



**Scottish Hip
Fracture Audit**

© NHS National Services Scotland/Crown Copyright 2018

First published October 2009

Brief extracts from this publication may be reproduced provided the source is fully acknowledged. Proposals for reproduction of large extracts should be addressed to:

PHI Digital Support
NHS National Services Scotland
Gyle Square
1 South Gyle Crescent
Edinburgh EH12 9EB

Tel: +44 (0)131 275 6233

Email: nss.phigraphics@nhs.net

Designed and typeset by:

Jakub Adamów, PHI Digital Support

Translation Service

If you would like this report in a different language, large print or Braille (English only), or would like information on how it can be translated into your community language, please phone 0845 310 9900 quoting reference 287407.

This is a Management Information publication

Published management information are non-official statistics which may be in the process of being transitioned into official statistics. They may not comply with the UK Statistics Authority's Code of Practice with regard to high data quality or high public value but there is a public interest or a specific interest by a specialist user group in accessing these statistics as there are no associated official statistics available.

Users should therefore be aware of the aspects of data quality and caveats surrounding these data, all of which are listed in this document.

Find out more about Management Information publications at: www.statisticsauthority.gov.uk/wp-content/uploads/2016/06/National-Statisticians-Guidance-Management-Information-and-Official-Statistics.pdf

Many thanks to Anna and Kathleen Sweeney for supplying the cover photo and for sharing their personal experiences of hip fracture.

Contents

Foreword from the Chief Medical Officer for Scotland	2
Chairman's Report	3
Key Results: Achievement of Scottish Standards of Care for Hip Fracture Patients in 2017	5
Achieving the Scottish Standards of Care for Hip Fracture Patients 2017	6
Audit Results	9
Appendices	33
Appendix 1 Background information	33
Appendix 2 Hospital abbreviations and data completeness	34
Appendix 3 Members of the Scottish Hip Fracture Audit and Advisory Group	35
Appendix 4 Local Audit Coordinators	36
Appendix 5 Early access details	38
Appendix 6 ISD and Official Statistics	39
Appendix 7 Contact details	40
Appendix 8 Access to the Trauma and Orthopaedic Dashboard	41

Foreword from the Chief Medical Officer for Scotland

In the 70th anniversary of the NHS, I feel very privileged to be part of the NHS in Scotland. There has been great improvement in public health, clinical diagnosis, and advances in surgery, medicines and technology, plus focused emphasis on prevention and health education. This success has resulted in the NHS having to develop, adapt and evolve to meet the demands of a growing and ageing population. In Scotland, we have an increasing population and a growing number of people with multiple and complex conditions requiring treatment. Patients who sustain hip fractures are a prime example of this.

With the movement toward “realistic medicine” and to a culture of shared decision-making between people and their health care provider, we can develop a personalised care approach and ensure that their priorities are met. Through shared decision-making, we will get better at understanding what matters most to patients.

At the last national hip fracture conference in August 2017, I presented a story of a lady who had lived happily at home until an acute episode of ill health when she required hospital admission. The lady was adamant that her wishes be that she returned home, however following a home visit, health and social care staff deemed her home to be uninhabitable. Despite this, health and social care proactively worked with the lady to provide a solution that she wanted, which meant she could go home. An example of true integrated working.

With this story in mind, I would ask you all to consider and act collaboratively on ways that we can optimise patient care, preserving their ability to retain independence so that we can improve the rates of people who fracture their hips returning to their original place of residence as quickly and as safely as possible. Whilst this is not an insignificant injury, it should be within the reach of modern healthcare to be able to provide this. It is what people really want, especially at a time in their life when levels of self-efficacy and autonomy are frequently questioned, and the time to live life as they choose is even more precious.



Catherine Calderwood
Chief Medical Officer for Scotland

Chairman's Report

The Scottish Hip Fracture Audit (SHFA) and Care Pathway is now in its 6th year since a 4-month 'snapshot' audit originally undertaken in 2012/13. This original report highlighted significant variation in practice across the country and a number of important areas for improvement in clinical care. Since this time, the SHFA and Care Pathway has expanded in its remit and now aims to audit all hip fracture patients admitted to hospital in Scotland aged 50 years and above. This current document reports on 6,669 hip fractures between January and December 2017, representing 93% of all patients admitted during this time period.

The aim of the SHFA is to improve the quality of care provided to this patient group in order to provide care which is safe, efficient and patient centred. This is often difficult in the case of hip fracture patients as they represent a heterogeneous patient group, varying from those who are fit and living independently at the time of injury to those who are at the end of their lives.

I would like to take this opportunity to thank the Hip Fracture Advisory Group and in particular the health care professionals who work in each of the orthopaedic units around the country who have been instrumental in delivering the substantial improvements in patient care.

Scotland now has the shortest length of stay following hip fracture in the United Kingdom, falling from a median of 22 to 18 days over the past 6 years. We have also observed a fall in the number of outlier units for 30-day mortality from 4 last year, to only 2 this year.

The Standards of Care for Hip Fracture Patients in Scotland was updated as of February 2018. The Standards of Care document will be further updated later this year to include additional Key Performance Indicators (KPIs), for example, the use of fascia iliaca blocks for pain relief. In addition to this, we are undertaking a review of the dataset collected in order to improve and develop it. We now have an extensive dataset which includes over 18,000 patients which is an important research resource.

One of the questions I have been asked repeatedly in the past is what evidence exists for using the Standards of Care KPIs. This question was answered in a recent paper *Quality of care in hip fracture patients: The relationship between adherence to national standards and improved outcomes* (doi: 10.2106/JBJS.17.00884) which confirmed the association between attainment of the hip fractures standards of care and improved patient outcomes.

While much has been achieved in terms of improving the quality of care hip fracture patients receive, much remains to be done. Widespread variation in care exists across the country in areas such as Emergency Department assessments, ward assessments, repeat fasting and provision of Care of the Elderly assessments. I would draw particular attention to the lack of delirium screening undertaken in many Emergency Department (ED) units across Scotland. This is an example of unexplained and indeed unacceptable variation in practice, as several ED units manage this assessment in more than 90% of cases. This will be an area of focus for the coming year, as will other areas where such variation exists.

The overall total attainment of the Standards of Care KPIs varies from 50-80% across the country.

We at the SHFA Advisory Group will continue, with the invaluable assistance of local staff within the orthopaedic departments across Scotland, to work tirelessly to reduce unnecessary variation in practice and to continue to improve the quality of care this vulnerable patient group receives.



Graeme Holt

Orthopaedic Surgeon, Chair of Scottish Hip Fracture Advisory Group

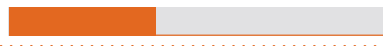
Key Results: Achievement of Scottish Standards of Care for Hip Fracture Patients in 2017



Providing early pain relief is essential to improve comfort. However, some of the drugs used can increase the risk of delirium and are not always effective. An injection into a nerve in the thigh called a **facia iliaca block** is a good alternative: it provides relief from pain and helps to avoid using drugs such as morphine. **Facia iliaca block use in ED increased to 48%** in 2017.



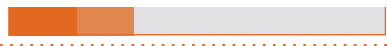
People who suffer from a hip fracture are often frail and elderly and at risk of developing **delirium**. This condition is associated with increased length of stay, admission to care homes and mortality. Therefore, screening to identify this at the earliest opportunity is a priority. **39%** had **delirium screening in ED**, a similar figure to 2016.



Chronic **cognitive impairment** is common in people who have fractured their hip. This should be assessed along with testing for the presence of acute delirium. **Cognition assessment within 24 hours of inpatient admission decreased slightly to 91%** in 2017.



People who have sustained a hip fracture are frequently malnourished and/or dehydrated on admission to hospital. Therefore, repeatedly **fasting** patients can exacerbate the issue. In 2017 **18%** of patients were **fasted more than once** for theatre, a **slight improvement** from the previous year, however still **varying from 0% to 33%** between hospitals.



Patients should be offered and encouraged to drink **clear fluids** to avoid dehydration and relieve thirst. In 2017 **34%** of patients were given **oral fluids** to at least **4 hours** prior to theatre, an **increase of 8%** from the previous year...



...but **17%** were not given oral fluids for in excess of **10 hours**, however this is an **improvement** on the previous year.



A **nutritional assessment** can help to identify malnutrition and factors which may prevent people from eating and drinking while in hospital. Rates **continue to rise** and in 2017, **83%** of patients had a **nutritional assessment** within 24 hours of inpatient admission.



Delaying surgical repair of the hip fracture has been associated with increased rates of mortality, complications and a longer hospital stay. In 2017 **30%** of people had a **delay to theatre greater than 36 hours**, usually because of a lack of theatre time or for anaesthetic reasons, a **slight decrease** from last year.



Allied Health Professional (AHP) involvement is essential to the **rehabilitation process** following a hip fracture and early intervention can expedite discharge from hospital. All patients should have access to this specialist input, regardless of whether they live in their own home or in residential/nursing care. Rates continue to rise with **91%** of people seen by a **physiotherapist** in 2017...



...and **69%** by an **occupational therapist** within recommended time scales.



Osteoporosis risk assessment and treatment is important to assist with the prevention of further fractures. **Consideration of bone health fell slightly to 86%** in 2017.



Many patients presenting with hip fractures are frail and have complex medical problems. **Collaborative working** with geriatricians has been shown to improve the quality of medical care in this frail group. More people (**78%**) had a **geriatric assessment** within 3 days of admission in 2017 and this continues to **rise**.



principle aim: to **return more people home safely** within **30 days: 58%** in 2017.



Achieving the Scottish Standards of Care for Hip Fracture Patients 2017

Achieving the Scottish Standards of Care for Hip Fracture Patients and reducing variation is one of the key outcome measures of the Scottish Hip Fracture Audit. Standardising care for every person who suffers a hip fracture in Scotland is paramount to improving the overall quality of care provided as well as providing equity of care nationally. Over the course of 2017, there was an increased focus on empowering clinical staff to improve achievement of these standards at a local level which included closer working with audit staff to ensure the quality and accuracy of the data collected.

Whilst the following results may not demonstrate huge changes in rates of compliance, the small incremental improvements indicate the continued growing momentum of clinical staff to make local manageable changes to improve care of patients with a hip fracture.

The following standards were in place in 2017 and were used as the basis of this report:

Standard 1 Patients with a hip fracture should be transferred from the Emergency Department to the orthopaedic ward within 4 hours.

Standard 2 Patients who have a clinical suspicion or confirmation of a hip fracture have the 'Big Six' interventions/treatments before leaving the Emergency Department:

1. Provision of pain relief
2. Screening for delirium
3. Early Warning Score (EWS) system
4. Full blood investigation and electrocardiogram
5. Intravenous fluids therapy
6. Pressure area care

Standard 3 Every patient with a hip fracture should receive the 'inpatient bundle of care' within 24 hours of admission.

1. Baseline assessment of cognitive function
2. Falls assessment
3. Food, fluids and nutritional assessment
4. Pressure area assessment

Standard 4 Patients must undergo surgical repair of their hip fracture within 36 hours of admission.

- Standard 5** No patients should be repeatedly fasted in preparation for surgery. In addition, oral fluids should be encouraged up to 2 hours prior to surgery.
- Standard 6** Pre-operative catheterisation should only be carried out for identified medical reasons and not be used as 'routine' practice.
- Standard 7** Cemented hemi-arthroplasty implants should be standard unless clinically indicated otherwise.
- Standard 8** Every patient who is identified locally as being frail should receive comprehensive geriatric assessment within 3 days of admission.
- Standard 9** Mobilisation should have begun by the end of the first day after surgery and every patient should have a physiotherapy assessment by the end of day 2.
- Standard 10** Patients with a hip fracture should have an Occupational Therapy (OT) assessment by the end of day 3 post-operatively.
- Standard 11** Every patient who has a hip fracture should have an assessment of their bone health prior to leaving the acute orthopaedic ward.
- Standard 12** Every patient's recovery should be optimised by a multi-disciplinary team approach such that they are discharged safely back to their original place of residence within 30 days of admission.

As a result of ongoing and continued consultation with those involved in the care of hip fracture patients and a commitment to continuously improve, an updated set of Hip Fracture Standards were introduced from January 2018 and will be reported on in August 2019. The new 2018 Scottish Hip Fracture Standards can be found at www.shfa.scot.nhs.uk/_docs/2018/Scottish-standards-of-care-for-hip-fracture-patients-2018.pdf.

Summary of key changes in the 2018 standards

Removed (as covered by local guidelines for clinical care of all patients)

Standard 6 Pre-operative catheterisation should only be carried out for identified medical reasons and not used as routine practice.

Amended

Standard 10 Every patient has a documented Occupational Therapy assessment commenced by the end of day 3 after admission to the ward.

Standard 11 Every patient who has a hip fracture has an assessment of, or a referral for, their bone health prior to leaving the acute orthopaedic ward.

Audit Results

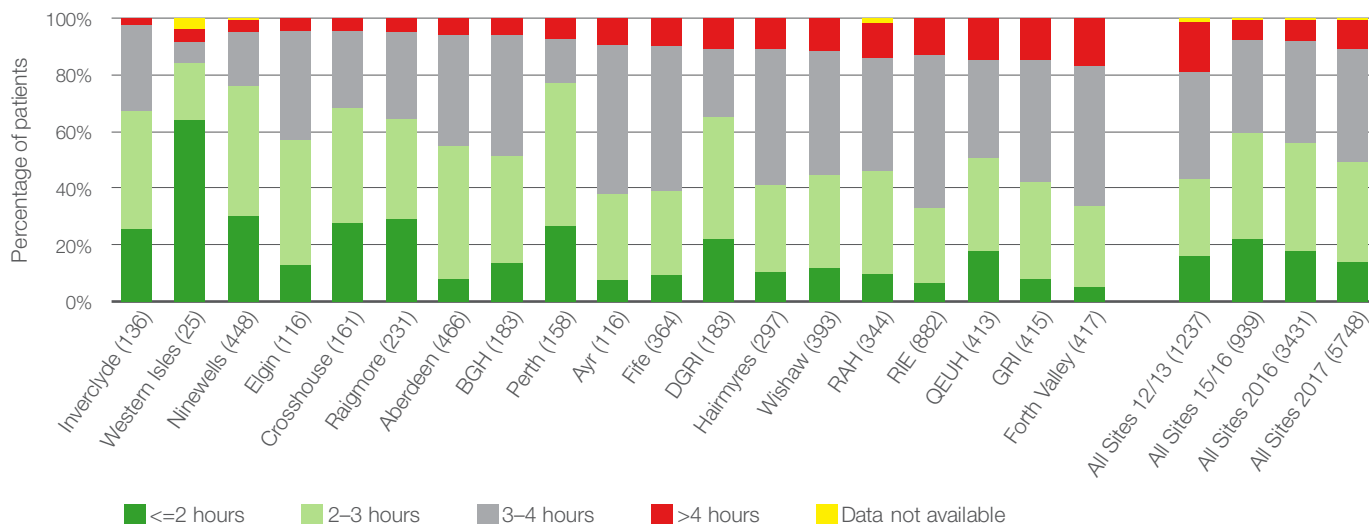
This section compares the audit data for each hospital against the Scottish Hip Fracture Care Standards and highlights national improvements since the 2012/13 audit.

It should be noted that within this report direct comparisons are made between 2016 and 2017 audit data. During the 2016 data collection period only 8 months of data was available whereas 2017 is a full year of data. Comparisons can, however, still be made.

Standard 1 Patients with a hip fracture should be transferred from the Emergency Department (ED) to the orthopaedic ward within four hours.

Rationale Following clinical confirmation or diagnosis of a hip fracture, local protocols should ensure the efficient and safe transfer of the patient to an orthopaedic ward. This transfer should not be delayed by a requirement that the patient is reviewed by the receiving orthopaedic team in ED unless diagnostic uncertainty exists. Unless indicated for essential medical interventions, these frail elderly patients should not have an extended stay in an ED as this represents a delay to the area of definitive care.

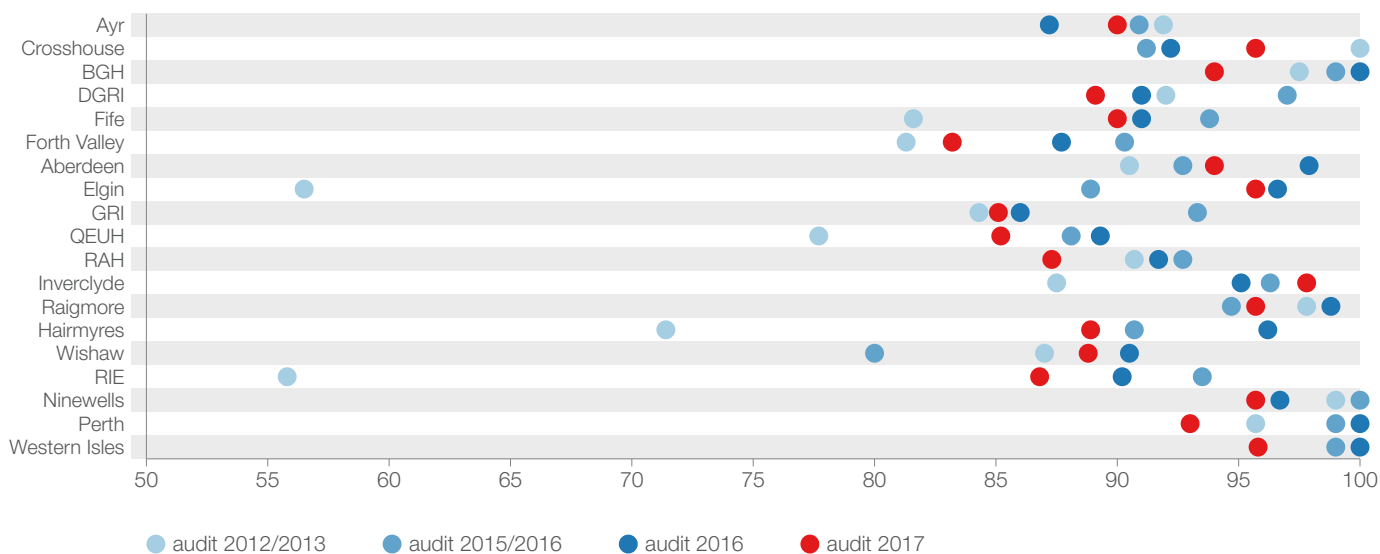
Fig. 1.1 Time in Emergency Department



Excludes patients who were in ED following a transfer from another hospital

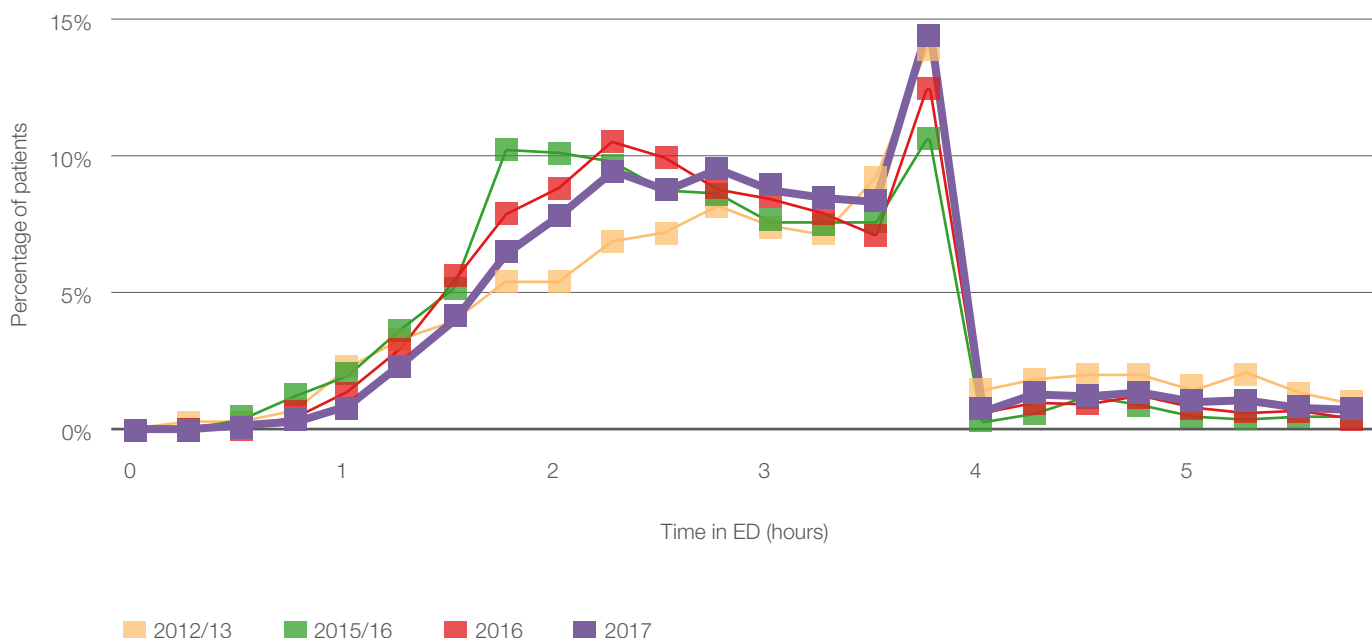
Most Scottish hospitals were able to transfer people with a hip fracture to a ward within the four hour time scale. However, as noted in Fig 1.1, nationally the Figure for 2017 was 90%, which is below the current national Accident and Emergency waiting time standard of 95%.

Fig. 1.1.a Percentage of patients transferred within four hours



Of the 5,748 patients admitted directly to ED during the data collection period, 591 (10%) were in ED for longer than 4 hours. There continued to be considerable variation between the best and worst performing hospitals (Fig 1.1). Some of this may be attributable to overall workload but ‘exit block’ also continues to be a major contributor in larger hospitals. This standard aims to emphasise good care within ED rather than making transfer time the main priority. Good performance in the 4 hour ED standard should be married with similar performance in completing all of the ‘Big 6’ ED interventions (Standard 2).

Fig. 1.2 Transfer time from ED to ward



We have again seen an increase in the percentage of patients waiting over 4 hours in ED (10%), a 2% increase from 2016 (8%). There also continues to be a slight increase of 1% of those patients waiting from 2–4 hours in ED (75% in 2016, 76% in 2017).

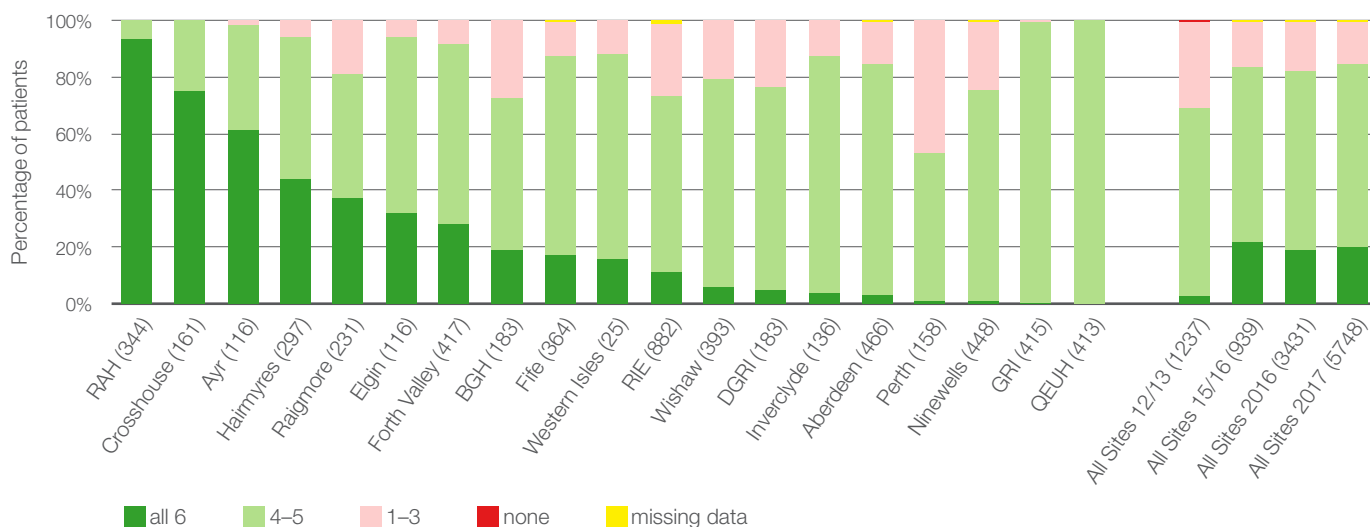
Standard 2

Patients who have a clinical suspicion or confirmation of a hip fracture should have the ‘Big Six’ interventions/treatments before leaving the Emergency Department.

Rationale Every patient who has clinical suspicion or confirmation of a hip fracture should have the following ‘Big Six’ interventions/treatments in ED (or earlier if an inter-hospital transfer), as part of the local protocol.

- » Provision of pain relief
- » Screening for delirium
- » Early Warning Score (EWS) system
- » Full bloods investigation and electrocardiogram
- » Intravenous fluid therapy
- » Pressure area care

Fig. 2.1 ‘Big Six’ ED interventions/treatments



Full completion of the ‘Big Six’ bundle of care in ED remains low nationally and indeed remains the same as 2016 at 20% but there is notable variation between hospitals.

- » The Royal Alexandra Hospital has continued to improve attainment of the ‘Big Six’, improving from 80% in 2016 to 94% in 2017.
- » Whilst performance at Crosshouse and Ayr Hospitals fell in 2017 compared to 2016 and should be explored further, they still continued to perform better than most other hospitals across Scotland.
- » Fig 2.1a shows that Queen Elizabeth University Hospital (QEUH), Glasgow Royal Infirmary (GRI), Ninewells and Perth have consistently failed to achieve any significant improvement from the 2015/16 audit. NHS Tayside (Ninewells and Perth) continue to adopt their own protocol.

Fig. 2.1a Percentage of patients receiving all six ED interventions/treatments

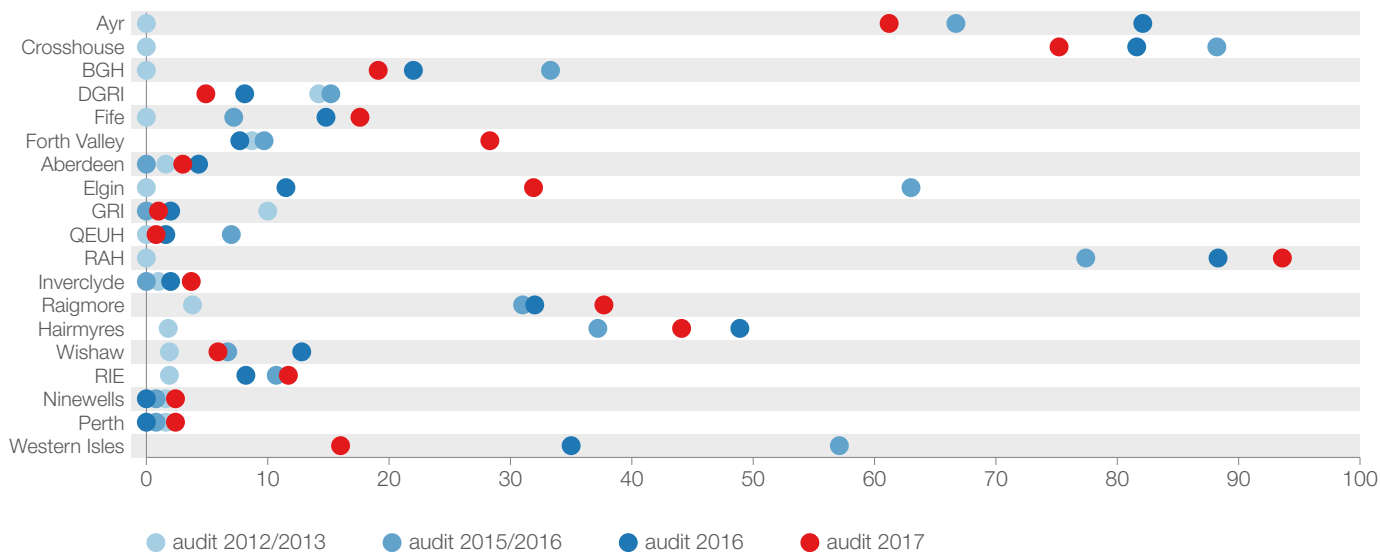
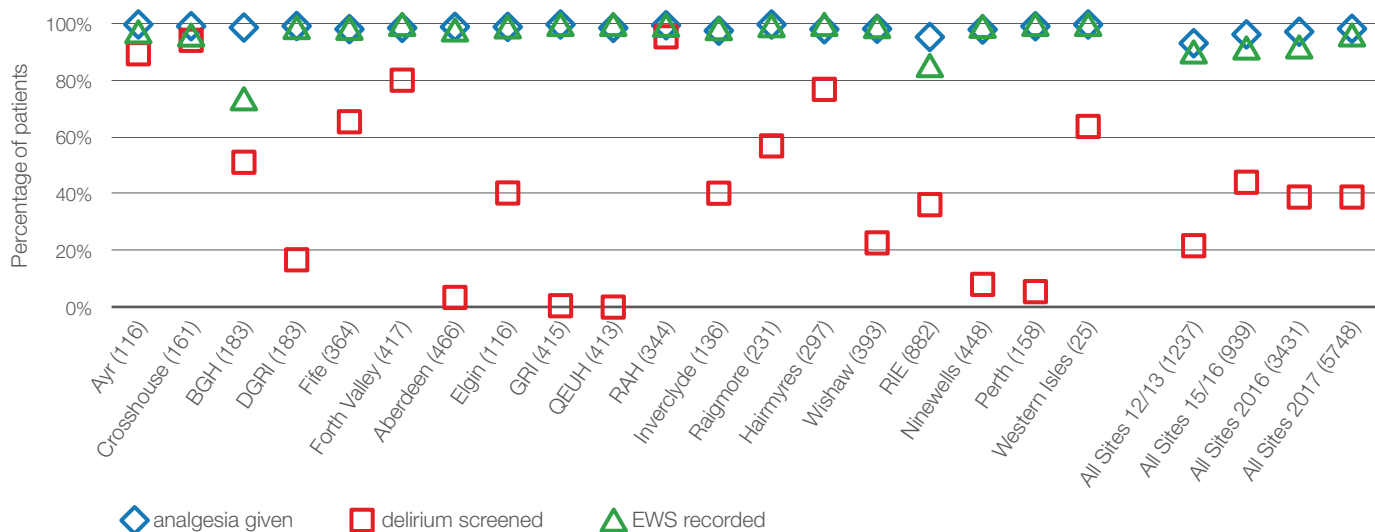


Fig. 2.2 ‘Big Six’ interventions/treatments—pain relief, delirium screening, Early Warning Score

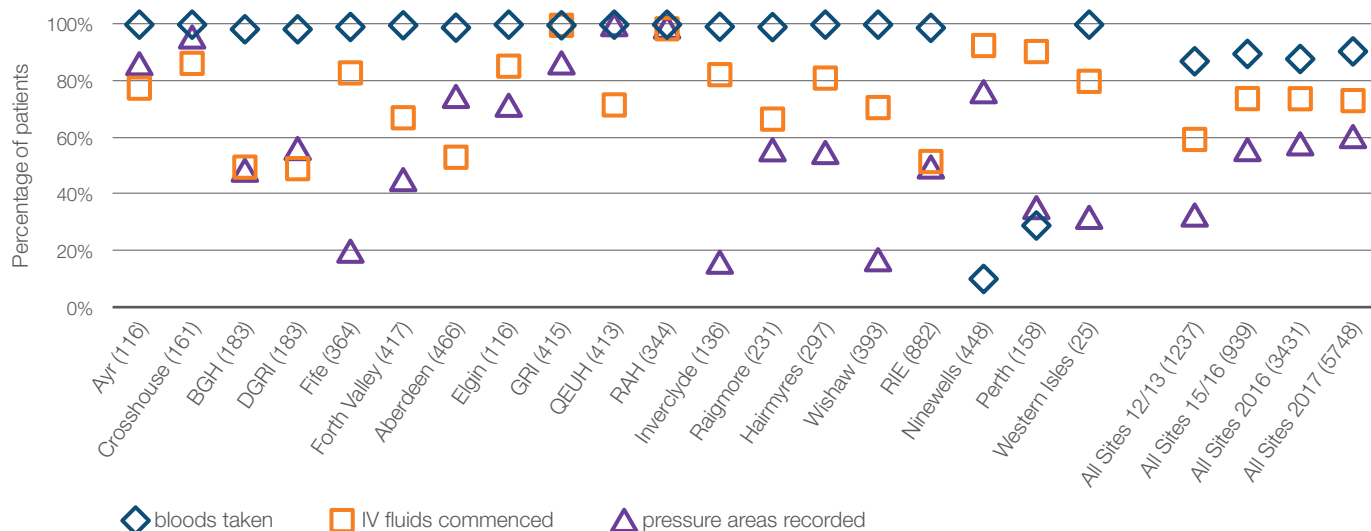


Screening for delirium

It is widely acknowledged that early screening to identify the presence of delirium is an essential step in managing and improving the outcomes for people who develop this condition. However there remain wide variations across Scottish Emergency Departments.

- » Screening for the presence of delirium in ED was almost never completed in 3 out of 19 hospitals (Aberdeen Royal Infirmary, Glasgow Royal Infirmary and Queen Elizabeth University Hospital).
- » It was completed for less than 20% of patients in Dumfries & Galloway Royal Infirmary (DGRI), Perth and Ninewells.
- » Ayr, Crosshouse and Royal Alexandra Hospital (RAH) carried out delirium screening for 90% or more of patients.

Fig. 2.3 ‘Big Six’ interventions/treatments—bloods taken, intravenous fluids commenced, pressure areas recorded



Full blood investigation

All but 2 hospitals in Scotland take bloods in ED. The exception is NHS Tayside hospitals (Ninewells and Perth) who continue to adopt their own protocol. Electrocardiogram is currently captured by the audit but not measured as part of the standard.

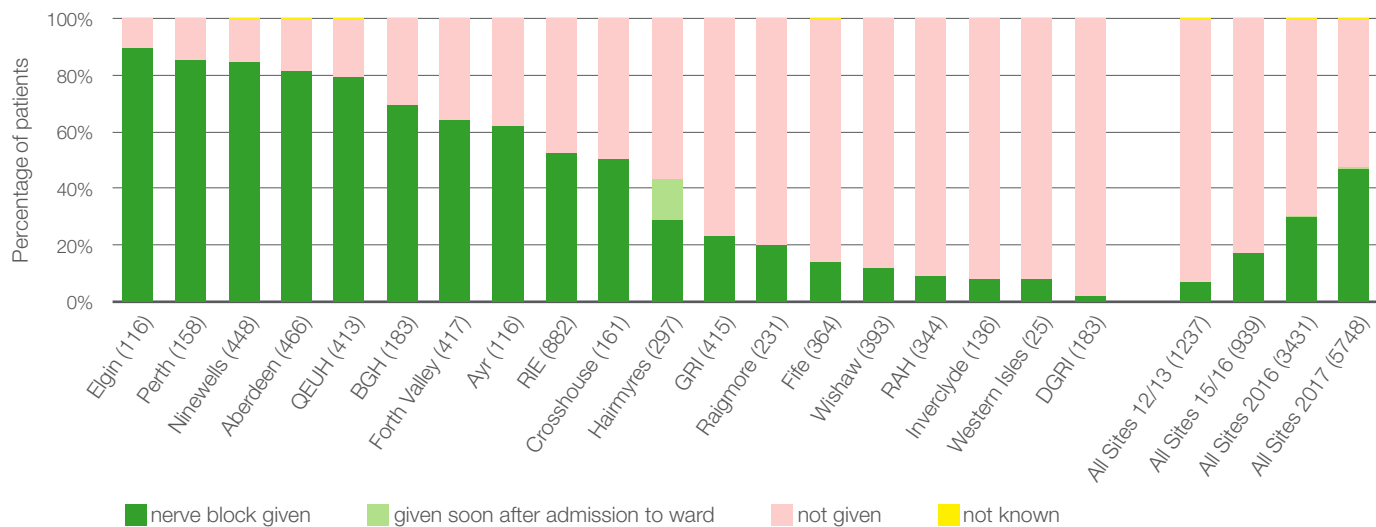
Intravenous fluids therapy

Prescription of intravenous fluids in ED was variable across Scotland. The Scottish Hip Fracture Audit Advisory Group is supporting clinical work in 2018 which is hoped will provide evidence of improved hydration and a reduction in acute kidney disease (AKI).

Pressure areas recorded

Documented observation of a person’s pressure areas was one of the poorest recorded bundle elements in 2017. This was documented in less than 40% of cases in Fife, Inverclyde, Wishaw, Perth and Western Isles. In some cases an issue with documentation has been identified as the main cause of lack of compliance and clinical staff have assured us that they are working to resolve this.

Fig. 2.4 Provision of pain relief—use of nerve blocks

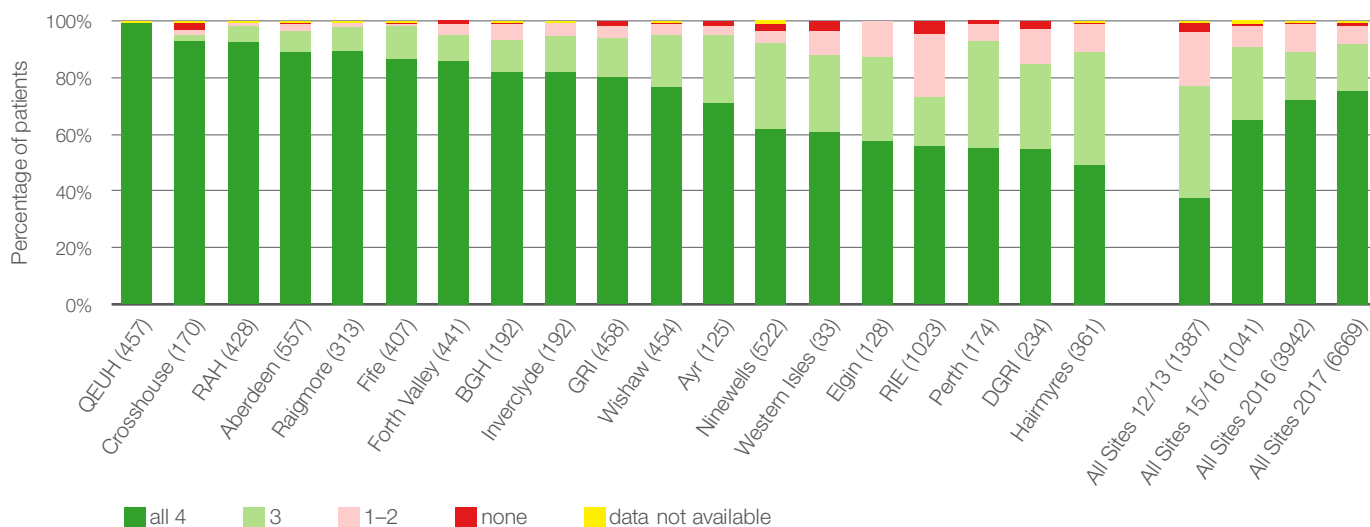


Nerve blocks have grown in popularity and more people with a hip fracture were given these in 2017 (48%, up from 31% in 2016).

Standard 3 Every patient with a hip fracture should receive the ‘inpatient bundle of care’ within 24 hours of admission.

Rationale The inpatient care bundle must be completed within 24 hours of admission to the orthopaedic/receiving ward. These assessments (cognitive, fall, nutritional and pressure area risk assessments), as well as the subsequent interventions, are essential to maximise the quality of care and overall patient outcome through a multi-disciplinary approach to patient care. Involvement with patients and relatives/carers is essential.

Fig. 3.1 Inpatient assessment bundle completed within 24 hours



In 12 of the 19 hospitals there continued to be an improvement in the number of patients receiving the inpatient bundle of care within 24 hours since 2016. However this means that in 7 of the hospitals there has been a decline with Glasgow Royal Infirmary, Inverclyde and Wishaw showing a year on year deterioration over the past 3 audit periods.

Fig. 3.1.a Percentage of patients receiving all 4 inpatient assessments

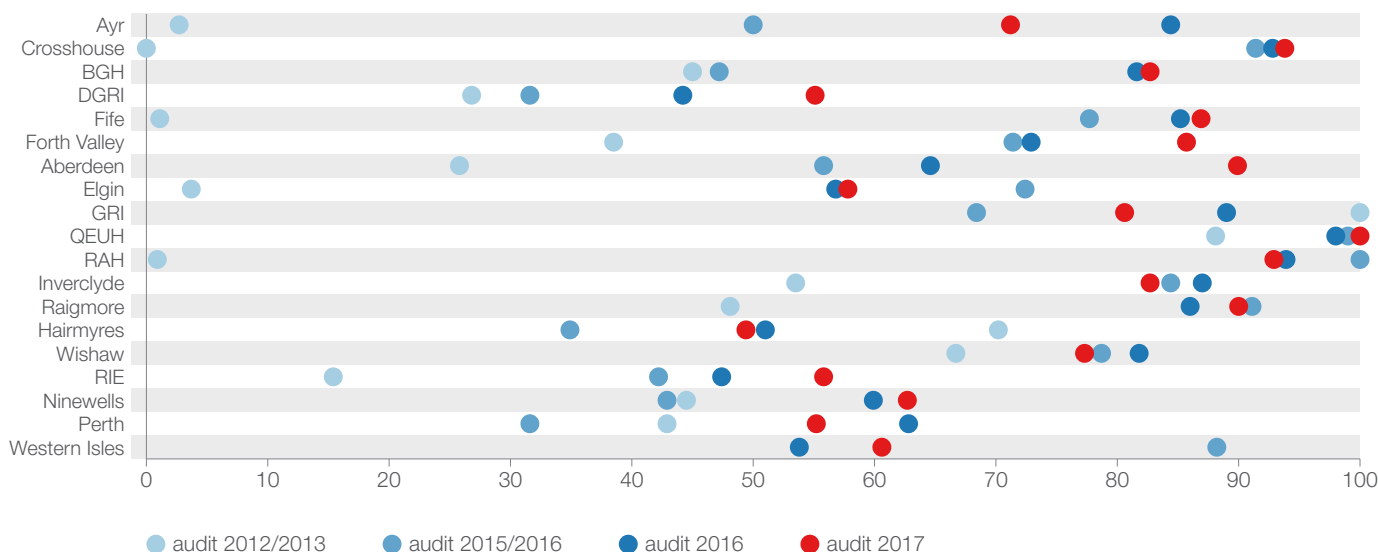
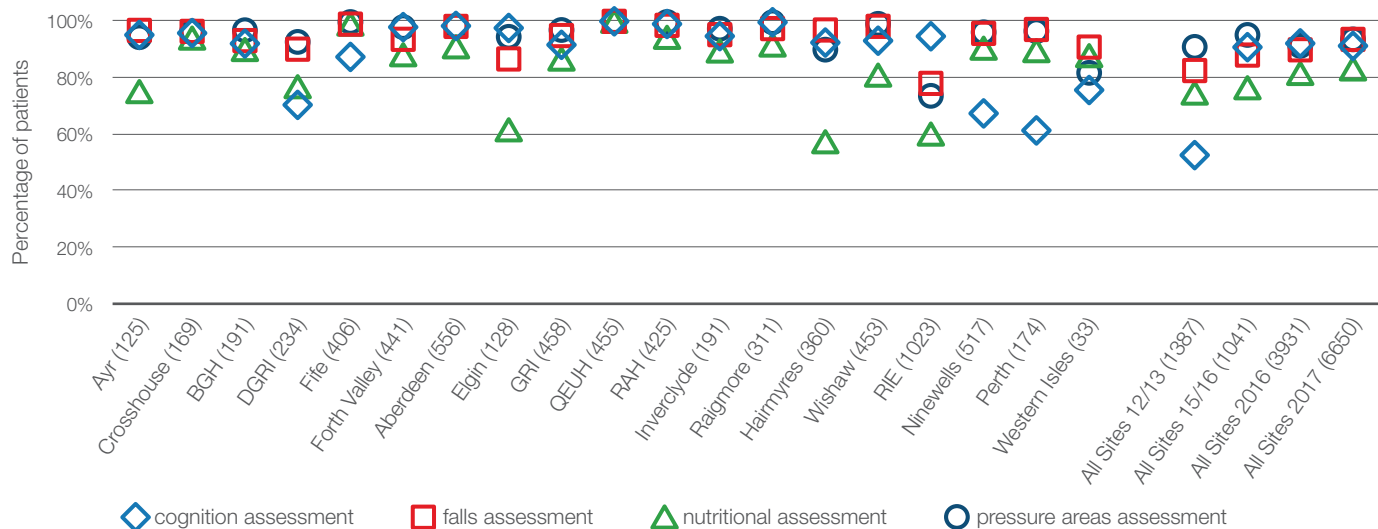


Fig. 3.2 Inpatient assessments by type



There was a continued increase in compliance with the inpatient bundle of care to 75% of patients receiving the full bundle of assessments (up from 72% in 2016). This was due to incremental increases in all bundle elements.

The assessments which were most poorly completed were predominantly baseline assessment of cognitive function and of nutritional assessment.

Standard 4 Patients must undergo surgical repair of their hip fracture within 36 hours of admission.

Rationale It is essential that surgical fixation of a hip fracture is expedited. Delayed fixation correlates with increased mortality at one year, increased complications and increased hospital stay. Hospitals must therefore be organised in such a way that facilitates timely and planned surgery without delays, meaning not only adequate theatre capacity for trauma surgery and availability of anaesthetists and surgeons, but also a means of rapidly assessing and optimising frail, elderly patients with multiple co-morbidities.

Fig. 4.1 Time to theatre for all patients

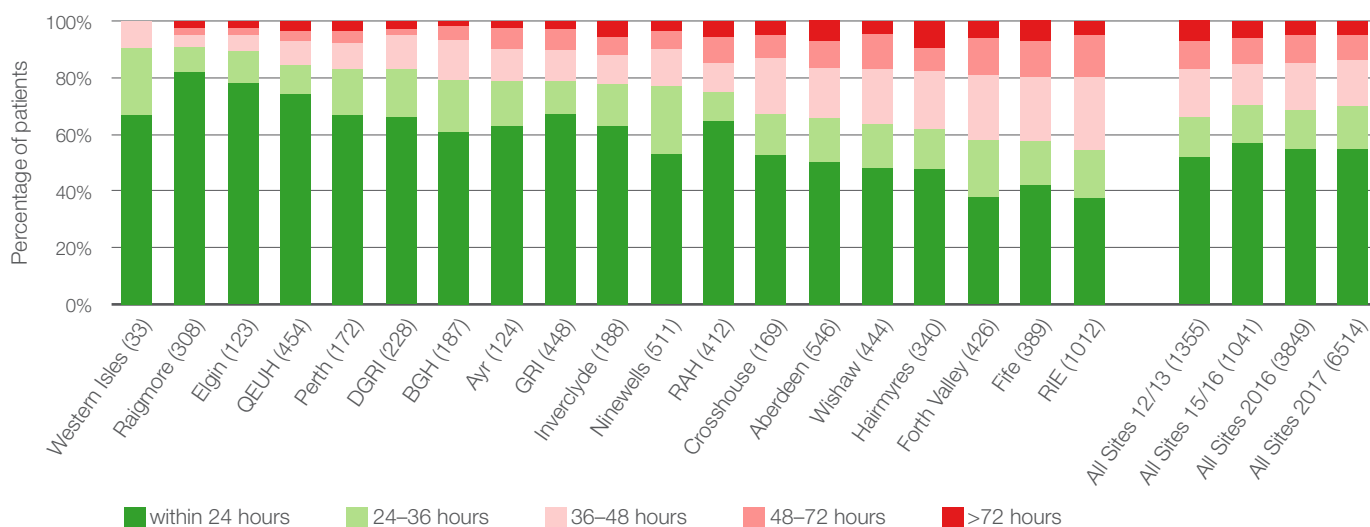
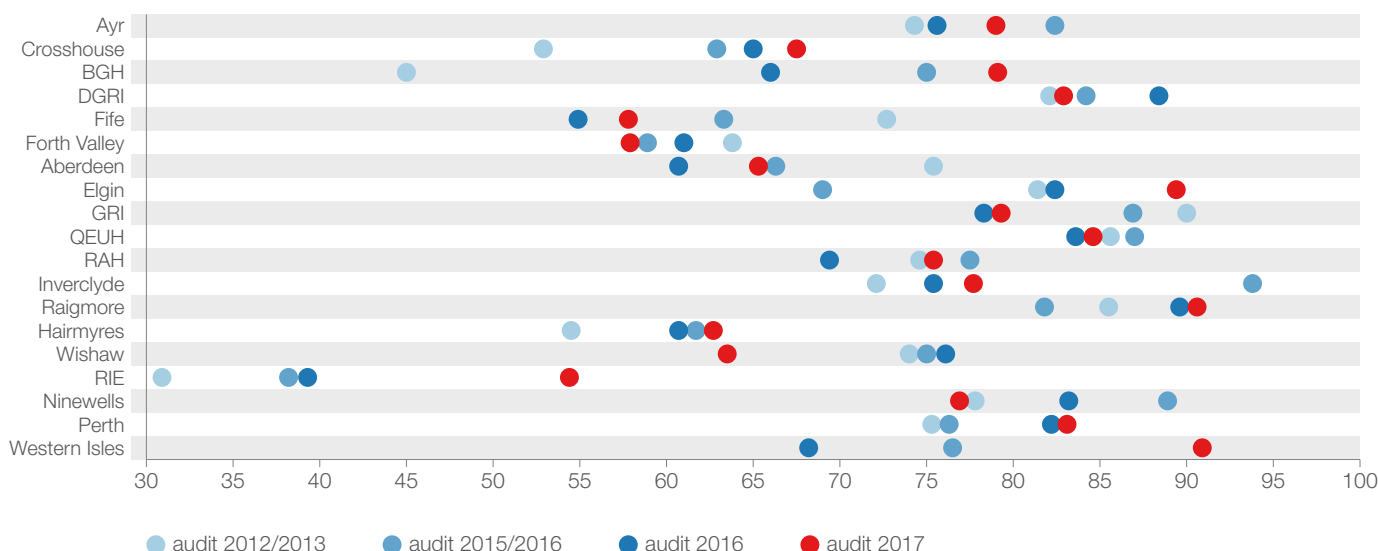


Fig. 4.1.a Percentage of patients having surgical repair within 36 hours

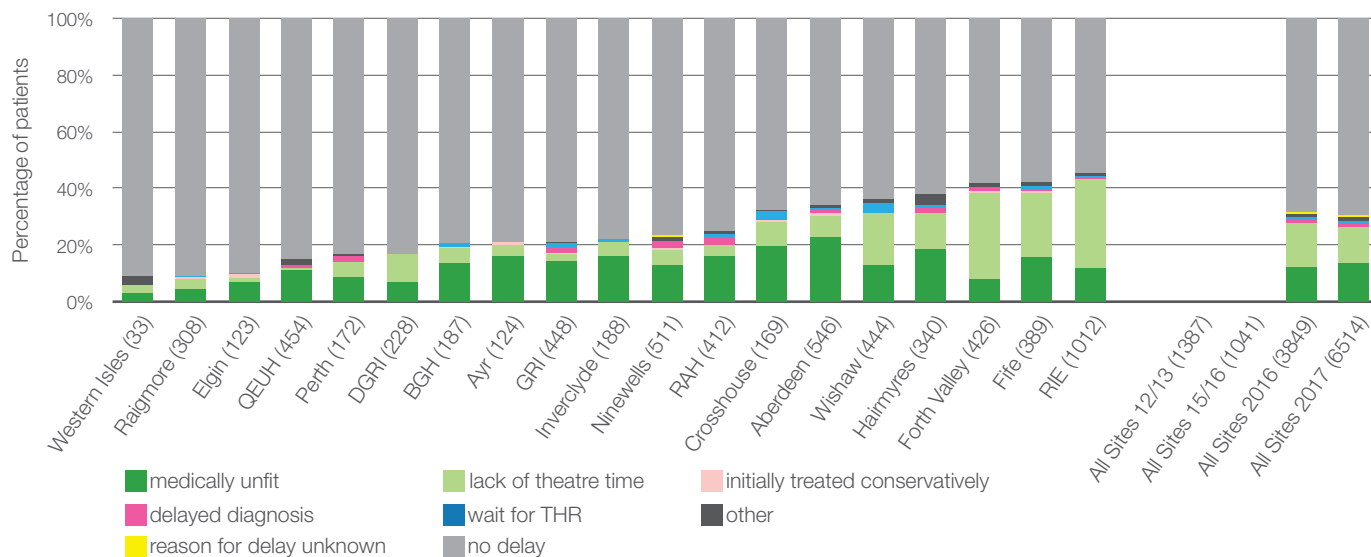


Across Scotland, 70% of patients had surgical repair of their hip fracture within the recommended 36 hours following admission and this figure has not changed significantly over the past few years. The majority of hospitals (14 out of 19) consistently provide surgical repair within the recommended time frames, but performance at Dumfries and Galloway Royal Infirmary, Forth Valley Royal, Wishaw and Ninewells Hospitals has continued to deteriorate year on year. Correspondingly these hospitals

recorded some of the highest rates of lack of theatre time as the cause of delay to surgical repair. See Fig 4.2.

Although Royal Infirmary of Edinburgh has shown an improvement in 2017 it still has the lowest percentage of patients receiving a surgical repair with 36 hours.

Fig. 4.2 Reasons for theatre delay if more than 36 hours



The vast majority of patients who were not operated on within the recommended 36 hours were either medically unfit to undergo a procedure (47%) or were unable to be taken for surgery due to lack of theatre time (43%). Rapid optimisation and proactive anticoagulation management is encouraged to reduce the amount of patients who are deemed medically unfit.

Standard 5

No patients should be repeatedly fasted in preparation for surgery. In addition, oral fluids should be encouraged up to two hours prior to surgery.

Rationale Repeating fasting cycles occur when patients are fasted for surgery and then cancelled, and this results in limited oral intake over a number of days. This should be avoided with careful and realistic planning of theatre lists and ensuring adequate theatre capacity. Communication between the theatre/ward teams and the patient (including relatives/carers) is essential. This collaborative approach can be facilitated through a nurse-led trauma liaison service.

Fig. 5.1 Was fasting cycle repeated?

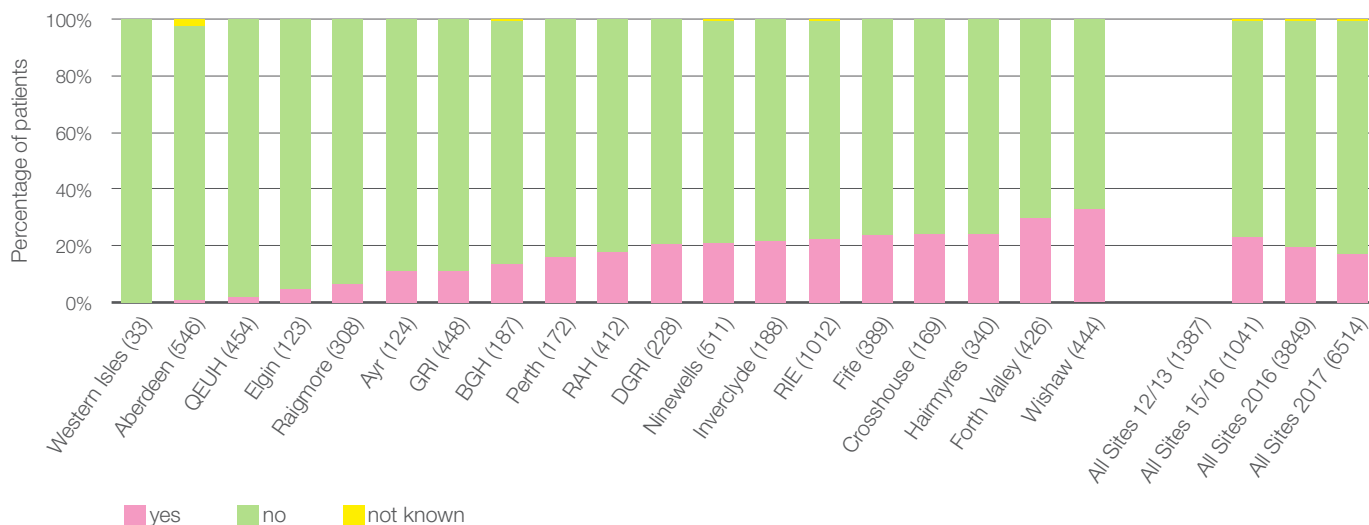
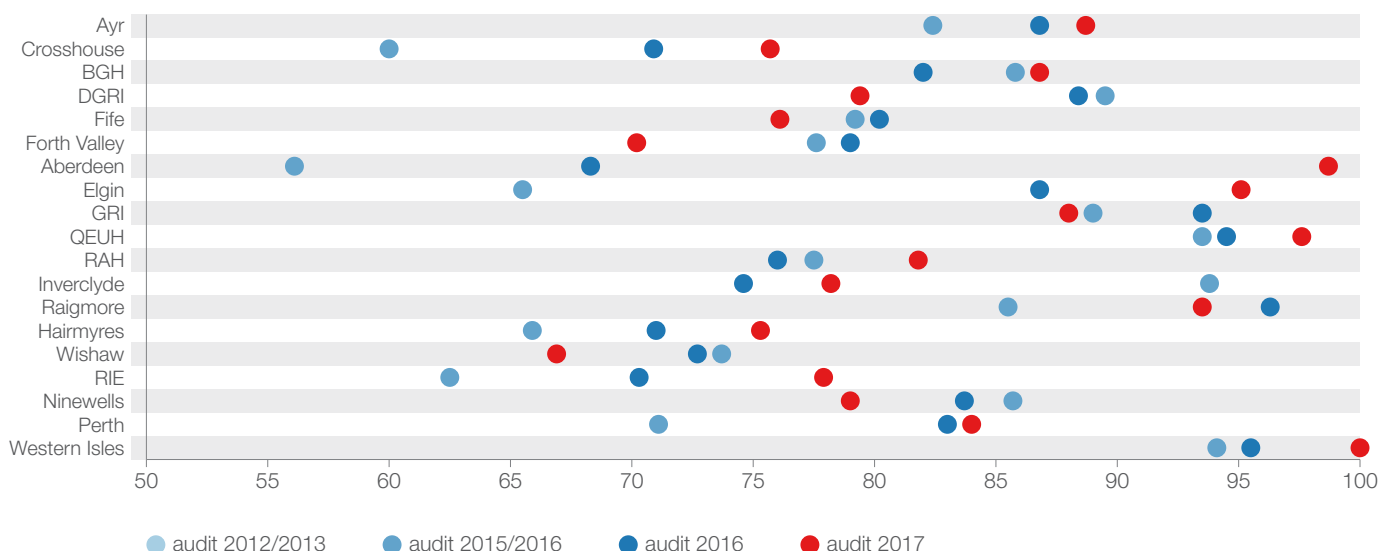
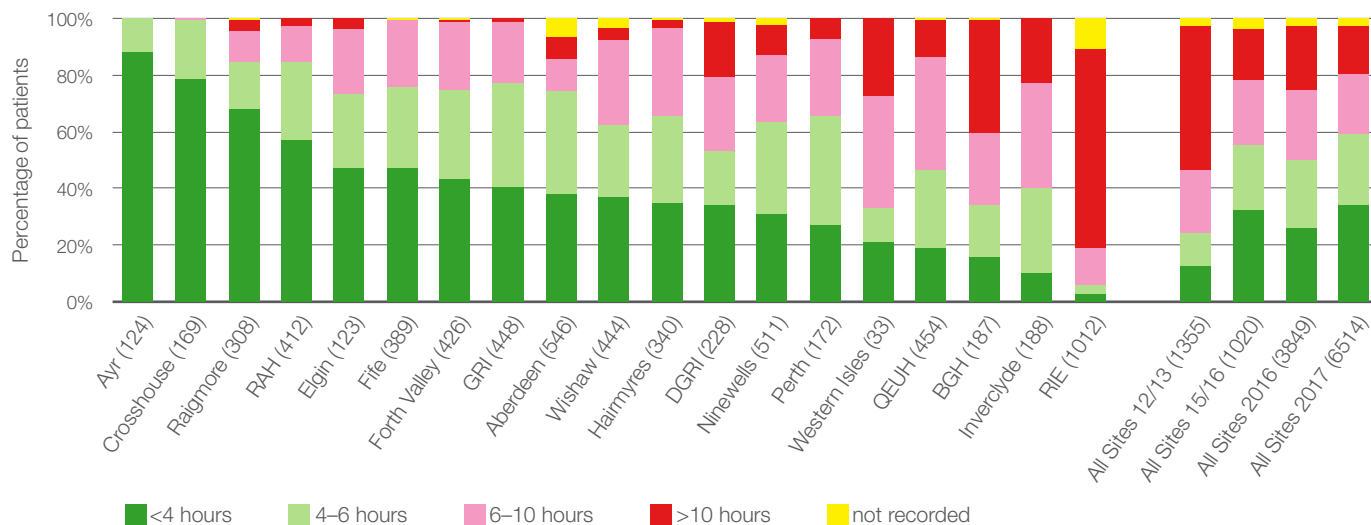


Fig. 5.1.a Percentage of patients fasted only once for surgery



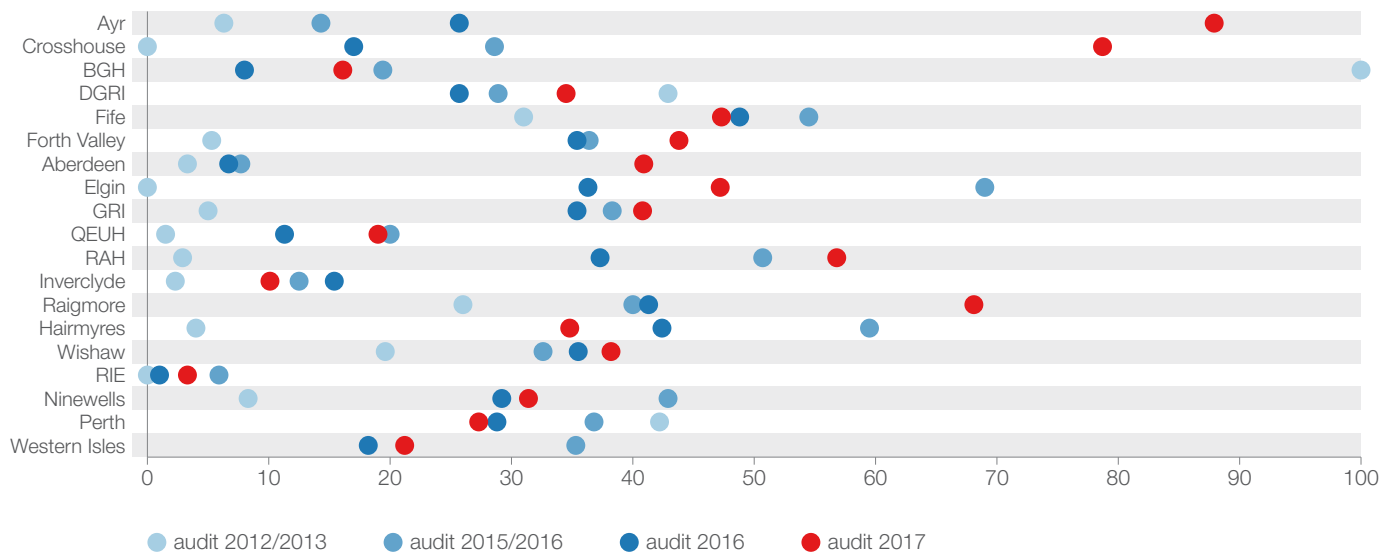
Most hospitals continue to find it challenging to co-ordinate theatre planning with ward staff to ensure that patients are not repeatedly fasted or denied oral fluids for extended periods of time. However some have developed simple solutions to improve this, such as introducing protocols which mean that every patient in the ward is offered a drink at 7am (Crosshouse) or changing fasting prescription from ‘fast from’ to ‘allow fluids until’ (Royal Alexandra Hospital).

Fig. 5.2 When were clear fluids stopped prior to surgery?



There is considerable variation of practice across the country as to when clear fluids are stopped prior to surgery. No patients at Ayr and Crosshouse Hospitals were denied clear fluids for more than 6 hours before surgery. By comparison, Royal Infirmary of Edinburgh stopped giving 97% of their patients fluids for more than 6 hours. The variation of practice remains at an unacceptable level and must be addressed nationally.

Fig. 5.2.a Percentage of patients where oral fluids were not withheld for more than four hours



Standard 6 Pre-operative catheterisation should only be carried out for identified medical reasons and not used as ‘routine’ practice.

This standard was removed as a standard during 2017 (as covered by local guidelines for clinical care of all patients) and is therefore no longer being reported routinely.

Standard 7 Cemented hemi-arthroplasty implants should be standard unless clinically indicated otherwise.

Rationale Use of cemented hemi-arthroplasty implants should be standard, as recommended by NICE (CG124/SIGN111) unless specifically contra-indicated by significant operative risk. The patient’s pre-existing ambulatory status should be a consideration when selecting the type of implant.

Fig. 7.1 Hemi-arthroplasty – use of cement

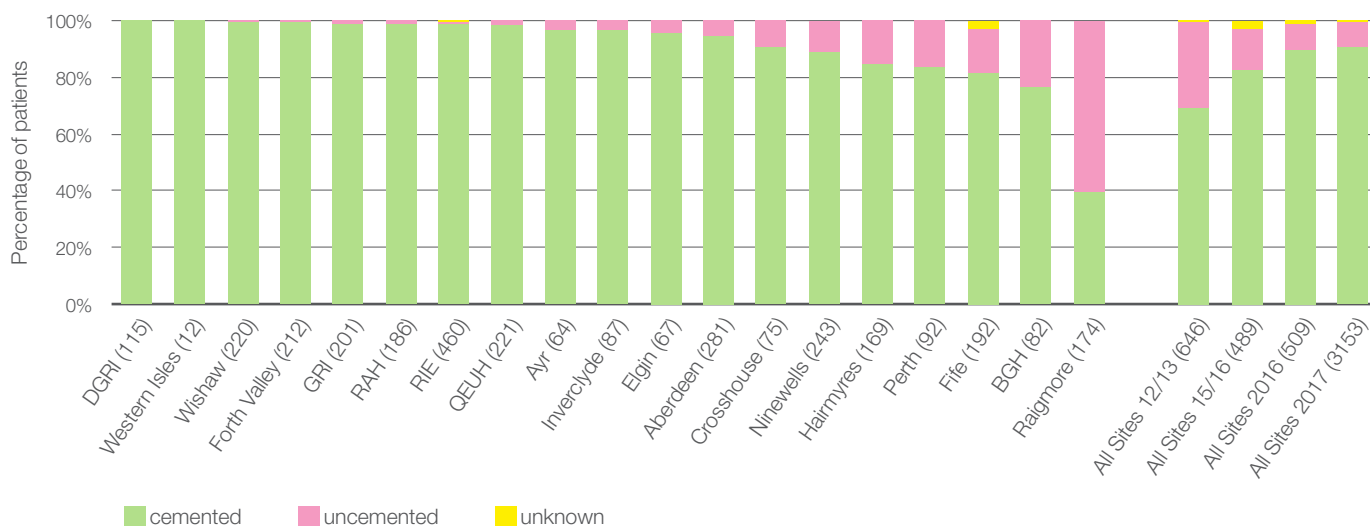
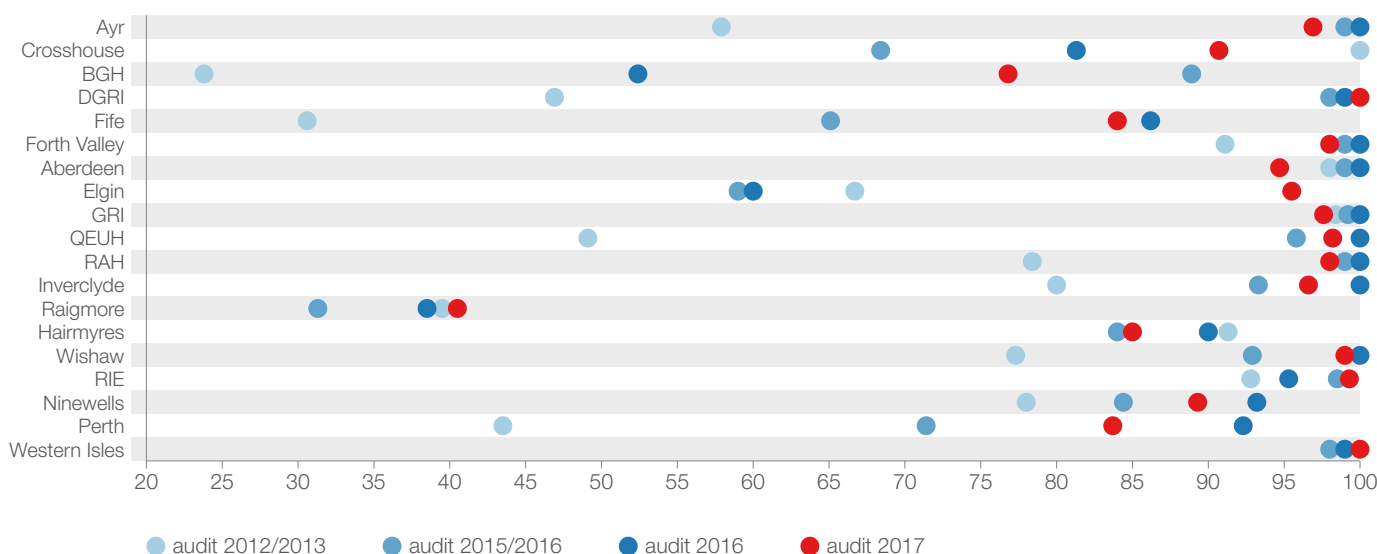


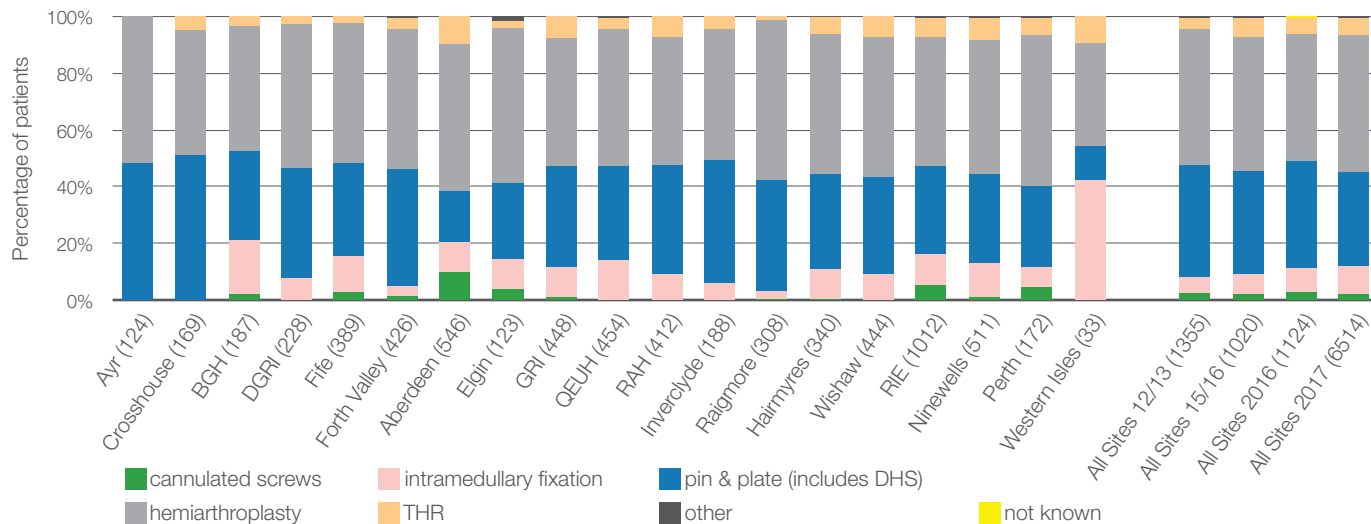
Fig. 7.1.a Percentage of patients given hemi-arthroplasties who had them cemented



Most hospitals use cemented implants in over 85% of cases with the exception of Hairmyres,

Perth, Fife and Borders General Hospital (BGH) who use them for 77%–85% of patients. Raigmore Hospital has adopted a different policy for type of device used and only use cemented implants in 40% of their patients.

Fig. 7.2 Type of operation



The use of total hip replacement (THR) again remained static at 6% of patients receiving an operation. Forty-eight percent of patients received a hemi-arthoplasty with 34% of patients receiving pin and plate, thus accounting for just over 80% of the procedures carried out on hip fracture patients.

Standard 8

Every patient who is identified locally as being frail should receive comprehensive geriatric assessment within three days of admission.

Rationale Many patients presenting with hip fractures are frail and have complex medical problems. Collaborative working with Geriatricians has been shown to improve the standards of medical care in this frail group.

Fig.8.1 Time until comprehensive geriatric assessment

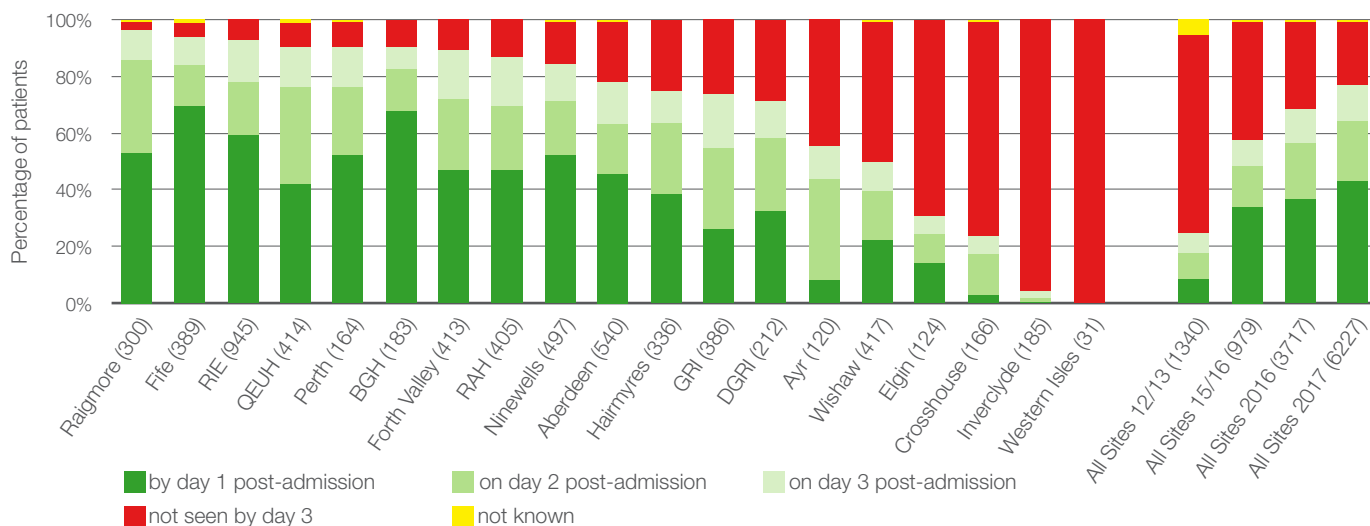
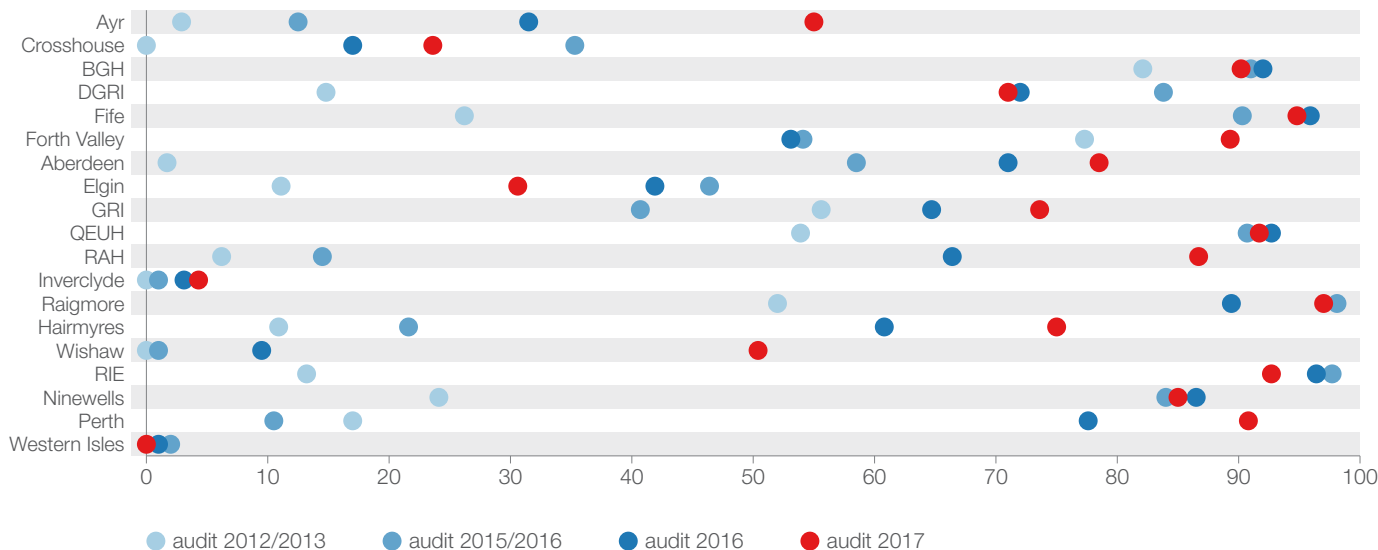


Fig. 8.1.a Percentage of patients who had a comprehensive geriatric assessment within three days of admission



Providing a comprehensive geriatric assessment early in the patient journey is something that some hospitals continue to struggle with. However, achievement of this goal has improved year on year (68% in 2016, 78% in 2017) and this is largely due to the introduction of specialist nurses who can fulfil this initial assessment. Six of the 19 hospitals (Ayr, Wishaw, Elgin, Crosshouse, Inverclyde and Western Isles) performed notably below the national average although there was variation within this group ranging from 55% of patients being seen in Ayr within 3 days to 4% in Inverclyde and 0% in Western Isles.

Standard 9 Mobilisation should have begun by the end of the first post-operative day and every patient should have a physiotherapy assessment by the end of day two.

Rationale Early mobilisation, in combination with post-operative physiotherapy, may be of value in reducing pulmonary complications, optimising early recovery and reducing falls. If the patient’s overall medical condition allows, mobilisation and multidisciplinary rehabilitation should begin by the first post-operative day.

Fig. 9.1 Mobilisation

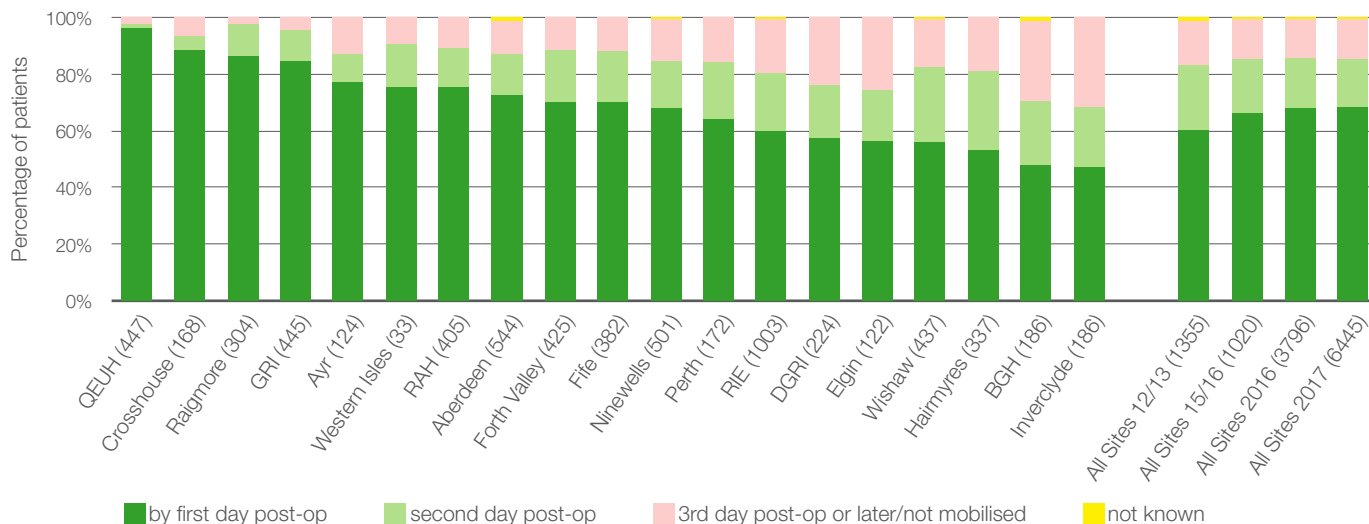
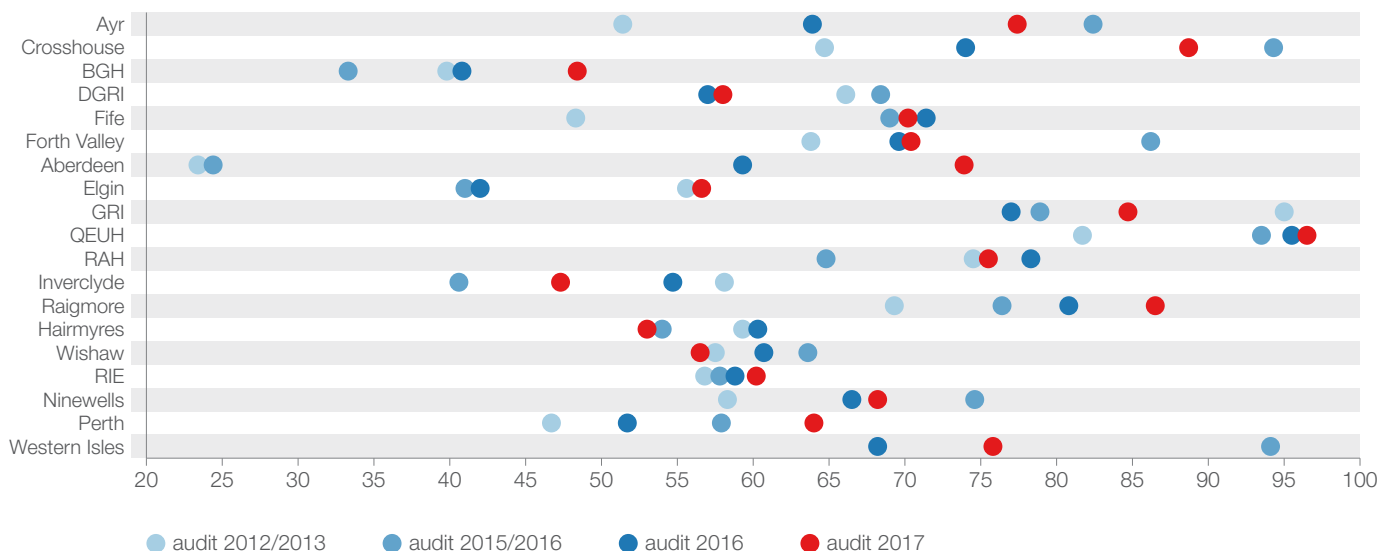


Fig. 9.1.a Percentage of patients who were mobilised by the end of the first day post-op



Early mobilisation following surgical repair is widely accepted as being an important factor in returning people to as near to pre-fracture function as possible, with 69% of all patients being mobilised within one day of surgery. Reasons for delaying mobilisation beyond the first post-operative day may include poor pain control or delayed recovery from anaesthetic, but delays caused by these factors would be expected to be seen consistently across the country. Therefore other confounding factors could have influenced the variation and should be explored locally,

particularly in the 8 hospitals which perform below the national average: Perth, Royal Infirmary of Edinburgh, Dumfries and Galloway Royal Infirmary, Elgin, Wishaw, Hairmyres and most notably Borders General Hospital and Inverclyde where only 48% of patients were mobilised by the end of the first post-operative day compared to the national average of 69%.

Fig.9.2 Time from surgery until seen by Physiotherapy

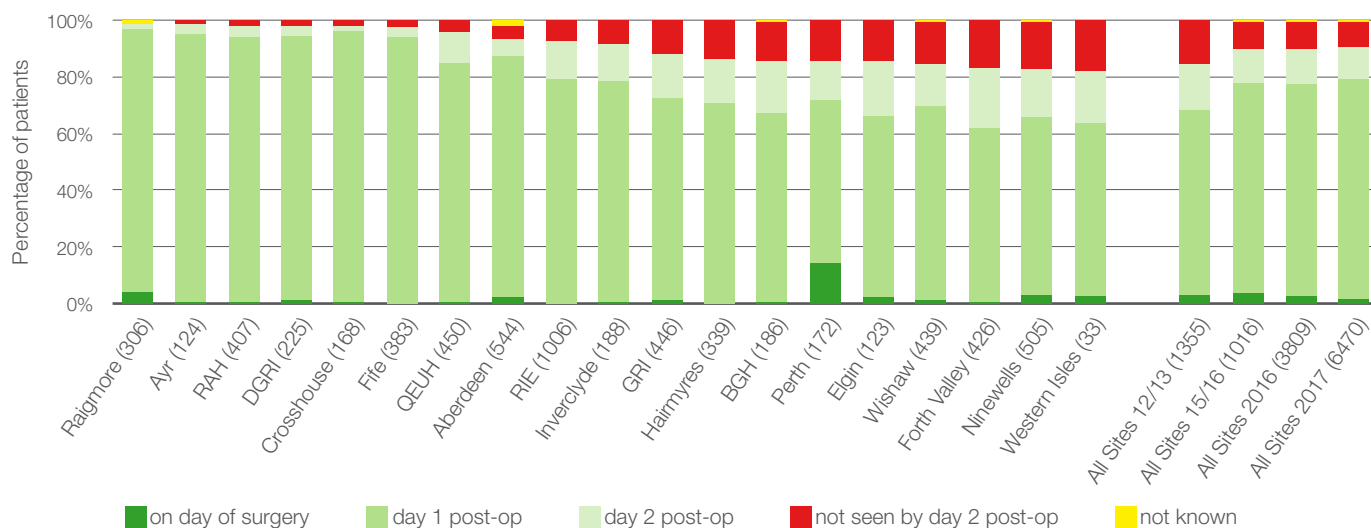
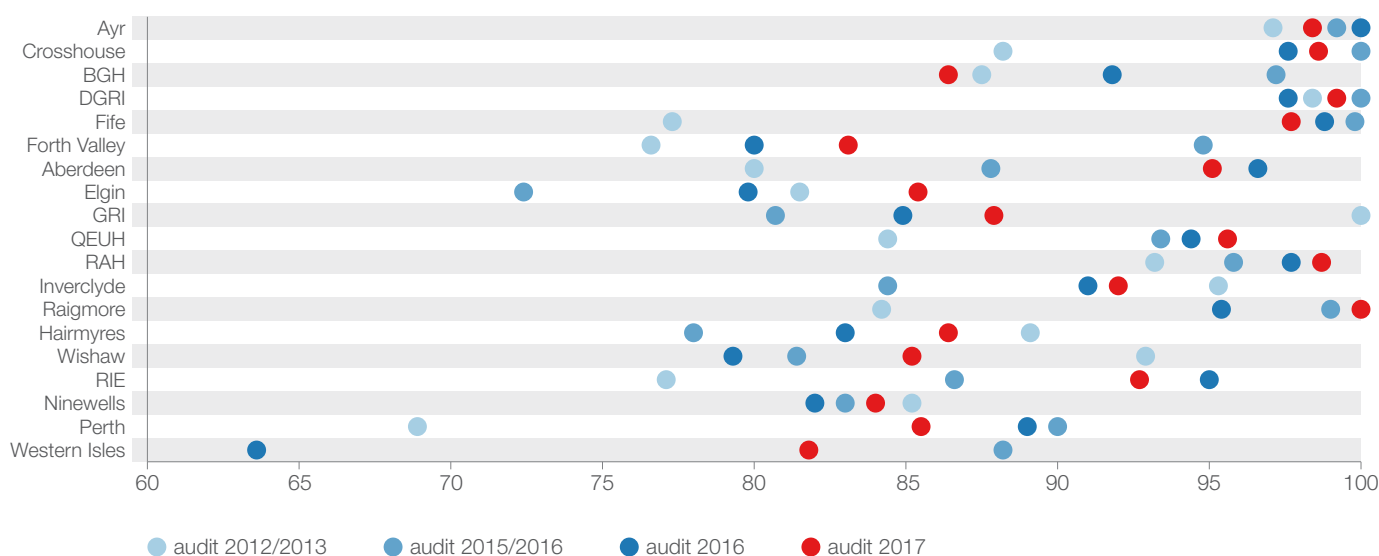


Fig. 9.2.a. Percentage of patients having physiotherapy assessment by the end of the second day post-op



Involvement of the physiotherapy team early in the post-operative recovery period is also widely accepted as being an important factor in fulfilling people’s maximum recovery potential. All hospitals had some form of physiotherapy involvement within 2 days. Ten of the 19 hospitals had physiotherapy assessment for 90% or more of their patients within the recommended 2 days post-operative period.

Standard 10 All patients with a hip fracture should have an Occupational Therapy (OT) assessment by the end of day three post-operatively.

Rationale Occupational Therapy (OT) contributes to both enabling patients to regain function post-operatively and assessing the need for support following discharge. It is likely that OT input will continue in rehabilitation settings and inform the on-going discharge processes. Patients being discharged to their own home or care home can also benefit from OT input. The communication link between OT services in secondary and primary/community care is essential so that patients can return to their original place of residence with confidence and support, this being the preferred model rather than traditional rehabilitation in NHS facilities.

Fig. 10.1 Time from surgery until seen by OT

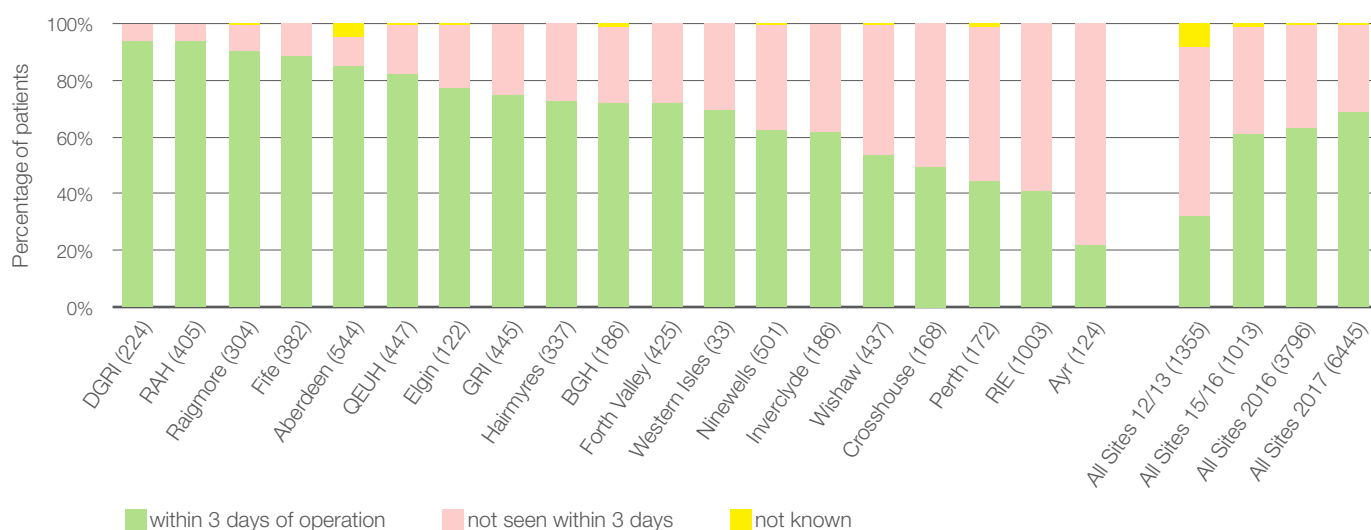
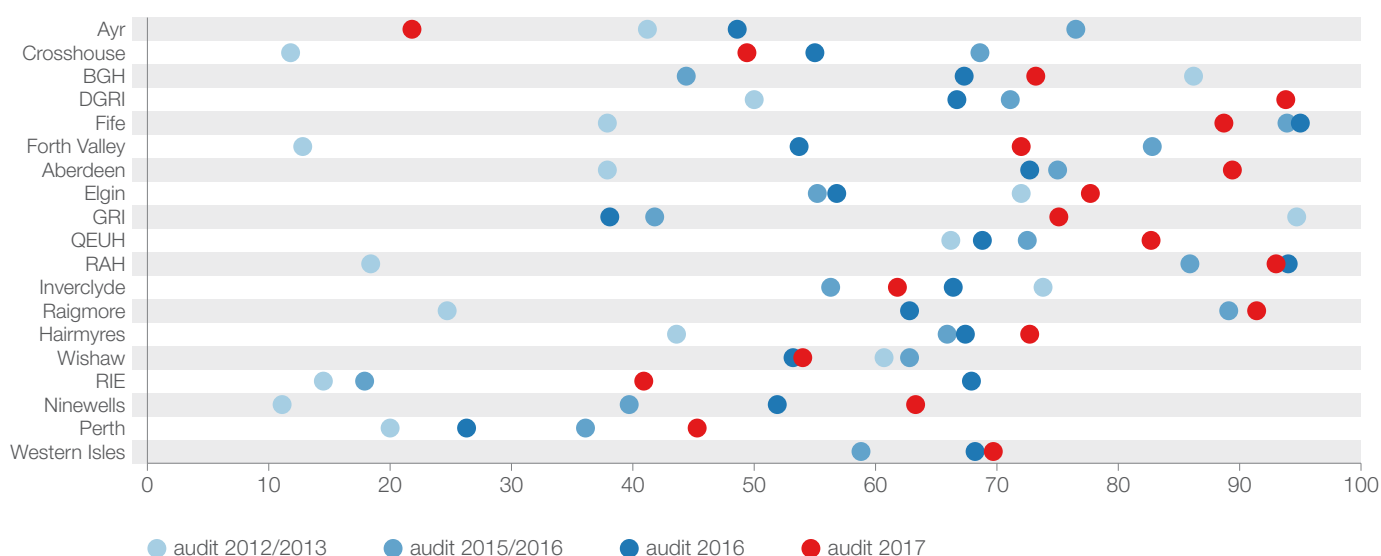


Fig. 10.1a Percentage of patients having OT assessment by the end of the third day post-op



In 2017 there was extensive variation across all hospitals in the timing of OT assessment. Reasons for no review within three days post-operatively were often cited as being due to ongoing patient

ill health and hospitals often had a policy of no review or intervention for people who had been admitted from a nursing home as it was believed that functional requirement would be met already.

To further understand this, the audit team scrutinised data definitions and practice and as a result a better understanding of the complexity of an OT assessment was gained. This allowed a review of the dataset and collection of data which better reflects current OT practice from January 2018 onwards.

In order to exclude confounding factors such as delays to theatre, in 2018 the standard has been changed to 3 days *post-admission*.

Standard 11 Every patient who has a hip fracture should have an assessment of their bone health prior to leaving the acute orthopaedic ward.

Rationale Osteoporosis risk assessment and treatment is integral to the prevention of further fractures alongside falls prevention strategies.

Fig. 11.1 Bone health assessment

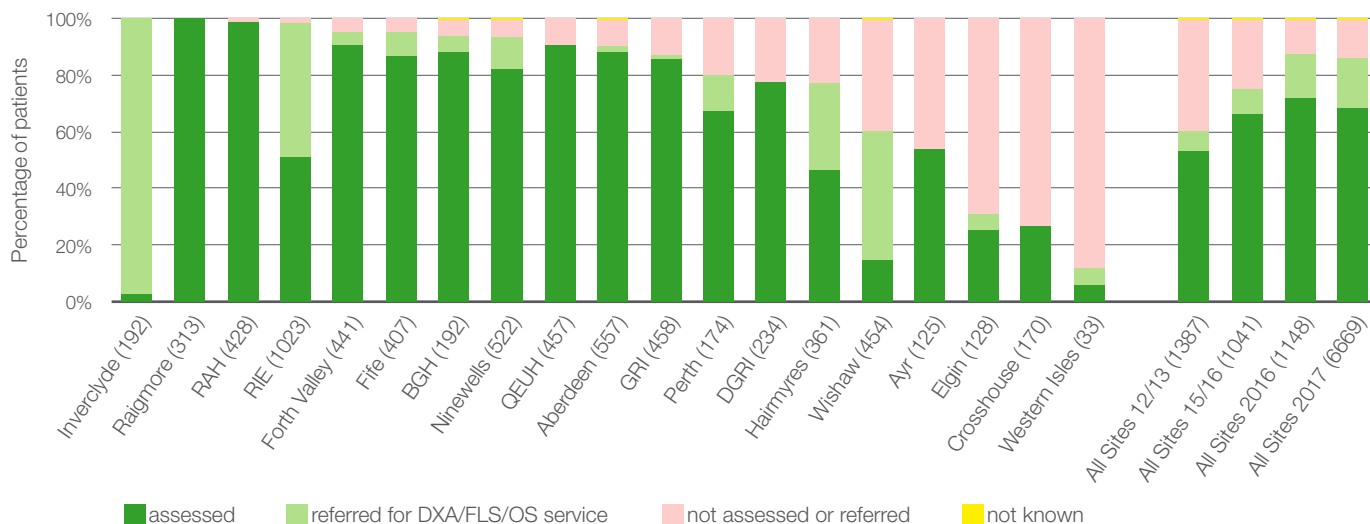
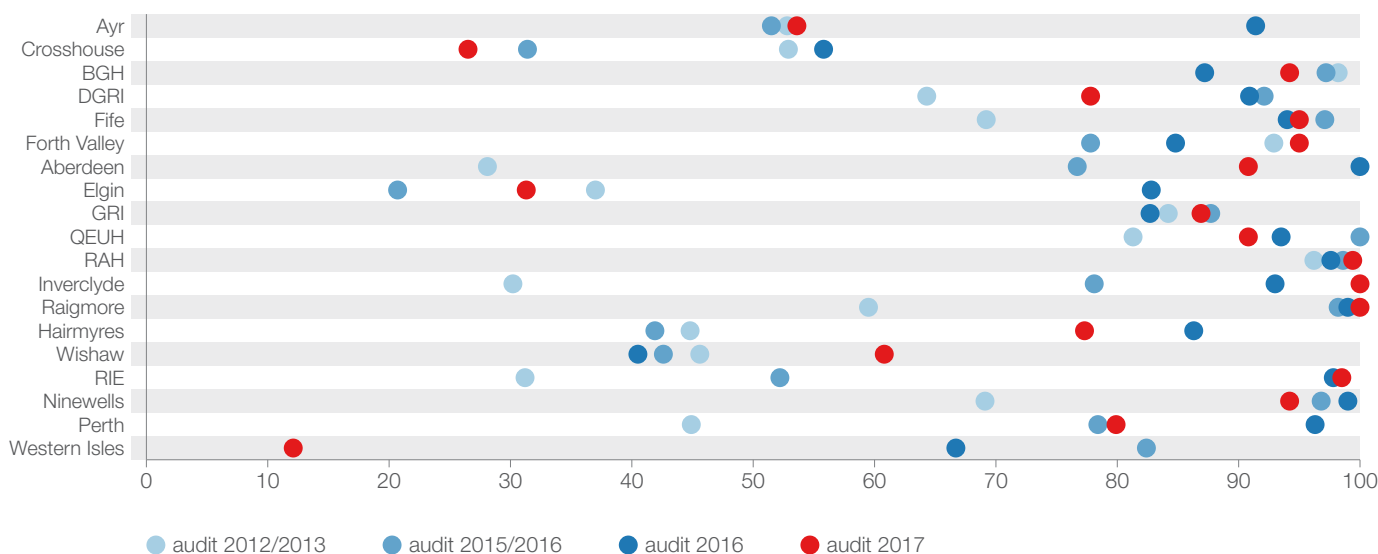


Fig. 11.1.a Percentage of patients having bone health actions undertaken or planned



National variation continued to exist in 2017 in the extent and timing of assessment of bone health in people who had fractured their hip; this is an important treatment consideration as the risk of further falls and fractures is increased following hip fracture.

Eleven of the 19 hospitals in Scotland performed above the national average of 86%, but the remaining 8 fell below this level: Perth, Dumfries and Galloway Royal Infirmary, Hairmyres, Wishaw, Ayr and most notably Elgin. Only 12% of Crosshouse and 31% of Western Isles patients had this assessment completed.

Standard 12 Every patient’s care and recovery should be optimised by a multi-disciplinary team approach such that they are discharged safely back to their original place of residence within 30 days of admission.

Rationale The main aim of the Hip Fracture Care Workstrand is “to get patients back to their original place of residence as rapidly as possible, whilst optimising their ability to retain their independence”. This should be achieved by optimising the pathway of care during their actual hospital stay and a seamless and supported transition back to the original place of residence within 30 days of admission.

Fig. 12.1 Percentage of patients admitted from home or a care home who were again resident there at 30 days post-admission

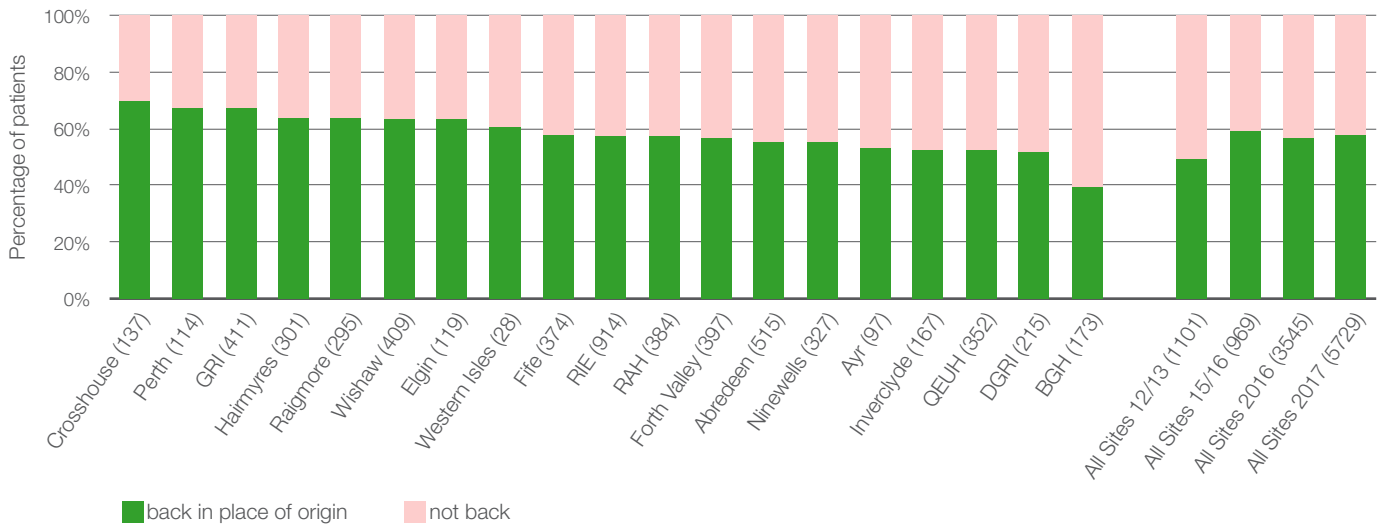


Fig. 12.1.a Percentage of patients returned to original residence within 30 days of admission

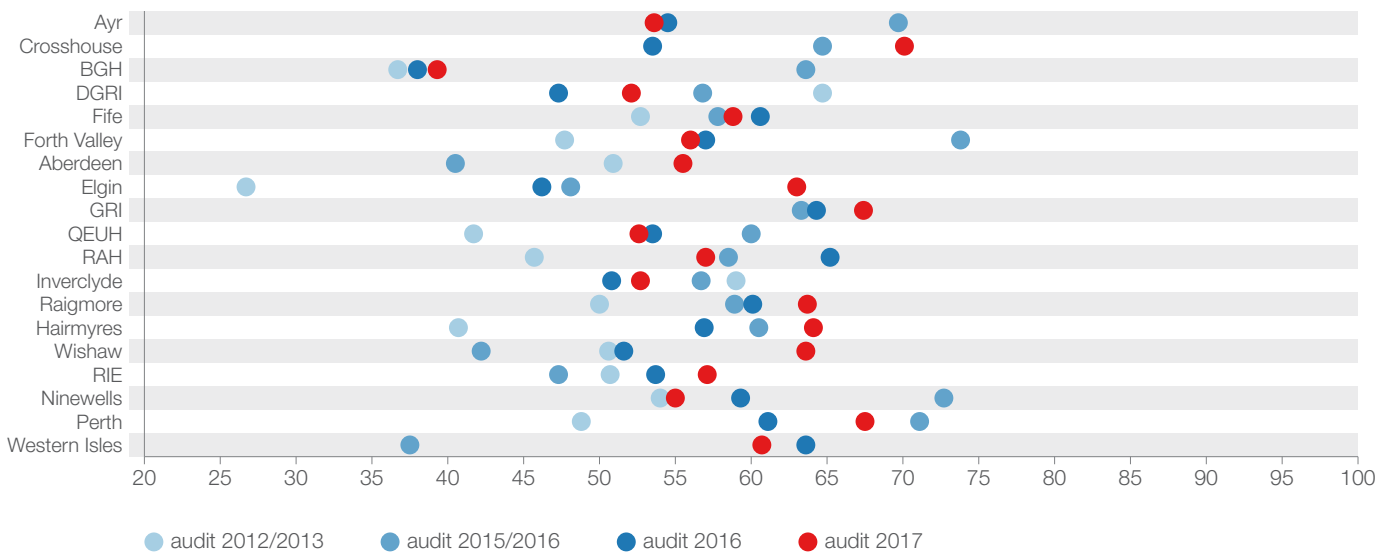
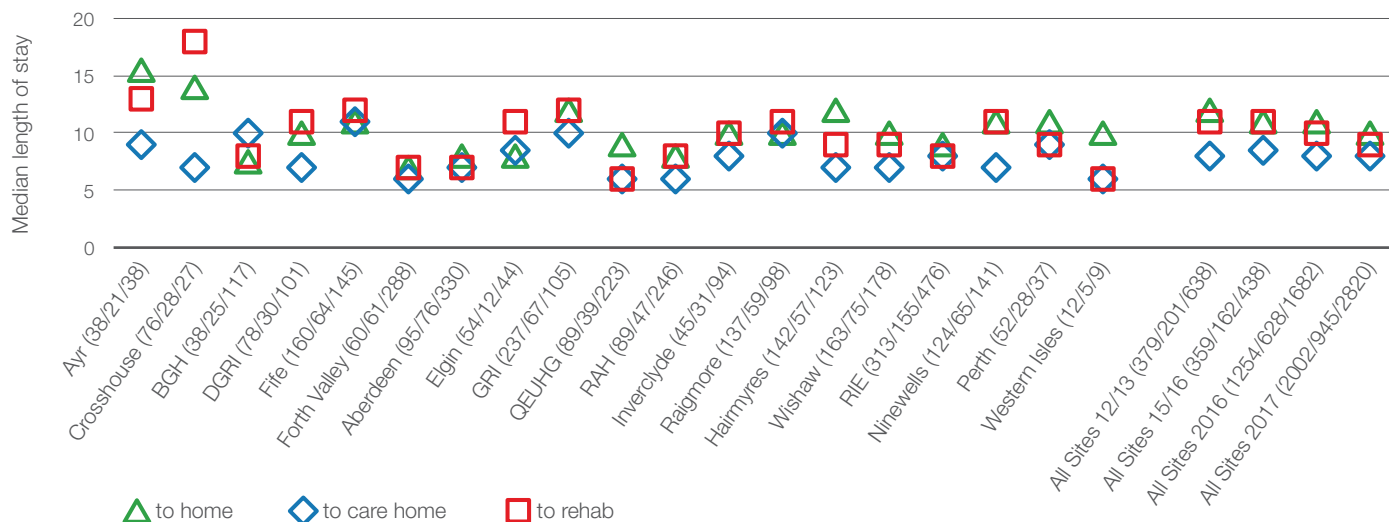
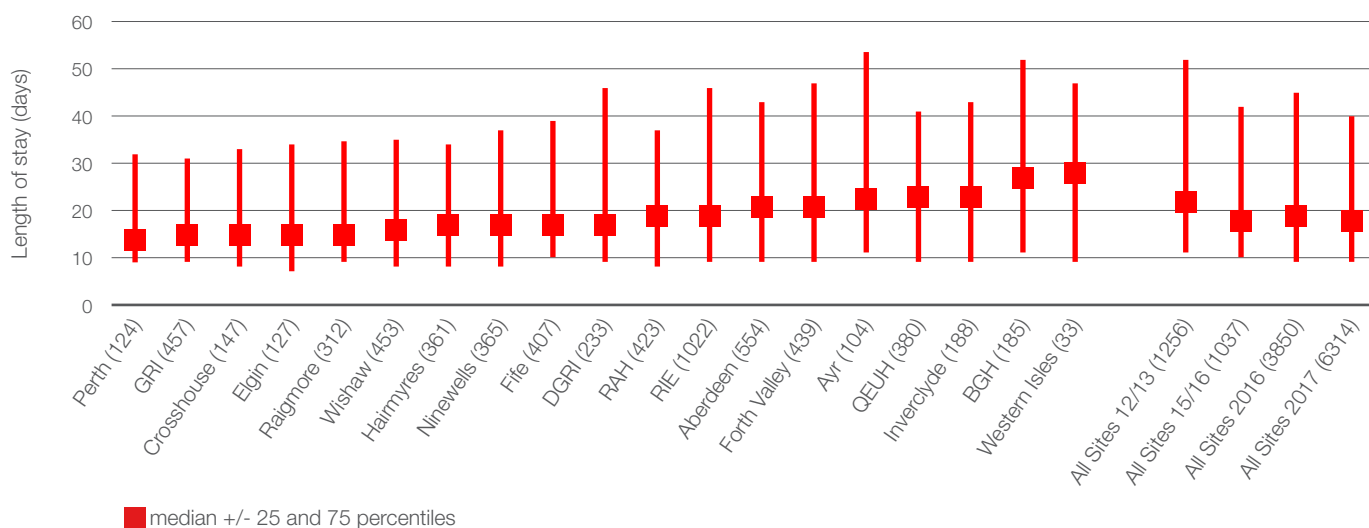


Fig. 12.2 Median length of acute orthopaedic stay by discharge destination



Sample sizes (own home/ care home/ rehab) are given in brackets. Medians reflect normal practice and, compared to mean values, are less likely to be influenced by a small number of patients with lengthy admissions as a result of specific medical problems.

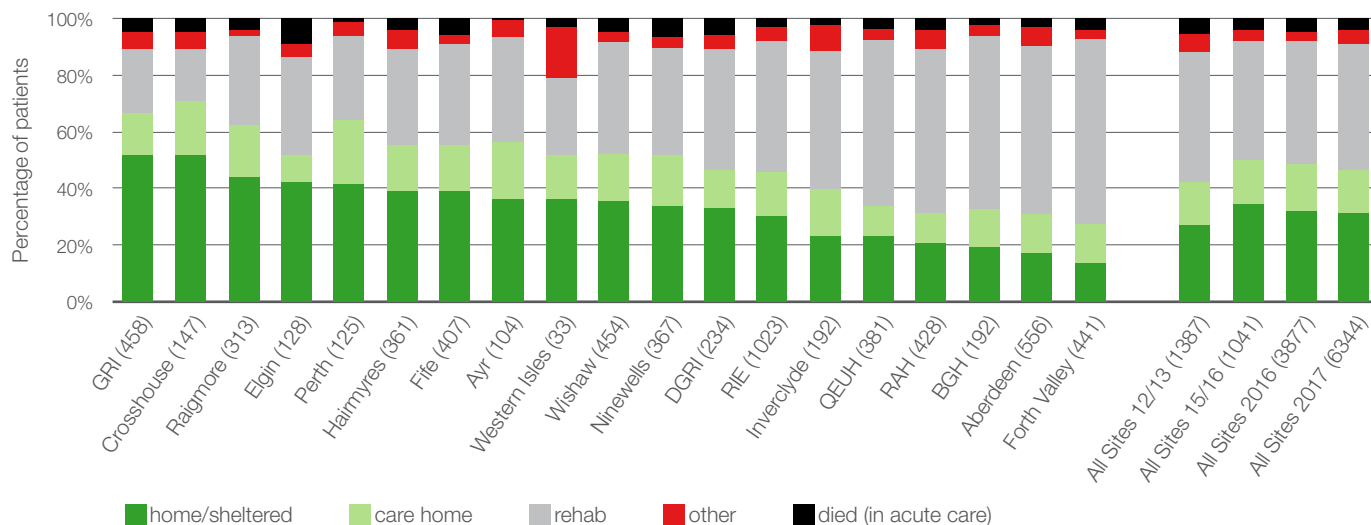
Fig. 12.3 Median length of total hospital stay



The principle focus continues to be the safe return of patients to their original place of residence within 30 days of sustaining a hip fracture. Returning to the patient’s original place of residence quickly is reported as one of the most important outcomes to both patients and relatives. Where possible, rehabilitation should be carried out at home supported by family and/ or community services. Many NHS rehabilitation sites have less OT and PT input than the acute inpatient ward and often have no OT/PT input at the weekend. Lengthy hospital and rehabilitation stays in NHS facilities can unintentionally hinder both patient and relative confidence and overall wellbeing.

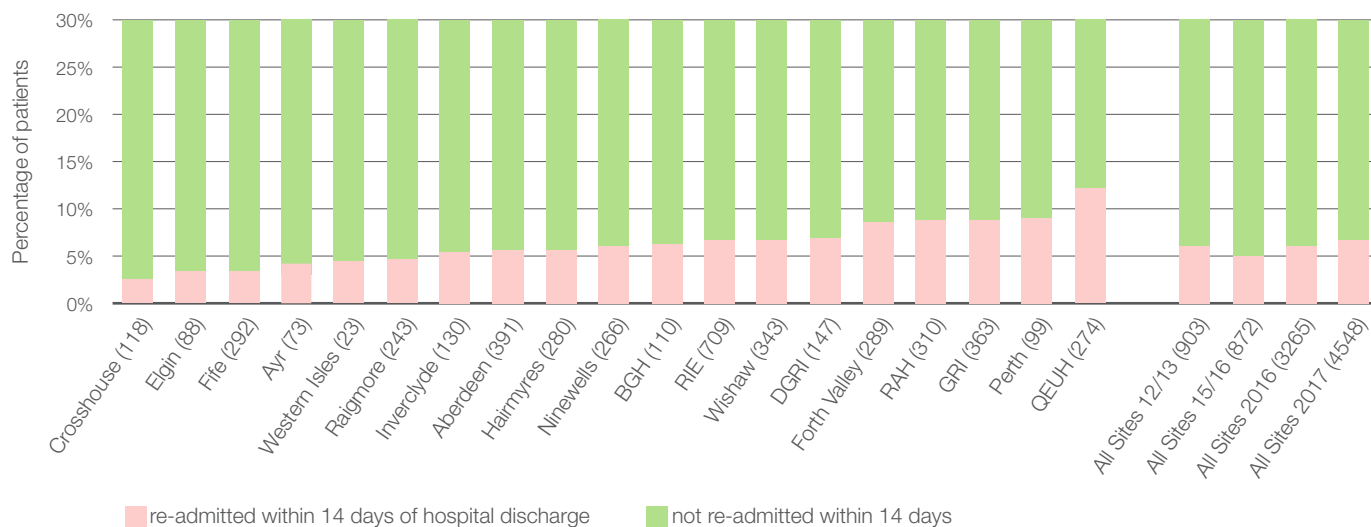
The median length of total stay is still variable across Scotland ranging from 14 days in Perth to 28 days in Western Isles, with 12 of the 19 hospitals discharging patients in under 20 days.

Fig. 12.4 Discharge destination



'Other' includes patients discharged to acute hospital and NHS continuing care, and also those not yet discharged from the acute orthopaedic ward by 60 days post-admission.

Fig. 12.5 Percentage of patients who were re-admitted within 14 days of hospital discharge



The Queen Elizabeth University Hospital had the highest rate of re-admission within 14 days of discharge from hospital (12%). Twelve other hospitals have re-admission rates of between 5% and 10%, with the remaining hospitals having less than 5% re-admission within 14 days of discharge from hospital.

Thirty day post-admission hip fracture patient mortality

The mortality of hip fracture patients at 30 days after admission is shown in the chart below. Hospitals that lie outwith 2 standard deviations from the mean are outliers from other hospitals. For 2017, Royal Alexandra Hospital has been identified as an outlier and a full investigation of the data collected, profile and co-morbidities of patients has been undertaken to establish if there is an underlying issue that requires immediate action by the hospital to decrease the mortality of patients at 30 days post-admission. Initial review of all cases did not reveal any obvious patterns or significant deficiencies in care, and revealed a cohort of medically unfit patients with a pre-existing high mortality risk. A proportion of the patients who died (19%, 8 of 43 patients) had died without having any surgical procedure carried out due to their admission clinical condition. A full report of all cases and reasons for death is being produced and will be submitted to the SHFA Advisory Group for independent review. Once the detailed review is complete, if any actions are required these will be undertaken and be the subject of ongoing audit.



Appendices

Appendix 1 Background information

Each hospital in Scotland contributes to the Scottish Hip Fracture Audit and, where possible, data is collected for all eligible patients. Where full completion is not possible, care is taken to ensure that the submitted data is not biased in any way.

Data is collected by a locally employed 'Local Audit Coordinator' who is responsible for ensuring the accuracy and robustness of the data as well as raising awareness of results to support a continuous improvement process.

A copy of the audit proforma and definitions can be accessed at www.shfa.scot.nhs.uk/About/index.html

Audit data is updated on a monthly basis, before or soon after the 15th of each month. Anyone who is employed by the NHS or Scottish Government, subject to local approval, can request access to the data which is held on the Trauma & Orthopaedic Portal (see appendix 8).

In order to facilitate the monthly review of progress in achieving the national standards of care, hospitals are provided with an 'exceptions list' containing details of all patients who did not achieve a particular standard. Where a small number of cases have not achieved a standard, this may require individual case review. However where multiple patients have not achieved a standard this usually indicates an issue with a process. Hospitals are expected to review this information on a regular basis to identify and agree actions and improvements with the local multidisciplinary team. An example report can be accessed at www.shfa.scot.nhs.uk/Quality-Improvement/index.html.

It should be noted that within this report direct comparisons are made between 2016 and 2017 audit data. During the 2016 data collection period only 8 months of data was available whereas 2017 is a full year of data. Comparisons can, however, still be made.

Appendix 2 Hospital abbreviations and data completeness

The table below reports the number of patients audited from January to December 2017 and included in this report, and the number of known hip fracture admissions not audited during the same time period.

Hospital	Number of patients audited	Hip fracture admissions not audited	% audited	Reasons not audited
Ayr University Hospital Ayr	125	69	64%	LAC vacancy
Crosshouse University Hospital Crosshouse	170	87	66%	LAC vacancy
BGH Borders General Hospital	192	0	100%	
DGRI Dumfries & Galloway Royal Infirmary	234	0	100%	
Fife Victoria Hospital	407	1	100%	Confidentiality issue
Forth Valley Forth Valley Royal Hospital	441	0	100%	
Aberdeen Aberdeen Royal Infirmary	557	12	98%	LAC vacancy
Elgin Dr Gray's Hospital	128	0	100%	
GRI Glasgow Royal Infirmary	458	22	95%	LAC leave
QEUH Queen Elizabeth University Hospital	457	307	60%	LAC leave and Lack of LAC resource
RAH Royal Alexandra Hospital	428	6	99%	LAC leave
Inverclyde Inverclyde Royal Hospital	192	0	100%	
Raigmore Raigmore Hospital	313	0	100%	
Hairmyres University Hospital Hairmyres	361	0	100%	
Wishaw University Hospital Wishaw	454	0	100%	
RIE Royal Infirmary of Edinburgh	1,023	0	100%	
Ninewells Ninewells Hospital	522	0	100%	
Perth Perth Royal Infirmary	174	0	100%	
Western Isles Western Isles Hospital	33	0	100%	
All Sites	6,669	499	93%	

Throughout the text and Figures, hospitals are referred to by a shortened version of their name. This is familiar to clinicians and managers for brevity, but also used because of requests for individual hospitals or because it better describes the overall orthopaedic and multi-disciplinary service run by the surgical hospital.

Appendix 3 Members of the Scottish Hip Fracture Audit and Advisory Group

Graeme Holt | Chairman, Consultant orthopaedic surgeon
NHS Ayrshire and Arran
Graeme.holt@aapct.scot.nhs.uk

Kirsty Ward | National Clinical Coordinator, MSk Audit
National Services Scotland, ISD
Kirstyward@nhs.net

Karen Adam | National Clinical Improvement Advisor
Scottish Government
Karen.Adam@gov.scot

Kate James | National Programme Lead T&O
Scottish Government
Kate.James@gov.scot

Rik Smith | Senior analyst, MSk Audit
National Services Scotland, ISD
RSmith11@nhs.net

Jon Antrobus | Consultant Anaesthetist
NHS Borders
Jonathan.Antrobus@borders.scot.nhs.uk

Kathleen Ferguson | Consultant anaesthetist
NHS Grampian
kathleen.ferguson@nhs.net

Mayrine Fraser | National Development Manager/Specialist Nurse
National Osteoporosis Society
M.Fraser@nos.org.uk

Rashid Abu-Rajab | Consultant orthopaedic surgeon
NHS Greater Glasgow and Clyde
Rashid.Abu-Rajab@ggc.scot.nhs.uk

Krishna Murthy | Consultant Emergency Medicine
NHS Lothian
Krishna.Murthy@nhslothian.scot.nhs.uk

Ruth Houson | Advanced Nurse Practitioner
NHS Ayrshire and Arran
Ruth.Houson@aapct.scot.nhs.uk

Ann Murray | Falls programme manager
NHS Ayrshire and Arran
ann.murray3@nhs.net

Ann-Marie Owens | Trauma Liaison Nurse
NHS Greater Glasgow and Clyde
AnneMarie.Owens@ggc.scot.nhs.uk

Angela Stewart | Advanced Nurse Practitioner
NHS Ayrshire and Arran
Angela.Stewart@aapct.scot.nhs.uk

Hazel Dodds | Senior Nurse, Scottish Healthcare Audits
National Services Scotland, ISD
hazeldodds@nhs.net

Catherine Nivison | Chief Allied Health Professional
NHS Greater Glasgow and Clyde
Catherine.Nivison@ggc.scot.nhs.uk

Fiona Graham | GP in orthopaedic rehabilitation
NHS Dumfries and Galloway
fionagraham2@nhs.net

Claire Rae | Physiotherapy Manager
NHS Lanarkshire
Claire.Rae@lanarkshire.scot.nhs.uk

Gillian Walker | Senior Occupational Therapist
NHS Lothian
gillian.e.walker@nhslothian.scot.nhs.uk

Liz Burleigh | Consultant, Medicine for the Elderly
NHS Greater Glasgow and Clyde
Liz.Burleigh@ggc.scot.nhs.uk

Kirstie Stenhouse | Fracture Liaison Practitioner
NHS Forth Valley
kirstie.stenhouse@nhs.net

Susan Duffy | Elderly Care Orthopaedic Nurse
NHS Forth Valley
susanduffy1@nhs.net

Luke Farrow | ST3 Trauma & Orthopaedics
University of Aberdeen
luke.farrow@doctors.org.uk

Deborah Mack | Consultant for the Elderly
NHS Greater Glasgow and Clyde
deborah.mack@ggc.scot.nhs.uk

Alasdair MacLulich | Professor of Geriatric Medicine
NHS Lothian
a.maclulich@ed.ac.uk

Appendix 4 Local Audit Coordinators

- Aberdeen Royal Infirmary
Carol Carnegie/Claire Stewart ✉ nhsg.mskaudit@nhs.net
- University Hospital Ayr
Shirley Fisher ✉ shirley.fisher@aapct.scot.nhs.uk
- Borders General Hospital
Alistair Johnston ✉ alistair.johnston@borders.scot.nhs.uk
- University Hospital Crosshouse
Shirley Fisher ✉ shirley.fisher@aapct.scot.nhs.uk
- Dumfries & Galloway Royal Infirmary
Jean Bell ✉ jean.bell@nhs.net
- Dr Grays Hospital, Elgin
Kenny McKenna ✉ Kenneth.mckenna@nhs.net
- Forth Valley Royal Hospital
Jean Brewster ✉ jean.brewster@nhs.net
- Glasgow Royal Infirmary
Grace Collins ✉ grace.collins@ggc.scot.nhs.uk
- University Hospital Hairmyres
Liz Rundell ✉ elizabeth.rundell@lanarkshire.scot.nhs.uk
- Inverclyde Royal Hospital
Mairi Galbraith ✉ mairi.galbraith@ggc.scot.nhs.uk
- Ninewells Hospital
Jenny Scott ✉ jenniferscott@nhs.net
- Perth Royal Infirmary
Jenny Scott ✉ jenniferscott@nhs.net
- Queen Elizabeth University Hospital
Stephanie Muirhead ✉ stephanie.muirhead@ggc.scot.nhs.uk
Jonathon Steele ✉ jonathon.steele@ggc.scot.nhs.uk
- Raigmore Hospital
Pamela McKay ✉ pamela.mckay@nhs.net
- Royal Alexandra Hospital
Jacqueline McStay ✉ jackie.mcstay@ggc.scot.nhs.uk

Royal Infirmary Edinburgh

Jenny Farquhar ✉ jenny.farquhar@nhslothian.scot.nhs.uk

Fiona Neary ✉ fiona.neary@nhslothian.scot.nhs.uk

Victoria Hospital, Kirkcaldy

Jan Wood ✉ jwood12@nhs.net

University Hospital Wishaw

Richard Fox ✉ richard.fox@lanarkshire.scot.nhs.uk

Western Isles Hospital

Shuna Mighton ✉ Shuna.mighton@nhs.net

Acknowledgements

This report could not have been prepared without the dedicated work of the Local Audit Coordinators who tirelessly collected and validated this information and provided an essential link role between audit and clinical staff to close the improvement audit loop.

Appendix 5 Early access details

Pre-Release Access

Under terms of the “Pre-Release Access to Official Statistics (Scotland) Order 2008”, ISD is obliged to publish information on those receiving Pre-Release Access (‘Pre-Release Access’ refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days. Shown below are details of those receiving standard Pre-Release Access.

Standard Pre-Release Access:

Scottish Government Health Department

NHS Board Chief Executives

NHS Board Communication leads

Early Access for Management Information

These statistics will also have been made available to those who needed access to ‘management information’ as part of the delivery of health and care.

Early Access for Quality Assurance

These statistics will also have been made available to those who needed access to help quality assure the publication.

Appendix 6 | ISD and Official Statistics

About ISD

Scotland has some of the best health service data in the world combining high quality, consistency, national coverage and the ability to link data to allow patient-based analysis and follow-up.

Information Services Division (ISD) is a business operating unit of NHS National Services Scotland and has been in existence for over 40 years. We are an essential support service to NHS Scotland, the Scottish Government and others, responsive to the needs of NHS Scotland as the delivery of health and social care evolves.

Purpose: To deliver effective national and specialist intelligence services to improve the health and wellbeing of people in Scotland.

Mission: Better Information, Better Decisions, Better Health

Vision: To be a valued partner in improving health and wellbeing in Scotland by providing a world class intelligence service.

Official Statistics

Information Services Division (ISD) is the principal and authoritative source of statistics on health and care services in Scotland. ISD is designated by legislation as a producer of 'Official Statistics'. Our official statistics publications are produced to a high professional standard and comply with the Code of Practice for Official Statistics. The Code of Practice is produced and monitored by the UK Statistics Authority which is independent of Government. Under the Code of Practice, the format, content and timing of statistics publications are the responsibility of professional staff working within ISD.

ISD's statistical publications are currently classified as one of the following:

- » National Statistics (i.e. assessed by the UK Statistics Authority as complying with the Code of Practice)
- » National Statistics (i.e. legacy, still to be assessed by the UK Statistics Authority)
- » Official Statistics (i.e. still to be assessed by the UK Statistics Authority)
- » Other (not Official Statistics)

Further information on ISD's statistics, including compliance with the Code of Practice for Official Statistics, and on the UK Statistics Authority, is available on the [ISD website](#).

Appendix 7 Contact details

Graeme Holt | Scottish Hip Fracture Audit and Advisory Group Chair/ Clinical Lead
Scottish Hip Fracture Audit
✉ Graeme.Holt@aapct.scot.nhs.uk

Karen Adam | National Clinical Improvement Advisor
Scottish Government
✉ Karen.Adam@scotland.gsi.gov.uk

Kirsty Ward | National Clinical Coordinator
Scottish Hip Fracture Audit
☎ 0141 282 2216 ✉ Kirstyward@nhs.net

Rik Smith | Senior Information Analyst
MSk Audit
☎ 0131 275 7040 ✉ RSmith11@nhs.net

Pamela Maclean | Regional Coordinator
MSk Audit
☎ 0131 314 1222 ✉ pamela.maclean1@nhs.net

For general enquiries regarding the Scottish Hip Fracture Audit please email our generic email address: nss.isdmskaudit@nhs.net and one of the central audit team will respond.

Appendix 8 Access to the Trauma and Orthopaedic Dashboard

Audit data is routinely updated on this web-based platform each month and is provided for multi-disciplinary teams to measure and monitor the sustainability of their improvement actions. To become an approved user of the Trauma & Orthopaedic Portal please go to NSS User Access System. Select “Specialty Information Portal” from the list of products, as this includes the Trauma Orthopaedic Portal.

For help with registration please go to: www.isdscotland.org/Products-and-Services/Datamarts/User-Support.

If you have any issues or questions please contact the team at: NSS.TraumaandOrthopaedicPortal@nhs.net.

Further Information

Further Information can be found on the [ISD website](#).

The next release of this publication will be in August 2019.

Rate this publication

Please [provide feedback](#) on this publication to help us improve our services.

