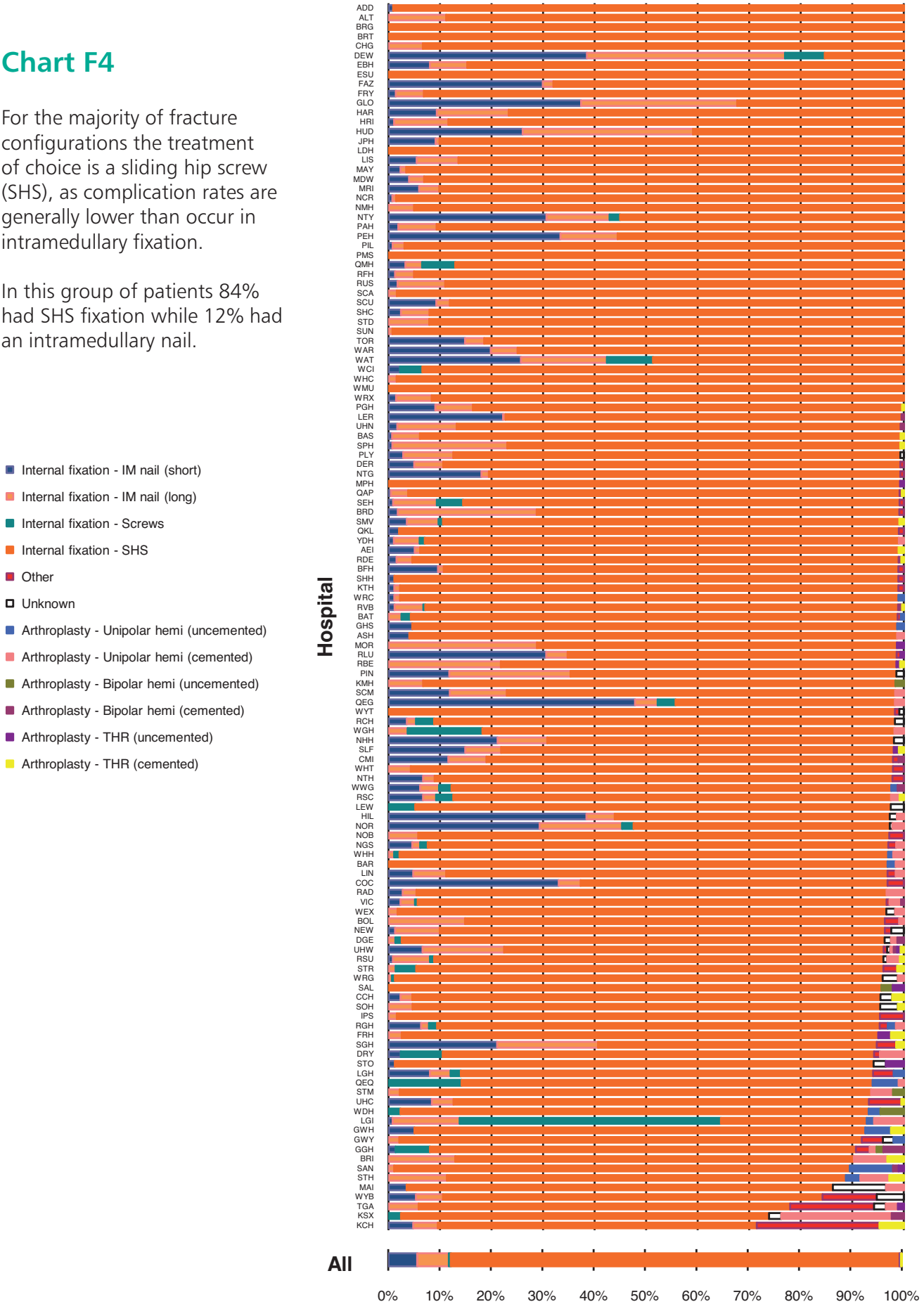


Intertrochanteric fractures

Chart F4

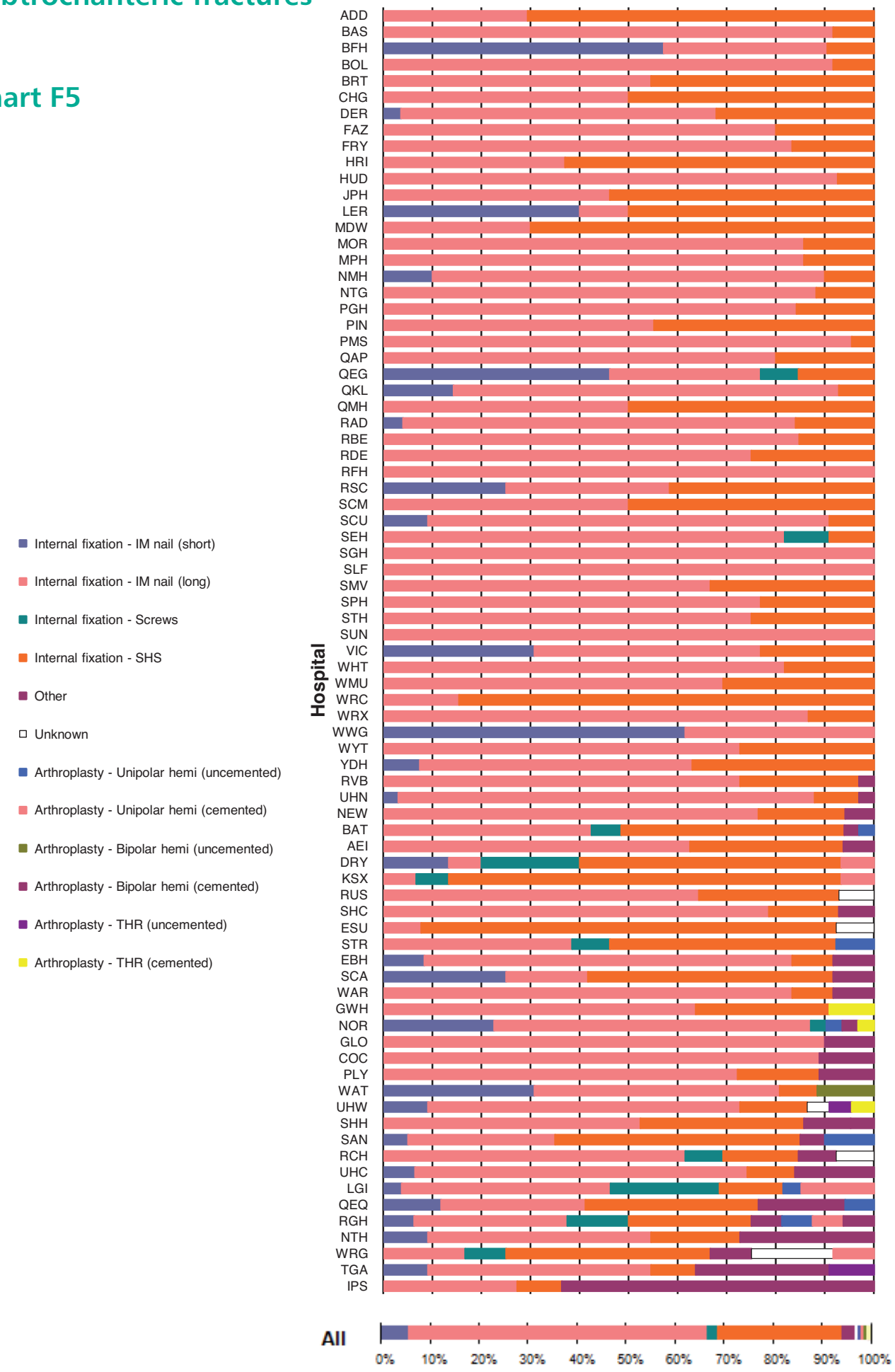
For the majority of fracture configurations the treatment of choice is a sliding hip screw (SHS), as complication rates are generally lower than occur in intramedullary fixation.

In this group of patients 84% had SHS fixation while 12% had an intramedullary nail.



Subtrochanteric fractures

Chart F5



The 2009 Preliminary National Report had no chart for subtrochanteric fractures as there appeared to be some difficulty in recognising and reporting the fracture type and reporting on the surgical technique used. This year we have included a chart of surgical procedures performed on subtrochanteric fractures as reported to us by hospitals.

Intramedullary nailing (65%) produces a more stable fixation for early mobilisation than a sliding hip screw and should result in a lower incidence of non-union. Screw fixation (2%) is an improbable treatment, perhaps reflecting poor data quality rather than reality.

Data quality issues may have arisen in relation to fracture type also, with the possibility that subcapital fractures are wrongly coded as subtrochanteric.

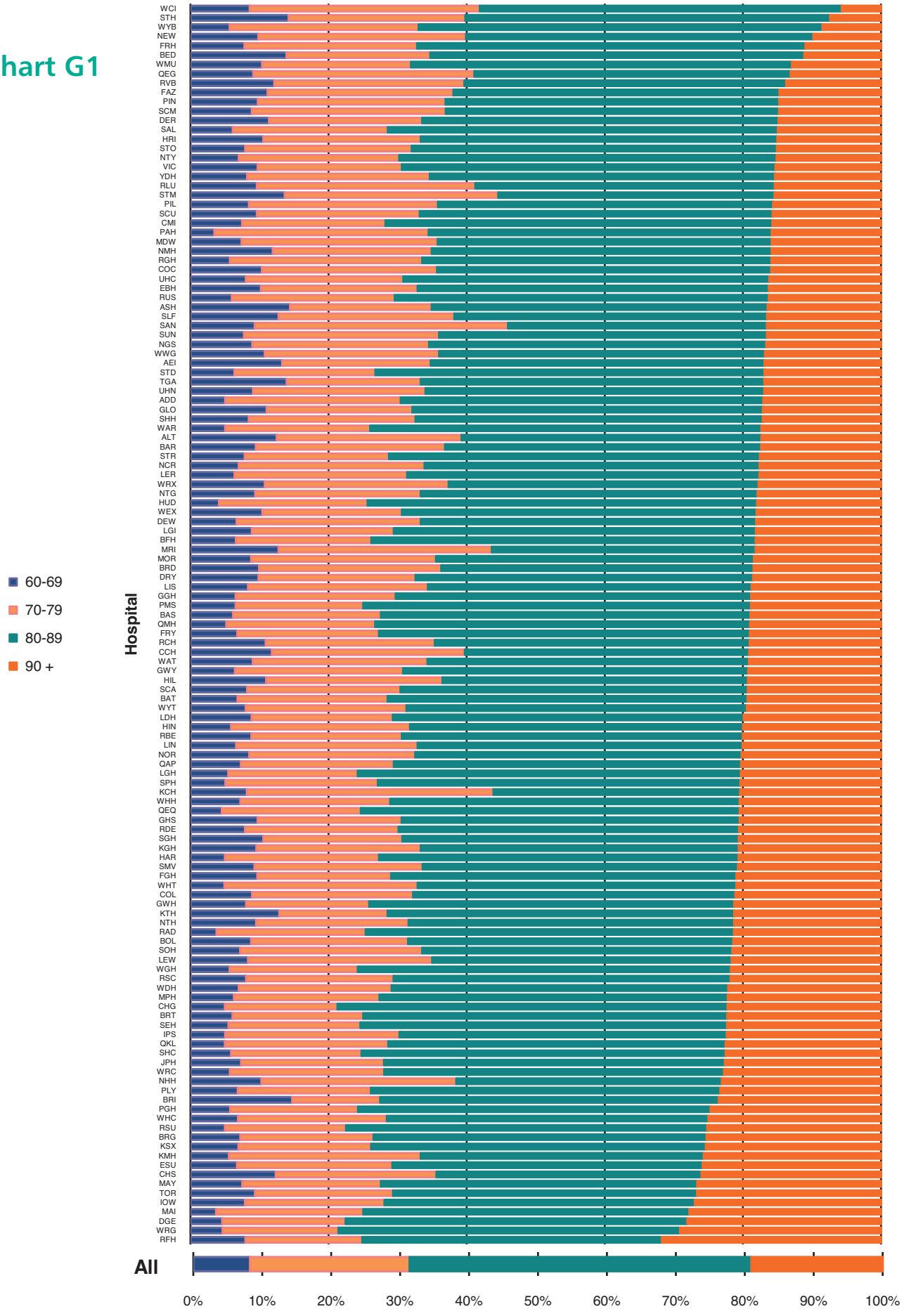
Hospitals that have a high proportion of intracapsular fractures that are undisplaced or a high proportion of subtrochanteric fractures treated by screws, should increase the level of orthopaedic involvement in the training of their data collectors. Subtrochanteric fractures amount to less than ten percent of hip fractures and individual hospitals operate on low numbers.

Appendix G

Hospital level casemix charts

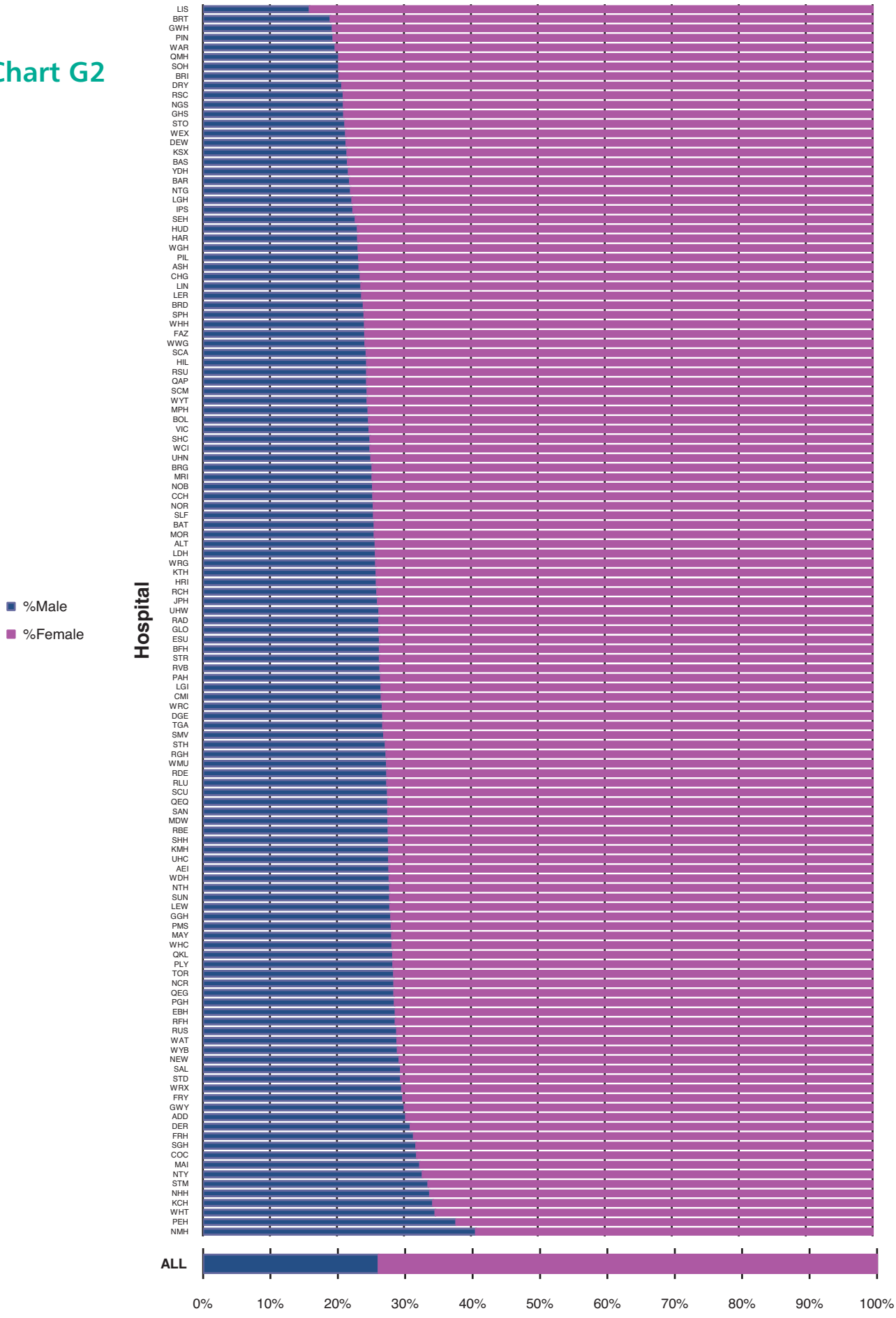
Age at admission

Chart G1



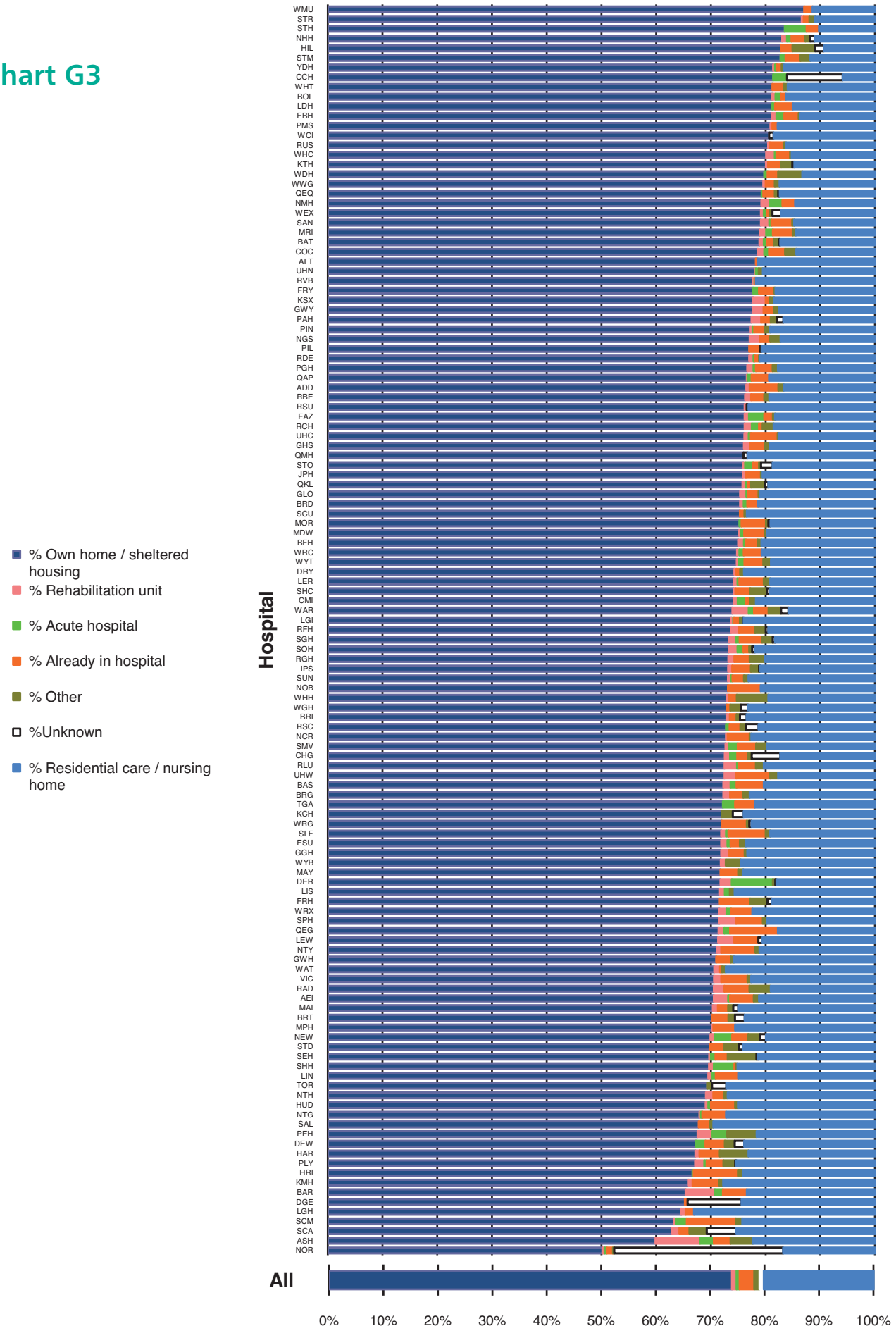
Sex

Chart G2



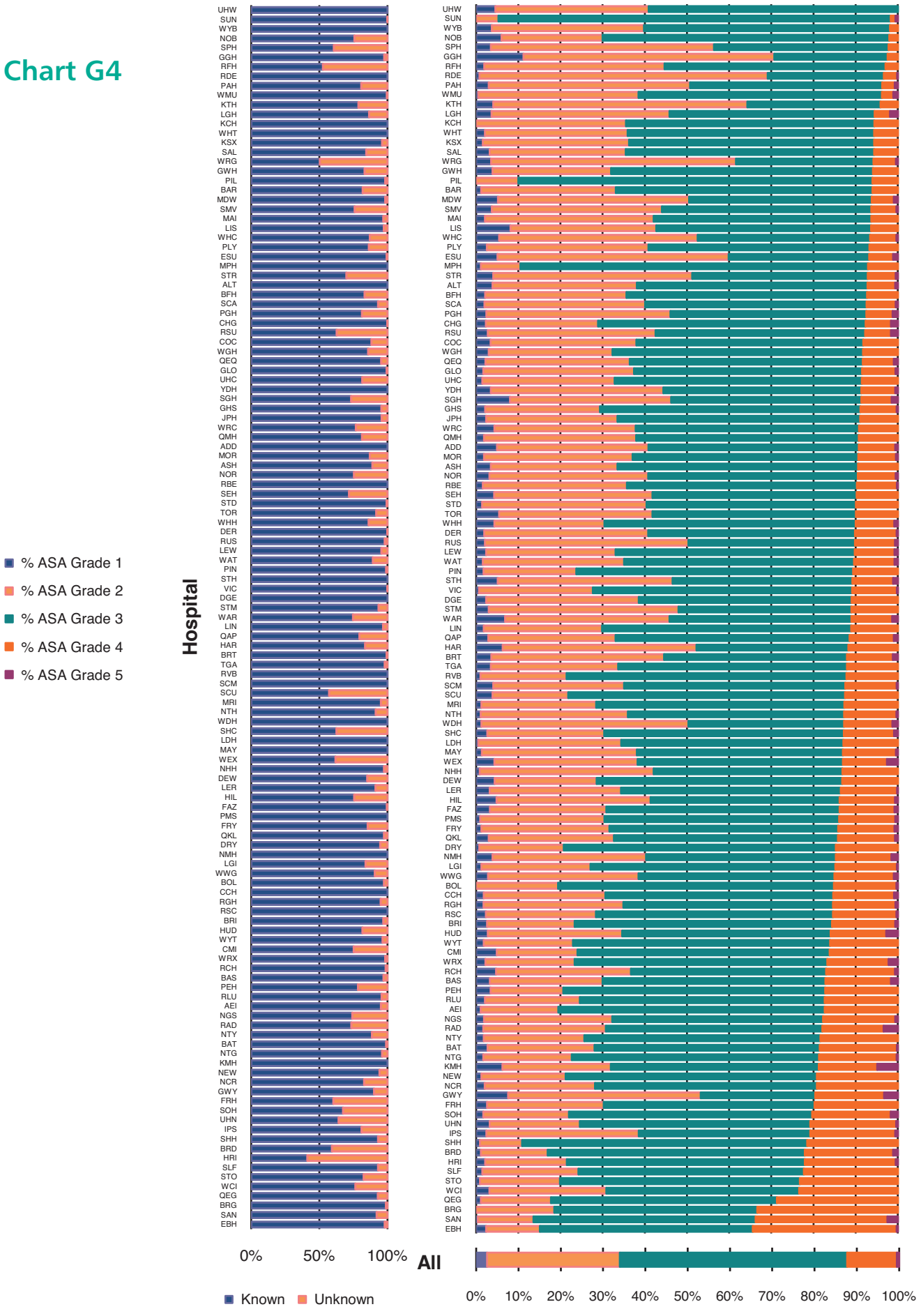
Admitted from

Chart G3



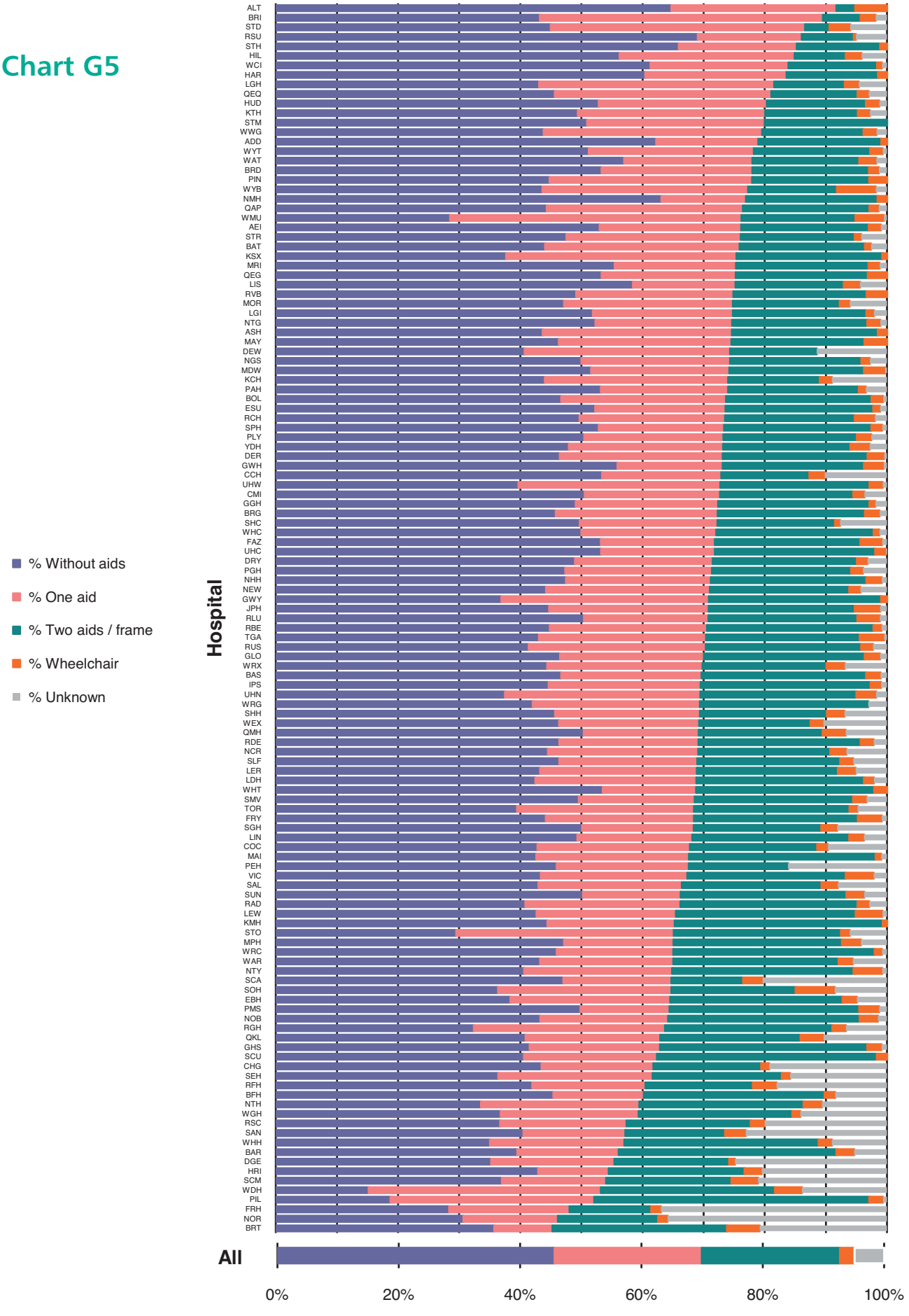
ASA Grade

Chart G4



Walking ability

Chart G5

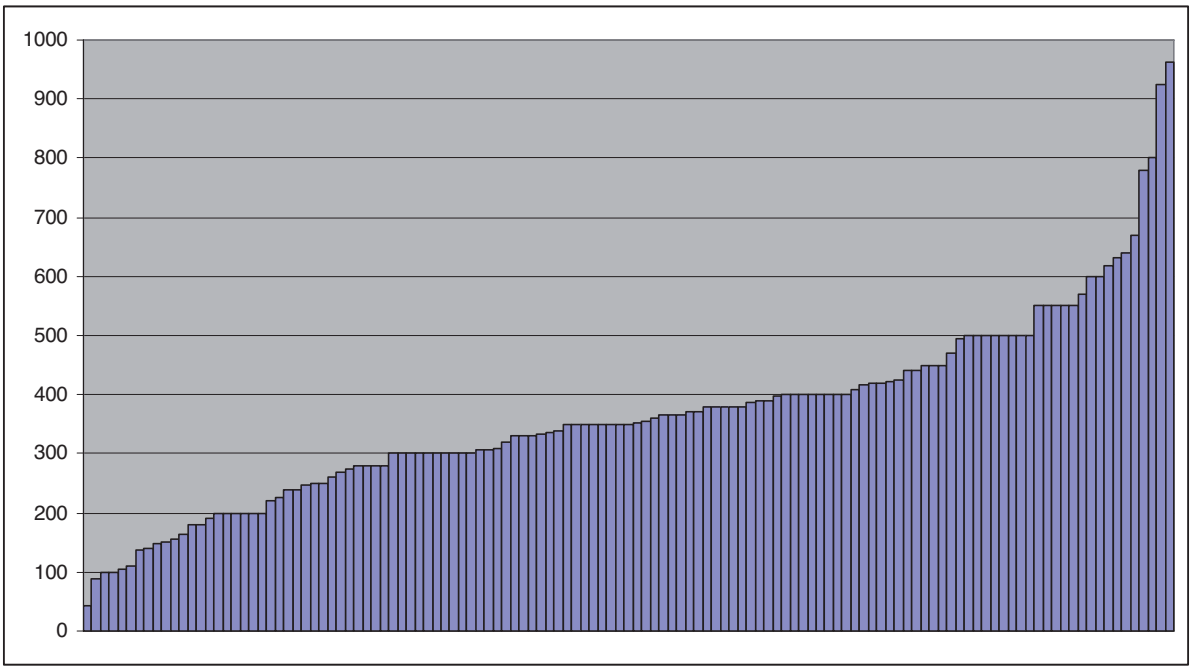


Appendix H

Facilities Audit

Each year individual hospitals complete a Facilities Audit. The purpose of the audit is to develop a picture of the hospital that may be helpful in interpreting the patient record data. As ever, completeness and accuracy are both fundamental to worthwhile analysis.

Number of hip fractures treated each year by unit

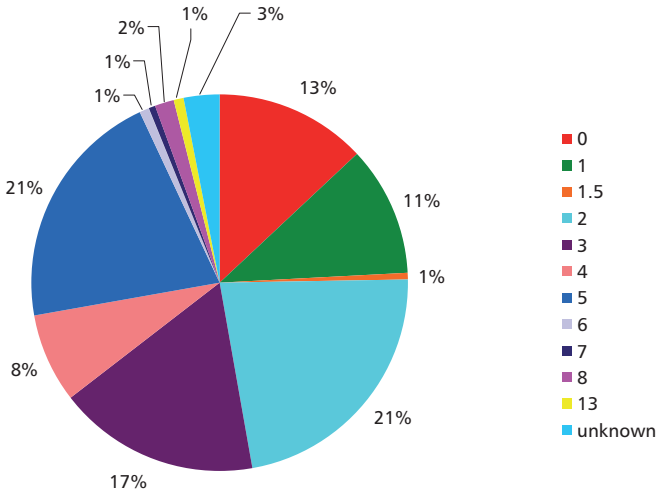


Workload

Hospitals vary in size with a Trauma Catchment Area ranging from 28,000 to over a million (median 310,000), and the number of hip fractures treated each year ranges from 43 to 963 (median 350). While three quarters of the hospitals primarily serve local communities (DGH), the remainder have a local or regional role in the treatment of complex cases (Both/Tertiary). This may place a particular strain on resources.

Chart H1. Staffing

Number of Orthogeriatric wardrounds each week

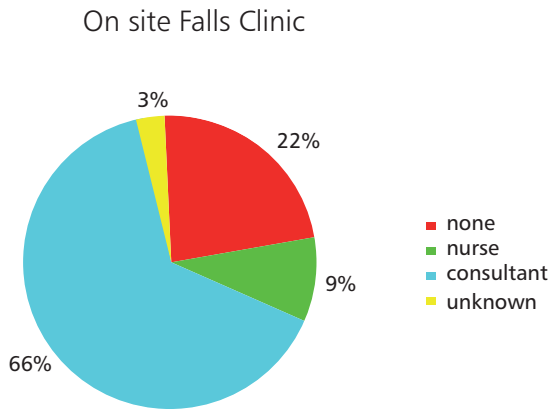


In view of the great variation in workload it is not surprising that staffing levels vary from one hospital with 3 Consultant Orthopaedic Surgeons to one with 22 Consultants and 20 Middle grade Orthopaedic Surgeons. Only 10% of units have no Orthogeriatric input, although this varies from 0.5 to 112 hours a week, with 50% of units having 3 or more Orthogeriatric ward rounds a week. This is encouraging compared with the 2009 Preliminary National Report in which 12.2% of the 64 units had no orthogeriatrician and 62.5% had two or less Orthogeriatric ward rounds a week.

Fifty eight per cent of units have no hip fracture nurse and 63% have no Fracture Liaison Nurse to facilitate the management of osteoporosis.

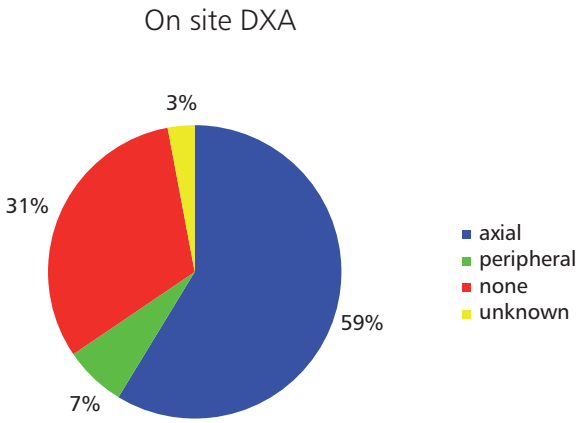
Secondary prevention of fractures

Chart H2. On site falls clinics



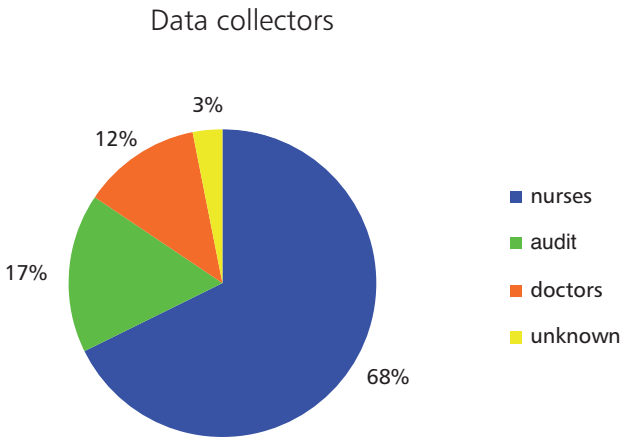
Once a patient has sustained a fragility fracture, they risk sustaining further fractures, and so measures should be taken to ensure that this risk is minimised. Seventy five percent of units have a falls clinic and 66% have a DXA scanner to aid the diagnosis of osteoporosis on site.

Chart H3. On site DXA scanners



Units that do not have immediate access to DXA may use facilities in Primary Care, neighbouring hospitals or the private sector.

Chart H4. Data collectors



The majority of our data collectors are nurses. They have the advantage of being ward based and can ofter complete datacollection forms concurrent to the admission. Conversely, audit based datacollectors may have difficulty in accessing all of the patient records.

Facilities Audit

Hospital	TCP	Hip#/yr	Service description	Trauma hrs/wk	Orth. Con.	Orth. M.G.	Hrs OG Con.	Hrs OG M.G.	OG ward rounds/wk	Hip# nurse	Falls Nurse	Falls clinic	DXA	Rehab	Data collectors
ADD	500000	420	both	77.5	17	10	30	0	4	1	1	cons	axial	acute	nurses
AEI	310000	350	both	48	8	5	15	0	5	0	0	cons	axial	GORU	nurses
ALT	392980	389	DGH	48	8	2	0	0	0	0	0	none	axial	acute	nurses
ASH	250000	300	DGH	44	9	9	6	24	2	1	0	cons	none	GORU	nurses
BAR	224600	306	DGH	31.5	8	8	10	0	0	1	0	nurse	peri	GORU	nurses
BAS	320000	352	DGH	28	11	11	15	21	5	1.4	2	cons	axial	acute	nurses
BAT	600000	550	DGH	64	17	11	6	2	2	1	4	cons	peri	acute	nurses
BFH	400000	426	DGH	46.5	11	10	4	0	3	0	2	none	axial	acute	nurses
BOL	360000	350	DGH	42.5	10	7	20	5	5	0	0	cons	none	acute	nurses
BRD	480000	350	DGH	35	14	8	20	0	5	0	0	none	axial	acute	nurses
BRG	70000	90	DGH	0	4	4	0	0	0	1	1	nurse	axial	acute	nurses
BRI	300000	350	both	31	12	11	4	0	1	0	0	cons	axial	acute	audit
BRT	270000	270	DGH	35	8	8	8	8	3	0	1	cons	peri	acute	doctors
CCH															
CHG	225000	280	DGH	28	10.5	11	12	30	5	1	1	cons	axial	acute	nurses
CMI	200000	300	DGH	21	9	9	3	3	2	1	0	nurse	none	acute	nurses
COC	250000	300	DGH	31.5	7	8	6	0	2	2	0.8	cons	none	acute	nurses
DER	500000	500	DGH	84	22	20	10	0	5	0	1	cons	axial	acute	nurses
DEW	180000	150	DGH	20	5	6	5	0	1	0	0	cons	none	acute	nurses
DGE	326000	417	DGH	35	8	7	12	0	3	1	0	cons	none	acute	nurses
DRY	270000	320	DGH	29	8	9	7	0	2	1	0	cons	axial	acute	nurses
EBH	750000	500	DGH	49	10	9	14	52.5	6	0	0	cons	none	GORU	doctors
ESU	350000	500	DGH	52	8	8	16	0	4	0.5	1.8	cons	axial	acute	nurses
FAZ	500000	400	both	43.5	9	6	4	40	5	0	0	cons	axial	GORU	doctors
FRH	122000	147	DGH	20	5	7	0	0	0	0	0	none	none	GORU	audit
FRY	550000	500	both	56	13	14	16	0	4	1.4	0	cons	axial	acute	nurses
GGH	160000	280	DGH	28	6	8	5	0	2	0	1	nurse	axial	acute	nurses

Hospital	TCP	Hip#/yr	Service description	Trauma hrs/wk	Orth. Con.	Orth. M.G.	Hrs OG Con.	Hrs OG M.G.	OG ward rounds/wk	Hip# nurse	Falls Nurse	Falls clinic	DXA	Rehab	Data collectors
GHS	400000	400	DGH	20	8	8	7.5	1	5	0	0	cons	axial	GORU	doctors
GLO	320000	356	DGH	49	8	3	8	10	3	1	1	cons	axial	GORU	nurses
GWH	300000	180	DGH	32	6	8	12	6	2	0	2	cons	axial	acute	nurses
GWY	220000	280	DGH	35	8	12	7.5	7.5	4	1	1	cons	axial	acute	doctors
HAR	200000	157	DGH	17.5	9	9	9	0	4	0	0	cons	axial	acute	nurses
HIL	350000	200	DGH	30.5	8	8	10	10	2	0	0	none	none	acute	nurses
HRI	650000	550	both	75	19	13.5	14	6	4	1	2	cons	axial	acute	audit
HUD	495000	421	DGH	52.5	14	13	2	0	1	0	0	cons	none	acute	nurses
IPS	320000	397	DGH	35	12	9	14	2	2	1	1	cons	axial	acute	nurses
JPH	250000	365	DGH	21	6	4	12	0	3	0	0	none	none	acute	nurses
KCH	250000	100	both	24	12	24	2	2	1	2	1	cons	axial	acute	nurses
KMH	400000	420	DGH	38.5	12	9	0	0	0	0	0	cons	axial	GORU	nurses
KSX	250000	300	DGH	17.5	6.51	6	0	0	0	0.5	1	none	none	acute	nurses
KTH	350000	400	DGH	53	8	8	14	0	5	0	0	cons	peri	acute	nurses
LDH	300000	306	DGH	35	12	14	4	0	0	0	0	cons	axial	acute	nurses
LER	1000000	800	tertiary	76.5	10	10	12	4	5	0	0	cons	axial	acute	nurses
LEW	450000	200	DGH	26.5	7	7			3	0	0	cons	none	acute	doctors
LGH	280000	250	DGH	28	7.5	9	0	0	0	0	0	none	axial	acute	doctors
LGI	715500	850	DGH	98	23	27	20	20	5	0	1	none	none	acute	nurses
LIN	734891	440	both	56	17	18	0	0	0	0	0	cons	none	acute	nurses
LIS	246000	200	DGH	21	5	9	4	0	1	0	0	cons	axial	acute	audit
MAI	250000	105	DGH	17.5	6.6	8	0	0	0	0.25	1	cons	none	acute	nurses
MAY	380000	300	DGH	33	7	5	30	10	3	0.5	0	none	axial	acute	nurses
MDW	375000	370	DGH	56	11	11	9	2	2	4	0	none	axial	acute	nurses
MOR	410000	600	both	56	16	14	11.25	15	1	0	0	none	none	acute	nurses
MPH	340000	400	DGH	48	11	9	12	0	2	0	0	cons	axial	acute	nurses

Hospital	TCP	Hip#/yr	Service description	Trauma hrs/wk	Orth. Con.	Orth. M.G.	Hrs OG Con.	Hrs OG M.G.	OG ward rounds/wk	Hip# nurse	Falls Nurse	Falls clinic	DXA	Rehab	Data collectors
MRI	251665	180	DGH	31.5	8.5	6	13.5	4	3	3.3	0	cons	axial	acute	nurses
NCR	236900	400	DGH	58	15	10	0	5	0	1	1	nurse	axial	acute	nurses
NEW	300000	500	tertiary	48	8	8	9	0	3	1	1.4	cons	axial	GORU	nurses
NGS	500000	670	tertiary	66.5	23	12	72	40	13	2	2	cons	axial	acute	nurses
NHH	280000	200	DGH	32	8	6	4	24	3	1	0	cons	peri	acute	nurses
NMH	250000	140	DGH	20	5	6	13	13	2	0	0	cons	none	acute	doctors
NOB	80000	100	DGH	16	4	4	0	10	5	0	0	none	axial	acute	nurses
NOR	750000	640	DGH	70	18.5	11	48	3	5	0	0	cons	axial	acute	audit
NTG	352000	380	DGH	47	14	18	13	28	5	0	0.5	cons	axial	acute	nurses
NTH	380000	330	DGH	51	10	12	2	0	1	0	0	none	axial	acute	nurses
NTY	250000	275	DGH	37.5	8	9	4	40	2	0	0	cons	axial	GORU	nurses
PAH	281400	333	DGH	43	10.5	13	20	40	5	0	0	cons	none	GORU	nurses
PEH	65000	43	DGH	0	3	0	3	0	2	0	1	cons	axial	GORU	audit
PGH	500000	925	DGH	113	10	8	10	36	3	0	0	cons	none	acute	nurses
PIL	222000	300	DGH	24.5	8	10	2	0	2	0	0	cons	axial	acute	nurses
PIN	326000	340	DGH	48	8	8	8	0	2	0	1	cons	axial	acute	nurses
PLY	470000	550	tertiary	73	14	10	0	37.5	5	0	0	nurse	axial	acute	nurses
PMS	400000	350	DGH	48	10	15	8	80	2	0	0	cons	axial	acute	doctors
QAP	610000	618	DGH	84	18.5	3.83	20	32	8	2	0	cons	axial	acute	nurses
QEG	218000	300	DGH	31.5	7	7	24	0	5	1	0	nurse	axial	acute	doctors
QEQ	200000	260	DGH	30	9	0	8	37	2	0	1	cons	none	acute	audit
QKL	250000	300	DGH	20	6	7	4	0	2	0	0	cons	none	acute	nurses
QMH															
RAD	500000	500	tertiary	104	7.5	10	24	0	2	0	1.5	cons	none	acute	audit
RBE	600000	450	DGH	64.25	15	15	40	40	5	1	0	cons	none	acute	doctors
RCH	450000	500	DGH	65	16	11	20	0	5	0	0	cons	axial	acute	doctors
RDE	754934	633	DGH	37.5	12	6	14	0	2	0	0	none	axial	acute	nurses

Hospital	TCP	Hip#/yr	Service description	Trauma hrs/wk	Orth. Con.	Orth. M.G.	Hrs OG Con.	Hrs OG M.G.	OG ward rounds/wk	Hip# nurse	Falls Nurse	Falls clinic	DXA	Rehab	Data collectors
RFH	300000	200	DGH	20	6.3	6	20	15	5	1	0	cons	axial	GORU	doctors
RGH	240000	300	DGH	17.5	7	6	4	0	2	0	0	none	axial	GORU	nurses
RLU	350000	380	both	84	19.8	10	12	0	3	0.6	0	cons	axial	GORU	nurses
RSC	460000	550	both	96	17.1	22	20	0	3	0	0	cons	none	acute	audit
RSU	320000	360	DGH	31.5	12	13	20	40	5	0	0	cons	none	acute	nurses
RUS	500000	380	DGH	48	11	9	12	32	3	4	0	cons	axial	acute	nurses
RVB	1020000	963	both	132	7.5	5	5	55.5	8	0	1	cons	none	GORU	audit
SAL	200000	440	DGH	24	8	6	4	40	5	0	2	cons	axial	acute	audit
SAN	550000	350	DGH	74	12.5	18	0	0	0	0	0	cons	axial	acute	nurses
SCA	250000	330	DGH	21	4.6	3	0	3	2	0	0	none	axial	acute	nurses
SCM	270000	387	both	45	8	12.5	4	0	0	0	0	none	axial	GORU	audit
SCU	28100	279	DGH	28	5	8	0	0	1	0	0	nurse	axial	GORU	audit
SEH	300000	571	DGH	24	12	10	0	0	1	0	0	nurse	axial	GORU	audit
SGH	600000	600	both	90	17	20	24	52	5	0	0	cons	axial	acute	nurses
SHC	350000	365	DGH	42	11	10	6	0	2	0	1	none	axial	acute	audit
SHH	350000	372	DGH	57	16	8	5	0	3	1	0	cons	axial	acute	nurses
SLF	216130	246	both	42	9.2	8	9	0	1	0.5	0.5	cons	axial	acute	doctors
SMV	450000	409	DGH	49	12.5	12	8	6	1	0	1	cons	peri	GORU	nurses
SOH	383000	390	DGH	23	5	12	6	5	3	3	0	nurse	none	GORU	audit
SPH	450000	350	both	33	12.61	13	12	0	3	1	1	cons	axial	acute	nurses
STD	156000	225	DGH	21	5	5	5	2	3	1	0	cons	axial	GORU	nurses
STH	400000	220	tertiary	46	8	0	6	6	2	0	1	cons	axial	acute	doctors
STM	250000	165	both	28	8.5	6	40	40	5	2	1	cons	axial	acute	audit
STO	500000	550	both	60	19	16	10	0	2	2	1	nurse	axial	acute	nurses
STR	220000	400	DGH	45.5	7	8	12	4	5	0	0	none	none	acute	nurses
SUN	350000	400	DGH	49	13	8	3.5	0	3	2	1	cons	peri	acute	nurses
TGA	250000	350	DGH	50	7	8	4	2	3	0	0.2	cons	none	acute	nurses

Hospital	TCP	Hip#/yr	Service description	Trauma hrs/wk	Orth. Con.	Orth. M.G.	Hrs OG Con.	Hrs OG M.G.	OG ward rounds/wk	Hip# nurse	Falls Nurse	Falls clinic	DXA	Rehab	Data collectors
TOR	285000	495	DGH	56	13	9	0	42	5	0	0	none	axial	acute	nurses
UHC	270000	380	DGH	25	9	7	3.5	3.5	1	1.64	0	none	none	acute	nurses
UHN	750000	780	both	100	15	21	40	0	5	0.5	0.5	cons	axial	acute	audit
UHW	500000	500	both	84	26	8	25	20	7	3	0	none	axial	acute	nurses
VIC	330000	471	DGH	40	7	6	12	4	4	1	0	none	peri	GORU	audit
WAR	270000	380	DGH	25	9	7	3.5	3.5	1	1.64	0	none	none	acute	nurses
WAT	500000	450	DGH	52	10	14	14	40	4	0	0	cons	none	GORU	nurses
WCI	165300	137	DGH	17.5	5.5	5	0	0	0	1	0	none	axial	acute	nurses
WDH	220000	300	DGH	34.5	8	7	4	0	1.5	0	0	none	axial	acute	nurses
WEX	500000	366	DGH	44	8	12	2	0	2	0	0	cons	none	acute	nurses
WGH	200000	308	DGH				4	4	0	0	0	cons	axial	acute	audit
WHC															
WHH	175000	240	DGH	26	9	0	16	37	5	0	1	cons	none	GORU	audit
WHT	240000	110	DGH	20	8	8	8	0	2	0	0	cons	axial	acute	doctors
WMU		191	DGH	24	4	7	3	3	2	1	1	cons	peri	acute	nurses
WRC	325000	330	DGH	5.7	7	6	0.5	0	0	0	0	none	axial	GORU	nurses
WRG	300000	450	DGH	31	7	9	21	8	3	0	0	cons	none	GORU	nurses
WRX	250000	250	DGH	27	8	6	15	15	3	0	1	none	none	GORU	nurses
WWG	178043	240	DGH	21.5	10	7	2	1	1	1	0	nurse	none	acute	nurses
WYB	135000	200	DGH	18	5	5	0	0	0	0	0.8	none	none	GORU	nurses
WYT	570000	337	both	37	8	8	4	4	4	2	2	cons	none	GORU	nurses
YDH	350000	400	DGH	36	10	8	20	0	4	0	0	cons	none	acute	audit

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Synthesis Medical Communications

British Orthopaedic Association

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Healthcare Quality Improvement Partnership

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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** or contact:

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