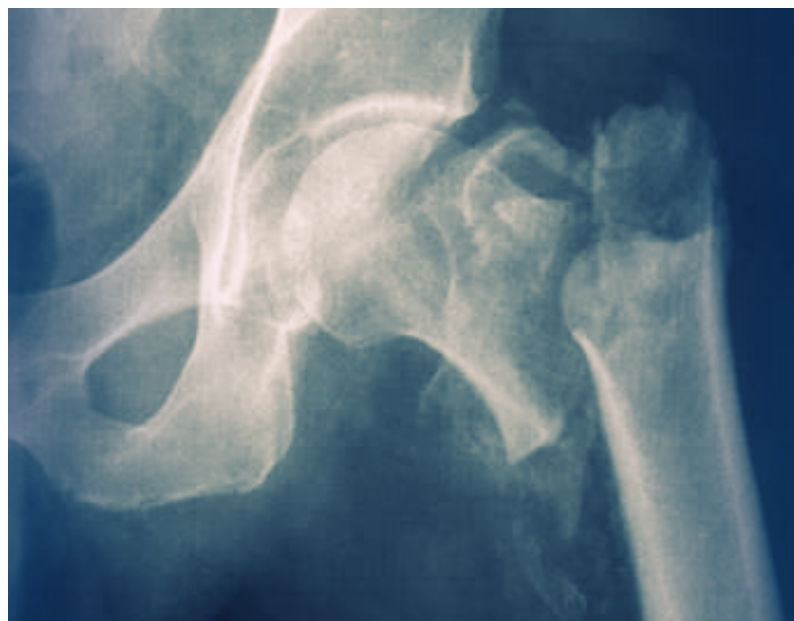




ANZHFR

Australian & New Zealand Hip Fracture Registry



ANNUAL REPORT 2017

ENHANCING OUTCOMES FOR OLDER PEOPLE

ACKNOWLEDGEMENTS

This second annual report of the Australian and New Zealand Hip Fracture Registry (ANZHFR) was prepared by: Ms Elizabeth Armstrong, AHFR Manager; Professor Jacqueline Close, ANZHFR Co-Chair Geriatric Medicine; Professor Ian Harris, ANZHFR Co-Chair Orthopaedics; and Mr Stewart Fleming, Webmaster SO3; on behalf of the ANZHFR Steering Group. Pre-publication review and editing was undertaken by the ANZHFR Steering Group.

The ANZHFR would like to sincerely thank and acknowledge the clinical and administrative staff of the 34 hospitals that have contributed to the Patient Level Report and the 120 hospitals that contributed to the Facility Level Report. Without their support, dedication, and energy, this report would not be possible.

The ANZHFR would like to acknowledge the support of Neuroscience Research Australia, UNSW Sydney, and the New Zealand Accident Compensation Corporation.

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NeuRA

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UNSW
SYDNEY

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Extracts from this publication may be reproduced provided the source of the extract is acknowledged. For enquiries or comments, please contact the ANZHFR, Neuroscience Research Australia, 139 Barker Street, Randwick NSW Australia 2031. Additional copies of this report can be accessed at www.anzhfr.org or may be requested from the ANZHFR.

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CO-CHAIRS FOREWORD

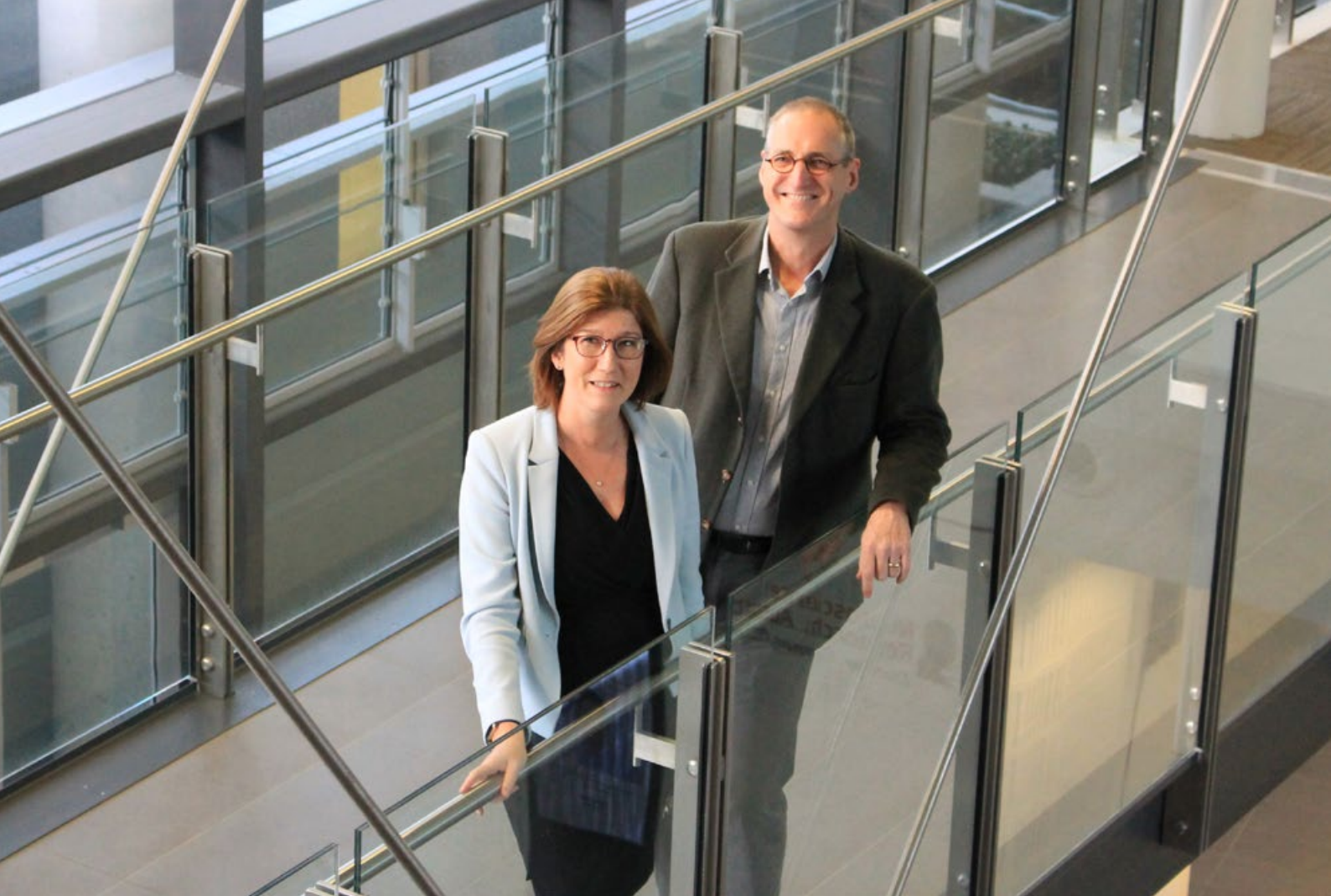
It is with great pleasure that we welcome you to the second Australian and New Zealand combined patient and facility-level report. This is the 5th year we have provided an annual report on activities within facilities across both countries but only the second year that we have included patient-level data.

These reports build on the groundwork of the ANZHFR since its inception in 2012, including the production of the Australian and New Zealand Guideline for Hip Fracture Care. The release in 2016 of the Hip Fracture Care Clinical Care Standard and its associated quality indicators – a combined effort from the Australian Commission on Safety and Quality in Health Care and the Health Quality and Safety Commission New Zealand, has allowed us to align our reporting to those standards. This provides hospitals with clear information regarding their standard of care for each of the quality statements.

The patient-level audit (the first part of this report) shows data grouped by hospital so that hospitals can be compared. Each hospital is numbered (anonymised) for this report but each hospital is provided with their identification number. In future, and with the agreement of participating hospitals, we aim to include hospital names in this report to provide transparency and to give hospitals a greater incentive to improve their performance.

Data are also grouped by country, and we have provided overall results for each country for 2016 and 2017 to show any changes that have occurred between the two reports. We hope that in future, this will map the improvements made to hip fracture care since inception of the Registry.

For the first time, the report incorporates patient health outcomes beyond discharge. Information on rates of death and on walking ability are included under 30 day and 120-day outcomes, although not all sites are collecting this information.



The second part of the Annual Report contains facility level information. This looks at the resources and processes of care around hip fracture for all public hospitals in Australia and New Zealand

The first Annual Report, released in September 2016, included data on 3519 patients from 25 hospitals. This year, the report includes data on 5178 patients from 34 hospitals. This represents approximately 28% of all public hospitals treating hip fractures but a much larger proportion of hip fracture patients, as the hospitals included in this report are mainly larger centres.

An important milestone in coverage has been reached by the ANZHFR. At the time of writing this report, the Registry has approvals in place to collect data from more than half of all public hospitals treating hip fractures in both countries.

We are pleased that the ANZHFR has reached such a mature stage over a relatively short time. Such progress could not have been made without the enthusiastic contributions of local site staff, who have helped with gaining the necessary approvals and with collecting data for the Registry. We also extend our thanks to the Steering Group, the Data Management Committee, and the management and implementation groups on both sides of the Tasman.

The next 12 months will see more detailed analyses of Registry data, which will be used to generate scientific publications, and we are also working on processes to verify the Registry data. In the next Annual Report, we aim to have more comprehensive data that will show improved care and outcomes for those afflicted with this common and significant injury.

Professor Jacqui Close
Geriatrician

Co-Chair
Australian and New Zealand
Hip Fracture Registry

Professor Ian Harris AM
Orthopaedic Surgeon

Co-Chair
Australian and New Zealand
Hip Fracture Registry

EXECUTIVE SUMMARY

The Australian and New Zealand Hip Fracture Registry (ANZHFR) is a web-based audit of hip fracture care and secondary fracture prevention. Clinicians from across the spectrum of hip fracture care lead its development and implementation. The aim of the ANZHFR is to use patient and facility level data to improve hip fracture care.

The ANZHFR standardised dataset is collected and submitted by hospitals across Australia and New Zealand. The data held by the Registry are used to generate real-time feedback that sites can use to improve the hip fracture care they provide. The ANZHFR is a mechanism that enables clinicians and health service managers to review the care provided and identify areas for improvement.

In 2016, the Australian Commission on Safety and Quality in Health Care released a national Hip Fracture Care Clinical Care Standard. Importantly, the Hip Fracture Care Clinical Care Standard has been adopted by the Health Quality & Safety Commission New Zealand continuing the bi-national collaboration commenced in 2012 to improve hip fracture care. The ANZHFR ensures its minimum data set is aligned to the Hip Fracture Care Clinical Care Standard.

The ANZHFR has two components: 1) data collection at the level of the patient, an audit of all people aged 50 years and over admitted to a participating hospital with a minimal trauma fracture of the hip and 2) an annual audit of facility level services and processes for hip fracture care, the facility level audit.

For the first time, the ANZHFR is reporting health outcomes for hip fracture patients. Hip fractures are associated with significant loss of function and independence in daily living activities. Returning home and to similar levels of pre-injury mobility are primary goals of hip fracture treatment and rehabilitation. The data should be interpreted with caution as rates of follow-up are variable and numbers are low for some sites.

This 2017 ANZHFR Annual Report shows the progress being made in hip fracture care by highlighting performance against the Hip Fracture Care Clinical Care Standard. The ANZHFR provides opportunities for health services to identify areas they do well, and other areas of hip fracture care that may need review and redesign.

KEY FINDINGS THIS YEAR INCLUDE:

74% OF HOSPITALS REPORTED HAVING A HIP FRACTURE PATHWAY, 51% ACROSS THE WHOLE ACUTE HIP FRACTURE PATIENT JOURNEY AND 23% IN THE EMERGENCY DEPARTMENT ONLY

56% OF HOSPITALS RESPONDED THAT THEY HAD A PATHWAY FOR PAIN MANAGEMENT IN HIP FRACTURE PATIENTS, 36% ACROSS THE WHOLE ACUTE PATIENT JOURNEY AND 20% IN THE EMERGENCY DEPARTMENT ONLY

60% OF HOSPITALS REPORTED A DAILY ORTHOGERIATRIC SERVICE FOR OLDER HIP FRACTURE PATIENTS: 32% UTILISING A DAILY GERIATRIC MEDICINE LIAISON SERVICE; 24% UTILISING A SHARED-CARE ARRANGEMENT WITH ORTHOPAEDICS; AND 4% UTILISING A MEDICAL LIAISON SERVICE FOR DAILY REVIEW

82% AND 77% OF PATIENTS IN NEW ZEALAND AND AUSTRALIA, RESPECTIVELY, ARE REPORTED AS BEING OPERATED ON WITHIN 48 HOURS OF PRESENTATION TO HOSPITAL

90% AND 89% OF PATIENTS IN NEW ZEALAND AND AUSTRALIA, RESPECTIVELY, ARE OFFERED THE OPPORTUNITY TO MOBILISE ON THE FIRST DAY AFTER SURGERY

95% OF HIP FRACTURE PATIENTS HAVE UNRESTRICTED WEIGHT-BEARING IMMEDIATELY AFTER HIP FRACTURE SURGERY

FEWER THAN **3%** OF HIP FRACTURE PATIENTS ARE REPORTED AS EXPERIENCING A NEW STAGE II OR HIGHER PRESSURE INJURY OF THE SKIN DURING THEIR HOSPITAL STAY

31% AND 16% OF PATIENTS IN NEW ZEALAND AND AUSTRALIA, RESPECTIVELY, WERE RECEIVING BONE PROTECTION MEDICATION AT DISCHARGE FROM HOSPITAL

27% OF HOSPITALS REPORTED PROVIDING WRITTEN, INDIVIDUALISED INFORMATION ON DISCHARGE THAT DESCRIBES ONGOING PATIENT CARE AND THE GOALS OF THIS CARE, AND RECOMMENDATIONS FOR PREVENTION OF FUTURE FALLS AND FRACTURES

33% OF HOSPITALS REPORTED THEY HAD ACCESS TO A FRACTURE LIAISON SERVICE (FLS) FOR THE SYSTEMATIC IDENTIFICATION OF FRACTURE PATIENTS WITH THE PURPOSE OF PREVENTING FURTHER FRACTURES

OF THE 2941 PATIENTS FOLLOWED UP AT 120 DAYS, **21% AND 23%** OF PATIENTS IN NEW ZEALAND AND AUSTRALIA RESPECTIVELY ARE REPORTED AS HAVING RETURNED TO THEIR PRE-FRACTURE MOBILITY AT 120 DAYS AFTER PRESENTATION TO HOSPITAL

OF THOSE WHO TRANSITIONED FROM HOSPITAL CARE, AND WERE FOLLOWED UP AT 120 DAYS, **81% AND 76%** OF PATIENTS IN NEW ZEALAND AND AUSTRALIA RESPECTIVELY, HAVE RETURNED TO THEIR OWN HOME AT 120 DAYS

INTRODUCTION

BACKGROUND

Hip fracture is the most serious and costly fall-related injury suffered by older people. In Australia, people aged 50 years and over account for more than 95% of the admitted patient cohort, and in 2016 there were approximately 22,000 hip fractures with an estimated combined direct and indirect cost of \$908 million. That number is set to rise to more than 30,000 by 2022, with a projected cost of \$1.126 billion.¹ In New Zealand, it is predicted there will be more than 5,300 hip fractures by 2020 with an estimated hospital cost of more than \$119 million.²

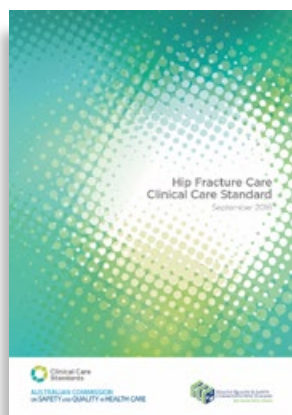
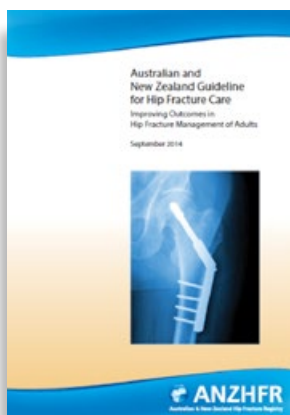
Mortality and morbidity as a result of a hip fracture is high: 5% will die in hospital; over 10% will be newly discharged to an aged care facility; more than 50% will still experience a mobility-related disability 12 months after injury and another 15-20% will have died in the year after discharge from hospital. Yet research shows that provision of effective secondary preventative care after fracture, such as osteoporosis assessment and treatment, and falls reduction interventions, is not routinely delivered. This care gap leaves hip fracture survivors with an increased risk of subsequent falls and fractures that are associated with increased mortality and loss of societal contributions.

Guideline

In September 2014, the ANZHFR released the NHMRC-endorsed Australian and New Zealand Guideline (ANZ) for Hip Fracture Care: Improving Outcomes in Hip Fracture Management of Adults.³ It is designed to help clinicians and health system managers provide consistent, effective, and efficient care for people admitted to hospital with a fractured hip. A copy of the Guideline is available from the Australian and New Zealand Hip Fracture Registry (ANZHFR) website: <http://anzhfr.org/>

Standard

The release of an ANZ Guideline enabled the development of national standards for hip fracture care. In September 2016, the Australian Commission on Safety and Quality in Health Care (the Commission) released the Hip Fracture Care Clinical Care Standard with associated quality indicators.⁴ These standards were developed in collaboration with the Health Quality & Safety Commission New Zealand and members of the ANZHFR. The Hip Fracture Care Clinical Care Standard prioritises seven areas of hip fracture care: care at presentation; pain management; orthogeriatric model of care; timing of surgery; mobilisation and weight-bearing; minimising risk of another fracture; and transition from hospital care.



THE AUSTRALIAN AND NEW ZEALAND HIP FRACTURE REGISTRY (ANZHFR)

International and national data support the use of clinical registries as an efficient and effective mechanism for generating large scale change and their development has been identified as a priority area in Australia.⁵

An external evaluation of the UK National Hip Fracture Database estimated that approximately 1,000 lives had been saved over a 5 year period following introduction of the National Hip Fracture Database (NHFD) aligned with Guidelines, Standards and Quality Indicators.⁶ A recent report commissioned by the Australian Commission on Safety and Quality in Health Care showed a high return on investment for clinical quality registries similar to the ANZHFR, which has sparked interest in how governments can support registry activities.⁷

The ANZHFR is a clinician-led audit of hip fracture care established to provide information about current service provision and ultimately to address the knowledge gap that exists in hip fracture care. The Registry stores data collected by participating hospitals and provides a mechanism for service providers to use this data to improve care and optimise outcomes for older people who have fractured their hip.

The combination of an NHRMC-endorsed Guideline, a Clinical Care Standard with Quality Indicators and a clinical Registry designed to measure performance is considered an exemplar at this point of time in Australia. The ultimate goal of the ANZHFR is to monitor clinical practice against Australian and New Zealand guidelines and standards of care to achieve maximal recovery for hip fracture sufferers and minimise the incidence of further falls and fragility fractures.

The ANZHFR is governed by a Steering Group (Appendix 1) with consumer representation and representatives of key professional bodies and societies from the spectrum of hip fracture care: Australian and New Zealand Society for Geriatric Medicine (ANZSGM); Australian Orthopaedic Association (AOA);

New Zealand Orthopaedic Association (NZOA); Australian and New Zealand Bone and Mineral Society (ANZBMS); Osteoporosis Australia (OA); Osteoporosis New Zealand (ONZ); Australasian College of Emergency Medicine (ACEM); Australian and New Zealand College of Anaesthetists (ANZCA); Australasian Faculty of Rehabilitation Medicine (AFRM); Australian Physiotherapy Association (APA); Australian and New Zealand Orthopaedic Nurses Association (ANZONA); Royal Australasian College of Physicians (RACP); and Royal Australasian College of Surgeons (RACS).

The ANZHFR collects data that is specifically focused and not easily extracted or available in routinely collected data stores. The data is collected and submitted by hospitals across Australia and New Zealand. The data held by the Registry is used to generate real-time feedback that sites can use to improve the hip fracture care they provide. Recent enhancements to the ANZHFR provide a new tier of access to the summary data and graphics of comparative performance. This additional tier of use enables hospital clinicians and health service executives to review the hip fracture care provided and identify areas for improvement.

The Registry consists of two components: 1) data collection at the level of the patient, the patient level audit, for all people aged 50 years and over admitted to a participating hospital with a minimal trauma fracture of the hip and 2) an annual snapshot of facility level services and processes for hip fracture care, the facility level audit.

PATIENT LEVEL AUDIT

Approval to participate is undertaken through an ethics and governance review process. Public and private hospitals in Australia and New Zealand are eligible to participate if they provide surgical management to people admitted with a hip fracture. People admitted to these hospitals are eligible for inclusion in the ANZHFR patient level audit if they are:

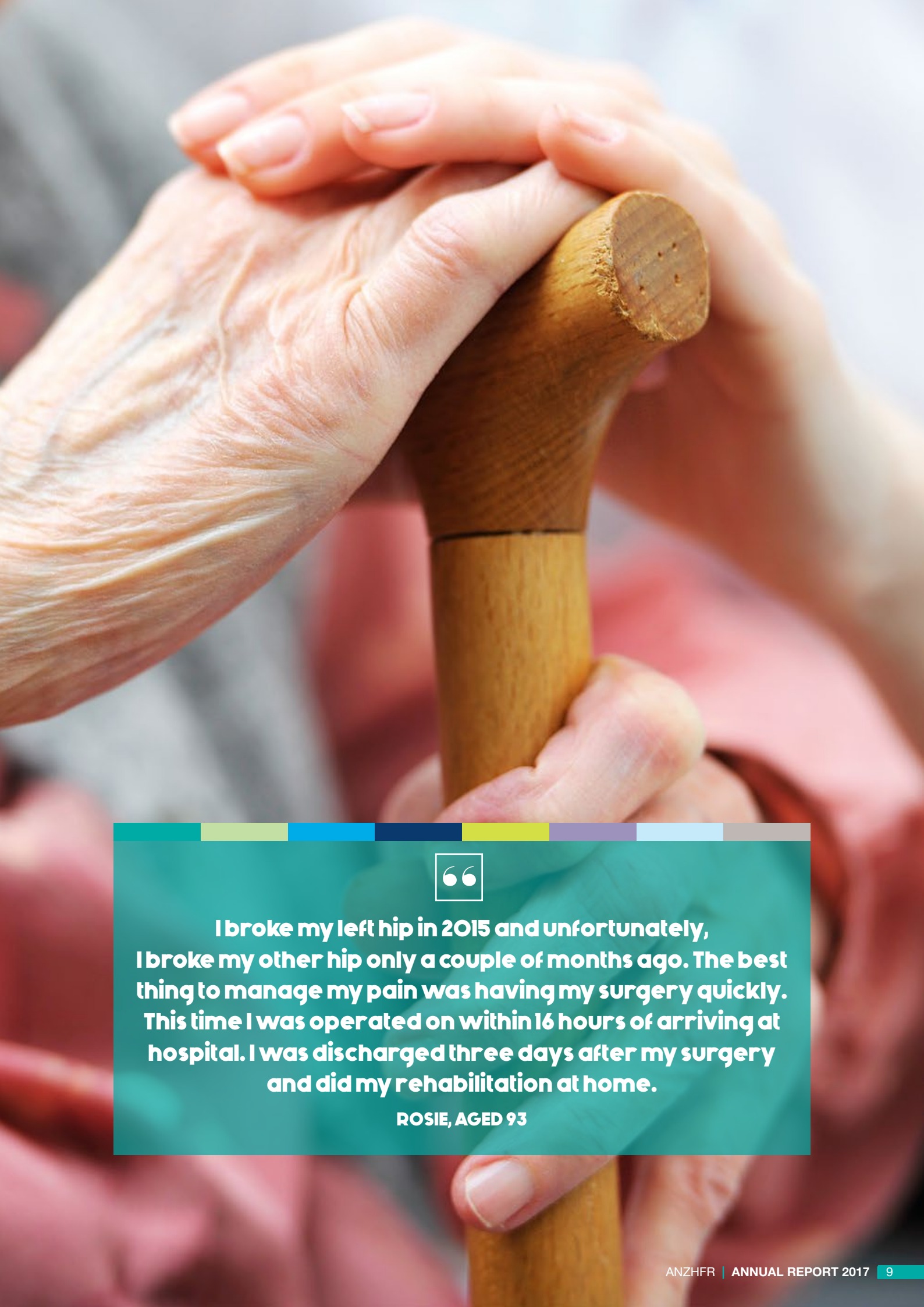
- Aged 50 years and over;
- Have fractured their hip from a minimal trauma injury; and
- Undergo surgical or non-surgical management of the hip fracture.

People aged under 50 years, or who have sustained their hip fracture by high energy trauma, are not included in the ANZHFR. Hospitals looking to participate can contact the ANZHFR on clinical@anzhfr.org. The ANZHFR Data Dictionary v9.1 can be accessed at www.anzhfr.org and the data collection form is at Appendix 2.

At June 2017, 63 hospitals in Australia and New Zealand had the necessary approvals in place to collect and submit data to the ANZHFR. This represents 53% of public hospitals in Australia and New Zealand identified as undertaking definitive treatment of hip fractures. Since patient level data collection commenced in 2015, a total of 12,219 records have been created in the Registry; 10,017 Australian records and 2,202 New Zealand records.

FACILITY LEVEL AUDIT

The aim of the facility level audit is to document and monitor over time the services, protocols and practices that exist across Australia and New Zealand in relation to hip fracture care. The first facility level audit was completed in 2013 and the audit has since been undertaken annually. Public hospitals identified as providing definitive management of hip fractures are invited to complete the survey. The questions have been designed to enable comparison of services and protocols within and between States and Territories in Australia, and New Zealand. The 2017 snapshot of care is the fifth year of the audit and year-on-year results are published in this report. See Appendix 3 for a copy of the audit form.



I broke my left hip in 2015 and unfortunately, I broke my other hip only a couple of months ago. The best thing to manage my pain was having my surgery quickly. This time I was operated on within 16 hours of arriving at hospital. I was discharged three days after my surgery and did my rehabilitation at home.

ROSIE, AGED 93

HIP FRACTURE CARE CLINICAL CARE STANDARD

The Australian Commission on Safety and Quality in Health Care was established in 2006 to lead and coordinate national improvements in safety and quality in health care. As part of their quality and safety charter, the Commission established a programme to work with clinical experts and consumers to develop standards of clinical care for specific conditions that:

- show unexplained variation in care;
- where the human cost is high; and
- where there is a gap between what is done and what should be done.

Hip fracture is one of these conditions. In 2016, the Commission released the Hip Fracture Care Clinical Care Standard and for the first time the ANZHFR is able to report against many of the quality indicators of hip fracture care. A copy of the Clinical Care Standard can be accessed at https://www.safetyandquality.gov.au/wp-content/uploads/2016/09/Hip-Fracture-Care-Clinical-Care-Standard_tagged.pdf

The Hip Fracture Care Clinical Care Standard quality statements and associated indicators are reproduced below with permission from the Commission. The performance of hospitals contributing to the ANZHFR is provided below each indicator. Definitions for the Clinical Care Standard Indicators are available from the Australian Institute of Health and Welfare Metadata Online Registry (METeOR): <http://meteor.aihw.gov.au/content/index.phtml/itemId/628043>

QUALITY STATEMENT 1: CARE AT PRESENTATION



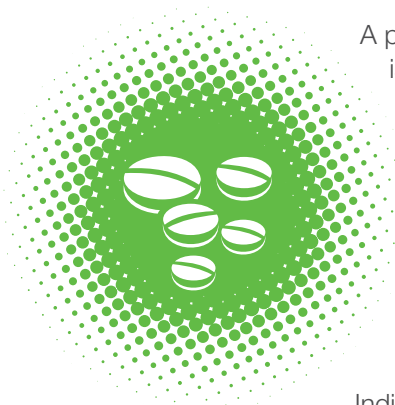
A patient presenting to hospital with a suspected hip fracture receives care guided by timely assessment and management of medical conditions, including diagnostic imaging, pain assessment and cognitive assessment.

Indicator 1a: Evidence of local arrangements for the management of patients with hip fracture in the emergency department

Indicator 1b: Proportion of patients with a hip fracture who have had their pre-operative cognitive status assessed

- 74% of hospitals reported having a hip fracture pathway, 51% across the whole acute hip fracture patient journey and 23% in the emergency department only
- 58% of hospitals reported the presence of a protocol for CT/MRI if plain imaging of a suspected hip fracture is inconclusive
- 66% and 62% of patients in New Zealand and Australia, respectively, are documented as having no cognitive issues prior to admission

QUALITY STATEMENT 2: PAIN MANAGEMENT



A patient with a hip fracture is assessed for pain at the time of presentation and regularly throughout their hospital stay, and receives pain management including the use of multimodal analgesia, if clinically appropriate.

Indicator 2a: Evidence of local arrangements for timely and effective pain management for hip fracture

Indicator 2b: Proportion of hip fracture patients who have documented pain assessment within 30 minutes of emergency department presentation and either receive analgesia within this time or do not require it

- 56% of hospitals responded that they had a pathway for pain management in hip fracture patients, 36% across the whole acute patient journey and 20% in the emergency department only
- 58% and 80% of patients in New Zealand and Australia, respectively, are receiving a nerve block before and/or at the time of surgery, an increase in Australia from 59% in 2015

QUALITY STATEMENT 3: ORTHOGERIATRIC MODEL OF CARE



A patient with a hip fracture is offered treatment based on an orthogeriatric model of care as defined in the Australian and New Zealand Guideline for Hip Fracture Care.

Indicator 3a: Evidence of orthogeriatric (or alternative physician or medical practitioner) management during an admitted patient's hip fracture episode of care.

Orthogeriatric care involves a shared care arrangement of hip fracture patients between the specialties of orthopaedics and geriatric medicine. The geriatrician is involved in the pre-operative optimisation of the patient in preparation for surgery and then takes a lead in the post-operative medical care and coordinates the discharge planning process. Implicit in this role are many of the aspects of basic care including nutrition, hydration, pressure care, bowel and bladder management, and monitoring of cognition.

- 60% of hospitals reported an orthogeriatric service for older hip fracture patients: 32% utilising a daily geriatric medicine liaison service; 24% utilising a shared-care arrangement with orthopaedics; and 4% utilising a medical liaison service for daily review

HIP FRACTURE CARE CLINICAL CARE STANDARD CONTINUED

QUALITY STATEMENT 4: TIMING OF SURGERY



A patient presenting to hospital with a hip fracture, or sustaining a hip fracture while in hospital, receives surgery within 48 hours, if no clinical contraindication exists and the patient prefers surgery.

Indicator 4a: Proportion of patients with a hip fracture receiving surgery within 48 hours of presentation with the hip fracture

- 82% and 77% of patients in New Zealand and Australia, respectively, are reported as being operated on within 48 hours of presentation to hospital

QUALITY STATEMENT 5: MOBILISATION AND WEIGHT-BEARING



A patient with a hip fracture is offered mobilisation without restrictions on weight bearing the day after surgery and at least once a day thereafter, depending on the patient's clinical condition and agreed goals of care.

Indicator 5a: Proportion of patients with a hip fracture who are mobilised on day one post hip fracture surgery

Indicator 5b: Proportion of patients with a hip fracture with unrestricted weight bearing status immediately post hip fracture surgery

Indicator 5c: Proportion of patients with a hip fracture experiencing a new Stage II or higher pressure injury during their hospital stay

Indicator 5d: Proportion of patients with a hip fracture returning to pre-fracture mobility within 120 days

- 90% and 89% of patients in New Zealand and Australia, respectively, are offered the opportunity to mobilise on the first day after surgery
- More than 95% of hip fracture patients have unrestricted weight-bearing immediately after hip fracture surgery
- Fewer than 3% of hip fracture patients are reported as experiencing a new stage II or higher pressure injury of the skin during their hospital stay
- Of the 2941 patients followed up at 120 days, 21% and 23% of patients in New Zealand and Australia respectively are reported as having returned to their pre-fracture mobility at 120 days after presentation to hospital

QUALITY STATEMENT 6: MINIMISING RISK OF ANOTHER FRACTURE



Before a patient with a hip fracture leaves hospital, they are offered a falls and bone health assessment, and a management plan based on this assessment, to reduce the risk of another fracture.

Indicator 6a: Proportion of patients with a hip fracture receiving bone protection medicine prior to separation from the hospital at which they underwent surgery

Indicator 6b: Proportion of patients with a hip fracture readmitted to hospital with another femoral fracture within 12 months of admission from initial hip fracture.

- 31% and 16% of patients in New Zealand and Australia, respectively, were receiving bone protection medication at discharge from hospital

QUALITY STATEMENT 7: TRANSITION FROM HOSPITAL CARE



Before a patient leaves hospital, the patient and their carer are involved in the development of an individualised care plan that describes the patient's ongoing care and goals of care after they leave hospital. The plan is developed collaboratively with the patient's general practitioner.

The plan identifies any changes in medicines, any new medicines, and equipment and contact details for rehabilitation services they may require. It also describes mobilisation activities, wound care and function post-injury. The plan is provided to the patient before discharge and to their general practitioner and other ongoing clinical providers within 48 hours of discharge.

Indicator 7a: Evidence of local arrangements for the development of an individualised care plan for hip fracture patients prior to the patient's separation from hospital

Indicator 7b: Proportion of patients with a hip fracture returning to private residence

- 27% of hospitals reported providing written, individualised information on discharge that describes ongoing care, goals of care and recommendations for prevention of future falls and fractures
- Of those that lived at home prior to injury and of the patients followed up at 120 days, 81% and 76% of patients in New Zealand and Australia, respectively, have returned to their own home at 120 days

Hospitals that participate in the ANZHFR are able to analyse their care against the ANZ Guidelines and Hip Fracture Care Clinical Care Standard. For example, one hospital has described how the ANZHFR has been beneficial: "... the database is providing us with information of where we need to improve, for example, when we asked key personnel on the Orthopaedic Ward if they believed that the patients with a fractured hip were being mobilised within 24hrs, the majority of staff believed the patients were indeed mobilised early and that we could move this standing item off our Steering Committee agenda. It was only when we analysed the data from the Registry we found we were actually at or around the 60% mark of patients being mobilised, a bit of a shock really!"

ANZHFR PARTICIPATION

■ Hospitals highlighted in bright blue are included in both the patient level audit and the facility level audit.

Hospitals have not been named but have been given a unique identifying number. This number has been provided to the Principal Investigator at the site.

NEW ZEALAND HOSPITALS

Auckland City Hospital (n = 153)

Christchurch Hospital

Dunedin Hospital

Gisborne Hospital

Grey Base Hospital

Hawkes Bay Hospital

Hutt Valley Hospital (n = 14)

Rotorua Hospital

Middlemore Hospital (n = 250)

Nelson Hospital

North Shore Hospital (n = 201)

Palmerston North Hospital

Southland Hospital

Taranaki Base Hospital

Tauranga Hospital

Timaru Hospital

Waikato Hospital

Wairarapa Hospital

Wairau Hospital

Wanganui Hospital

Wellington Regional Hospital (n = 10)

Whakatane Hospital

Whangarei Base Hospital (n = 102)

AUSTRALIAN HOSPITALS

NEW SOUTH WALES

Armidale Hospital

Bankstown Lidcombe Hospital
(n = 140)

Bathurst Health Service

Bega South East Regional Hospital

Blacktown Hospital (n = 129)

Bowral Hospital

Campbelltown Hospital (n = 66)

Canterbury Hospital

Coffs Harbour Hospital

Concord Hospital (n = 108)

Dubbo Hospital

Gosford Hospital

Goulburn Hospital

Grafton Base Hospital

Hornsby Ku-ring-gai Hospital

John Hunter Hospital (n = 383)

Lismore Hospital

Liverpool Hospital (n = 279)

Maitland Hospital

Manly Hospital

Manning Hospital

Mona Vale Hospital

Nepean Hospital (n = 274)

Orange Health Service

Port Macquarie Hospital

Prince of Wales Hospital (n = 185)

Royal North Shore Hospital

Royal Prince Alfred Hospital
(n = 113)

Ryde Hospital

Shoalhaven Hospital

St George Hospital (n = 182)

St Vincent's Hospital Darlinghurst
(n = 13)

Sutherland Hospital (n = 106)

Tamworth Hospital

The Tweed Hospital

The Wollongong Hospital (n = 206)

Wagga Wagga Rural Referral
Hospital

Westmead Hospital (n = 188)

Thirty-four hospitals are represented in 2016, an increase from 25 hospitals in 2015. An additional 12 hospitals had ethics and governance approvals in place to contribute data to the ANZHFR but had not implemented data collection and did not submit any, or sufficient, data for inclusion.

Hospitals have been included in the patient level audit report if they contributed more than nine records to the Registry in the 2016 calendar year. The number of patient level records for the year is recorded as “n” in the table below. The facility level audit shows aggregated data only. All hospitals listed below contributed to the facility level audit annual snapshot of hip fracture services and protocols.

VICTORIA

Albury Wodonga Health, Albury Campus
Austin Hospital
Ballarat Health Services
Geelong University Hospital
Bendigo Hospital
Box Hill Hospital
Dandenong Campus (n = 358)
Frankston Hospital (n = 71)
Goulburn Valley Health, Shepparton
Latrobe Regional Hospital
Maroondah Hospital
Mildura Base Hospital
Northeast Health Wangaratta
Royal Melbourne Hospital, City Campus
Sandringham Hospital
South West Healthcare, Warrnambool
St Vincent's Hospital Melbourne
The Alfred
The Northern Hospital (n = 200)
West Gippsland Healthcare Group, Warragul
Western District Health Service, Hamilton
Western Hospital, Footscray
Wimmera Base Hospital, Horsham

QUEENSLAND

Bundaberg Base Hospital
Cairns Hospital
Gold Coast University Hospital
Hervey Bay Hospital
Ipswich Hospital (n = 78)
Logan Hospital (n = 132)
Mackay Base Hospital
Nambour General Hospital (n = 124)
Princess Alexandra Hospital (n = 188)
Queen Elizabeth II Jubilee Hospital (n = 16)
Redcliffe Hospital
Robina Hospital
Rockhampton Hospital
The Prince Charles Hospital (n = 343)
The Townsville Hospital (n = 179)
Toowoomba Hospital (n = 179)

SOUTH AUSTRALIA

Flinders Medical Centre
Lyell McEwin Hospital
Modbury Hospital
Mount Gambier and Districts Health Service
Port Pirie Regional Health Service
Royal Adelaide Hospital
The Queen Elizabeth Hospital
Whyalla Hospital and Health Service

WESTERN AUSTRALIA

Albany Hospital
South West Health Campus, Bunbury
Fiona Stanley Hospital (n = 577)
Joondalup Health Campus
Royal Perth Hospital
Sir Charles Gairdner Hospital (N = 339)

TASMANIA

Launceston General Hospital (n = 22)
North West Regional Hospital, Burnie
Royal Hobart Hospital

NORTHERN TERRITORY

Royal Darwin Hospital
Alice Springs Hospital

AUSTRALIAN CAPITAL TERRITORY

The Canberra Hospital





ANZHFR PATIENT LEVEL AUDIT

DATA QUALITY

Assessment of data quality involves checking the completeness, correctness (accuracy), and coverage (ascertainment) of the data held by the Registry.

Completeness refers to the number of variables completed per record over the number of variables eligible to be completed for that patient. The Registry utilises inbuilt data completeness checks for each record and the percentage complete can be seen against each record when logged into the Registry. Figure 1 shows the average completeness of data for each patient record.

Correctness refers to the accuracy of the data entered into each individual data field. The ANZHFR utilises data validation rules to ensure the integrity of its data variables and is piloting a process for the auditing of data accuracy. This pilot is underway at a subset of participating sites and the results will be available in late 2017.

Coverage refers to the proportion of all eligible hip fracture patients that are captured by the Registry. High levels of coverage allow the findings to be generalised to the whole population. If the capture rate is low, selection bias may be introduced where patients included or excluded are systematically different from each other and this may affect the generalisability of the findings. This patient level report includes data from 34 of 120 public hospitals. These 34 hospitals have generated 5908 records (5178 from Australia and 730 from New Zealand) for the 2016 calendar year. Of the 5908 records created in 2016, 2941 (2472 from Australia and 469 from New Zealand) included 120-day follow-up data.

For the first time, the ANZHFR is reporting outcomes for hip fracture patients although the patient level follow up data should be interpreted with caution due to low rates of follow up. Hip fracture is associated with significant loss of function and independence in daily living activities. Returning to a similar level of pre-injury mobility is a primary goal of hip fracture treatment and rehabilitation. Over time, as rates of follow up improve, a better understanding of outcomes that are important to the individual recovering from a hip fracture will be available through the ANZHFR.

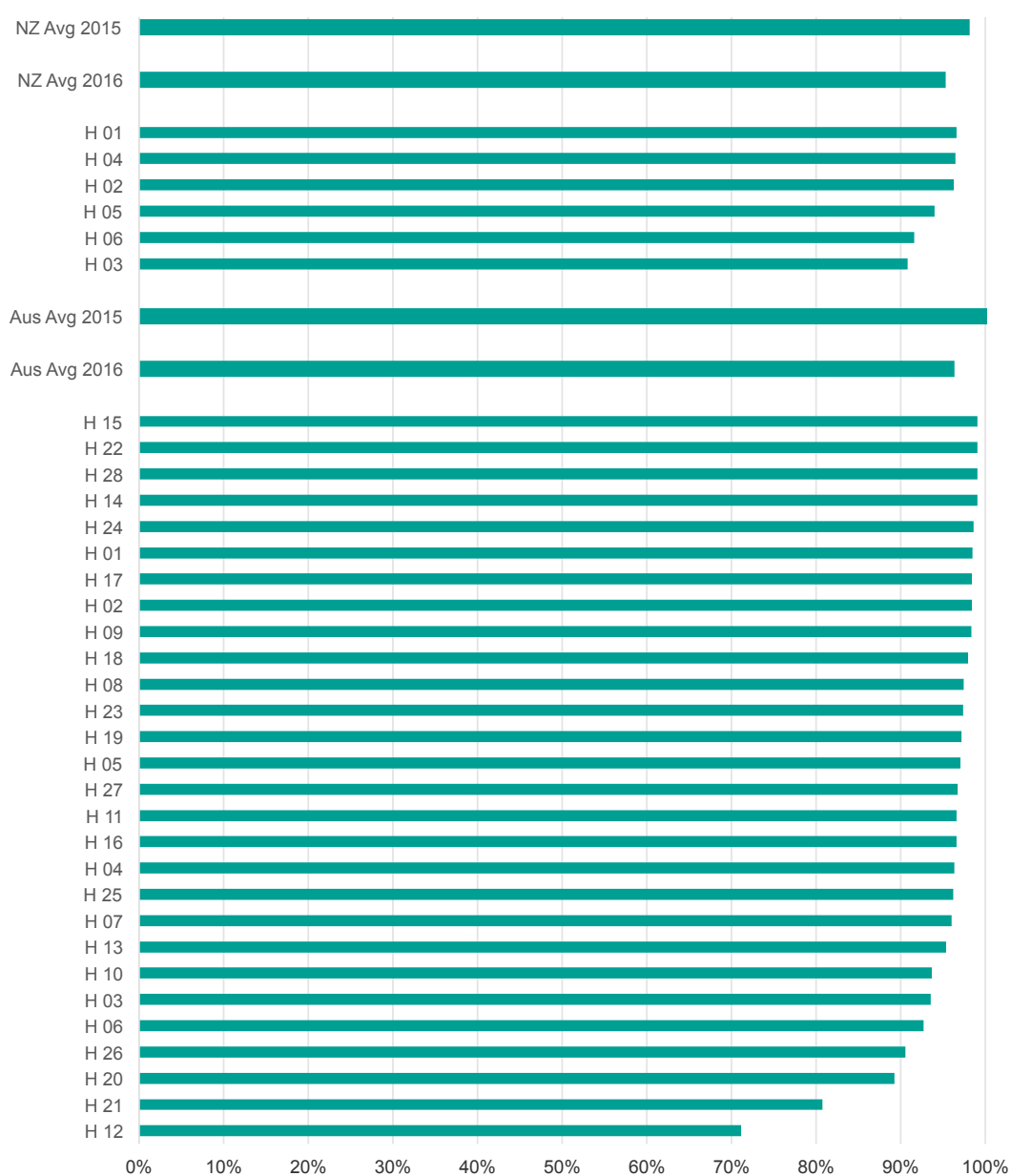
DATA NOTES FOR 2017 PATIENT LEVEL AUDIT

The figures provided in this report have the following caveats:

- Hospitals must have contributed more than nine patient records for inclusion in the patient level report
- Figures in this report include data from Australia and New Zealand for all patients with an Emergency Department Arrival, or an In Hospital Fracture or a Transfer Date in the range of the 1st January 2016 up to and including 31st December 2016
- The hospital identification number is randomly assigned and used consistently throughout this report. The legend will only be made available to the members of the Steering Group or as directed by the Co-Chairs
- The hospital identification number will be provided to the Principal Investigator listed on the ethics/governance approval at each facility
- Any hospital with fewer than 10 records for any calculation has not had their data reported
- Caution is to be used when interpreting the figures for 30 and 120 day outcomes as not all patients have been followed up
- Where the figure was included in 2015 the averages from that year have been included from 2016 for comparison

FIGURE 1

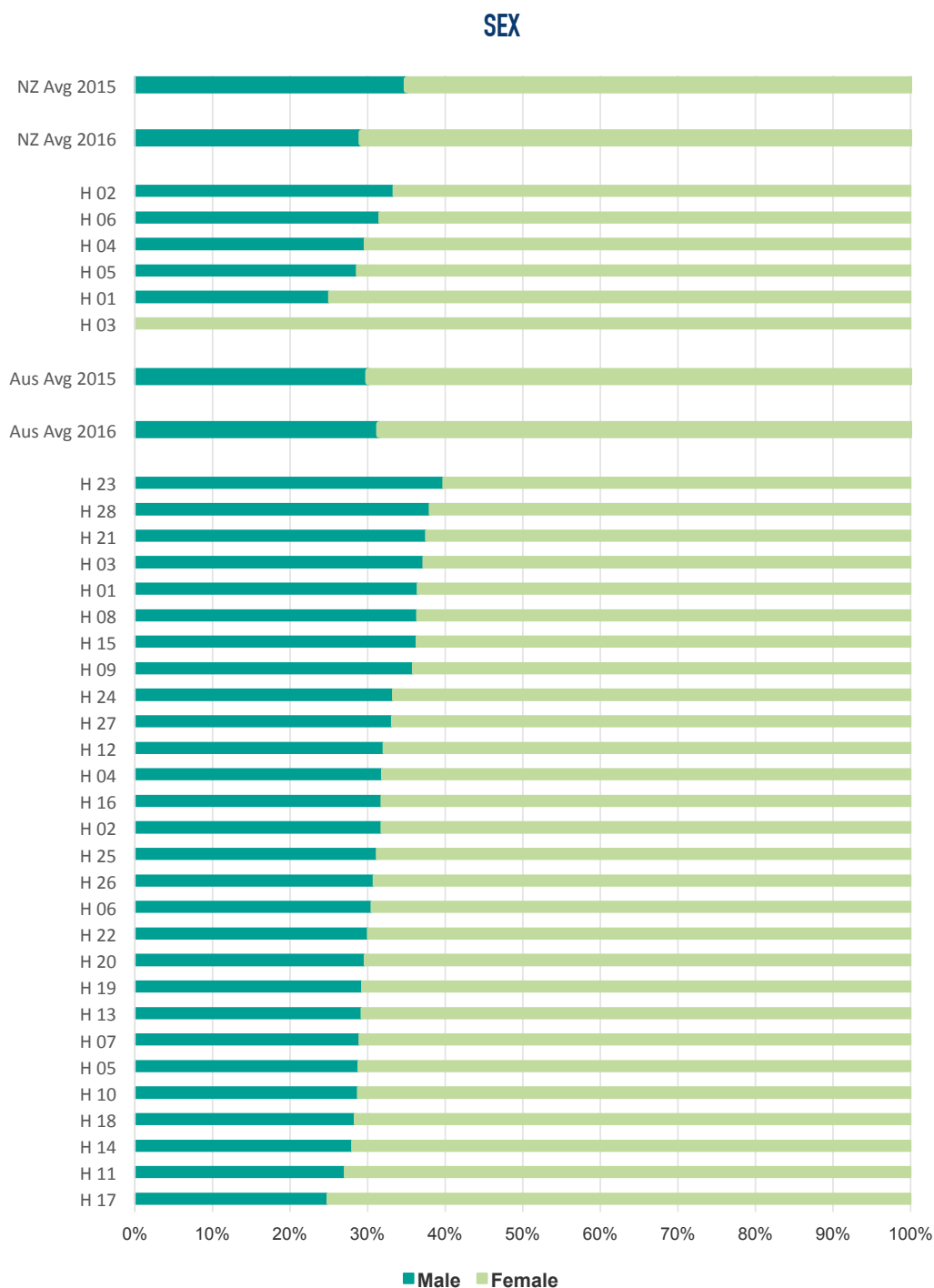
Figure 1 shows the average completeness of data for each patient record, shown as an average for each site, and for each country. Completeness is defined as the proportion of fields completed (questions answered) in the individual patient level data collection form. There is no clear threshold for 'satisfactory' completeness and 100% completeness is not always possible as some data may not be available for some patients or from some sites.

DATA COMPLETENESS

SECTION 1: DEMOGRAPHIC INFORMATION

FIGURE 2

Overall, females comprise 68% and 70% of the New Zealand and Australian hip fracture patients respectively. The make-up of the population varies between hospitals.



24%

OF HIP FRACTURE PATIENTS
ARE 90 YEARS AND OLDER

FIGURE 3

The average age of hip fracture patients is 83 years in New Zealand and 82 years in Australia. The median age of males is 85 years in New Zealand and 83 years in Australia, and in women the median age is 85 years in both New Zealand and Australia. The Figure shows the distribution of hip fracture patients by 10 year age bands. Whilst there is variation in the distribution between individual hospitals, the distribution of patients across the age bands in New Zealand and Australia is similar. People aged 90 years and older make up 24% of hip fracture patients in both Australia and New Zealand.

AGE AT ADMISSION

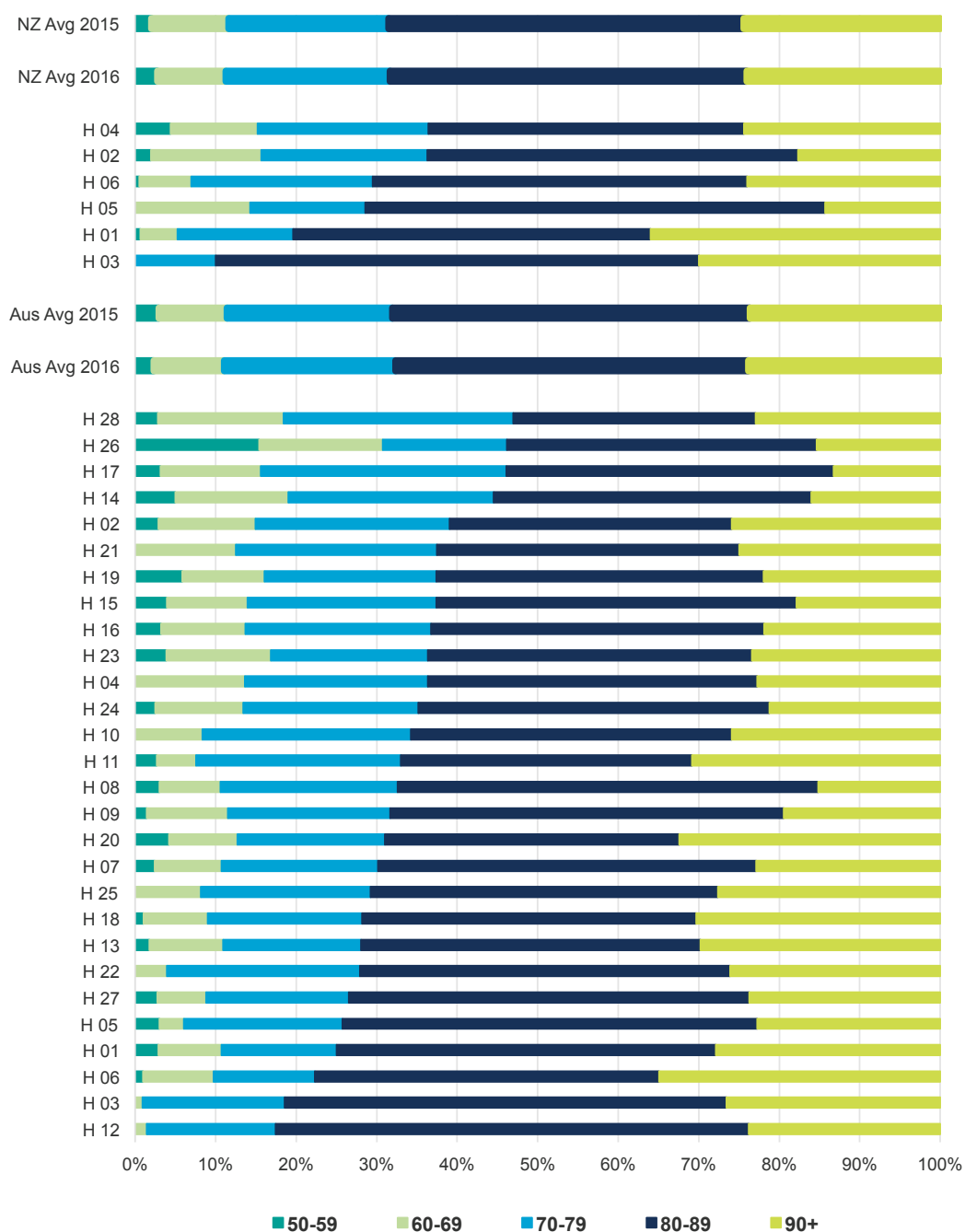




FIGURE 4

Indigenous populations constituted less than 1% of the Australian reported data. Maori and Pacific Peoples made up 2.7% of the New Zealand reported data. The majority of New Zealand hip fracture patients report being of European origin. Equivalent data were not collected in Australia. Accuracy in reporting of Indigenous status is known to be variable.

NEW ZEALAND ETHNICITY

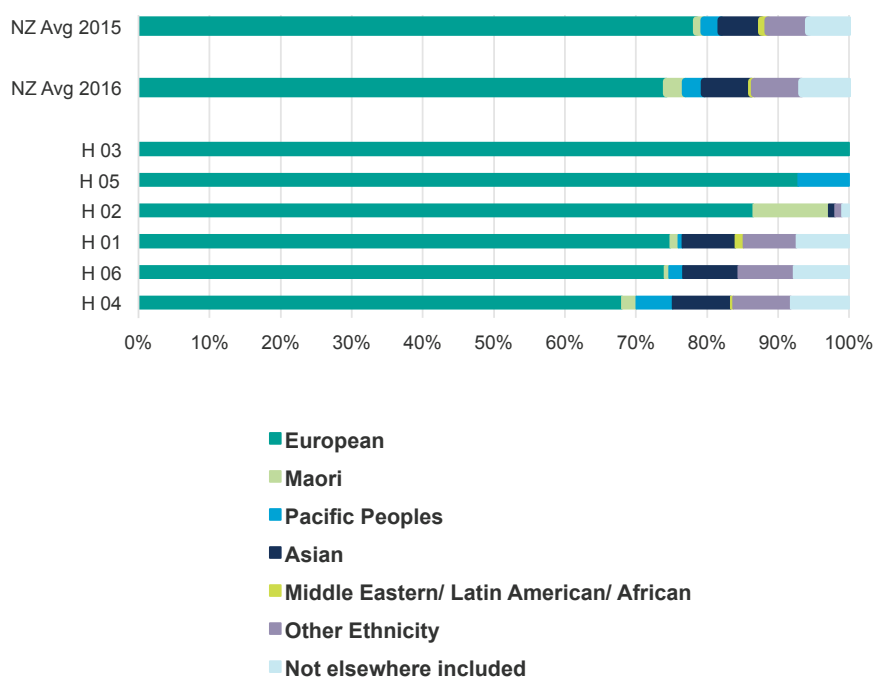
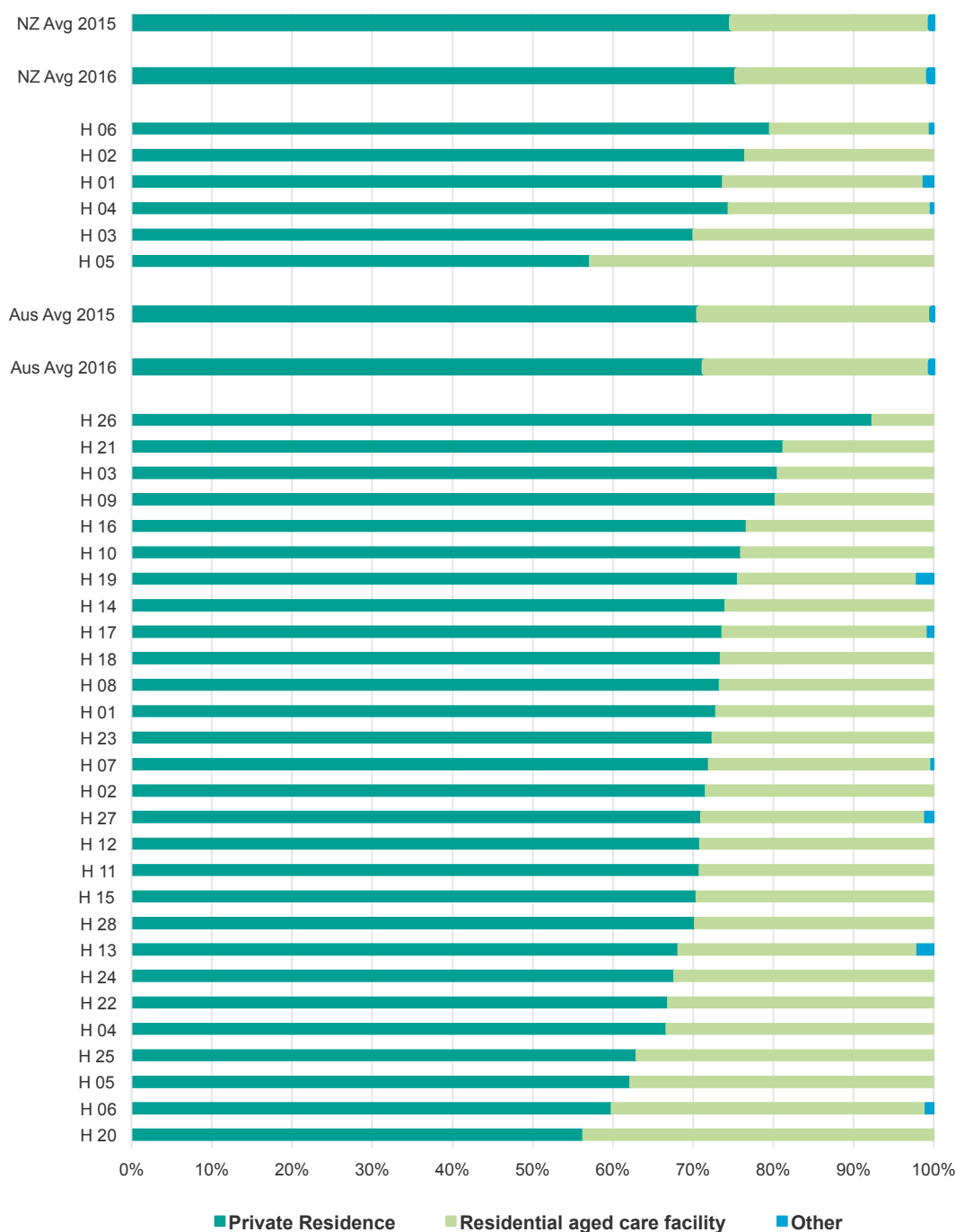




FIGURE 5

The majority of people admitted to hospital with a hip fracture live at home; 76% of New Zealand patients and 71% of Australian patients. However, this implies that people from residential aged care facilities are over-represented in the hip fracture population – a finding that is expected and consistent with national and international literature. There is variation seen between hospitals, which will reflect the make-up of the local population including the number of residential aged care facilities but it is also important to remember that for some hospitals the number of patients entered into the Registry is small.

USUAL PLACE OF RESIDENCE

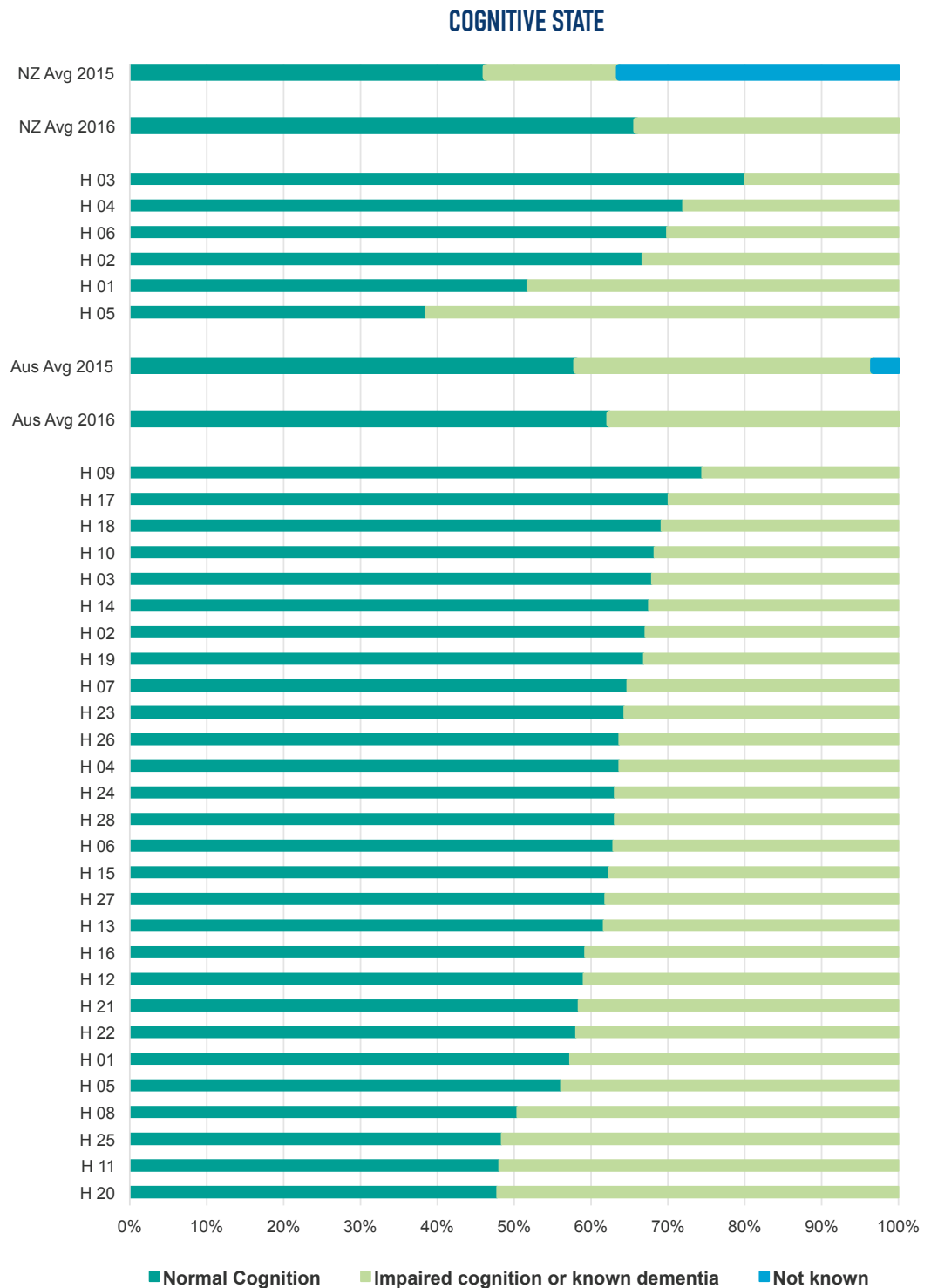


38%

OF HIP FRACTURE PATIENTS IN AUSTRALIA
WERE KNOWN TO HAVE COGNITIVE
IMPAIRMENT PRIOR TO SURGERY

FIGURE 6

Documentation of cognitive status prior to hospitalisation has improved in 2016 in both countries compared to 2015. Sixty-six percent and 62% of patients in New Zealand and Australia, respectively, are documented as having no cognitive issues prior to admission. In 2017 an additional variable was added to ensure that there is formal testing of cognition undertaken and documented prior to surgery – consistent with the Hip Fracture Care Clinical Care Standard Indicator 1b.



43%

43% OF HIP FRACTURE PATIENTS IN NEW ZEALAND WALKED WITHOUT ANY ASSISTIVE DEVICE PRIOR TO HOSPITALISATION

FIGURE 7

Pre-admission walking ability is used to assess the outcome of treatment, and it is a surrogate marker of overall health status. In New Zealand, 43% of hip fracture patients walked without any assistive device prior to hospitalisation compared to 47% of patients in Australia. There is variation seen between hospitals, which is likely to reflect the make-up of the local population but it is also important to remember that for some hospitals the number of patients entered into the Registry is small.

PREADMISSION WALKING ABILITY

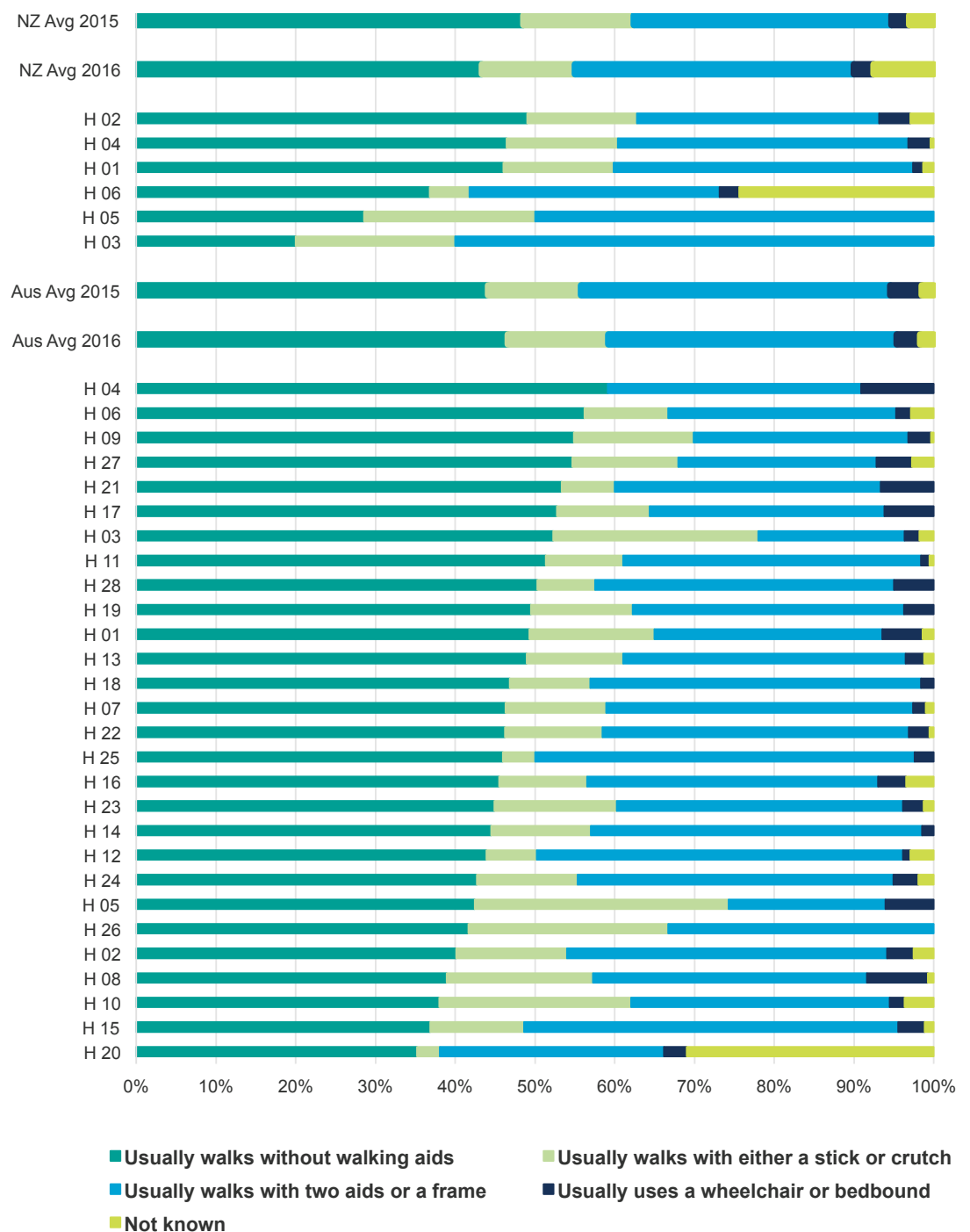


FIGURE 8

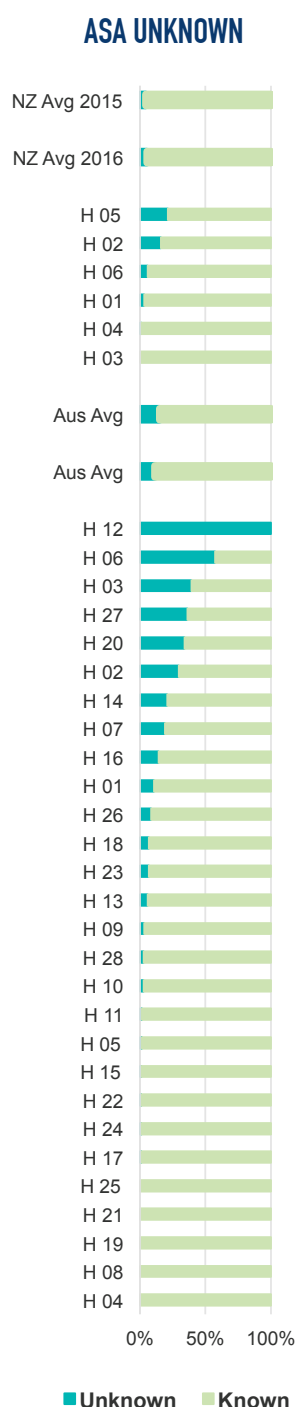
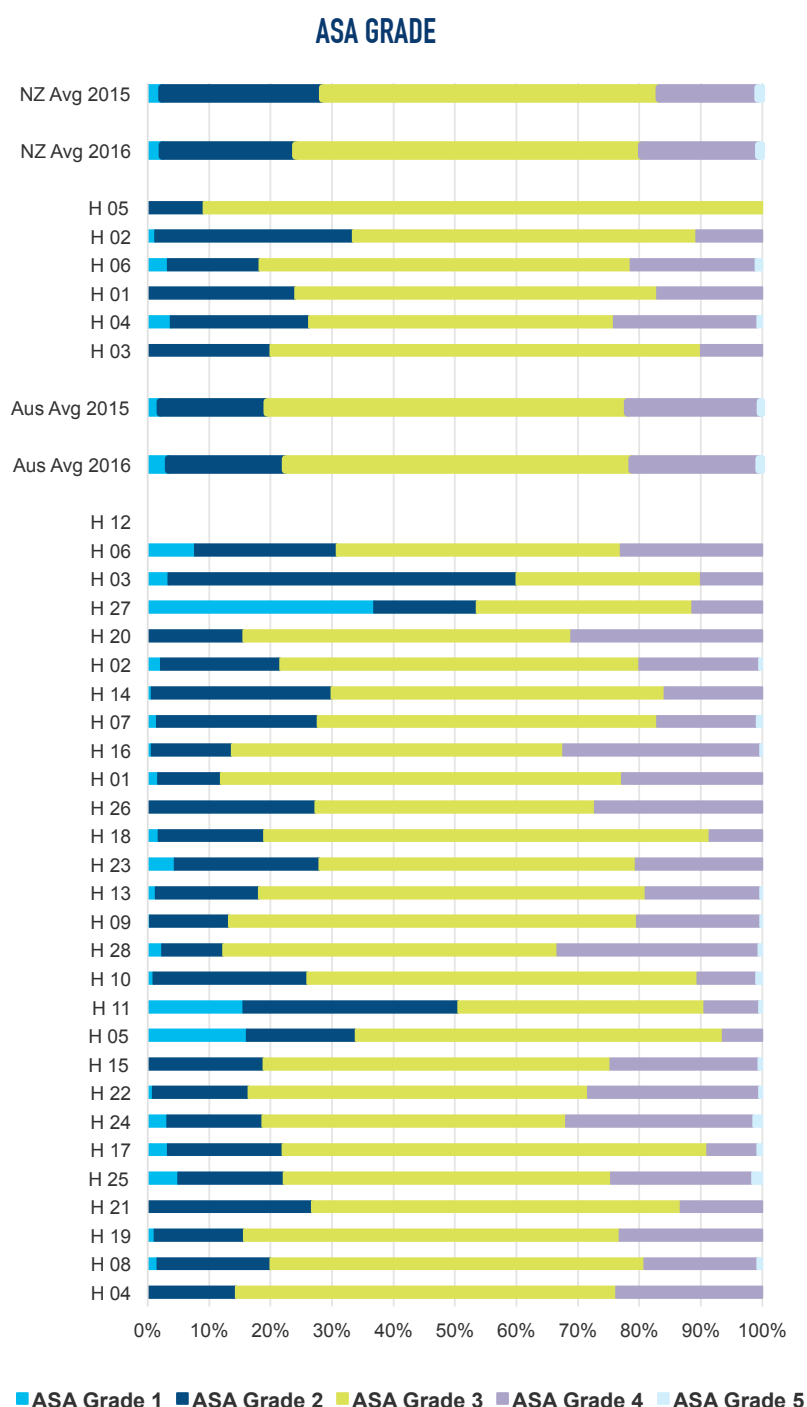


FIGURE 9



The ASA grading was developed by the American Society of Anesthetists (ASA). It is a measure of anaesthetic risk that is often used as a general measure of physical health or comorbidity. It is associated with mortality and morbidity risk in patients with hip fractures and in many other patient groups. Of those where the ASA is known, Figure 9 shows the grading of anaesthetic risk. Grade 1 is a healthy individual with no systemic disease, Grade 2 is mild systemic disease not limiting activity, and Grade 3 is severe systemic disease that limits activity but is not incapacitating. Grade 4 indicates a patient with severe systemic disease that is a constant threat to life. ASA Grade 5 indicates that the patient is not expected to survive surgery. The ASA grades provided in Figure 9 show that most hip fracture patients have an ASA grade of 3 or higher, indicating significant comorbidities and anaesthetic risk.

SECTION 2:

CARE AT PRESENTATION

FIGURE 10

TRANSFERRED FROM ANOTHER HOSPITAL

There is considerable variation between sites in the proportion of patients transferred in from other hospitals. This variation reflects differences in geography and the role delineation of the hospitals. It also impacts on time to surgery when the period spent in the transferring hospital and the time spent in transition is included.

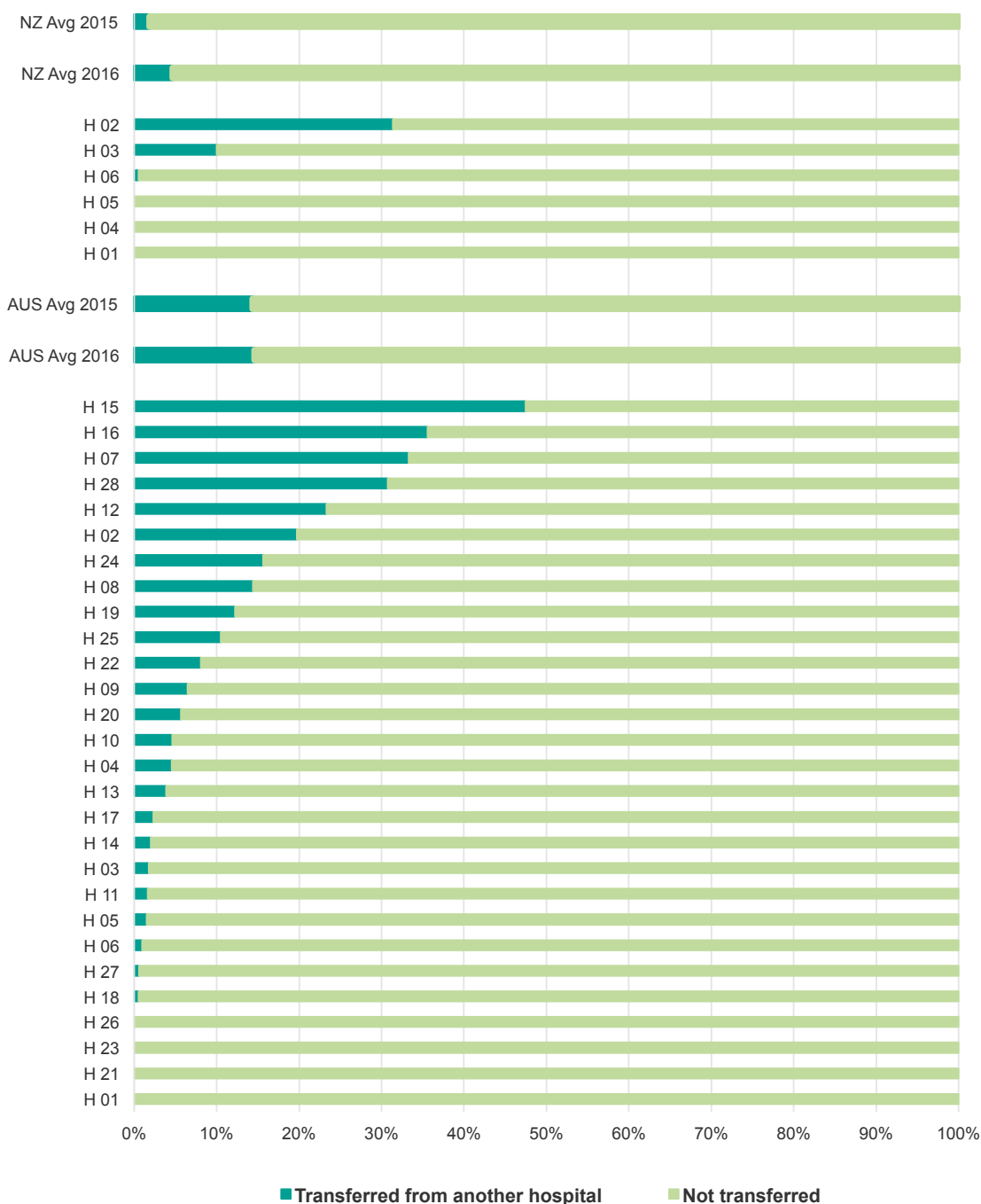




FIGURE 11

Average length of stay in the Emergency Department (ED) decreased from 6.8 hours to 5.0 hours between 2015 and 2016 in New Zealand but increased from 6.9 hours to 7.1 hours in Australia over the same period. Little variation across sites was observed in New Zealand, whilst marked variation was noted in Australia with average times ranging from 4 to 12 hours.

AVERAGE LENGTH OF STAY IN THE EMERGENCY DEPARTMENT

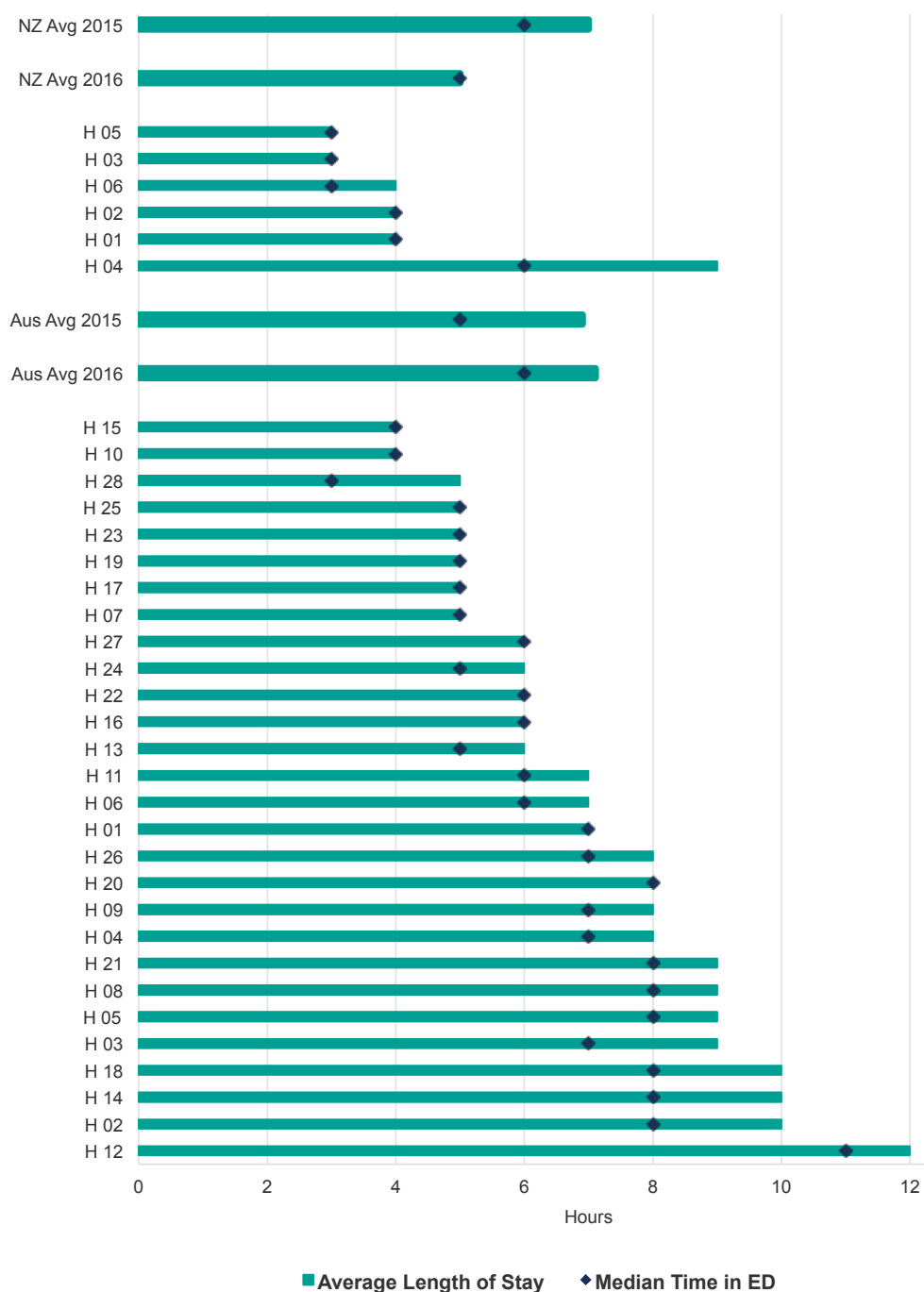




FIGURE 12

The type of ward used for hip fracture patients varies between sites due to factors such as the size and the role of the hospital. Despite this, the proportion of patients admitted to a specific hip fracture or orthopaedic ward in 2016 was 98% and 89%, respectively in New Zealand and Australia, similar to 2015.

WARD TYPE FROM THE EMERGENCY DEPARTMENT

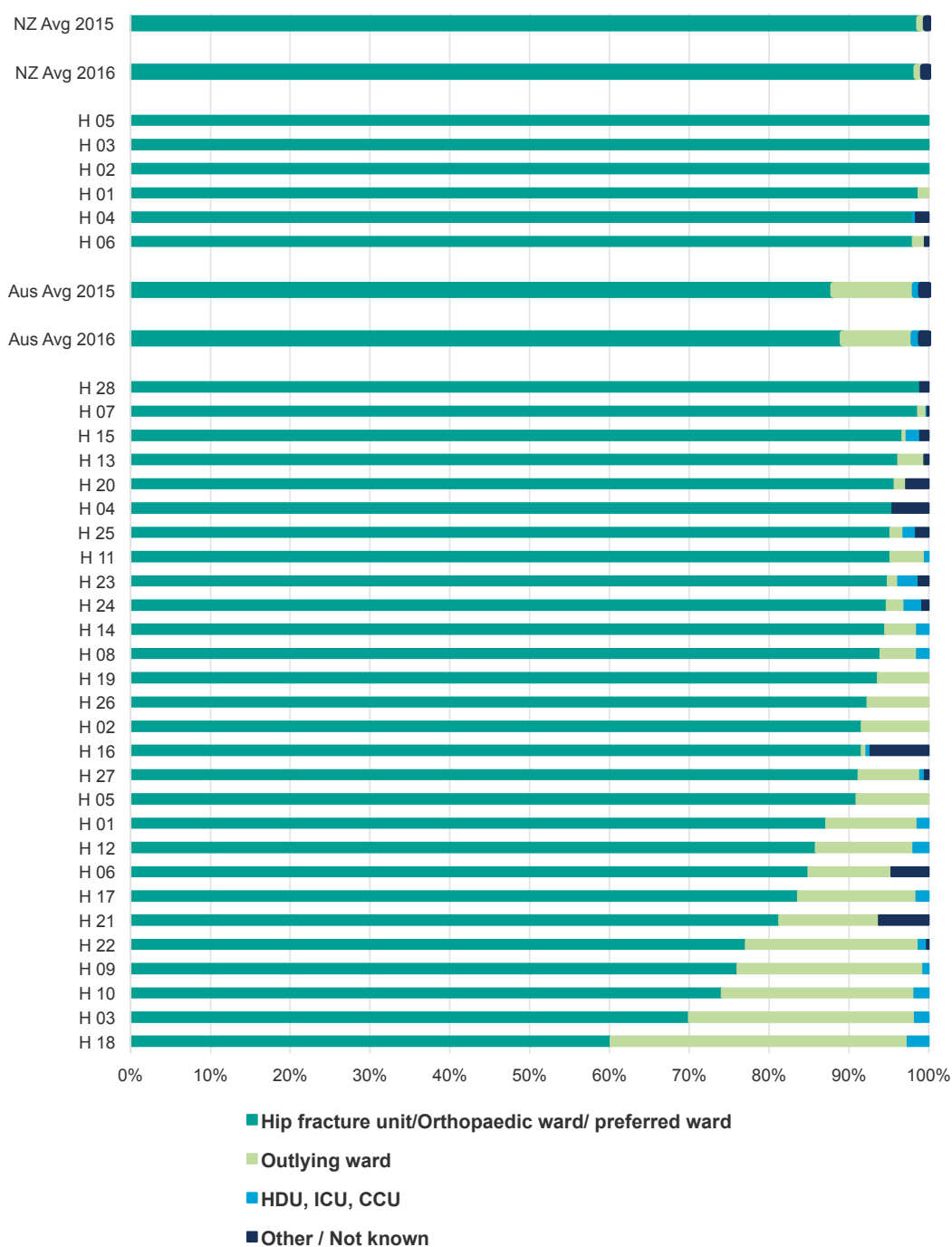
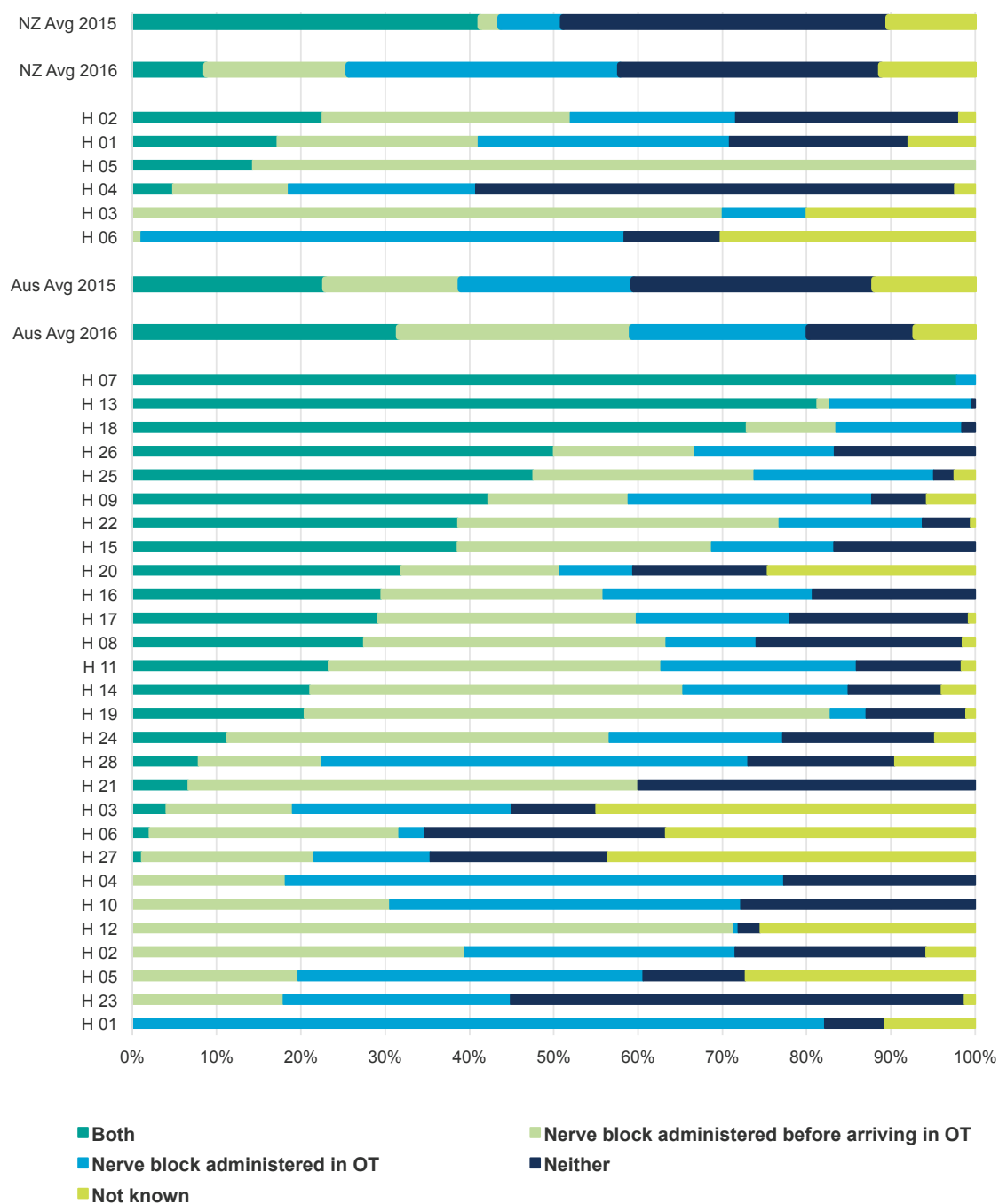


FIGURE 13

USE OF NERVE BLOCKS



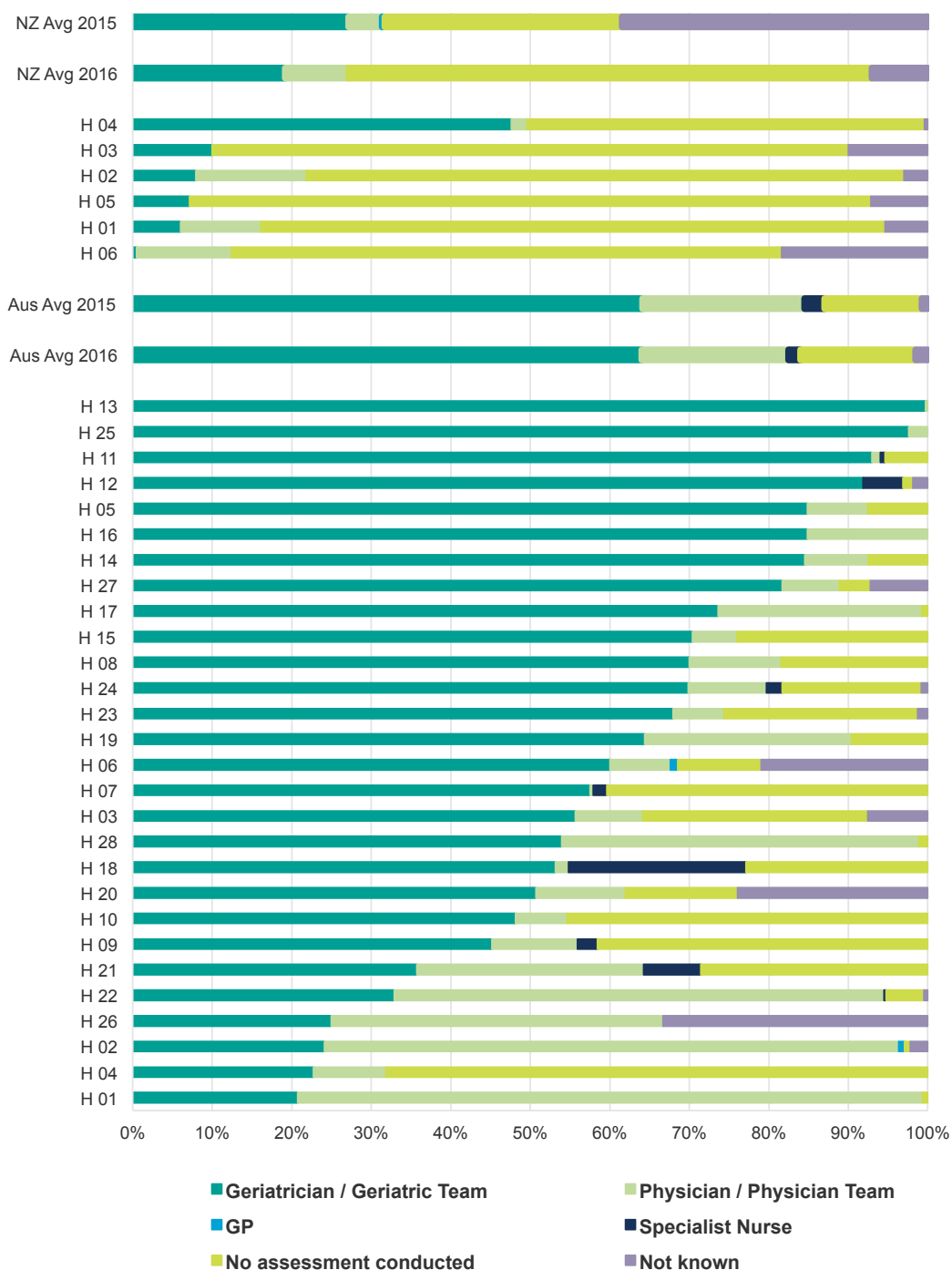
IN AUSTRALIA,
80%
 OF PATIENTS ARE
 RECEIVING A NERVE
 BLOCK BEFORE
 AND/OR AT THE TIME
 OF SURGERY, UP FROM
 59% IN 2015

Nerve blocks are used to manage pain in the acute fracture setting and can be administered before and/or at the time of surgery. In 2016 there was an increased uptake in nerve blocks in both New Zealand and Australia compared to 2015. In New Zealand, 58% of patients had a nerve block administered before and/or at the time of surgery. In Australia, 80% of patients received a nerve block before and/or at the time of surgery, a figure that is up from 59% in 2015.

FIGURE 14

There remains marked variation both between countries and between hospitals in the percentage of hip fracture patients who are assessed by a geriatrician or a physician prior to surgical intervention. This assessment is in addition to an anaesthetic review, which would be considered standard for all patients. The number of patients seen by a geriatrician prior to surgery dropped in New Zealand in 2016 when compared to 2015. There has been no substantial change in Australia where 63% of patients are seen by a geriatrician prior to surgery. As more hospitals come on board this proportion may drop, as these sites may not have geriatric medicine services.

PREOPERATIVE MEDICAL ASSESSMENT



SECTION 3:

OPERATIVE CARE AND SURGERY

FIGURE 15

It is anticipated that nearly all patients with a hip fracture will be treated surgically with a view to optimising function and/or alleviating pain. The data presented in Figure 15 show some variation between hospitals, which may reflect differences in clinical management and in the populations treated. An additional reason to be considered is that some treating hospitals may transfer some patients to other facilities, including private hospitals, for surgery. Non-operative treatment may be a reasonable option in some circumstances: such as for patients at high risk of perioperative mortality or those with stable undisplaced fractures who are able to mobilise.

TREATED WITH SURGERY

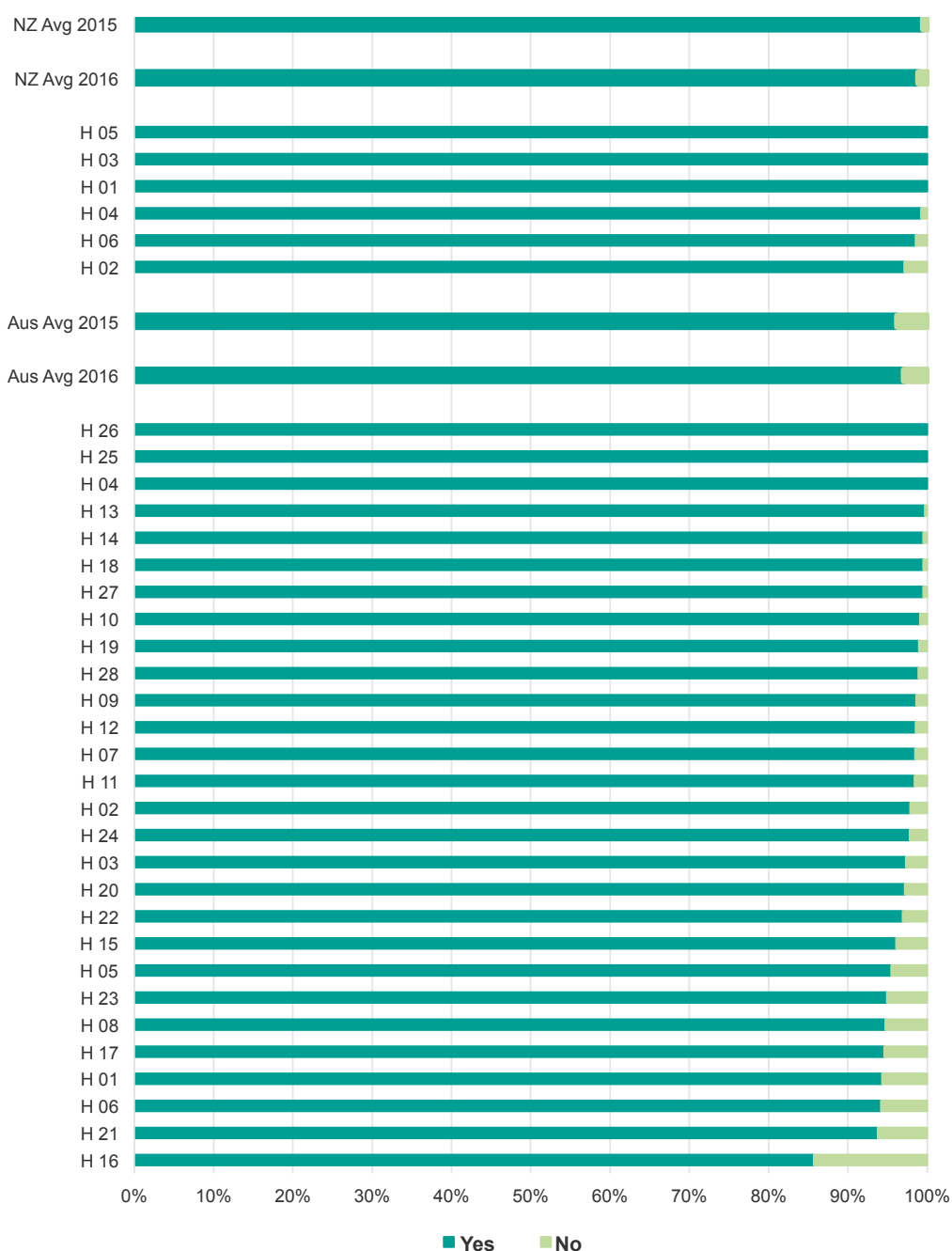


FIGURE 16

The high institutional variation seen in the proportion of surgical procedures that were supervised by a consultant likely reflects differences in staff levels, staff seniority and theatre availability, as hip fractures that are performed on scheduled operating lists are more likely to have a consultant present compared to cases performed on emergency lists (which are associated with unpredictable start times and after-hours surgery). The ANZ Guideline for Hip Fracture Care³ recommends performing hip fracture surgery on scheduled operating lists.

CONSULTANT PRESENT

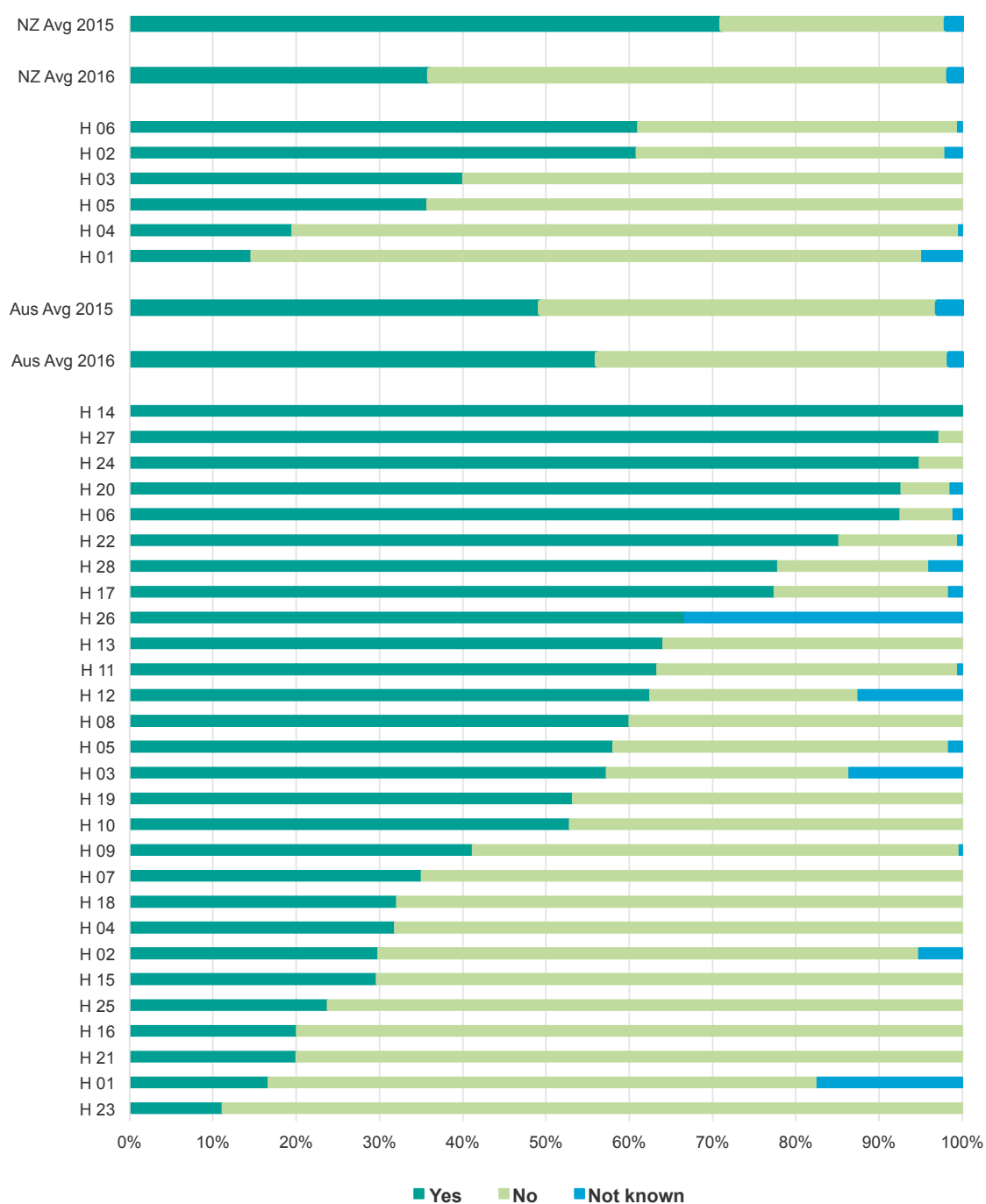


FIGURE 17

Figure 17 shows the data for the median and the average (mean) time to surgery. Time to theatre is calculated by measuring the difference between the date and time of presentation to the first hospital and commencement of surgery. The median time between initial presentation and surgery has remained the same between 2015 and 2016 in New Zealand at 24 hours. In Australia the median time to surgery has increased from 27 hours to 29 hours. This may reflect data from the hospitals that joined since 2015 or an increase in waiting times in the hospitals represented in 2015.

The Hip Fracture Care Clinical Care Standard published in 2016⁴ states that surgery should be performed within 48 hours of presentation because early surgery is thought to reduce morbidity, hasten recovery and reduce length of stay. The average or mean (the end of the green bar) is the average time to theatre and is longer than the median due to some patients waiting many days before undergoing surgery. It is important to consider both measurements as small numbers of patients and a few outliers can significantly alter the average time to surgery.

AVERAGE TIME TO SURGERY

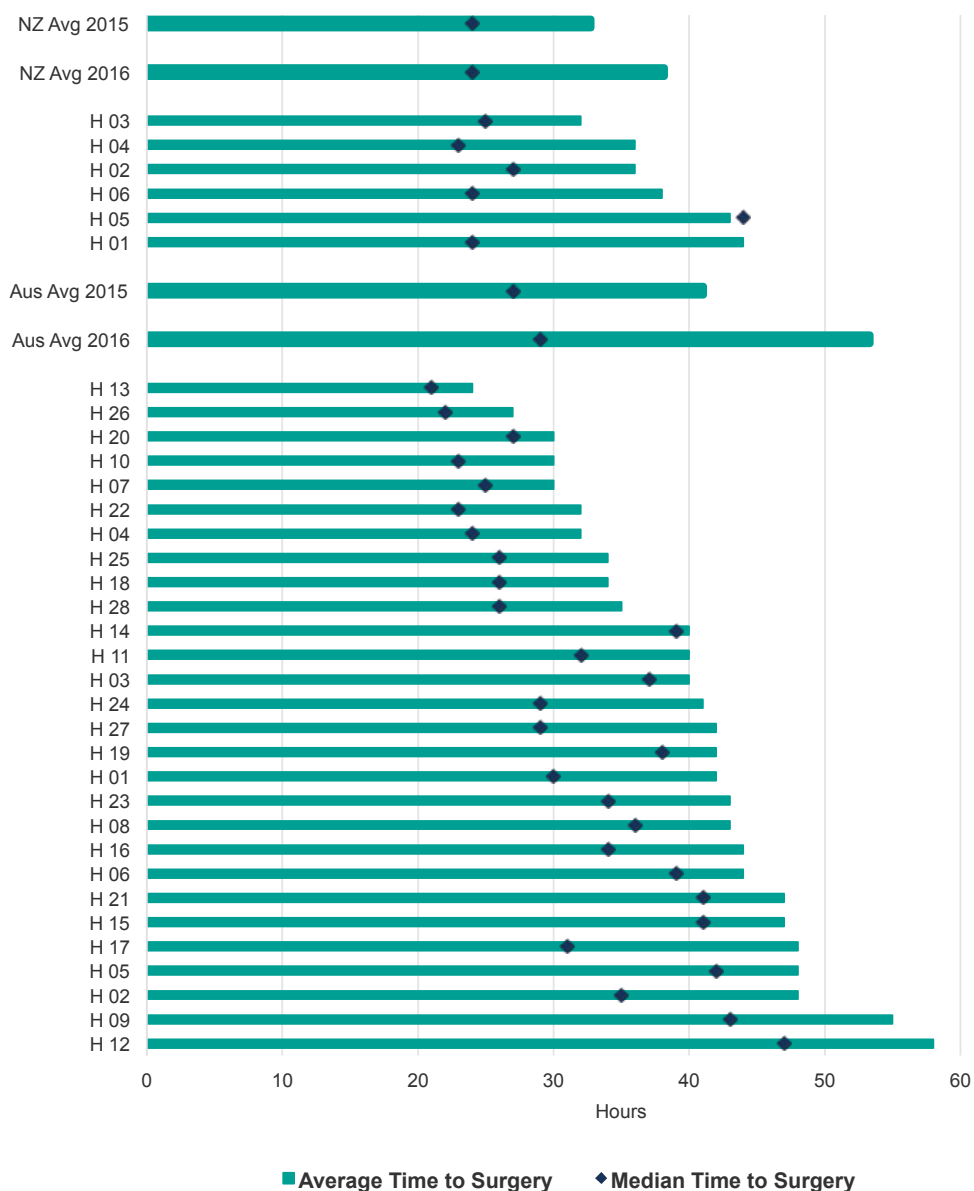


FIGURE 18

SURGERY ≤ 48 HOURS

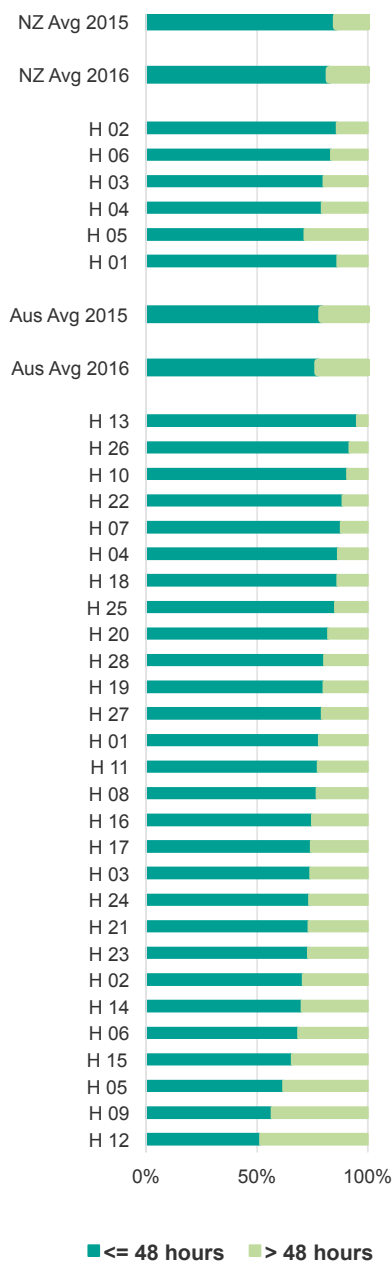


FIGURE 19

REASON FOR DELAY > 48 HOURS

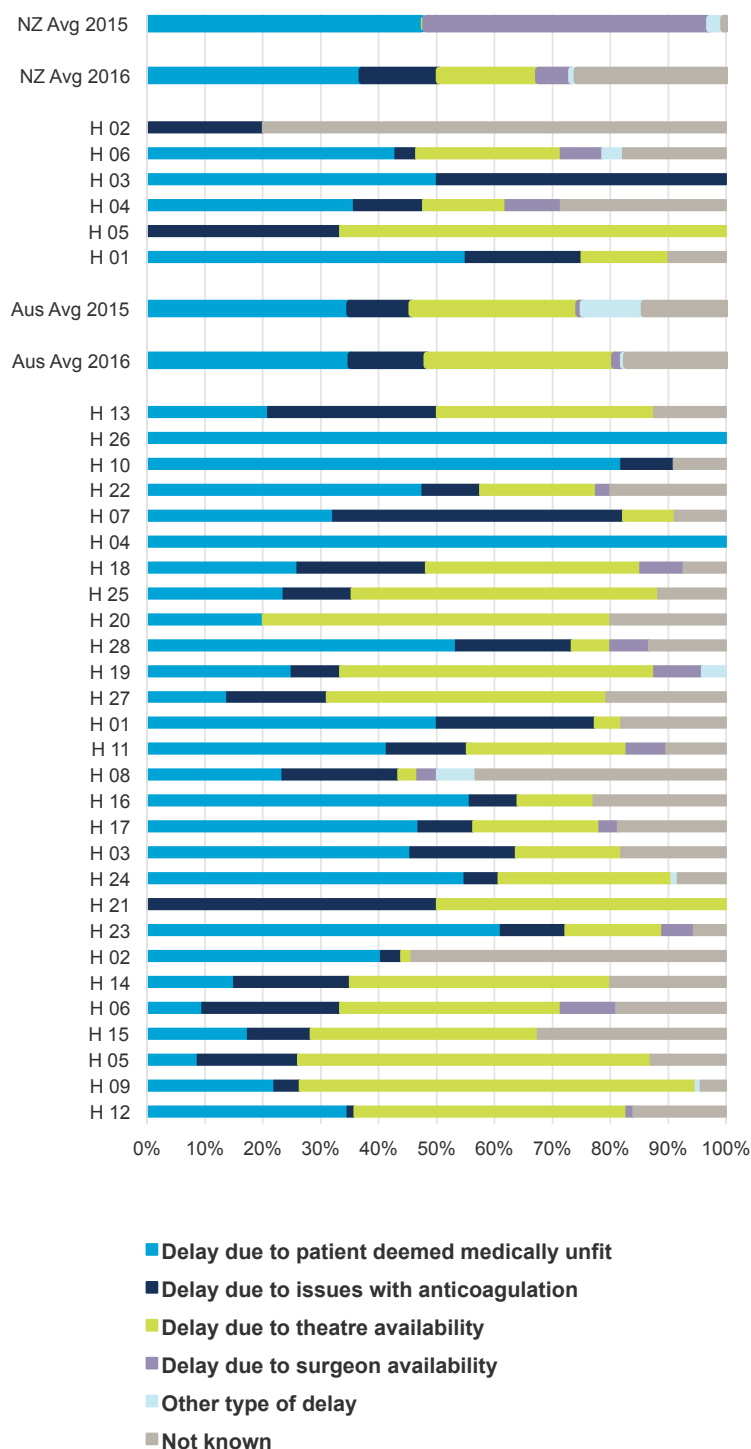
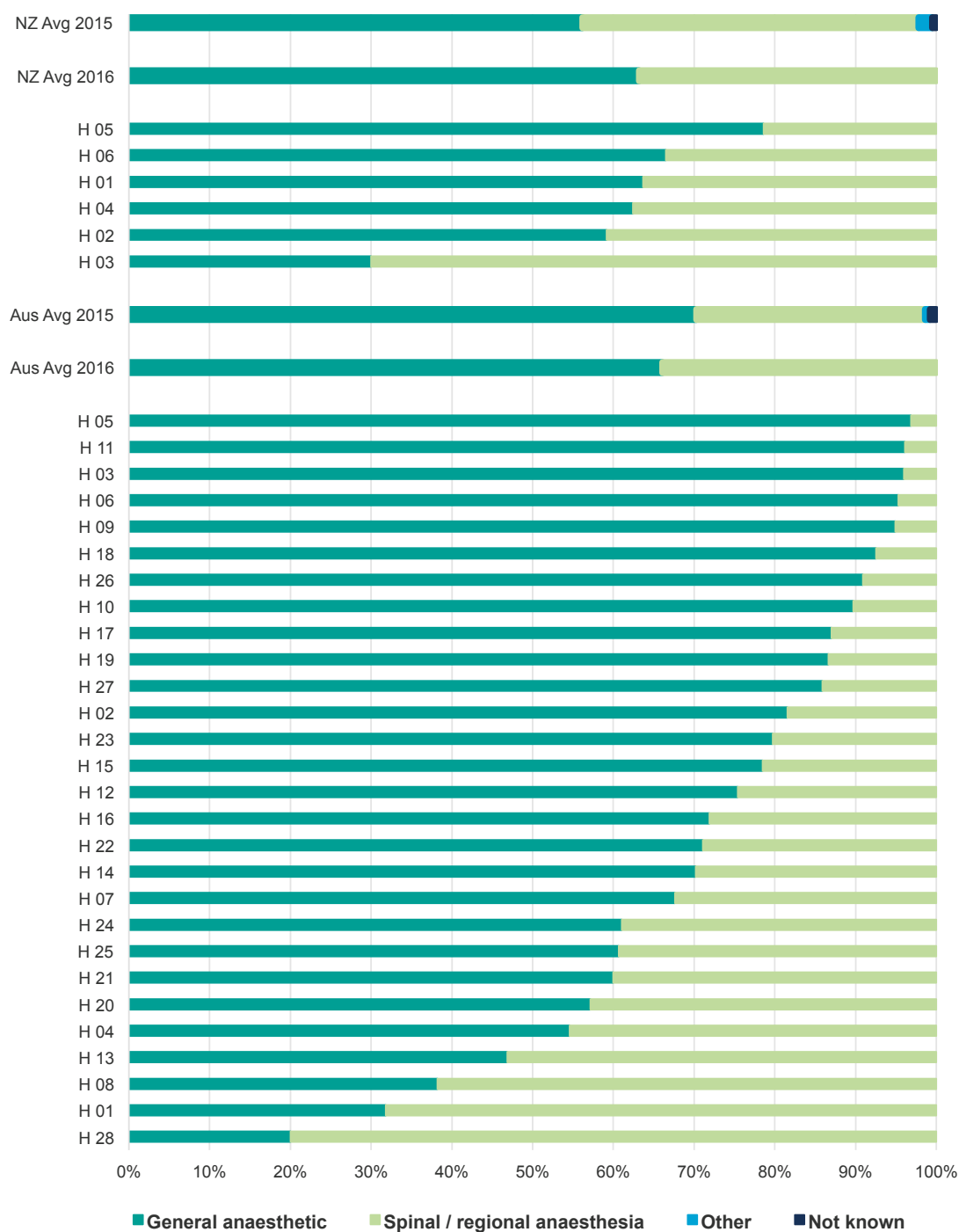


Figure 18 shows that for all sites, most patients were treated within 48 hours of presentation to the operating hospital, but Figure 19 shows considerable variation in the reasons provided for any delays beyond 48 hours. Figure 19 provides useful information for sites wishing to improve the proportion of patients treated within 48 hours as it highlights modifiable causes for surgical delay.

FIGURE 20

The majority of people undergoing operative intervention for a hip fracture have a general anaesthetic – 64% in New Zealand and 66% in Australia. Marked variation is noted between hospitals (range 20-97%) and is likely to reflect the personal preference of the anaesthetist.

ANAESTHESIA



FIGURES 21, 22, 23, 24, 25, 26 AND 27

OPERATIONS BY TYPE OF FRACTURE

The term “hip fracture” is used to describe a number of different types of fracture of the proximal (upper) femur. The types of hip fracture can be classified by the location of the fracture however there can be some variation or disagreement in classifying the fractures. Classification of the type of hip fracture is important, as it will determine the most appropriate management of the fracture. The fracture locations and terms used by the ANZHFR are shown in Image 1.

The types of fracture seen at each site are consistent with expectations in that nearly half of all fractures are intertrochanteric, between 5% and 10% are subtrochanteric, and the remainder are intracapsular (subcapital). Sites with wide variation from the average are likely to reflect low numbers of cases from those sites. Alternatively, this variation may highlight issues relating to the classification or coding of the type of fracture. Increased clinical input from orthopaedic teams at hospitals will assist in reducing the inaccuracy that may be seen in the classification of proximal femur fractures.

Different fracture types are generally treated by different surgical techniques. Fractures occurring in the intracapsular area (neck of femur) usually undergo an arthroplasty (replacement) or insertion of cannulated screws. Hemiarthroplasty involves removing the head of the femur (ball of the hip joint) that has broken away from the shaft of the bone and replacing it with an artificial (metal) ball that is held in place by a connected stem that sits inside the upper end of the femur (thigh bone). A total hip arthroplasty involves the same procedure, but also involves replacing the socket of the hip joint. Fractures that occur in the extracapsular region generally undergo open reduction and internal fixation with an intramedullary nail or a sliding hip screw.

Figures 22 and 23 show the proportions of hip arthroplasty that are hemiarthroplasty and total hip arthroplasty, reported separately, for undisplaced and displaced femoral neck (intracapsular/sub-capital) fractures. Note that undisplaced fractures (Figure 22) are often treated by inserting screws across the fracture (“cannulated screws”) rather than replacing the broken part of the bone (“arthroplasty”).

Figure 24 provides information on the variation in surgical treatment for intertrochanteric fractures. These fractures are usually treated by internally securing (fixing) the fractures using metallic devices, rather than replacing the broken part (as with arthroplasty). There is variation in the use of the two most common types of implant: a sliding hip screw and an intra-medullary nail. The ANZHFR doesn't distinguish between simple and comminuted pertrochanteric or reverse oblique fracture types and this may influence the choice of implant. Comparative studies have not shown large differences in the outcomes between these two devices (and this is reflected in the recommendations within the ANZ Guideline for Hip Fracture Care³), but intramedullary fixation is recommended for subtrochanteric fractures and this recommendation appears to have been followed as seen in Figure 25.

The ANZ Guideline for Hip Fracture Care³ recommends the use of cemented stems for hip arthroplasty. Figures 26 and 27 show the rates of cement use reported by sites for hemiarthroplasty and total hip arthroplasty.

NOTE: hospitals with fewer than ten (10) cases of the type of surgery have not been reported in Figures 22 to 27.

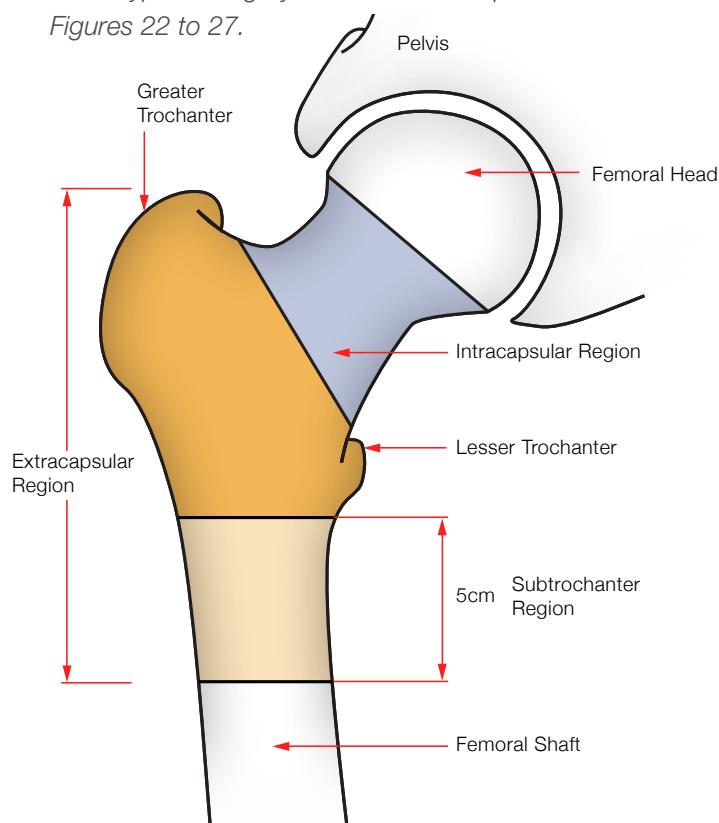


Image 1: Diagram of the hip showing zones of fracture

FIGURE 21

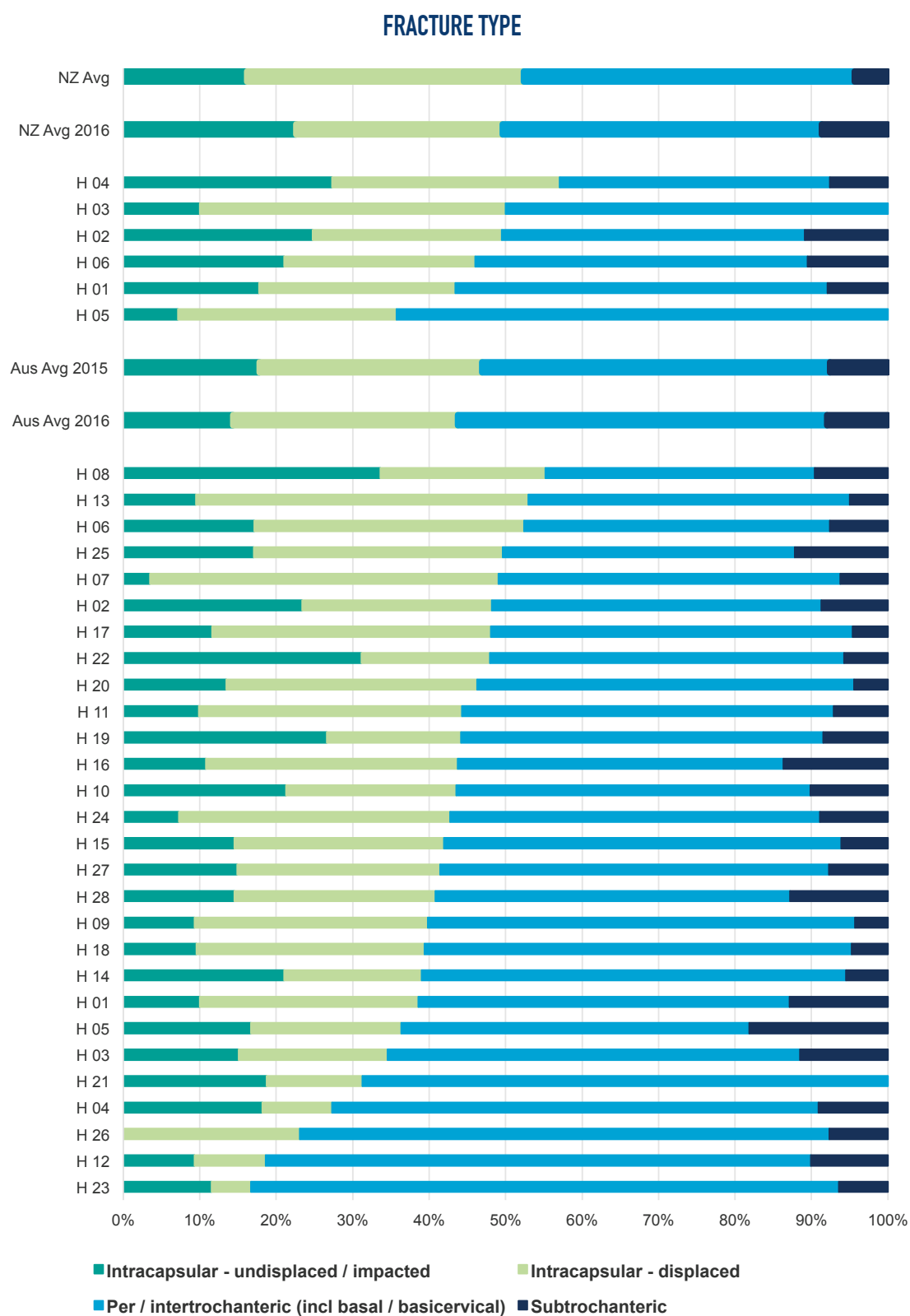


FIGURE 22

INTRACAPSULAR FRACTURE: UNDISPLACED / IMPACTED

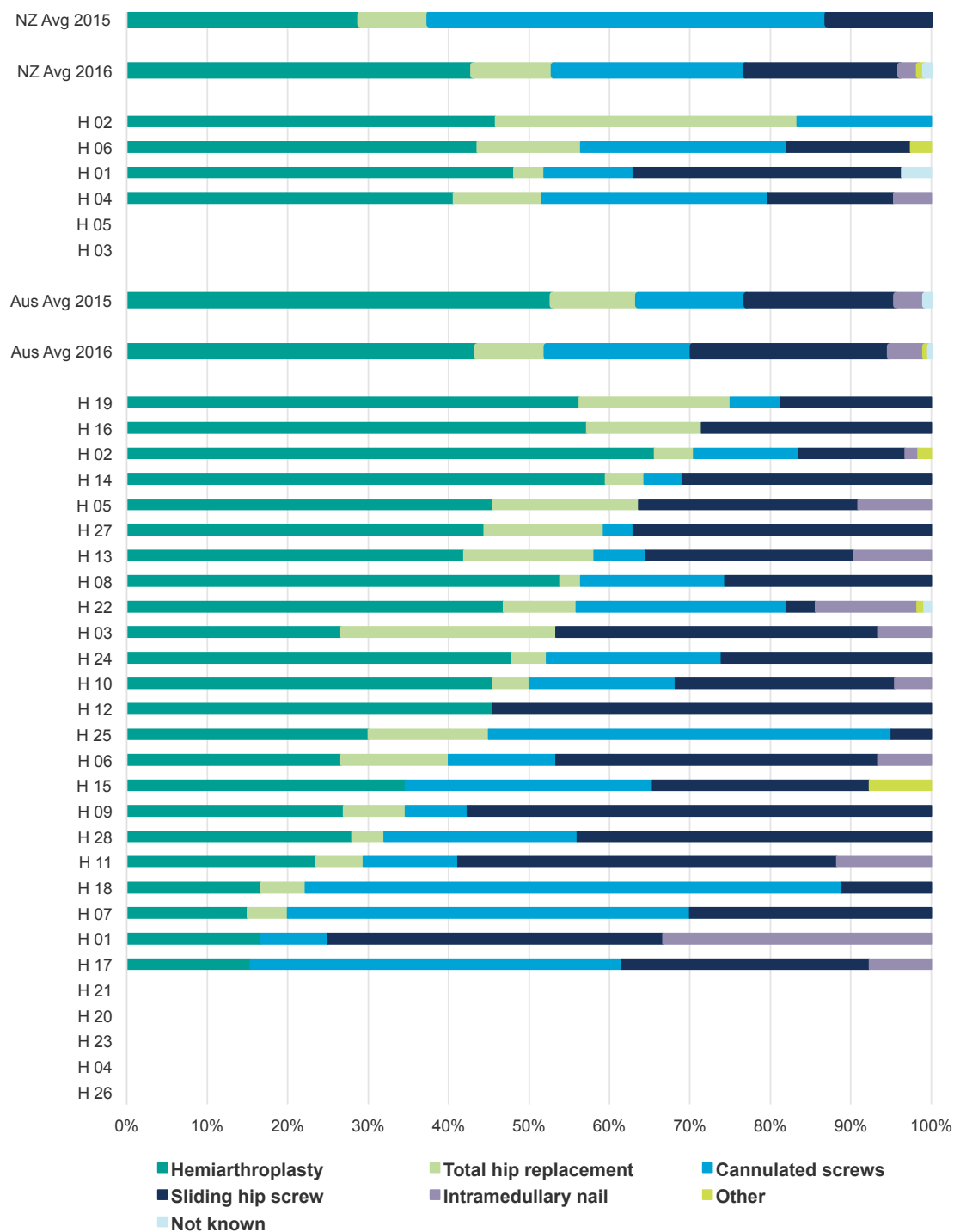


FIGURE 23

INTRACAPSULAR FRACTURE: DISPLACED

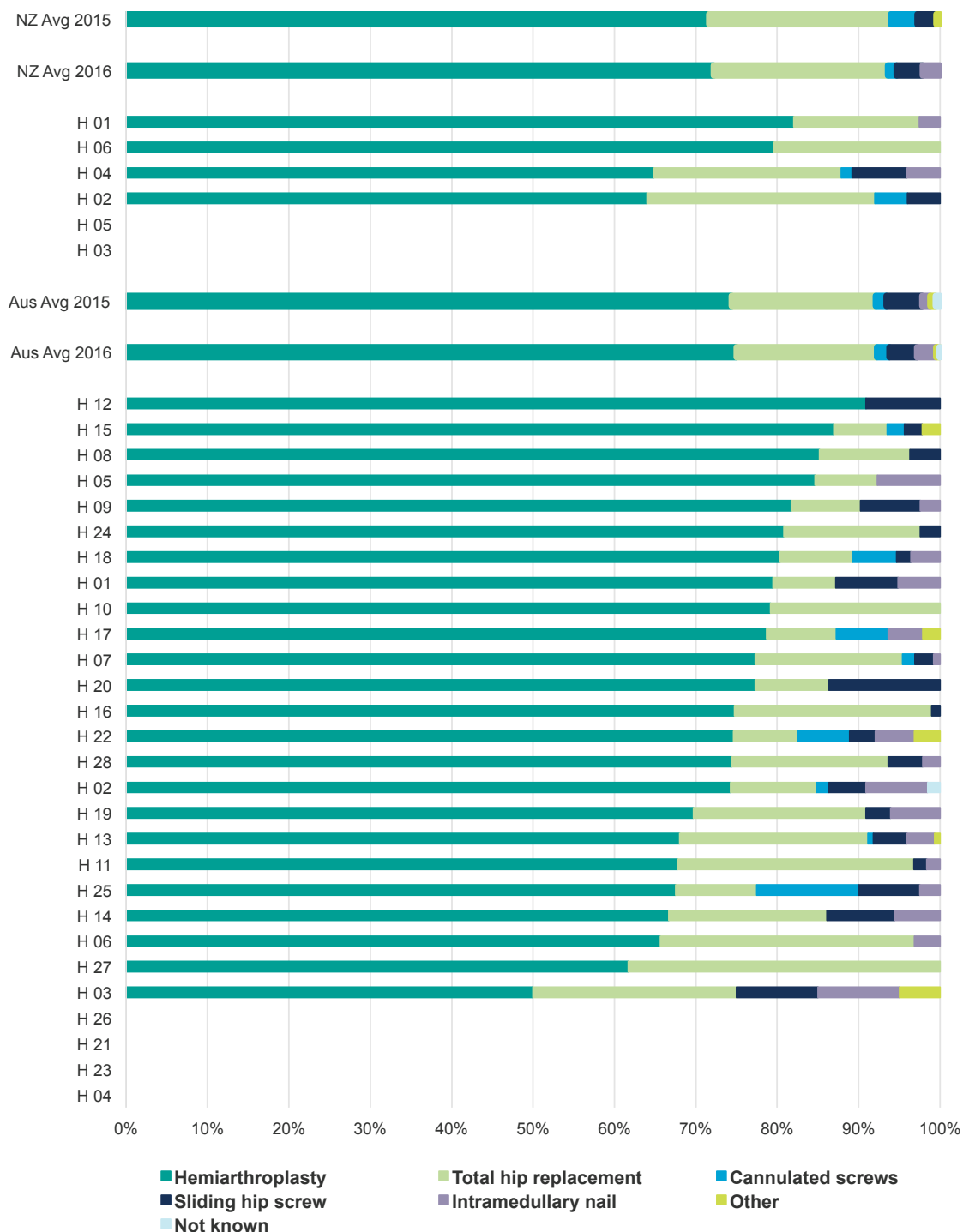


FIGURE 24

PER/INTEROCHANTERIC FRACTURE INCLUDING BASAL/BASICERVICAL

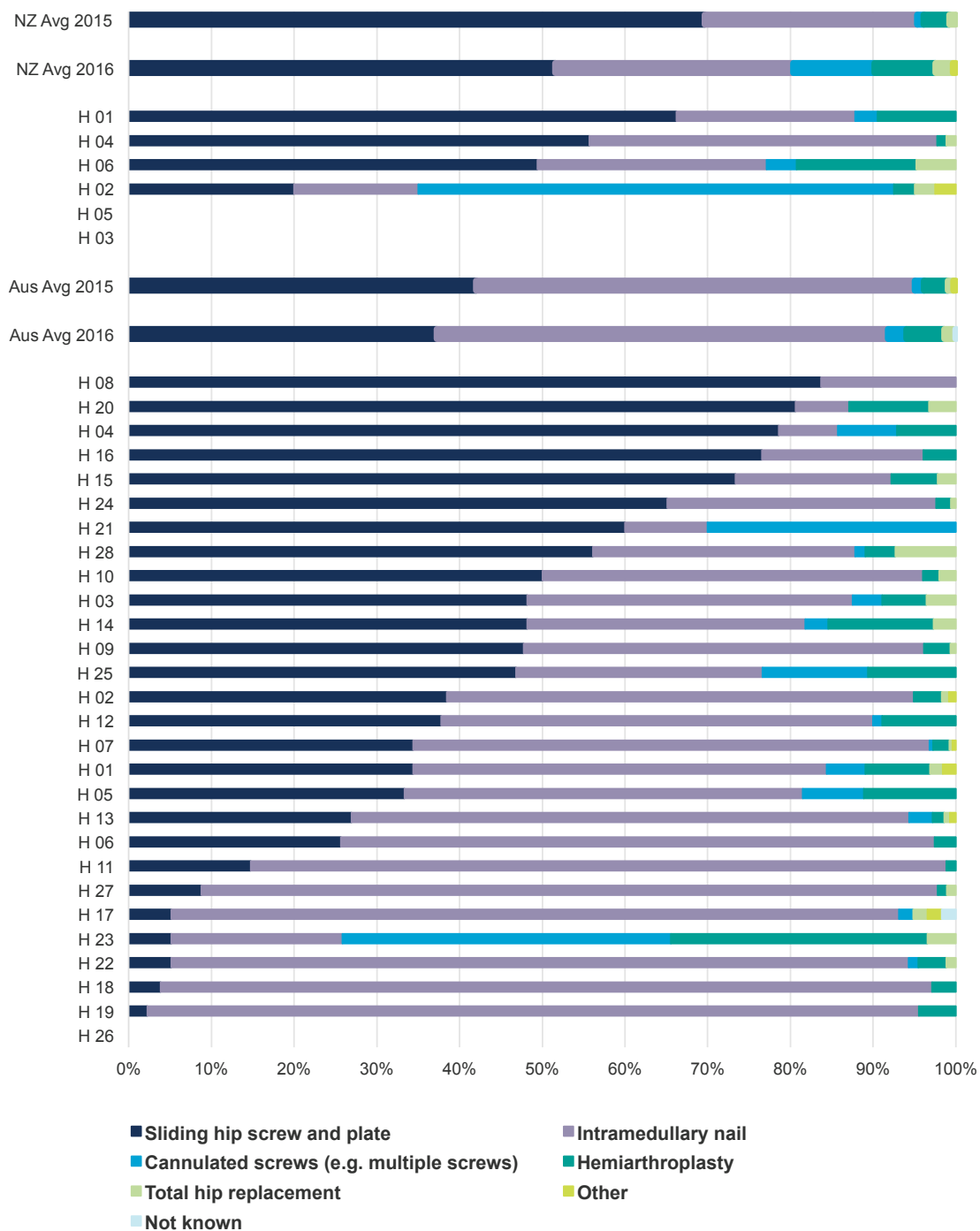


FIGURE 25

SUBTROCHANTERIC FRACTURE

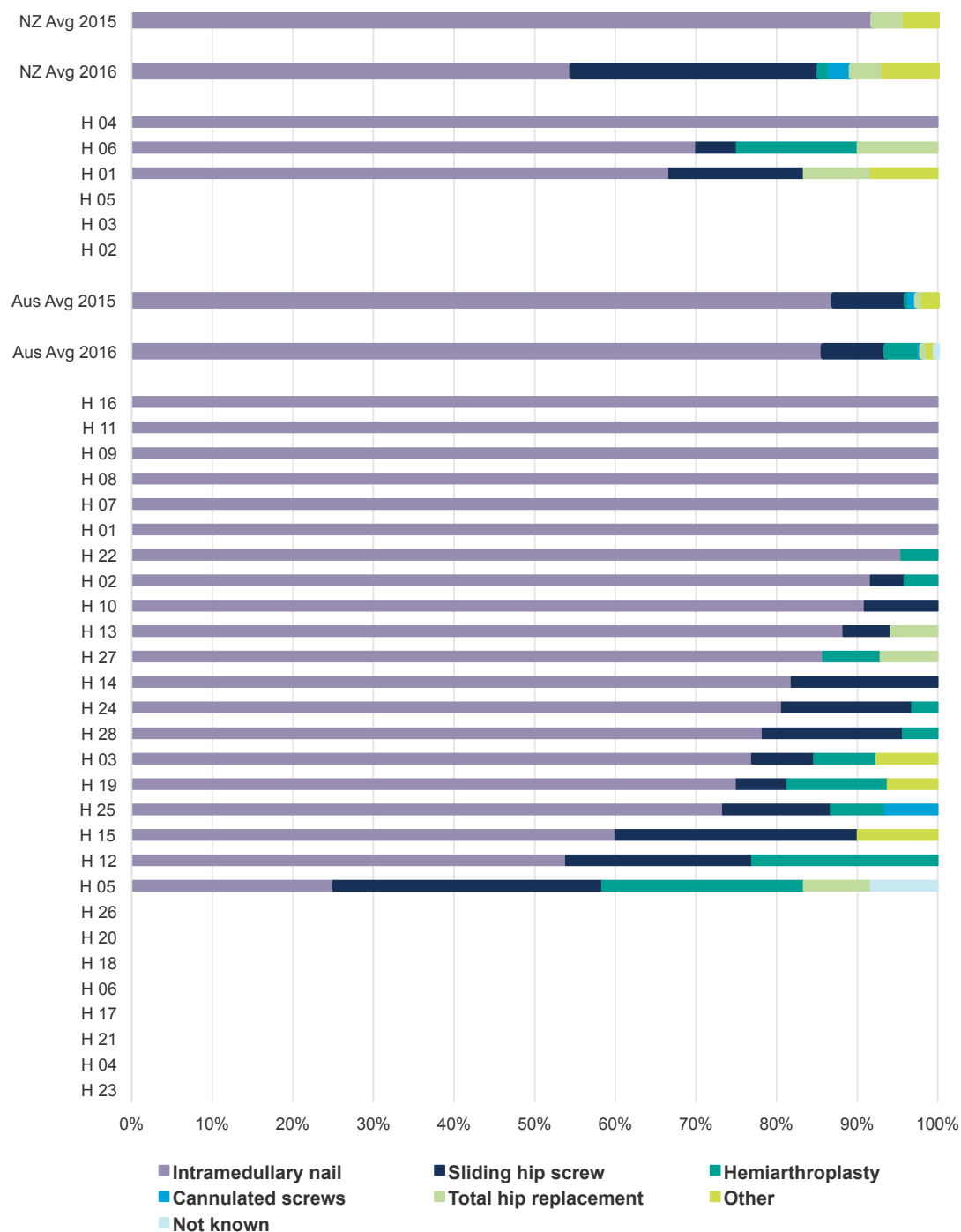


FIGURE 26

HEMIARTHROPLASTY – STEM CEMENTED

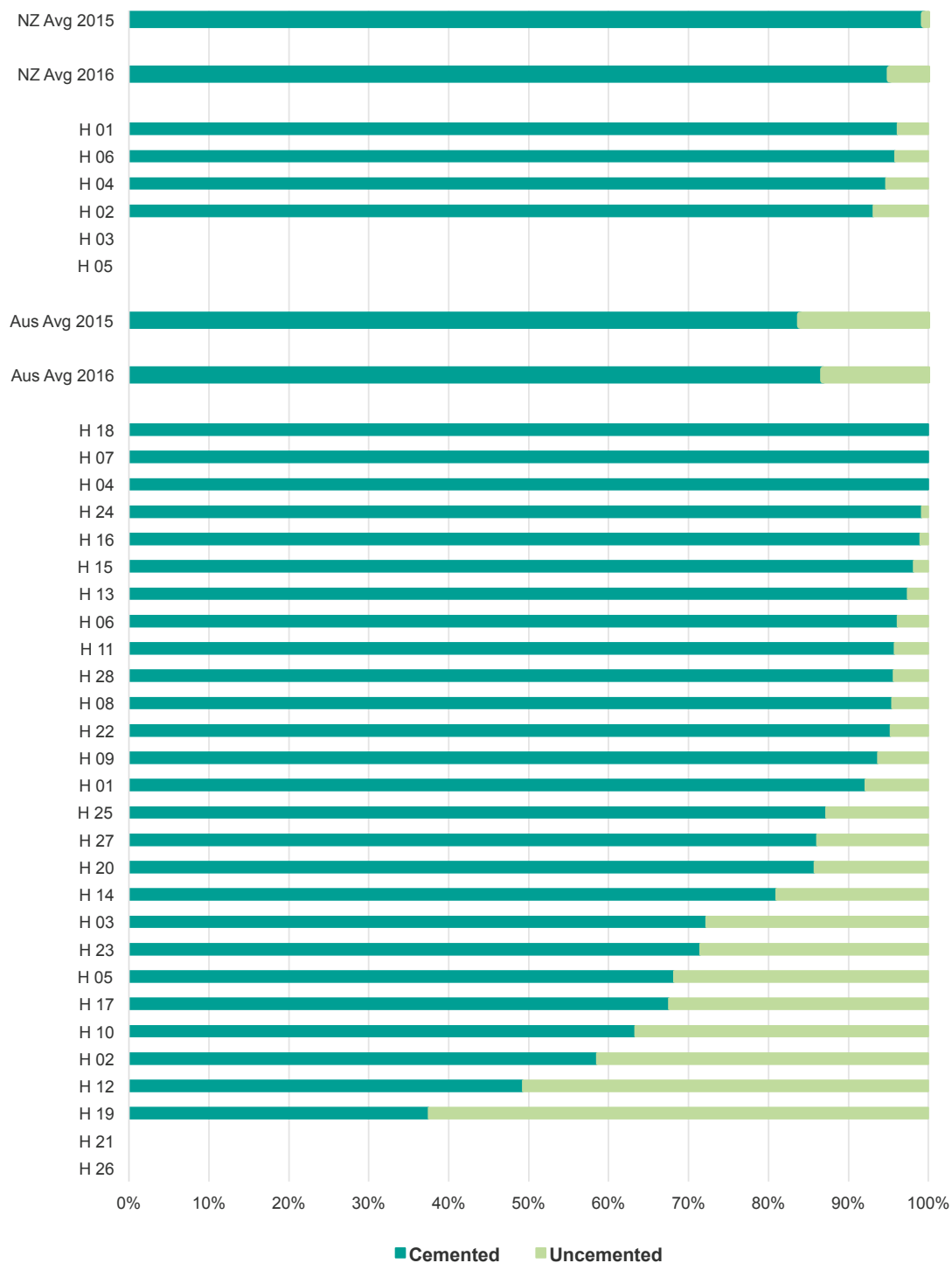
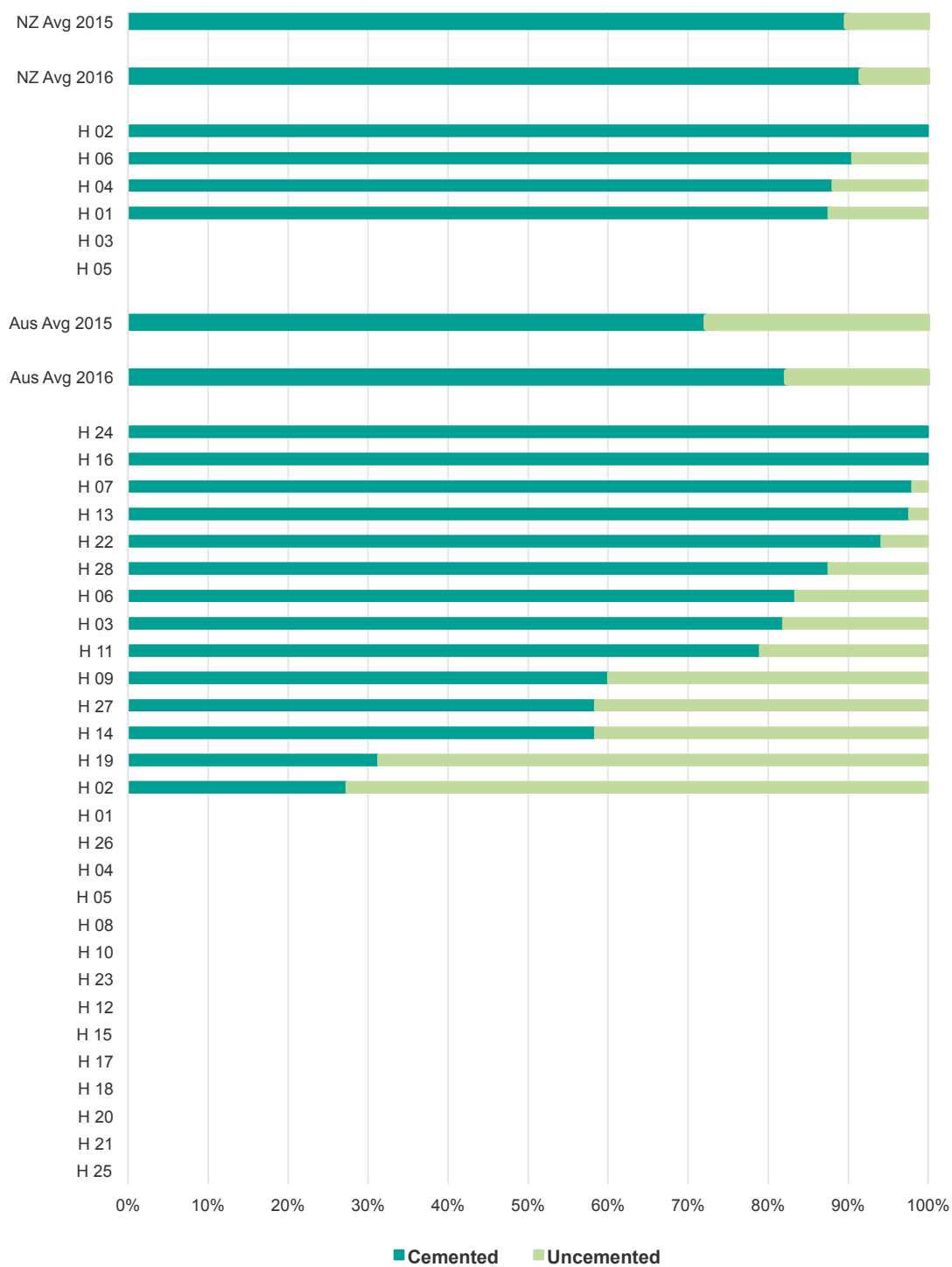


FIGURE 27

TOTAL HIP REPLACEMENT – STEM CEMENTED



SECTION 4:

POSTOPERATIVE CARE

FIGURE 28

Quality statement 3 of the Hip Fracture Care Clinical Care Standard⁴ promotes the orthogeriatric model of care where physicians (usually geriatricians) provide medical support for hip fracture patients in partnership with the orthopaedic surgeons. Service models differ across hospitals with some offering a true shared-care approach whilst others operate on a consult basis – see facility level report.

In New Zealand, 80% of hip fracture patients saw a geriatrician at some stage in their acute hospital stay compared to 95% in Australia. Whilst encouraging, it should be remembered that those hospitals with an orthogeriatric service are more likely to be the early adopters of the ANZ Hip Fracture Registry and we may see a drop in this proportion in future years as more sites join the Registry.

ASSESSED BY GERIATRIC MEDICINE

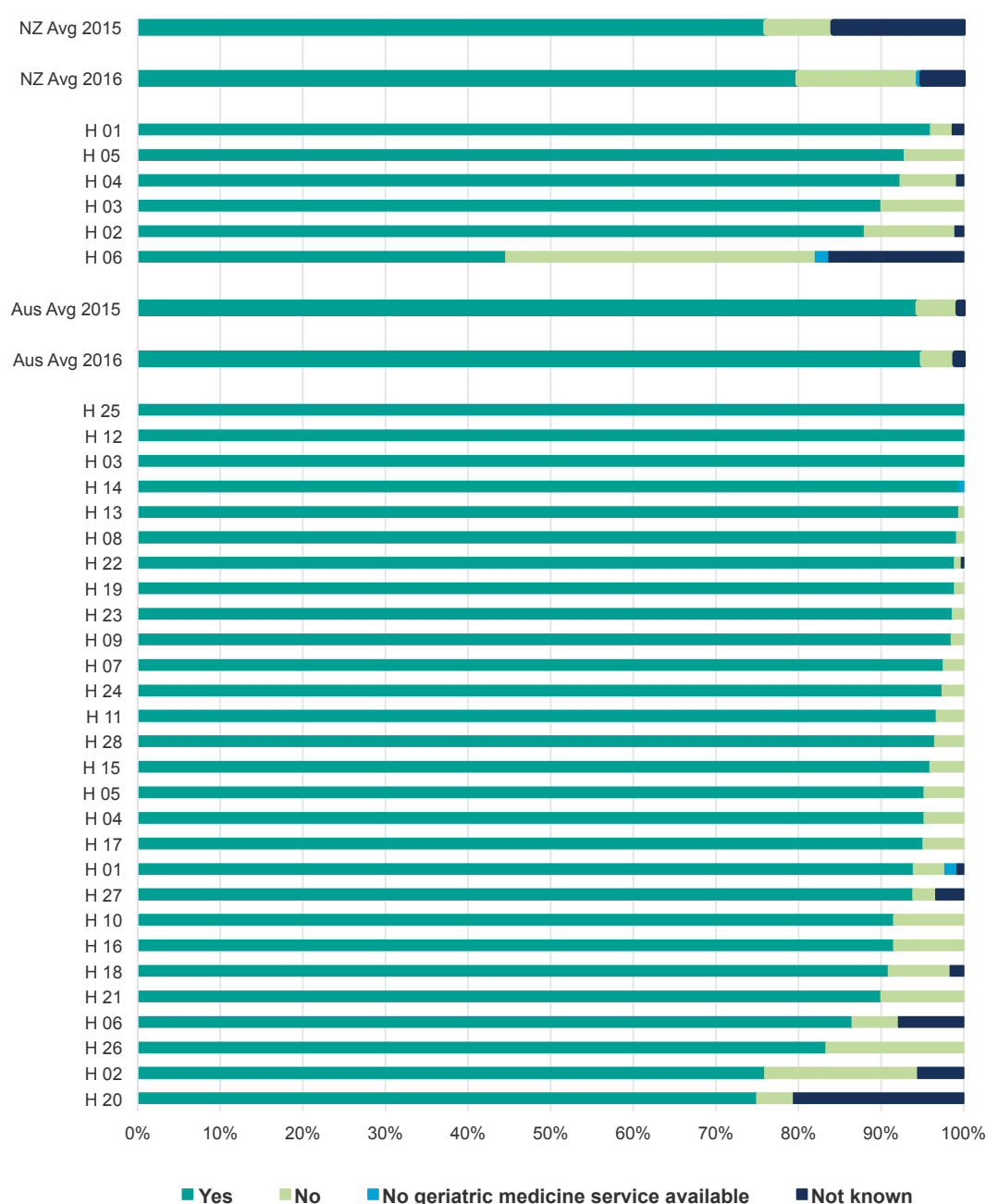
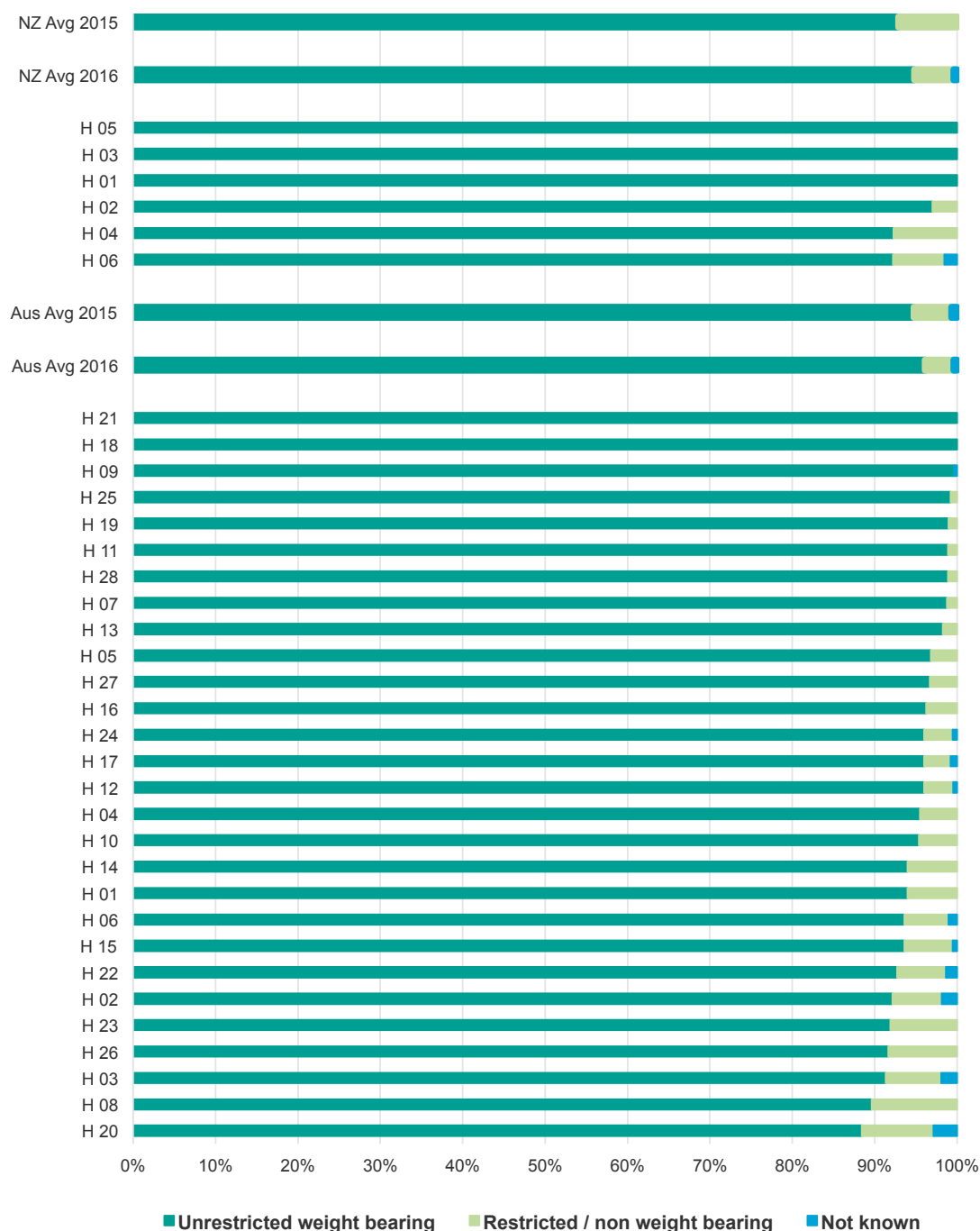


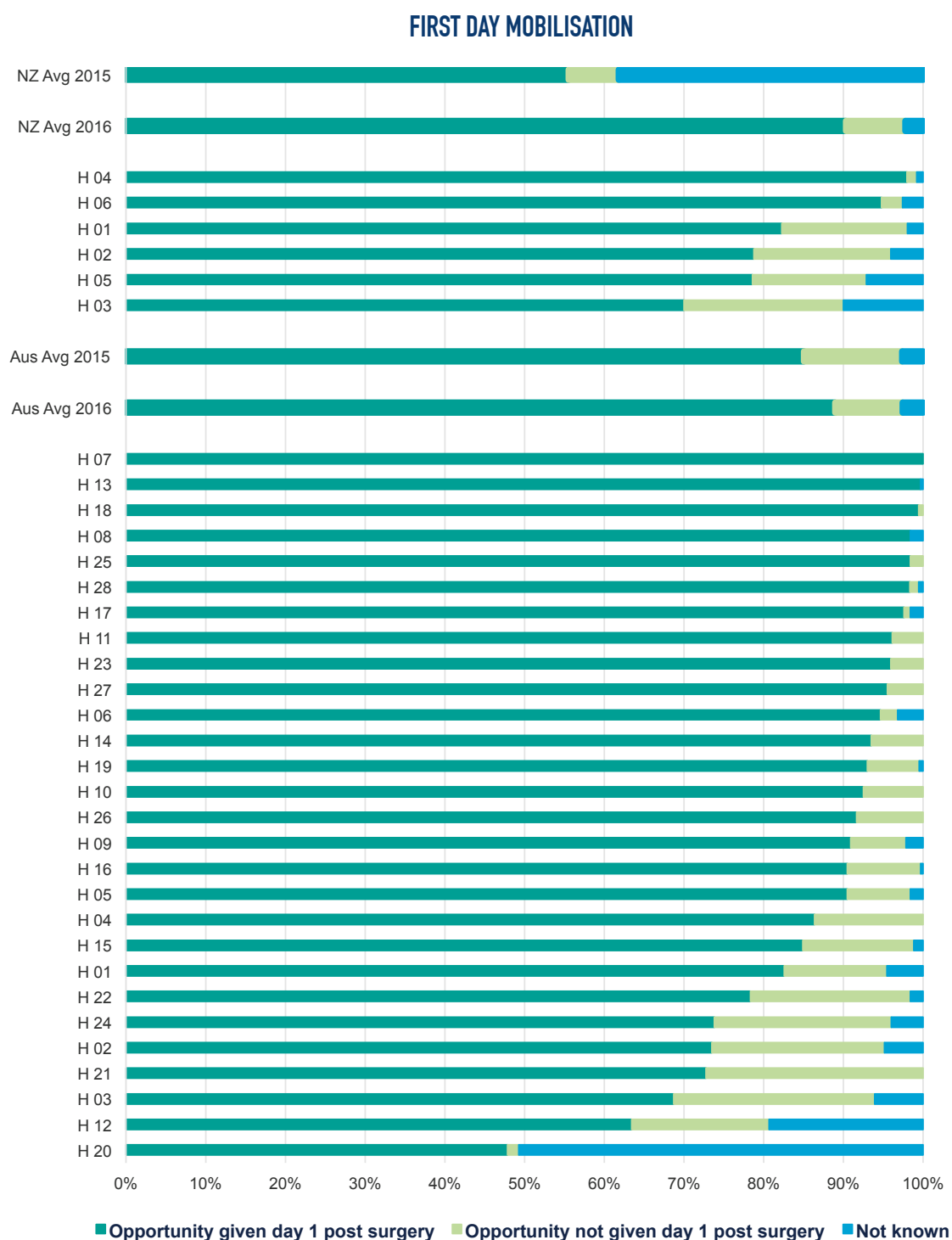
FIGURE 29

WEIGHT BEARING STATUS AFTER SURGERY



Previously, many patients were not permitted to fully weight bear post-operatively, for fear of disturbing the surgical fixation. However, there is little evidence to support this, and allowing immediate unrestricted weight bearing after surgery permits easier rehabilitation and earlier restoration of function. The ANZ Guideline for Hip Fracture Care³ and the Hip Fracture Care Clinical Care Standard⁴ both recommend that patients should be allowed full weight bearing without restriction immediately after surgery. Figure 29 shows that, on average, approximately 95% of patients are allowed full weight bearing after surgery and that this proportion has increased since 2015.

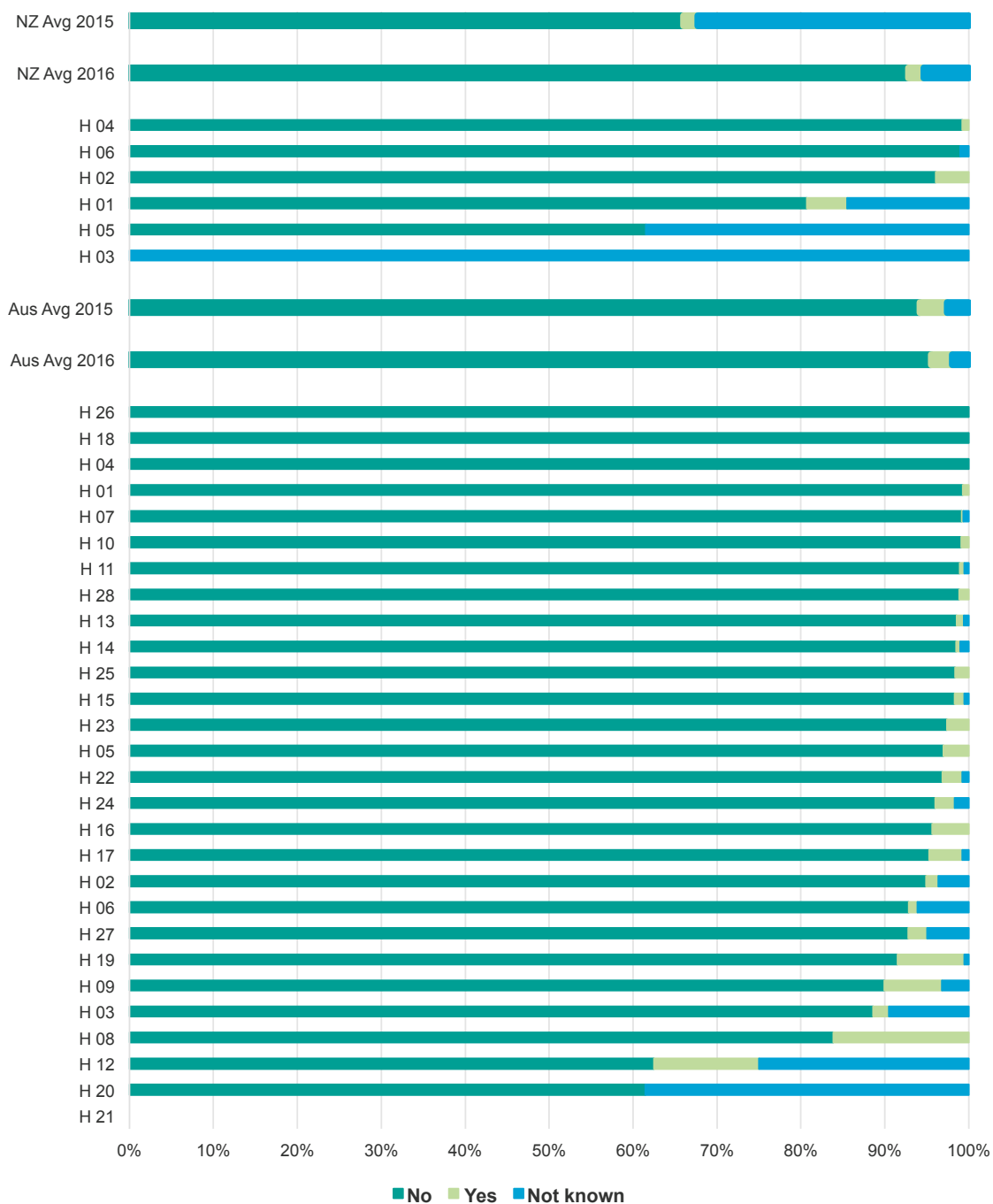
FIGURE 30



Quality statement 5 of the Hip Fracture Care Clinical Care Standard⁴ promotes early mobilisation of patients after hip fracture surgery. All hip fracture patients should be given the opportunity to sit out of bed and start to mobilise the day after surgery unless there is a specific documented contraindication. In New Zealand and Australia, 90% and 89%, respectively, of patients are given the opportunity to mobilise the day after surgery, an increase since 2015. Whilst encouraging, there is still marked variation in opportunity to mobilise between hospitals, which is more likely to reflect availability of staff than differences in case-mix.

FIGURE 31

PRESSURE INJURIES OF THE SKIN



Pressure injury of the skin is a potentially preventable complication of hip fracture care. As a complication, it is associated with delayed functional recovery and an increased length of stay. In New Zealand and Australia, 1.8% and 2.5% of patients, respectively, are documented as having sustained a pressure injury.

FIGURE 32

AVERAGE LENGTH OF STAY IN ACUTE WARD

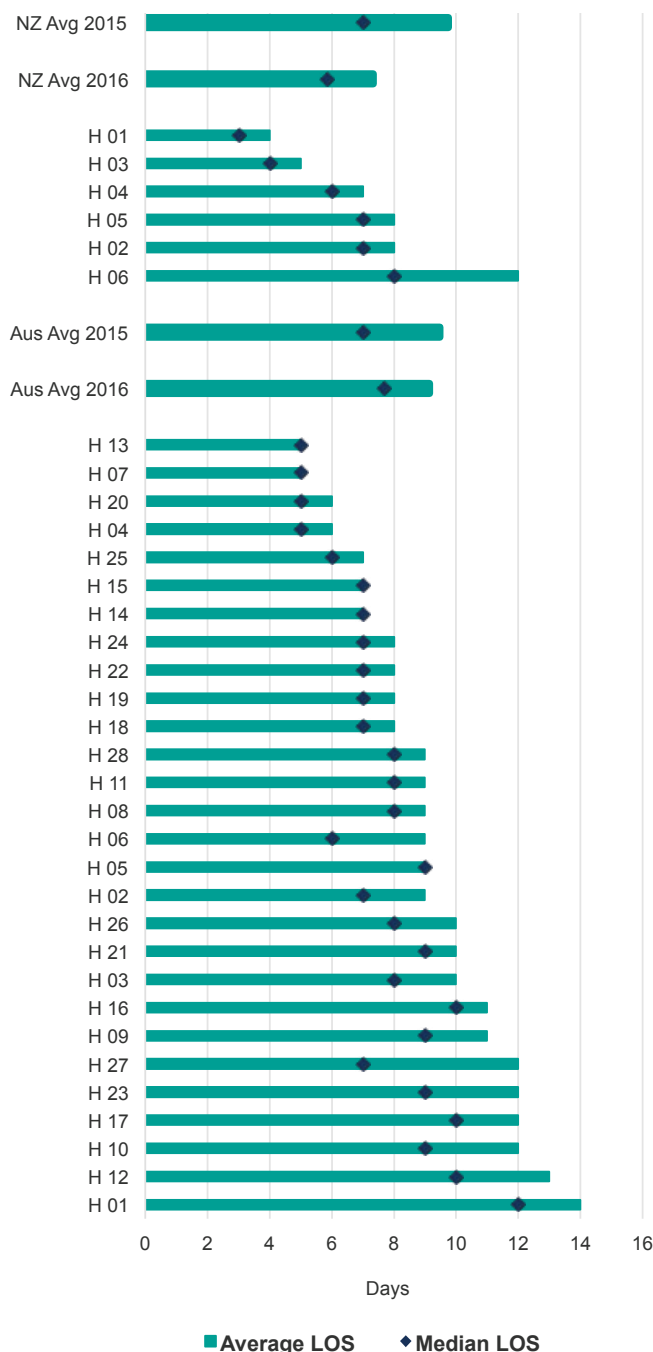
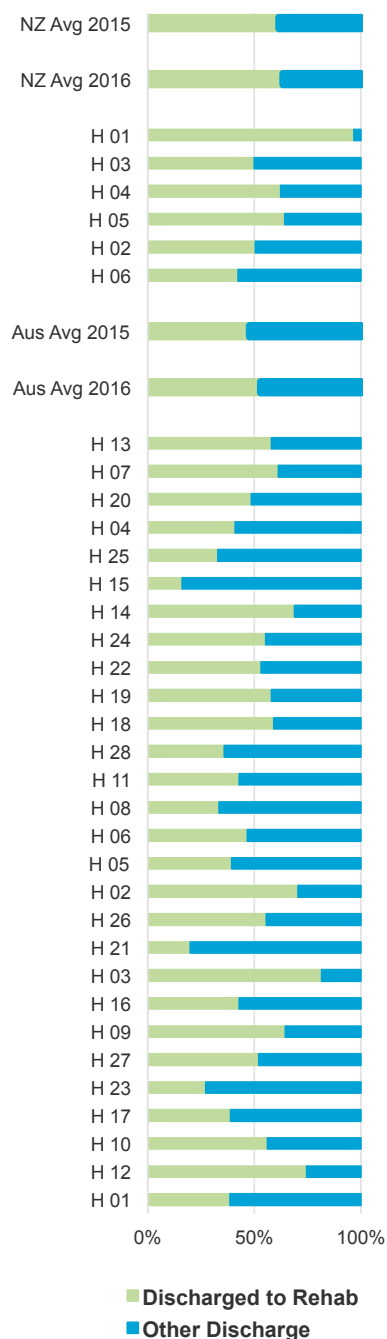


FIGURE 33

DISCHARGED TO REHABILITATION



Substantial variation is seen in mean and median length of stay in the acute ward in both New Zealand and Australia. The median length of stay in New Zealand is 5.8 days and this compares to 7.7 days in Australia. However more patients in New Zealand (63%) are transferred to hospital based rehabilitation than in Australia (53%). A multitude of factors contribute to acute length of stay including access to subacute facilities or services in the community that can deliver home-based rehabilitation. Overall length of stay is the preferred measure but because of the movement of patients between hospitals, including to the private sector, this is not currently available. Use of linked hospitalisation data in the future will provide a better overall picture.

FIGURE 34

DISCHARGE DESTINATION FROM ACUTE WARD

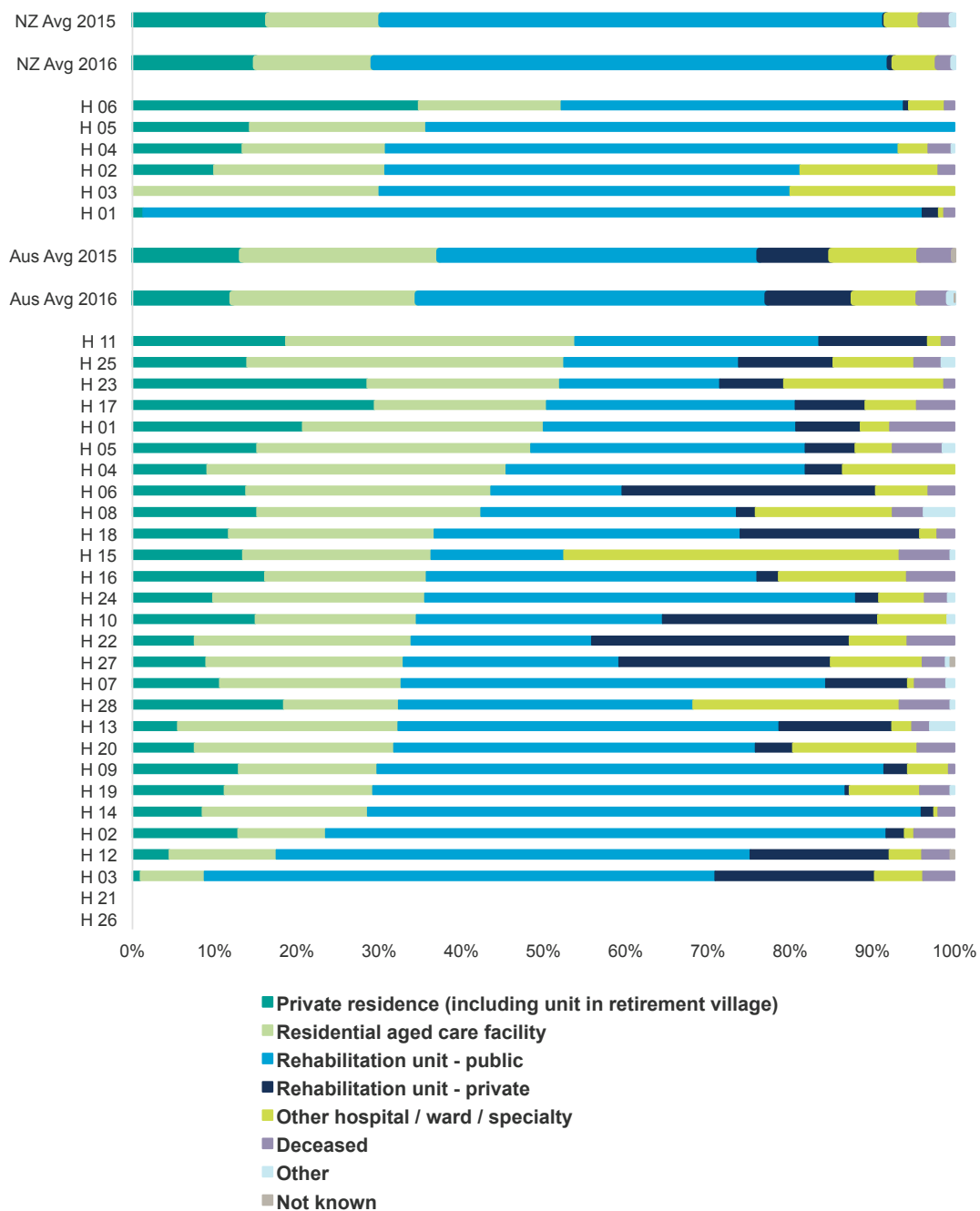
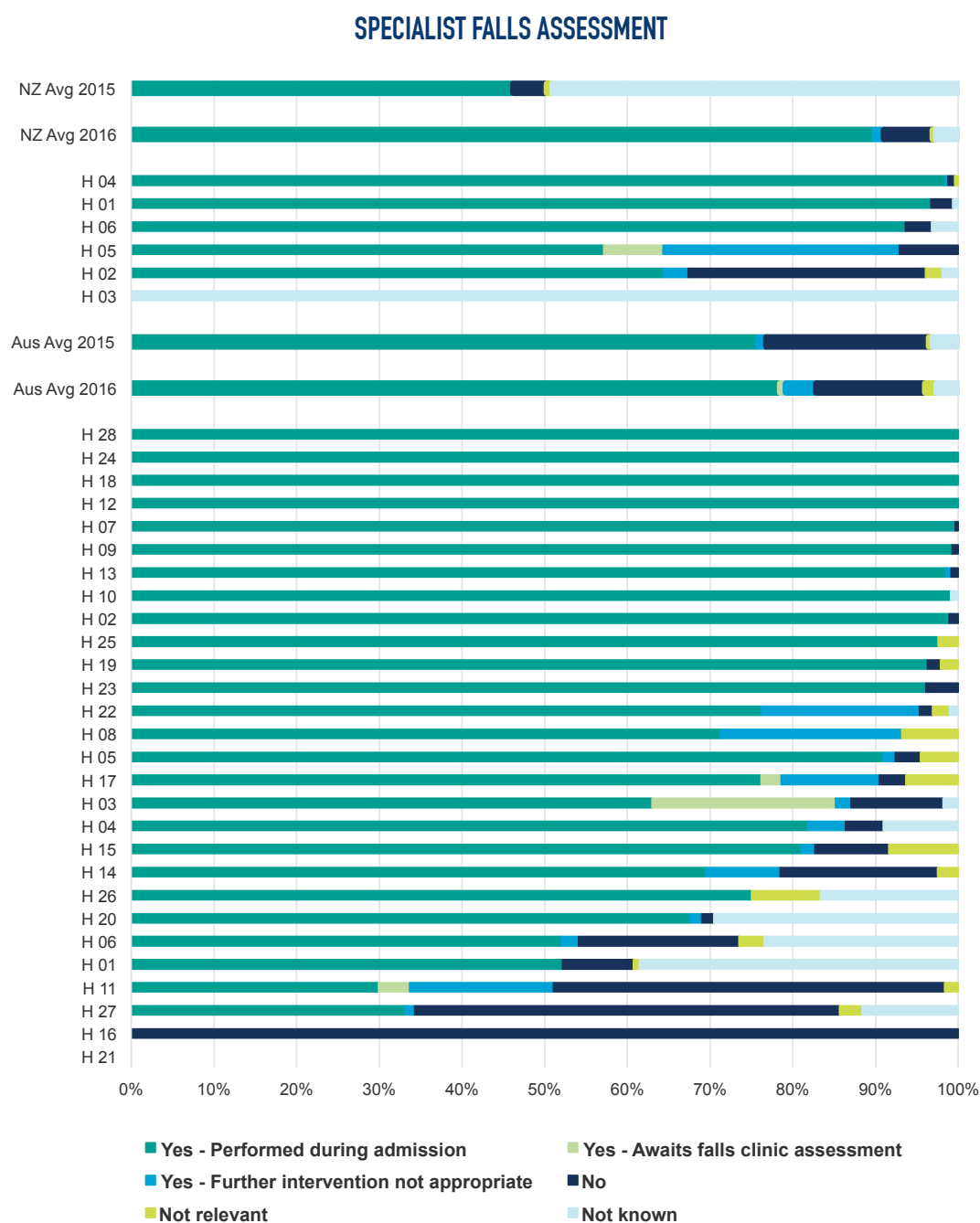


FIGURE 35

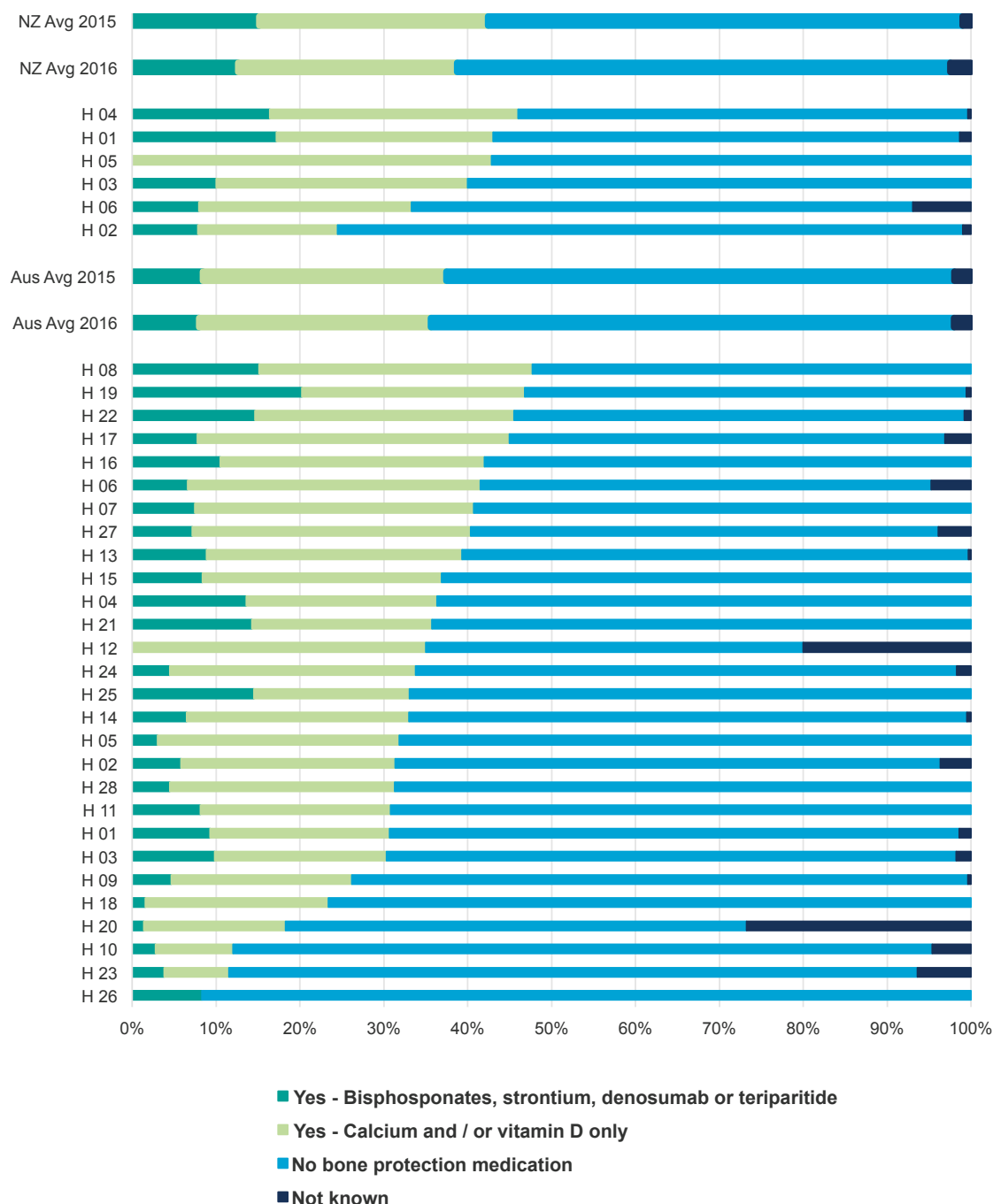


A minimal trauma fracture is a strong predictor of risk of a second fracture. Quality statement 6 of the Hip Fracture Care Clinical Care Standard⁴ requires that each hip fracture patient is assessed in relation to future fall and fracture risk and that a plan is put in place to manage risk.

The ANZ Guideline for Hip Fracture Care³ recommends that hip fracture patients should be assessed for falls risk - this should consist of an assessment by a suitably trained person and cover fall history, risk factors for falls, including medication review, and formulation of a future plan to prevent further falls. Ninety percent of patients in New Zealand are reported to have undergone a falls assessment during their in-patient stay. This may represent improved care but also may reflect better documentation given the large number of “unknowns” reported previously. In Australia, 78% of patients underwent a fall risk assessment during their in-patient stay

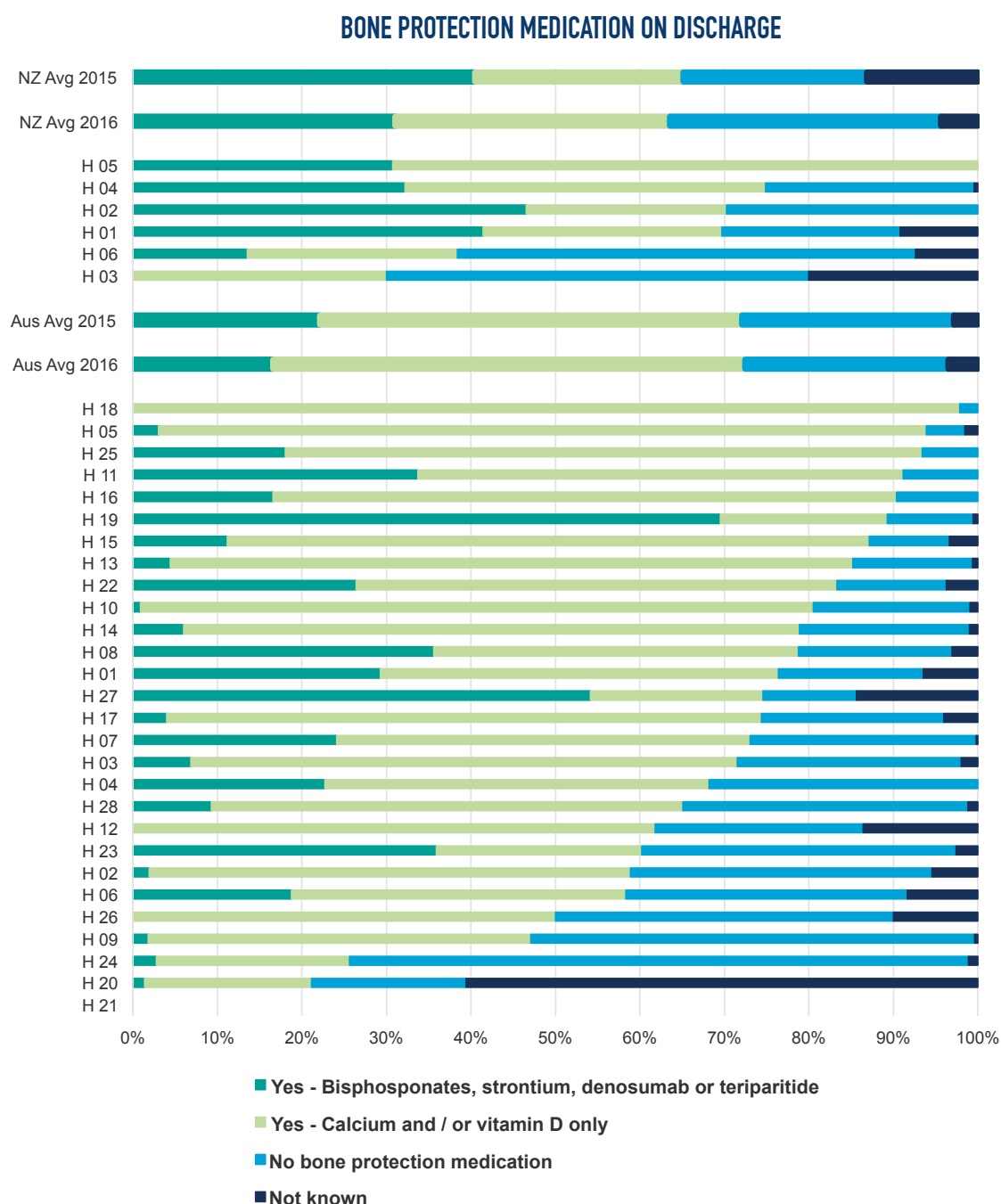
FIGURE 36

BONE PROTECTION MEDICATION ON ADMISSION



The majority of people admitted with a hip fracture were not on any form of pharmacological treatment for bone health despite evidence in the literature demonstrating that up to 50% of these people will have already sustained a minimal trauma fracture. In New Zealand, 26% of people were on calcium and/or vitamin D at admission whilst 13% were taking active treatment for osteoporosis above and beyond calcium and/or vitamin D. In Australia, 28% of people were on calcium and/or vitamin D at admission whilst 8% were taking active treatment for osteoporosis above and beyond calcium and/or vitamin D. These proportions suggest a significant care gap in secondary fracture prevention in both countries.

FIGURE 37



Quality statement 6 of the Hip Fracture Care Clinical Care Standard⁴ requires an assessment and management plan for future fracture prevention including initiation of treatment for osteoporosis in hospital where appropriate. The Registry is able to capture this in the acute setting but information on new treatments initiated on transfer to another facility such as a subacute hospital is not available and so the data reported here may underestimate the number of people treated for osteoporosis.

In New Zealand, 31% of hip fracture patients left hospital on a bisphosphonate, denosumab or teriparatide compared to 13% on admission. In Australia, 16% of patients left hospital on a bisphosphonate, denosumab or teriparatide compared to 8% on admission. Whilst not always possible to initiate treatment in the acute setting, Figure 37 again highlights a significant care gap. A better picture of the extent of uptake of treatment for osteoporosis will be obtained at 30 day and 120 day follow-up

FIGURE 38

30 DAY FOLLOW UP REOPERATION

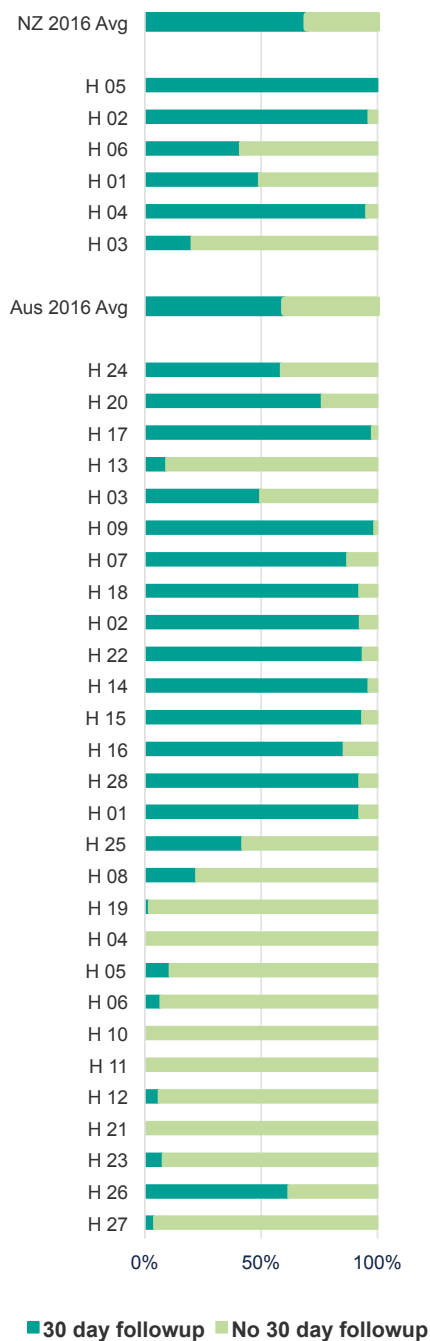


FIGURE 39

REOPERATION WITHIN 30 DAYS

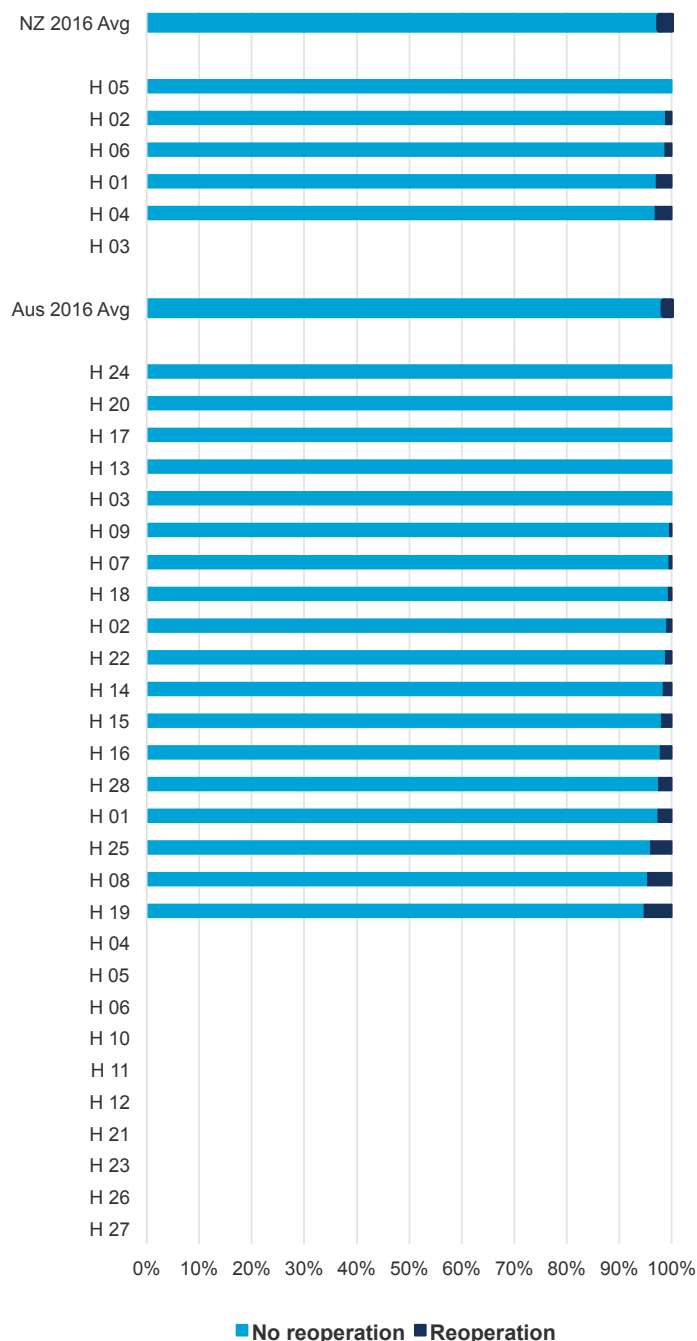


Figure 38 shows that there is considerable variation in the proportion of patients that are contacted at 30 days to obtain follow up information. This reflects local practices and resources at each hospital. Of the patients who were followed up at 30 days, the rate of reoperation within that time (Figure 39) was low.

NOTE: hospitals with fewer than 10 cases followed up have not been reported.

FIGURE 40

30 DAY FOLLOW UP SURVIVAL

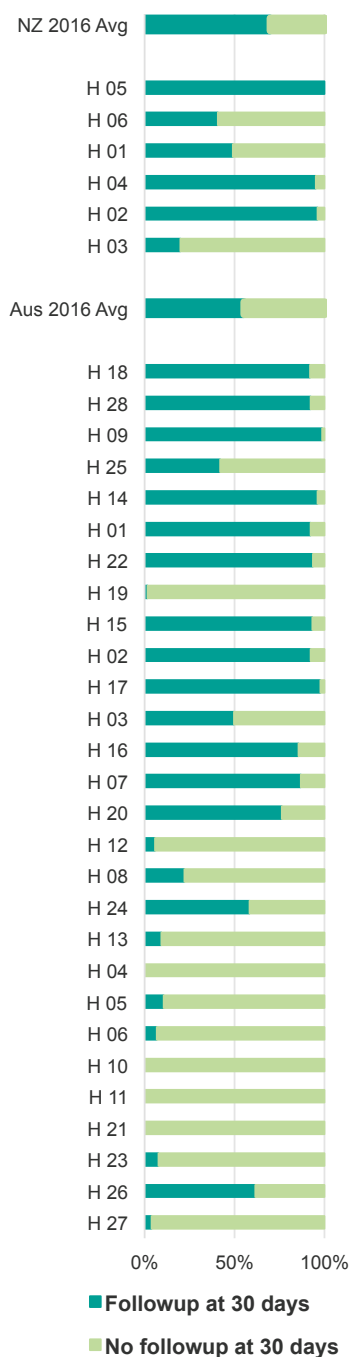


FIGURE 41

SURVIVAL AT 30 DAYS

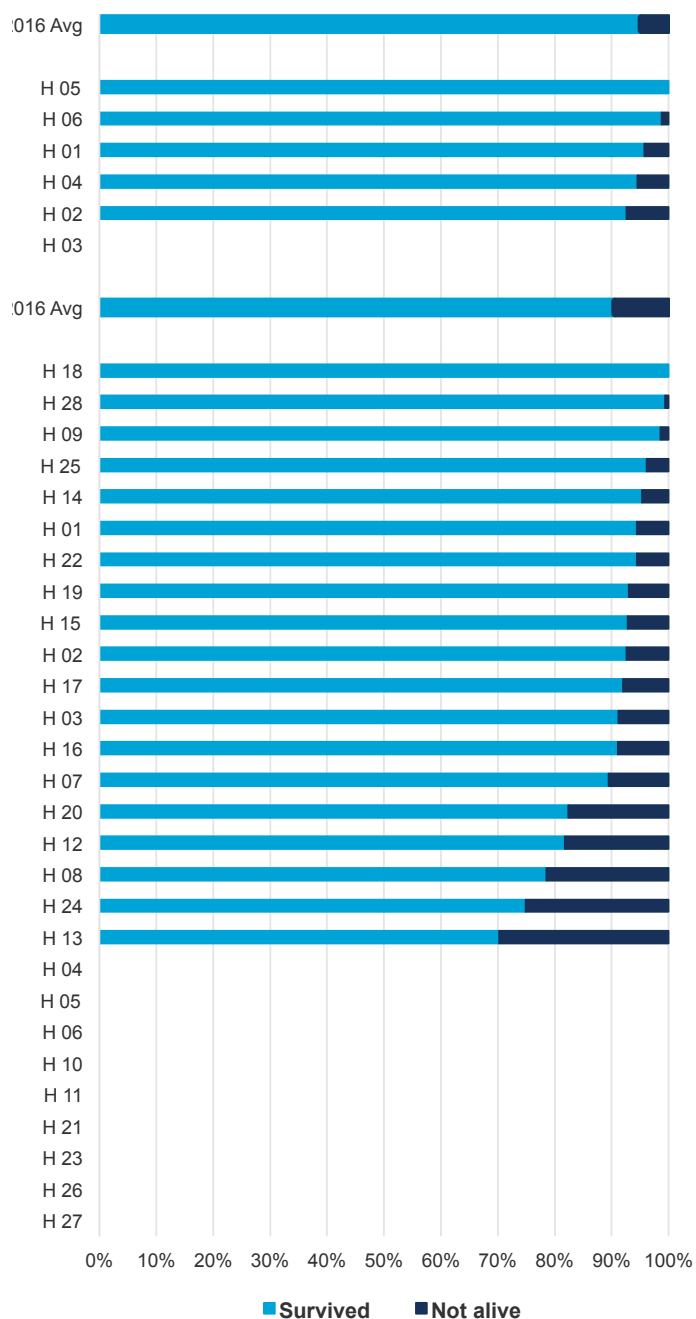


Figure 41 shows the survival (proportion of patients still alive) at 30 days from surgery. The high variation between hospitals is likely to represent random variation due to low numbers in some hospitals.

NOTE: hospitals with fewer than 10 cases followed up have not been reported.

FIGURE 42

120 DAY FOLLOW UP

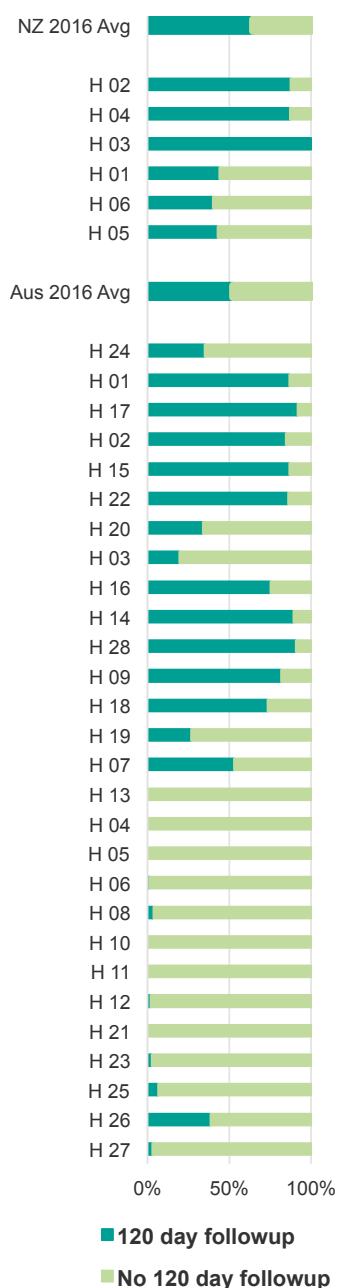
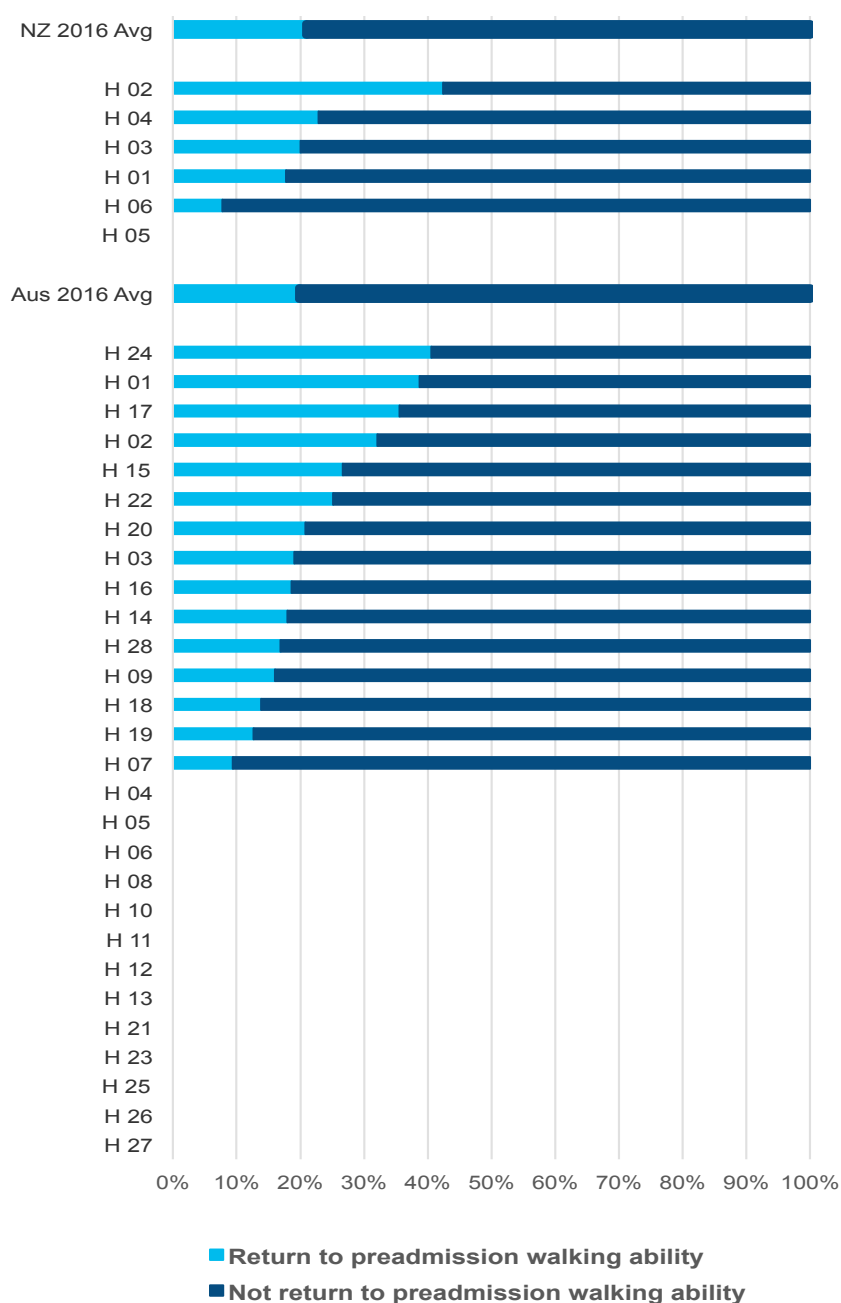


FIGURE 43

RETURN TO PRE-FRACTURE MOBILITY AT 120 DAYS



From a patient perspective, the recovery of function including mobility is a critical outcome following a hip fracture. A number of sites in Australia and New Zealand are now collecting outcome data at 30 and 120 day following hip fracture. Of those followed up at 120 days, 21% of patients from New Zealand and 23% of patients from Australia have returned to their pre-hip fracture level of mobility.

The data should be interpreted with caution as the overall number followed up is relatively small and those followed up represent a variable percentage of all hip fractures at each site. Nonetheless, the impact of a hip fracture appears substantial at 120 days and variability is seen across hospitals.

NOTE: hospitals with fewer than 10 cases followed up have not been reported.

FIGURE 44

120 DAY FOLLOW UP

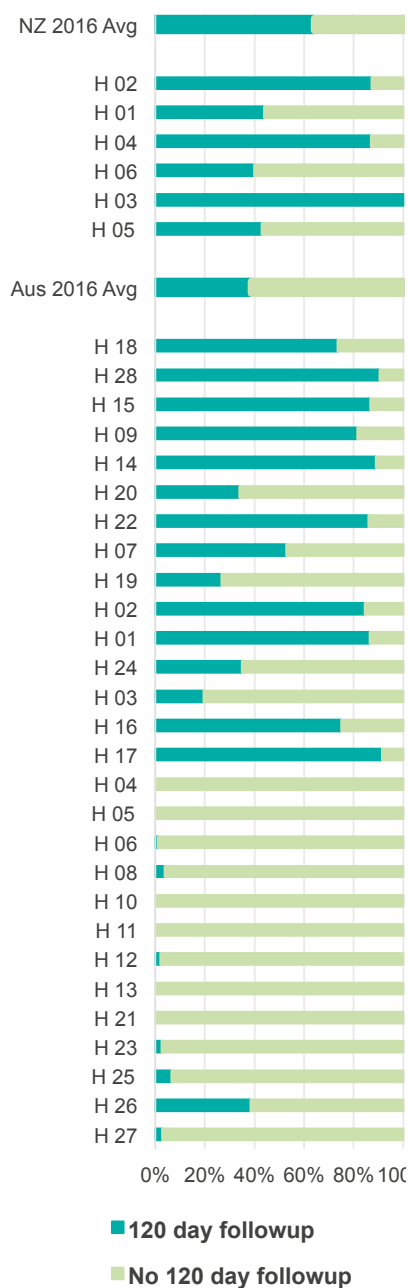
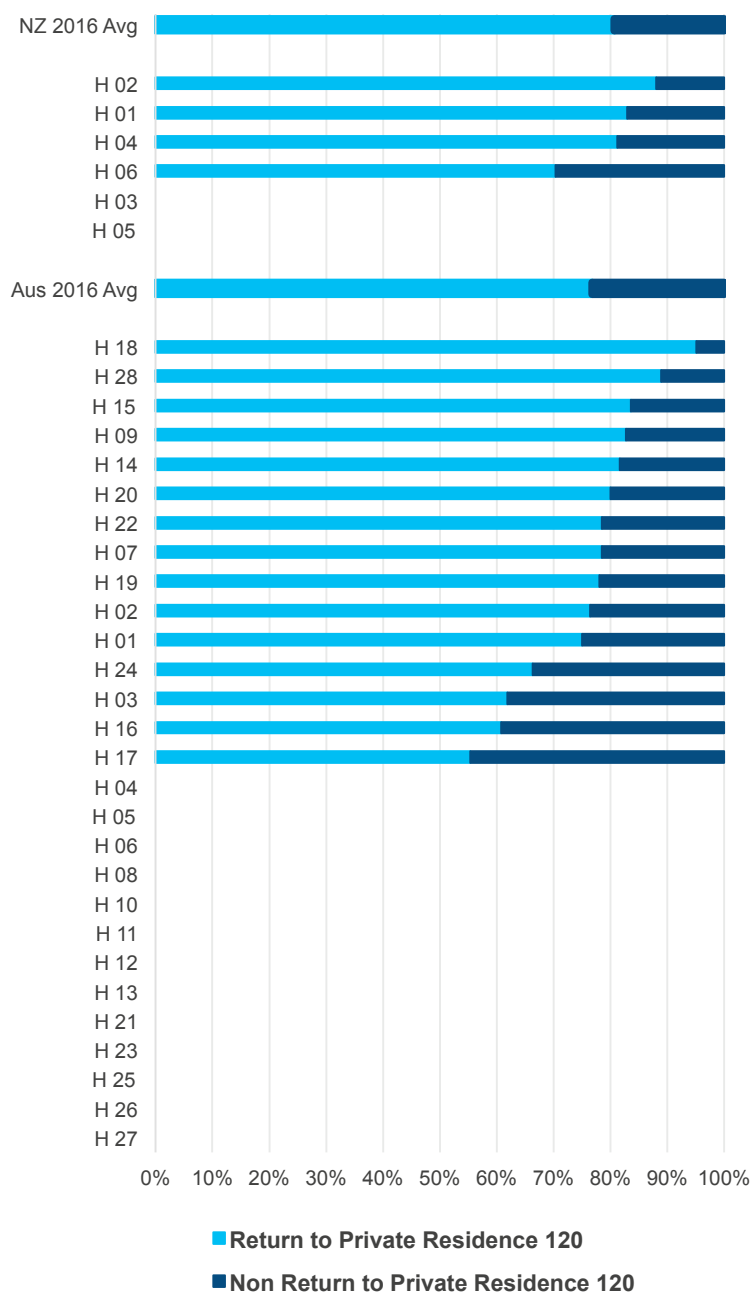


FIGURE 45

RETURN TO PRIVATE RESIDENCE AT 120 DAYS



Being able to return home after a hip fracture is one of the most important outcomes for a patient following a hip fracture. Of those who lived at home prior to hip fracture, 81% of patients in New Zealand and 76% of patients in Australia returned to their own home at 120 days after their hip fracture surgery.

NOTE: hospitals with fewer than 10 cases followed up have not been reported.





ANZHFR FACILITY LEVEL AUDIT

One hundred and twenty-one public hospitals undertaking definitive management of hip fractures were contacted to submit responses for the annual snapshot of facility level hip fracture care. One hospital advised that patients with hip fractures are transferred to another hospital for definitive management hence that hospital did not submit a survey. Therefore 120 hospitals are included in the 2017 survey.

No changes were made to the facility level audit form this year and instructions were included asking for responses to be provided for the 2016 calendar year. Data collection commenced in March 2017 and 120 hospitals (97 in Australia and 23 in New Zealand) submitted a completed survey.

RESULTS 1: GENERAL INFORMATION

FIGURE 46

ESTIMATED NUMBER OF HIP FRACTURES 2016

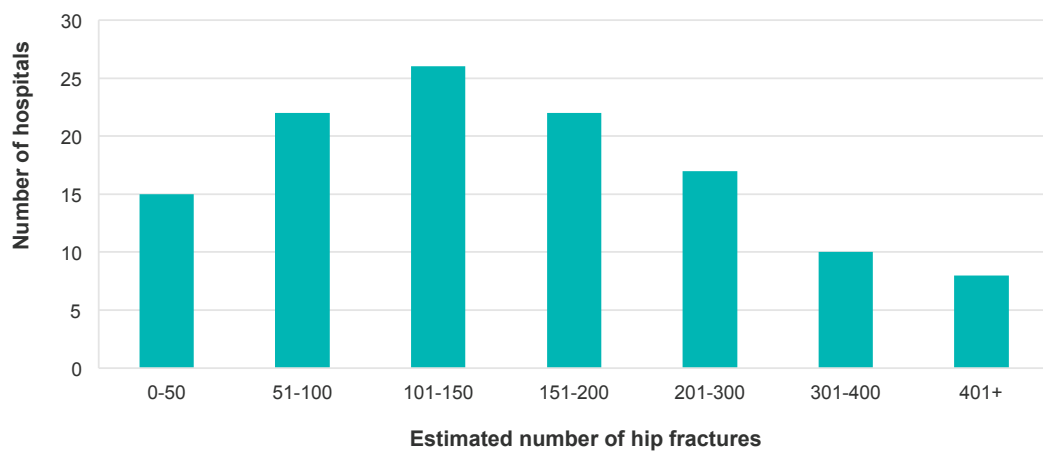
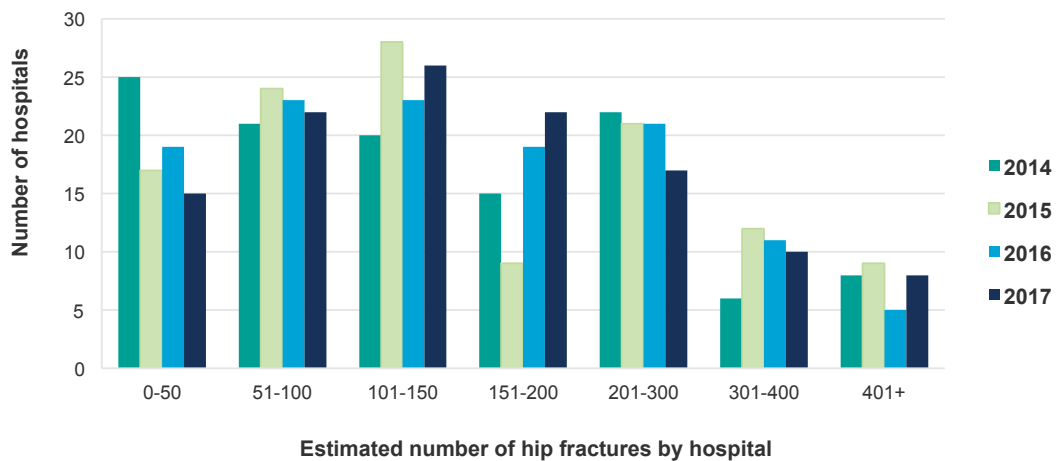


FIGURE 47

ESTIMATED NUMBER OF HIP FRACTURES TREATED BY AUSTRALIAN
AND NEW ZEALAND HOSPITALS 2014-2017

RESULTS 2: MODEL OF CARE

Quality statement 3 of the Hip Fracture Care Clinical Care Standard⁴ recommends hip fracture patients be offered treatment based on an orthogeriatric model of care as defined in the Australian and New Zealand Guideline for Hip Fracture Care.³ Orthogeriatric care involves a shared care arrangement of hip fracture patients between the specialties of orthopaedics and geriatric medicine. The geriatrician is involved in the pre-operative optimisation of the patient in preparation for surgery and then takes a lead in the post-operative medical care and coordinates the discharge planning process. Implicit in this role are many of the aspects of basic care including nutrition, hydration, pressure care, bowel and bladder management, and monitoring of cognition and coexisting conditions.

The Hip Fracture Care Clinical Care Standard Indicator 3a requires documented local arrangements for the management of hip fracture patients according to an orthogeriatric model of care.⁴ Ideally, this would be provided by a geriatrician embedded within the orthopaedic team, a true shared-care service, although a geriatric or medical liaison service providing daily review of

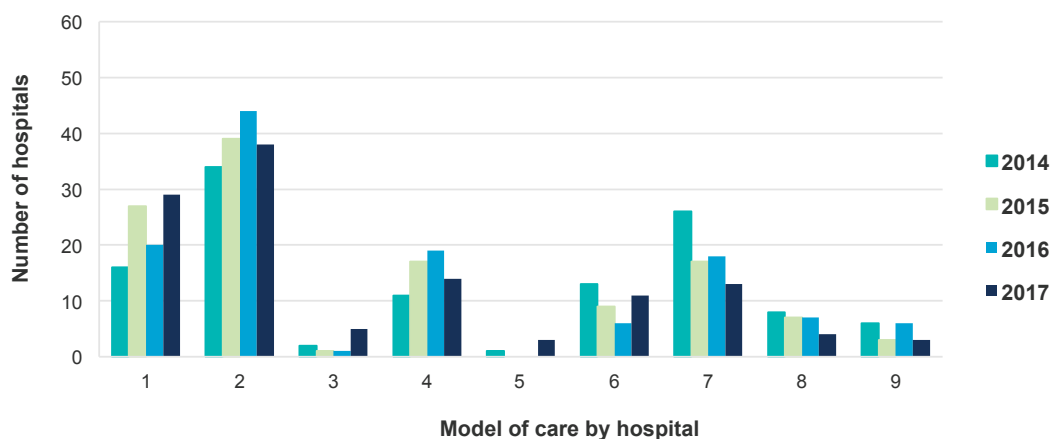
hip fracture patients would also meet the requirements of this indicator.

In 2017, shared care arrangements increased and represented 24% (29/120) of hospitals. The most common model of care is reported as an orthogeriatric liaison service where geriatric medicine provides regular review of all older hip fracture patients daily during the working week at 32% (38/120). For hospitals without access to an orthogeriatrician, daily review by a general physician or general practitioner (GP) will also meet the requirements of Indicator 3a. A daily medical liaison service was provided by 4% (5/120) of hospitals.

The proportion of hospitals reporting access to an orthogeriatric service for hip fracture patients, whether by regular review or by referral on a needs-based level, is 77% (92/120), similar to 2016 at 74% (89/121). The number of hospitals reporting no formal service for the review of older hip fracture patients has decreased to less than 4% (4/120).

FIGURE 48

MODEL OF CARE FOR OLDER HIP FRACTURE PATIENTS 2014–2017



1. A shared care arrangement where there is joint responsibility for the patient from admission between orthopaedics and geriatric medicine for all older hip fracture patients.

2. An orthogeriatric liaison service where geriatric medicine provides regular review of all older hip fracture patients (daily during working week)

3. A medical liaison service where a general physician or GP provides regular review of all older hip fracture patients (daily during working week)

4. An orthogeriatric liaison service where geriatric medicine provides intermittent review of all older hip fracture patients (2-3 times weekly)

5. A medical liaison service where a general physician or GP provides intermittent review of hip fracture patients (2-3 times weekly)

6. An orthogeriatric liaison service (2014) / geriatric service (2015) where a consult system determines which patients are reviewed

7. A medical liaison service (2014) / medical service (2015) where a consult system determines which patients are reviewed

8. No formal service exists

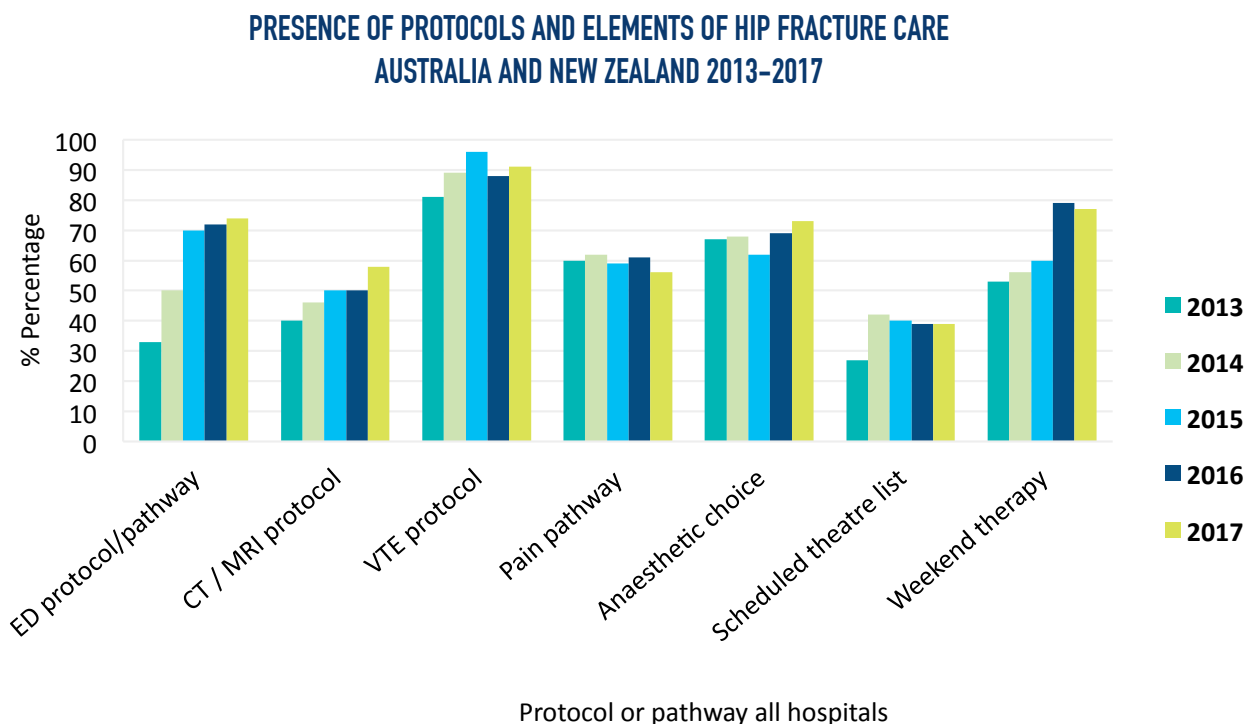
9. Other

RESULTS 3:

PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE

Quality statement 1 and quality statement 2 of the Hip Fracture Care Clinical Care Standard⁴ aim to guarantee patients, who present with a suspected hip fracture, that investigation of their injury and assessment of pain and other medical conditions will be provided in a timely and effective way throughout their admission. The audit asks hospitals to state whether services are provided for specific aspects of clinical care, identified in the ANZ Guideline for Hip Fracture Care³ and the Clinical Care Standard, as key markers of high quality hip fracture care. Individual aspects of care are shown in Figures 49 to 55. Figure 56 displays the results for 2017 and compares the responses with previous years of the audit.

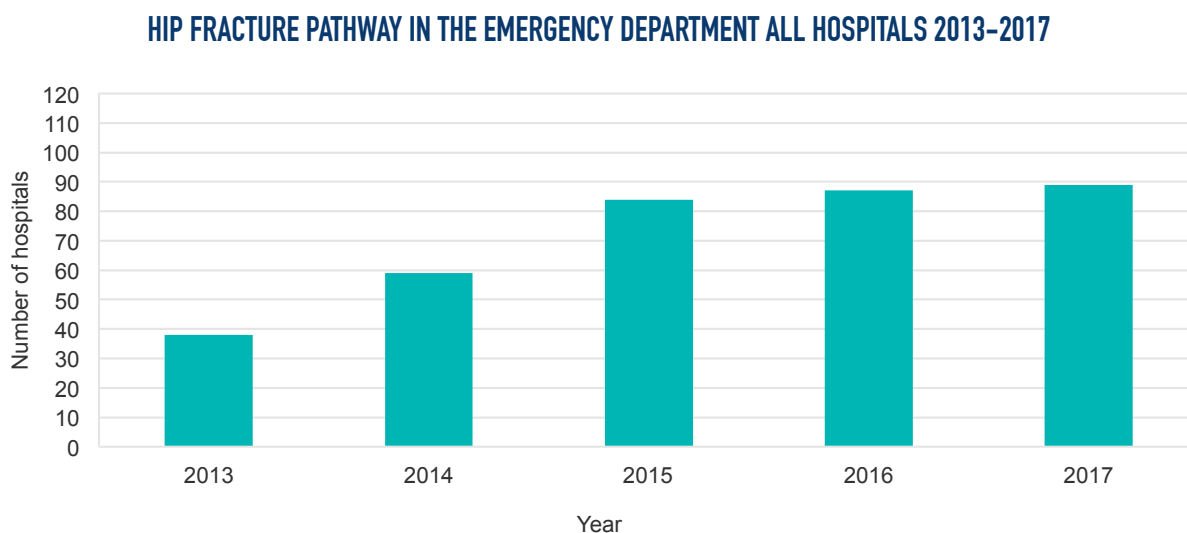
FIGURE 49



HIP FRACTURE PATHWAY

In 2017, 74% (89/120) reported having a pathway for hip fracture patients: 23% in the emergency department only and 51% for the whole acute journey. Whilst this is similar to last year, over the five years of the audit there has been year on year increases in the number of hospitals reporting use of an agreed hip fracture pathway.

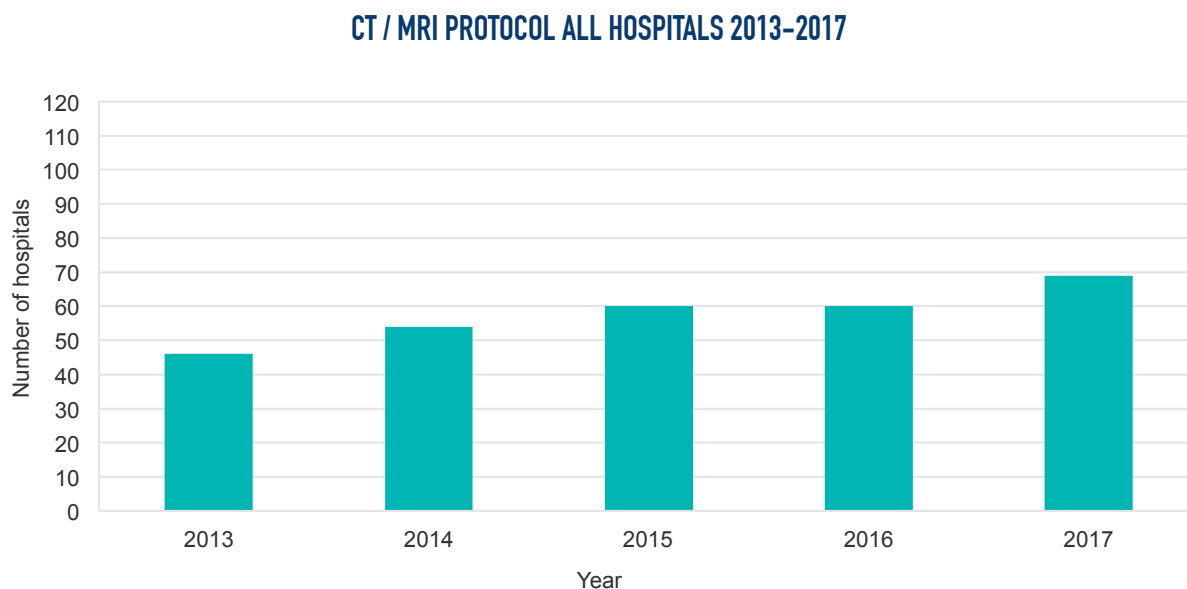
FIGURE 50

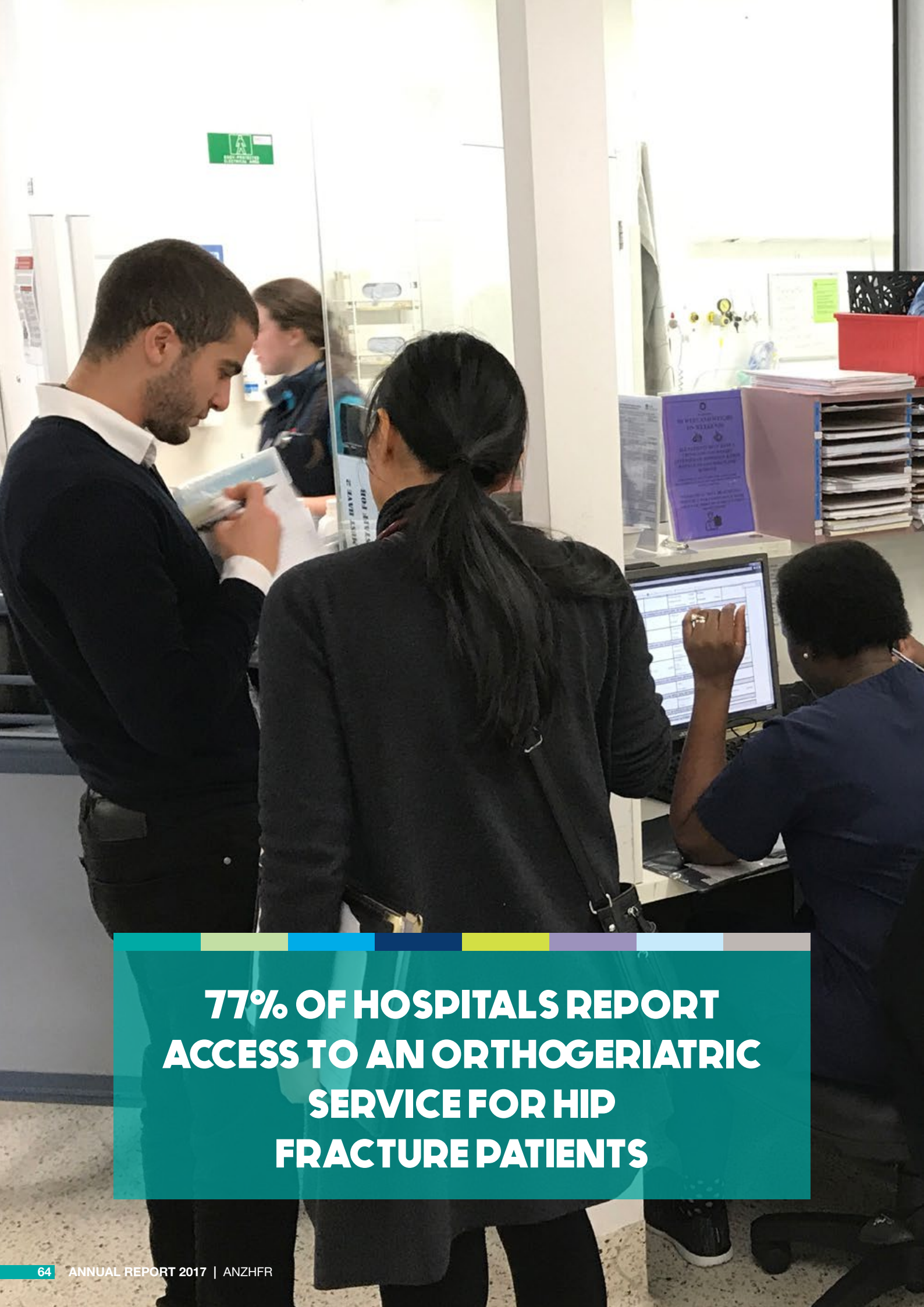


COMPUTED TOMOGRAPHY (CT) / MAGNETIC RESONANCE IMAGING (MRI)

In 2017, the presence of a pathway or protocol to access a CT or MRI for inconclusive plain imaging of hip fracture was reported to be available in 58% (69/120) of hospitals. This represents slow but steady improvement since the facility level audit commenced in 2013.

FIGURE 51



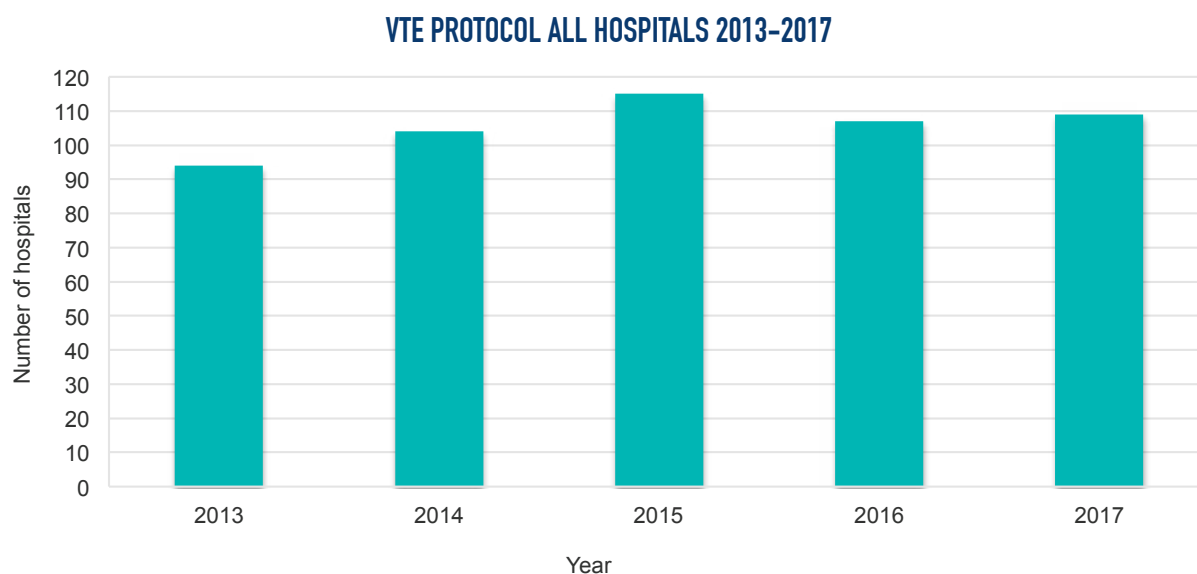


**77% OF HOSPITALS REPORT
ACCESS TO AN ORTHOGERIATRIC
SERVICE FOR HIP
FRACTURE PATIENTS**

VENOUS THROMBOEMBOLISM (VTE)

Hospitals reporting the use of a protocol for VTE in hip fracture patients have increased since 2013, the first year of the audit, when 81% (94/116) indicated they had a VTE protocol. In 2017, 91% (109/120) of respondents answered “yes” to the hospital having a VTE protocol.

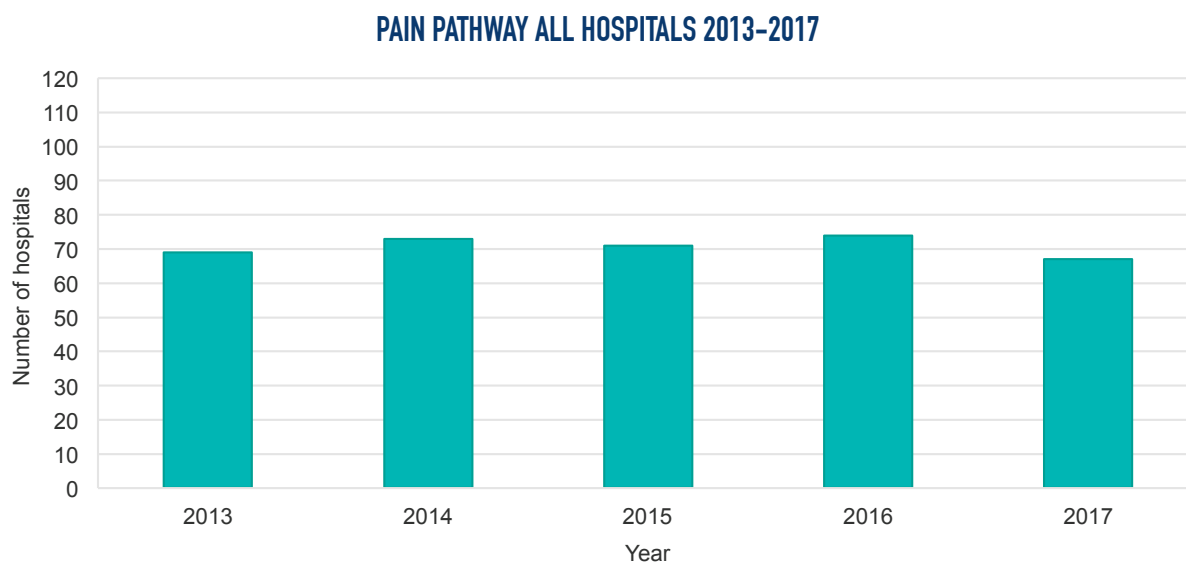
FIGURE 52



PAIN PATHWAY

In 2017, fewer hospitals reported they had a protocol or pathway for pain in hip fracture patients. Fifty-six percent (67/120) reported a pain pathway: 20% (24/120) in the emergency department only and 36% (43/120) across the patient's whole acute journey. This area of care has shown little change over the five years of the facility level audit.

FIGURE 53

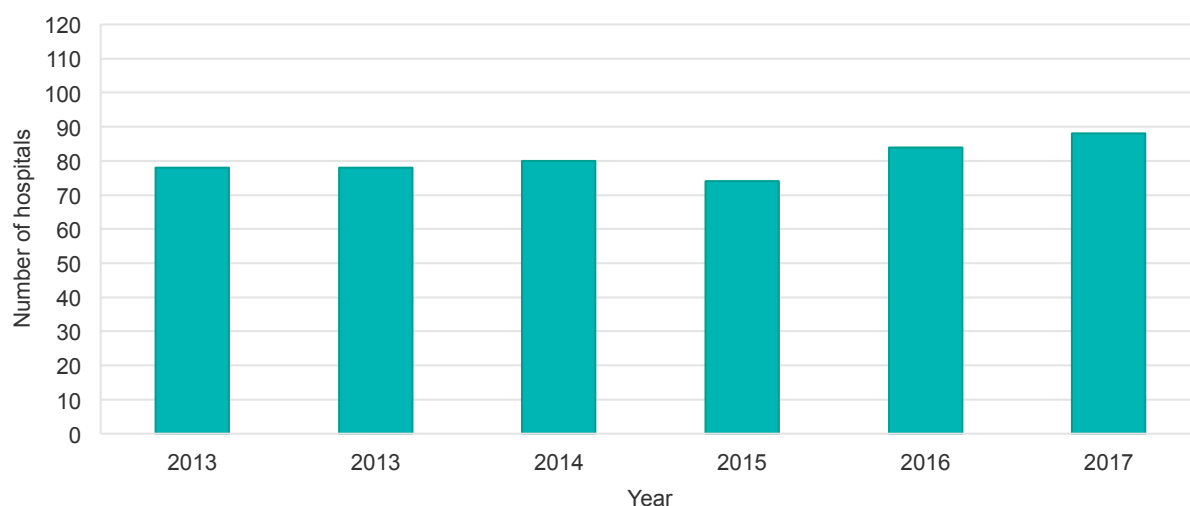


CHOICE OF ANAESTHESIA

In 2017, 73% (88/120) of hospitals reported that hip fracture patients are routinely offered a choice of anaesthesia “frequently” or “always”. This is an increase from 69% reported in 2016.

FIGURE 54

CHOICE OF ANAESTHESIA ALL HOSPITALS 2013-2017

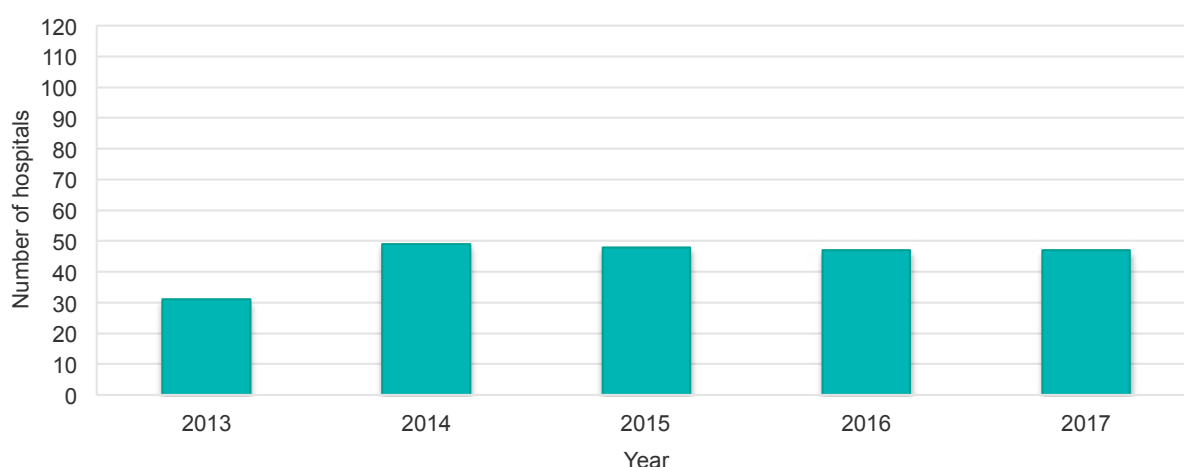


PLANNED THEATRE LIST

Responses in 2017 continue to show that fewer than 40% of hospitals provide hip fracture patients with access to a planned operating theatre list or trauma list for hip fracture surgery. This may impact a health services ability to schedule surgery for hip fracture patients within 48 hours of hospital presentation, if surgery is indicated.

FIGURE 55

ACCESS TO A PLANNED THEATRE LIST ALL HOSPITALS 2013-2017

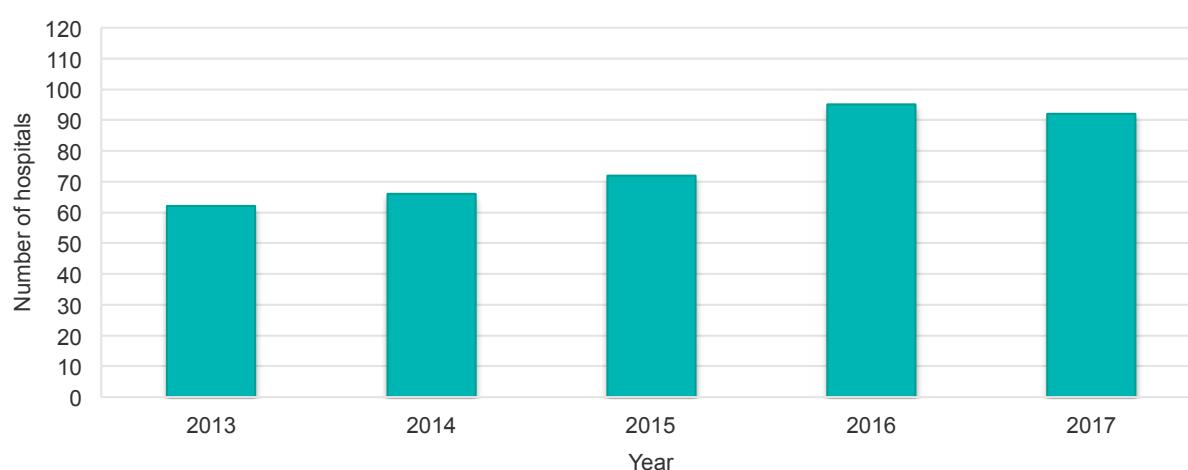


WEEKEND THERAPY

In 2017, 77% (92/120) of hospitals reported having routine access to weekend therapy services, predominantly physiotherapy services. After a large increase in the number of hospitals reporting routine access to weekend therapy in 2016, little change is seen in 2017. Quality statement 5 of the Hip Fracture Care Clinical Care Standard⁴ requires systems to be in place to ensure hip fracture patients are given the opportunity to mobilise the day after their surgery, to restore movement and function, and reduce post-operative complications. The opportunity to mobilise should not be dependent on the day of the week the surgery takes place.

FIGURE 56

ACCESS TO ROUTINE WEEKEND THERAPY ALL HOSPITALS 2013-2017



RESULTS 4:

COMPARISON OF PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE BY JURISDICTION 2013–2017

Widespread variation in hip fracture care is seen within and between jurisdictions. In some elements of care, little change has been observed over the five years of the facility level audit. The proportion of hospitals collecting data on hip fracture care, either by using the ANZHFR or by implementing another system of data collection, has increased over the five years of the audit from 54% (63/116) of hospitals in 2013 to 77% (92/120) of hospitals in 2017. Tables 1 to 8 and Figures 57 to 64 show summary information by Australian State and Territory and New Zealand on the protocols and elements of hip fracture care.

4.1 NEW SOUTH WALES

TABLE 1: NSW HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017

	2013 (n = 37)	2014 (n = 37)	2015 (n = 39)	2016 (n = 39)	2017 (n = 38)
Shared-care model of care (MOC)	n/a	16%	26%	23%	29%
Protocol / pathway in the ED*	30%	41%	72%	67%	71%
Protocol / pathway for access to CT / MRI	32%	57%	46%	51%	53%
VTE protocol	89%	89%	97%	87%	95%
Pain pathway	57%	51%	54%	67%	47%
Given choice of anaesthesia^	60%	51%	56%	59%	60%
Scheduled theatre list time	32%	35%	56%	54%	53%
Provision of routine weekend therapy	60%	57%	59%	85%	90%
Collecting hip fracture data	38%	49%	62%	56%	74%

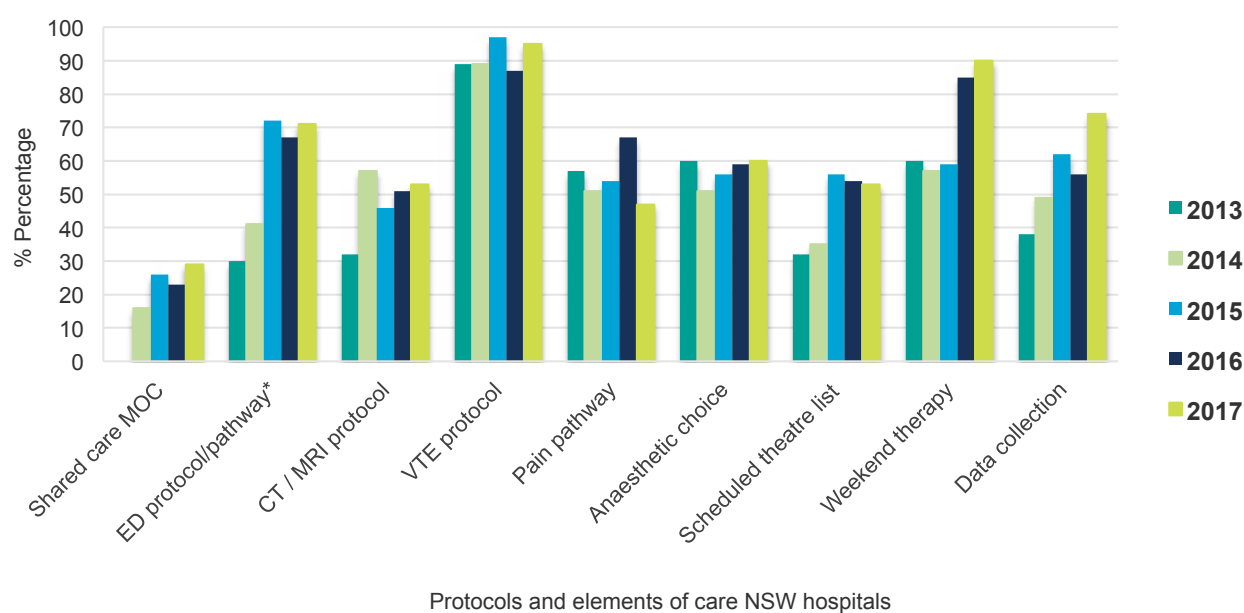
*protocol / pathway in the ED: 2015, 2016, 2017 includes pathway in ED only and for the whole acute journey

^% providing choice of anaesthesia: 2014, 2015, 2016, 2017 Rarely or Never = No; Always or Frequently = Yes

n/a = not asked

FIGURE 57

NSW HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017



4.2 VICTORIA

TABLE 2: VICTORIAN HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017

	2013 (n = 24)	2014 (n = 24)	2015 (n = 23)	2016 (n = 23)	2017 (n = 23)
Shared-care model of care (MOC)	n/a	8%	26%	13%	30%
Protocol / pathway in the ED*	33%	46%	61%	74%	65%
Protocol / pathway for access to CT / MRI	50%	46%	52%	57%	70%
VTE protocol	79%	96%	100%	100%	100%
Pain pathway	54%	71%	61%	57%	39%
Given choice of anaesthesia^	71%	71%	65%	74%	61%
Scheduled theatre list time	33%	50%	39%	35%	57%
Provision of routine weekend therapy	58%	54%	74%	87%	78%
Collecting hip fracture data	67%	63%	74%	78%	78%

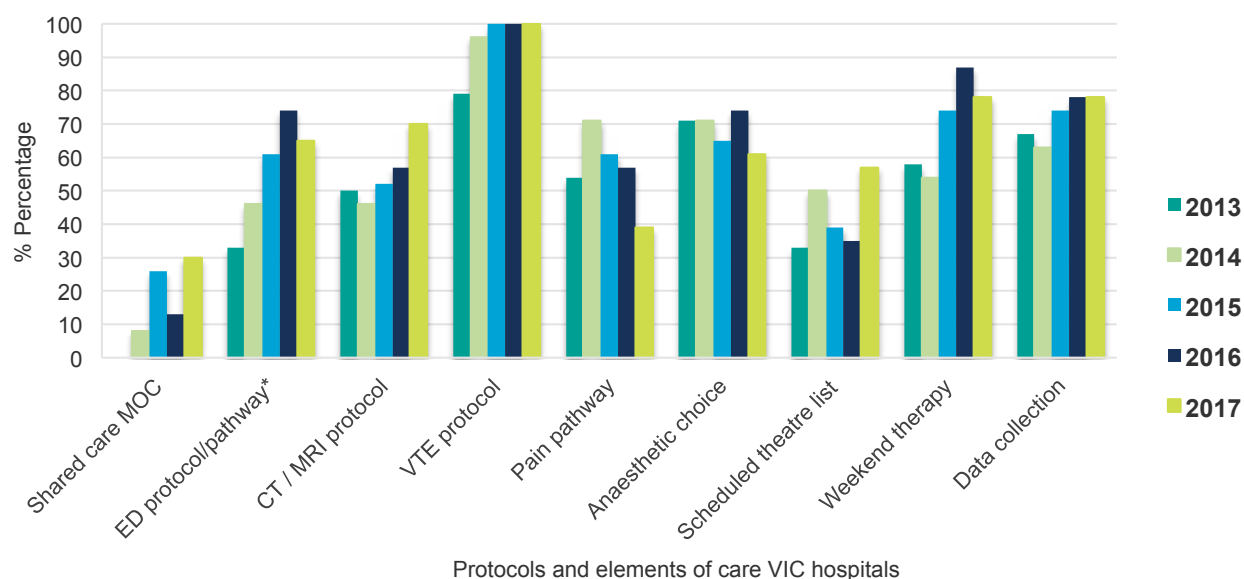
*protocol / pathway in the ED: 2015, 2016, 2017 includes pathway in ED only and for the whole acute journey

^% providing choice of anaesthesia: 2014, 2015, 2016, 2017 Rarely or Never = No; Always or Frequently = Yes

n/a = not asked

FIGURE 58

VICTORIAN HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017



4.3 QUEENSLAND

TABLE 3: QUEENSLAND HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017

	2013 (n = 13)	2014 (n = 13)	2015 (n = 15)	2016 (n = 16)	2017 (n = 16)
Shared-care model of care (MOC)	n/a	23%	20%	6%	25%
Protocol / pathway in the ED*	31%	77%	73%	81%	88%
Protocol / pathway for access to CT / MRI	39%	62%	53%	50%	44%
VTE protocol	92%	100%	100%	94%	81%
Pain pathway	62%	85%	53%	63%	44%
Given choice of anaesthesia^	69%	85%	60%	75%	94%
Scheduled theatre list time	31%	54%	47%	44%	38%
Provision of routine weekend therapy	46%	92%	73%	88%	75%
Collecting hip fracture data	69%	62%	93%	81%	75%

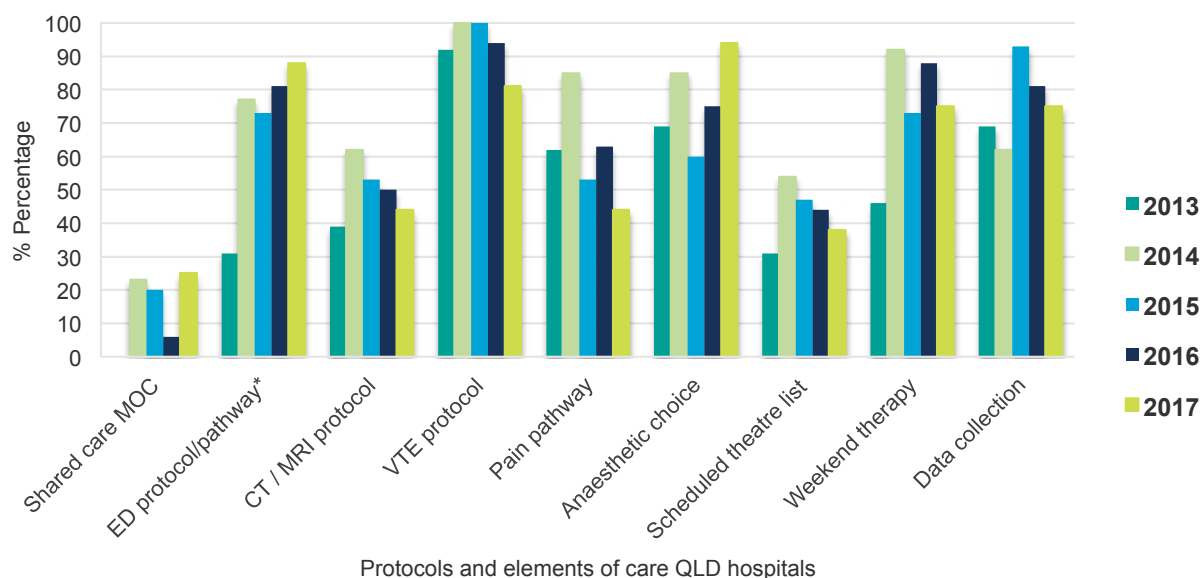
*protocol / pathway in the ED: 2015, 2016, 2017 includes pathway in ED only and for the whole acute journey

^% providing choice of anaesthesia: 2014, 2015, 2016, 2017 Rarely or Never = No; Always or Frequently = Yes

n/a = not asked

FIGURE 59

QUEENSLAND HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017



4.4 SOUTH AUSTRALIA

TABLE 4: SOUTH AUSTRALIAN HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017

	2013 (n = 8)	2014 (n = 8)	2015 (n = 8)	2016 (n = 8)	2017 (n = 8)
Shared-care model of care (MOC)	n/a	13%	25%	0%	25%
Protocol / pathway in the ED*	38%	38%	50%	50%	63%
Protocol / pathway for access to CT / MRI	50%	13%	50%	38%	75%
VTE protocol	100%	88%	88%	88%	100%
Pain pathway	75%	63%	63%	50%	25%
Given choice of anaesthesia^	88%	75%	38%	63%	75%
Scheduled theatre list time	25%	25%	25%	38%	75%
Provision of routine weekend therapy	63%	63%	63%	88%	63%
Collecting hip fracture data	38%	50%	63%	75%	63%

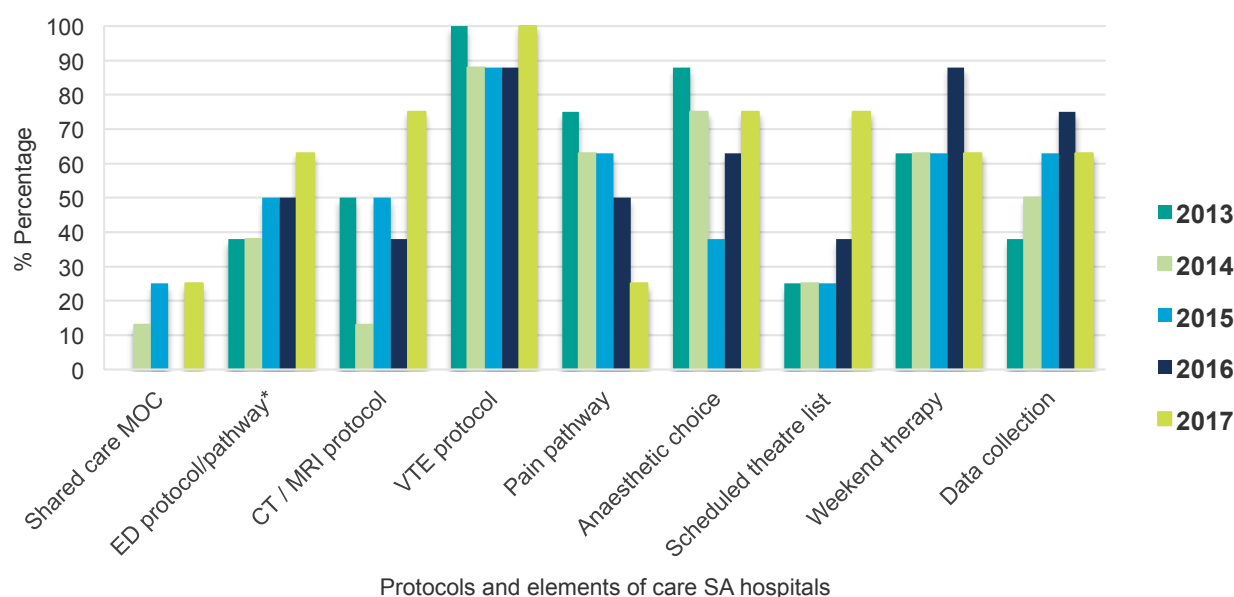
*protocol / pathway in the ED: 2015, 2016, 2017 includes pathway in ED only and for the whole acute journey

^% providing choice of anaesthesia: 2014, 2015, 2016, 2017 Rarely or Never = No; Always or Frequently = Yes

n/a = not asked

FIGURE 60

SOUTH AUSTRALIAN HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017



Protocols and elements of care SA hospitals

4.5 WESTERN AUSTRALIA

TABLE 5: WEST AUSTRALIAN HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017

	2013 (n = 6)	2014 (n = 6)	2015 (n = 6)	2016 (n = 6)	2017 (n = 6)
Shared-care model of care (MOC)	n/a	33%	67%	67%	50%
Protocol / pathway in the ED*	17%	50%	67%	67%	83%
Protocol / pathway for access to CT / MRI	50%	33%	33%	33%	50%
VTE protocol	50%	100%	100%	83%	100%
Pain pathway	67%	100%	100%	67%	50%
Given choice of anaesthesia^	67%	100%	100%	67%	83%
Scheduled theatre list time	17%	50%	33%	33%	67%
Provision of routine weekend therapy	67%	33%	67%	100%	67%
Collecting hip fracture data	83%	50%	83%	67%	83%

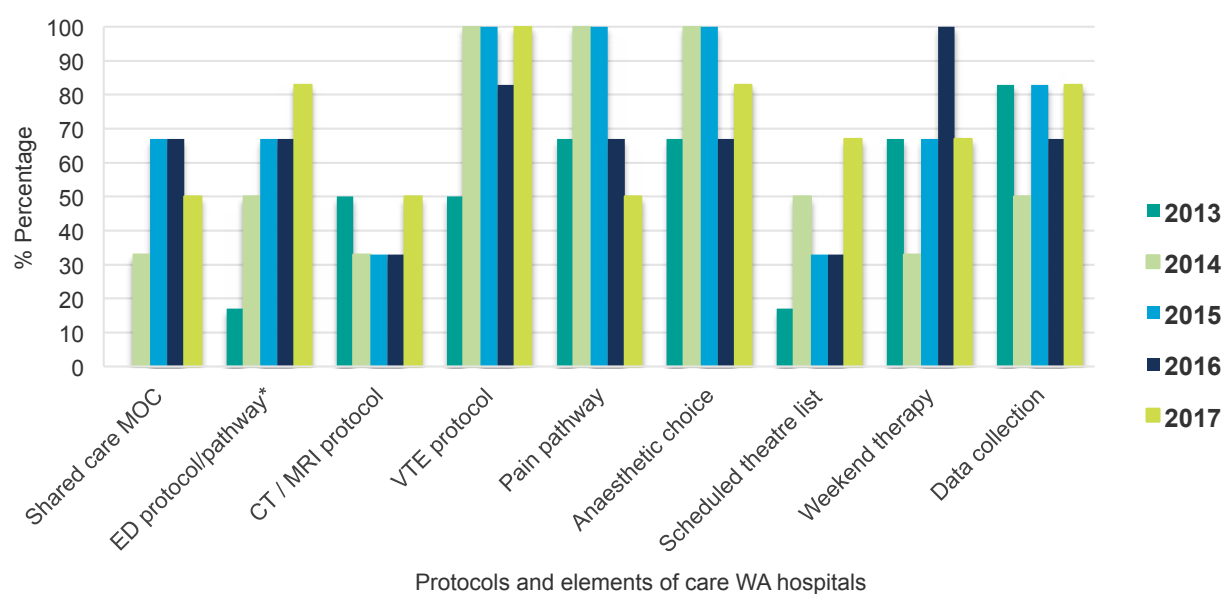
*protocol / pathway in the ED: 2015, 2016, 2017 includes pathway in ED only and for the whole acute journey

^% providing choice of anaesthesia: 2014, 2015, 2016, 2017 Rarely or Never + No; Always or Frequently = Yes

n/a = not asked

FIGURE 61

WEST AUSTRALIAN HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017



4.6 TASMANIA

TABLE 6: TASMANIAN HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017

	2013 (n = 3)	2014 (n = 3)	2015 (n = 3)	2016 (n = 3)	2017 (n = 3)
Shared-care model of care (MOC)	n/a	0%	0%	0%	0%
Protocol / pathway in the ED*	0%	33%	33%	33%	33%
Protocol / pathway for access to CT / MRI	33%	67%	67%	67%	67%
VTE protocol	67%	100%	100%	100%	100%
Pain pathway	67%	100%	33%	33%	0%
Given choice of anaesthesia^	100%	100%	100%	100%	100%
Scheduled theatre list time	0%	67%	0%	33%	33%
Provision of routine weekend therapy	0%	33%	0%	33%	33%
Collecting hip fracture data	0%	100%	100%	100%	100%

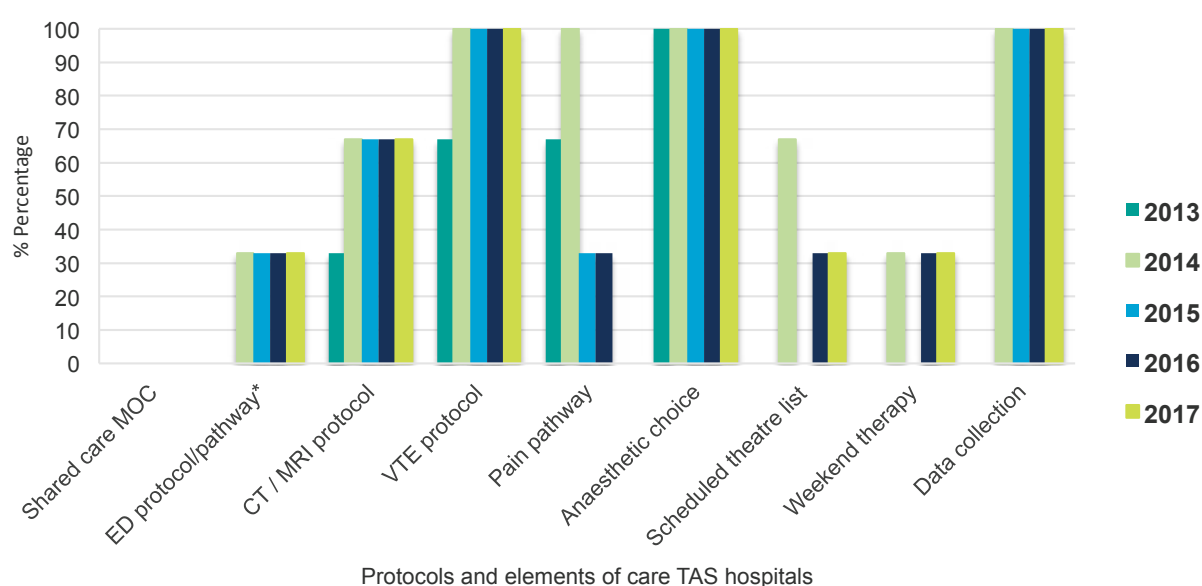
*protocol / pathway in the ED: 2015, 2016, 2017 includes pathway in ED only and for the whole acute journey

^% providing choice of anaesthesia: 2014, 2015, 2016, 2017 Rarely or Never = No; Always or Frequently = Yes

n/a = not asked

FIGURE 62

TASMANIAN HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017



4.7 NORTHERN TERRITORY AND THE AUSTRALIAN CAPITAL TERRITORY

TABLE 7: NORTHERN TERRITORY AND ACT HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017

	2013 (n = 3)	2014 (n = 3)	2015 (n = 3)	2016 (n = 3)	2017 (n = 3)
Shared-care model of care (MOC)	n/a	0%	0%	0%	33%
Protocol / pathway in the ED*	0%	0%	100%	67%	33%
Protocol / pathway for access to CT / MRI	67%	67%	33%	33%	33%
VTE protocol	100%	100%	100%	100%	100%
Pain pathway	100%	100%	67%	33%	33%
Given choice of anaesthesia^	67%	100%	67%	100%	100%
Scheduled theatre list time	0%	33%	0%	33%	33%
Provision of routine weekend therapy	67%	67%	0%	33%	33%
Collecting hip fracture data	67%	67%	67%	67%	67%

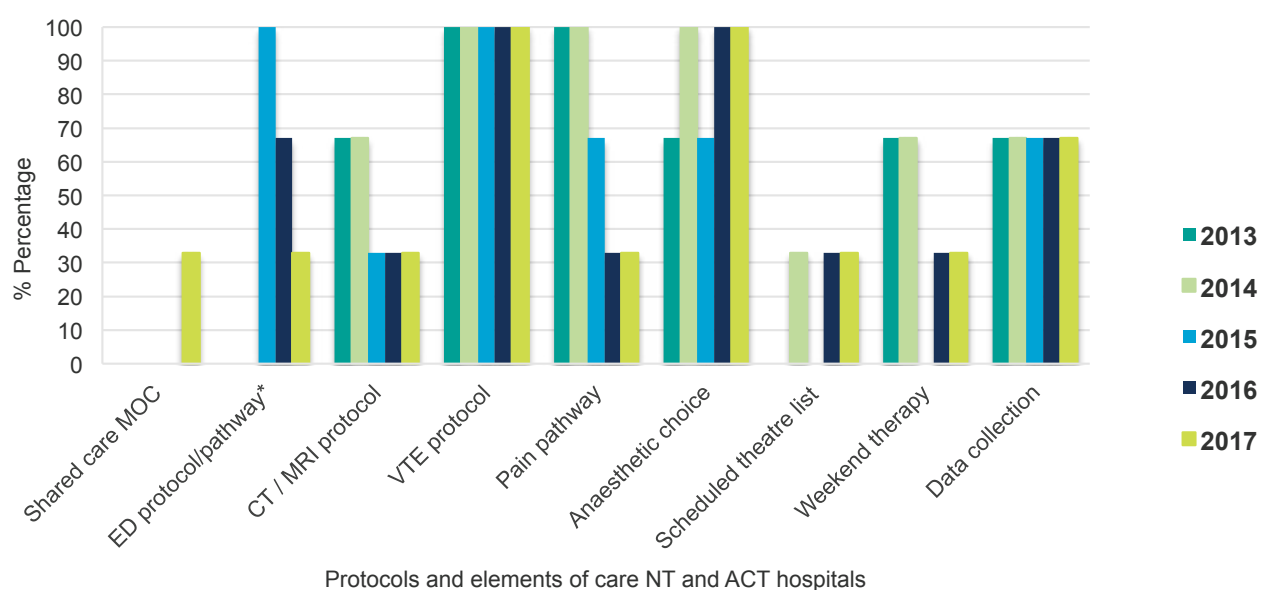
*protocol / pathway in the ED: 2015, 2016, 2017 includes pathway in ED only and for the whole acute journey

^% providing choice of anaesthesia: 2014, 2015, 2016, 2017 Rarely or Never = No; Always or Frequently = Yes

n/a = not asked

FIGURE 63

NORTHERN TERRITORY AND ACT HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017



4.8 NEW ZEALAND

TABLE 8: NEW ZEALAND HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017

	2013 (n = 22)	2014 (n = 23)	2015 (n = 23)	2016 (n = 23)	2017 (n = 23)
Shared-care model of care (MOC)	n/a	9%	9%	13%	4%
Protocol / pathway in the ED*	50%	70%	83%	87%	91%
Protocol / pathway for access to CT / MRI	32%	30%	57%	48%	61%
VTE protocol	64%	70%	87%	74%	74%
Pain pathway	55%	39%	61%	65%	30%
Given choice of anaesthesia^	64%	65%	61%	74%	83%
Scheduled theatre list time	18%	39%	26%	17%	70%
Provision of routine weekend therapy	41%	44%	52%	57%	74%
Collecting hip fracture data	64%	78%	83%	70%	83%

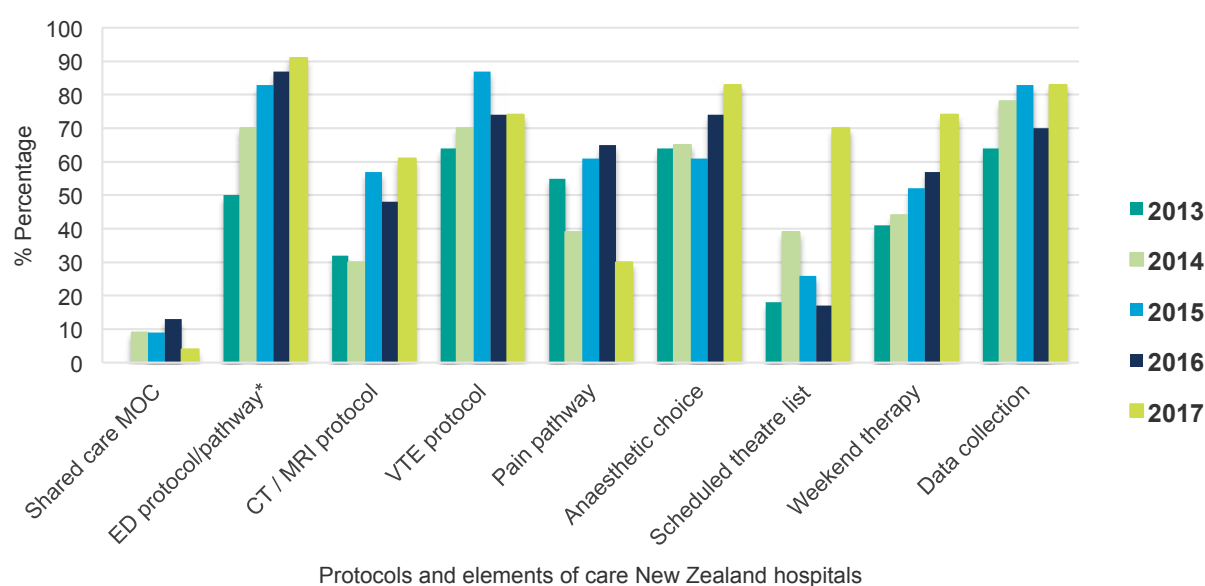
*protocol / pathway in the ED: 2015, 2016, 2017 includes pathway in ED only and for the whole acute journey

^% providing choice of anaesthesia: 2014, 2015, 2016, 2017 Rarely or Never + No; Always or Frequently = Yes

n/a = not asked

FIGURE 64

NEW ZEALAND HOSPITALS YEAR-BY-YEAR COMPARISON OF PROPORTION WITH PROTOCOLS AND ELEMENTS OF HIP FRACTURE CARE 2013-2017



RESULTS 5:

BEYOND THE ACUTE HOSPITAL STAY

The audit asks respondents to report on access for hip fracture patients to rehabilitation services and publicly funded outpatient clinics for the management of their injury and the prevention of future falls and fractures. Information gathered in 2017 is presented below and year on year comparison is available in table 9 and figure 65.

REHABILITATION

In 2017, 33% (40/120) of respondents reported hip fracture patients had access to onsite and offsite rehabilitation services, fewer than in 2016 and continuing the decrease seen over the five years of the audit. Access to onsite rehabilitation only was reported by 42% (50/120) of hospitals, and access to offsite rehabilitation only was reported by 25% (30/120). Access to an early, supported home-based rehabilitation service was reported by 40% (48/120) of hospitals this year, arresting the decline in these services seen over previous years.

FRACTURE LIAISON SERVICE

It is encouraging to see an increase in access to fracture liaison services in Australia and New Zealand. Dedicated resources allocated to the identification, management, and follow-up of minimal trauma fractures has been shown to reduce re-fracture rates in people with osteopenia and osteoporosis. Thirty-three percent (39/120) of hospitals responded “yes” to providing a service that systematically identifies patients with a minimal trauma fracture with a view to onward referral and management of osteoporosis. In 2017, services targeting patients with any minimal trauma fracture, not only a hip fracture, remained relatively stable at 8% (9/120). The increase in service provision seen in 2017 was in the provision of a fracture liaison service for hip fracture patients. A hip fracture only service was reported in 2017 at 25% (30/120), up from 17% in 2016 (21/121).

OUTPATIENT CLINICS

Variable access to public outpatient clinics was observed again in 2017 with significant opportunities available to health services to improve provision. It was reported that there is widespread access to an orthopaedic clinic at the majority of sites – 89% (107/120). However, access to clinics targeting secondary fracture prevention, and the prevention of future falls and fractures, remains limited and has shown a small decline. In 2017, access to a public falls clinic is reported at 58% (69/120), access to an osteoporosis clinic at 40% (48/120), and access to a combined falls and bone health clinic at 16% (19/120). Access to these services may be available through private clinics or through other private health service initiatives but private sector services are outside the scope of this audit.

PATIENT AND CARER INFORMATION

Hip fracture patients and their carers should be active partners in any decisions made during admission, discharge and recovery from their injury. Information and advice on treatment and recovery, and the prevention of future falls and fractures, should be provided verbally and in writing.

Quality statement 7 states: *“Before a patient leaves hospital, the patient and their carer are involved in the development of an individualised care plan that describes the patient’s ongoing care and goals of care after they leave hospital”.*

Only 27% (32/120) of respondents said they provided written information to patients on discharge that included recommendations for future falls and fracture prevention (not the same as a discharge summary). This proportion has remained unchanged over the past three years. Fewer than 40% (47/120) of hospitals responded “yes” that they provided written information to patients about their hip fracture treatment, also relatively unchanged during the five years of the audit.

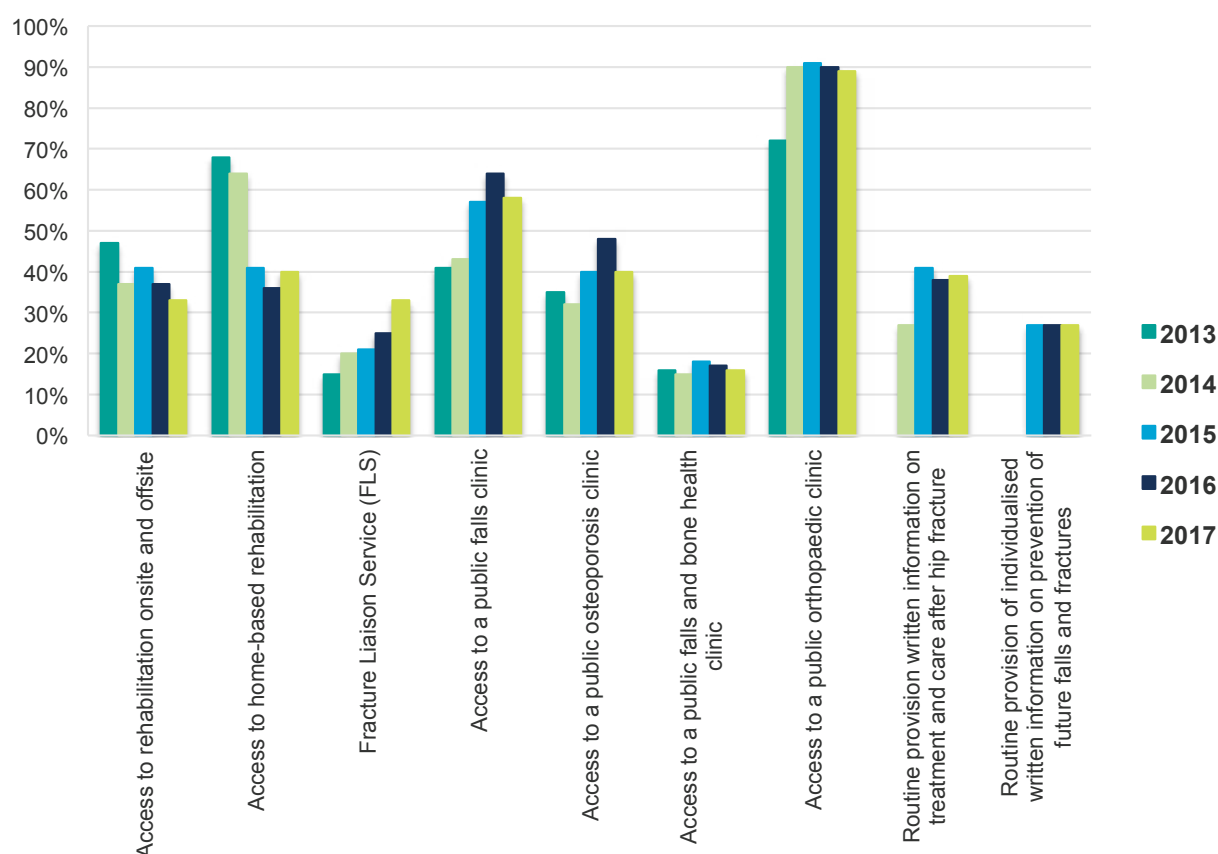
TABLE 9: AVAILABLE SERVICES BEYOND THE ACUTE HOSPITAL STAY ALL HOSPITALS 2013-2017

	2013 (n = 116)	2014 (n = 117)	2015 (n = 120)	2016 (n = 121)	2017 (n = 120)
Access to rehabilitation	Onsite 30% Offsite 23% Both 47%	Onsite 37% Offsite 26% Both 37%	Onsite 38% Offsite 21% Both 41%	Onsite 41% Offsite 22% Both 37%	Onsite 42% Offsite 25% Both 33%
Access to home-based rehabilitation	68%	64%	41%	36%	40%
Fracture Liaison Service (FLS)	15%	20%	21%	25%	33%
Access to a public falls clinic	41%	43%	57%	64%	58%
Access to a public osteoporosis clinic	35%	32%	40%	48%	40%
Access to a public falls and bone health clinic	16%	15%	18%	17%	16%
Access to a public orthopaedic clinic	72%	90%	91%	90%	89%
Routine provision written information on treatment and care after hip fracture	n/a	27%	41%	38%	39%
Routine provision of individualised written information on prevention of future falls and fractures	n/a	n/a	27%	27%	27%

n/a = not asked

FIGURE 65

AVAILABLE SERVICES BEYOND THE ACUTE HOSPITAL STAY ALL HOSPITALS 2013-2017





... the database is providing us with information of where we need to improve, for example, when we asked key personnel on the Orthopaedic Ward if they believed that the patients with a fractured hip were being mobilised within 24hrs, the majority of staff believed the patients were indeed mobilised early and that we could move this standing item off our Steering Committee agenda. It was only when we analysed the data from the Registry we found we were actually at or around the 60% mark of patients being mobilised, a bit of a shock really!

REFERENCES

1. Watts J, Abimanyi-Ochom J, Sanders K. Osteoporosis costing all Australians: A new burden of disease analysis – 2012 to 2022. Osteoporosis Australia, 2013. Sydney, ISBN 978-0-9923698-1-1.
2. Brown P, McNeill R, Radwan E, and Willingale J. The burden of Osteoporosis in New Zealand: 2007-2020. Osteoporosis New Zealand, 2007.
3. Australian and New Zealand Hip Fracture Registry (ANZHFR) Steering Group. Australian and New Zealand Guideline for Hip Fracture Care: Improving Outcomes in Hip Fracture Management of Adults. Sydney: Australian and New Zealand Hip Fracture Registry Steering Group; 2014. Available at: www.anzhfr.org
4. Australian Commission on Safety and Quality in Health Care. Hip Fracture Care Clinical Care Standard. Sydney: ACSQHC, 2016. Available at: <https://www.safetyandquality.gov.au/our-work/clinical-care-standards/hip-fracture-care-clinical-care-standard/>
5. Australian Commission on Safety and Quality in Health Care, Framework for Australian clinical quality registries. Sydney. ACSQHC, March 2014.
6. Neuburger J, Currie C, Wakeman R, et al. The Impact of a National Clinician-led Audit Initiative on Care and Mortality after Hip Fracture in England: An External Evaluation using Time Trends in Non-audit Data. *Medical Care*. 2015;53(8):686-691. doi:10.1097/MLR.0000000000000383. Accessed 22 February 2017. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/26172938>
7. The Australian Commission on Safety and Quality in Health Care. Economic evaluation of clinical quality registries: Final report. Sydney: ACSQHC; 2016.



APPENDICES

1. ANZHFR Steering Group Membership

CO-CHAIRS

Prof Jacqueline Close Consultant Geriatrician, Prince of Wales Hospital, Sydney

Prof Ian Harris AM Orthopaedic Surgeon, Liverpool Hospital, Sydney

Name	Position
Dr Laura Ahmad	Royal Australasian College of Physicians (RACP)
Ms Elizabeth Armstrong	Registry Manager, Australia
Dr John Barry	Australian & New Zealand College of Anaesthetists (ANZCA)
Dr John Batten	Royal Australasian College of Surgeons (RACS)
Mr Brett Baxter	Australian Physiotherapy Association (APA)
Professor Ian Cameron	Australasian Faculty of Rehabilitation Medicine (AFRM)
A/Prof Mellick Chehade	Australian & New Zealand Bone and Mineral Society (ANZBMS)
Prof Ross Crawford	Co-opted Member (Orthopaedics)
Dr Owen Doran	Australasian College of Emergency Medicine (ACEM)
A/Prof Kerin Fielding	Osteoporosis Australia (OA)
Mr Stewart Fleming	Webmaster
Ms Christine Gill	Osteoporosis New Zealand (ONZ)
Dr Roger Harris	Australian & New Zealand Society of Geriatric Medicine (ANZSGM)
A/Prof Raphael Hau	Co-opted Member (Orthopaedics)
A/Prof Rebecca Mitchell	Injury Epidemiologist, Australian Institute of Health Innovation (AIHI)
Dr Jacob Munro	New Zealand Orthopaedic Association (NZOA)
Ms Chris Pegg	New Zealand Implementation Manager
Dr Gretchen Poiner	Consumer Representative
Dr Hannah Seymour	Australian & New Zealand Society of Geriatric Medicine (ANZSGM)
Dr Ralph Stanford	Australian Orthopaedic Association (AOA)
Ms Anita Taylor	Australian and New Zealand Orthopaedic Nurses Association (ANZONA)

2. Patient Level Audit Form

First Name	Surname	Patient's postcode
Date of Birth	Sex	Contact telephone number
___/___/____	<input type="radio"/> Male <input type="radio"/> Female <input type="radio"/> Other	
Hospital MRN (AUS) / Event Number (NZ)	Patient type	Ethnic Status (NZ)
 	<input type="radio"/> Public <input type="radio"/> Private <input type="radio"/> Overseas <input type="radio"/> Not known	<input type="radio"/> European <input type="radio"/> Māori <input type="radio"/> Pacific Peoples <input type="radio"/> Asian <input type="radio"/> Middle Eastern/ Latin American/ African <input type="radio"/> Other Ethnicity <input type="radio"/> Not elsewhere included
Medicare number (AUS) / NHI (NZ)		Indigenous Status (AUS)
 		<input type="radio"/> Aboriginal <input type="radio"/> Torres Strait Islander <input type="radio"/> Both Aboriginal and Torres Strait Islander <input type="radio"/> Neither Aboriginal nor Torres Strait Islander <input type="radio"/> Not known

Admission via ED of operating hospital	If transferred from another hospital
<input type="radio"/> Yes <input type="radio"/> No, transferred from another hospital <input type="radio"/> No, in-patient fall <input type="radio"/> Other/not known	Name of transferring hospital: ED/Hospital arrival date ___/___/____ :__hrs Record time using 24hr clock
ED/Hospital Admission (operating hospital)	If an in-patient fracture (time using 24hr clock)
Admission ___/___/____ :__hrs Departure ___/___/____ :__hrs (from ED) Record time using 24hr clock	Date / time of diagnosis ___/___/____ :__hrs Record time using 24hr clock
Usual place of Residence	Type of ward admitted to
<input type="radio"/> Private residence including retirement village <input type="radio"/> Residential care facility <input type="radio"/> Other <input type="radio"/> Not known Note: If holiday residence/respite care, document usual place of residence	<input type="radio"/> Hip fracture unit /Orthopaedic ward / preferred ward <input type="radio"/> Outlying ward <input type="radio"/> HDU / CCU / ICU <input type="radio"/> Other / not known
Walking ability pre-admission	ASA grade
<input type="radio"/> Usually walks without walking aids <input type="radio"/> Usually walks with a stick or crutch <input type="radio"/> Usually walks with two aids or frame <input type="radio"/> Usually uses a wheel chair/ bed bound <input type="radio"/> Not known	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> unknown
Pre-morbid Cognitive Status	Bone protection medication at admission
AMT score____ <input type="radio"/> Normal cognition <input type="radio"/> Impaired cognition or known dementia <input type="radio"/> Not known or recorded	<input type="radio"/> No bone protection medication <input type="radio"/> Yes, calcium and/or vitamin D only <input type="radio"/> Yes, bisphosphonate (oral or IV) strontium, denosumab or teriparatide (with or without calcium and/or vitamin D) <input type="radio"/> Not known
Pre-operative medical assessment	Side of fracture
<input type="radio"/> No assessment conducted <input type="radio"/> Geriatrician / geriatric team <input type="radio"/> Physician / physician team <input type="radio"/> GP <input type="radio"/> Specialist nurse <input type="radio"/> Not known This is in addition to preoperative anaesthetic and orthopaedic review	<input type="radio"/> Left <input type="radio"/> Right If bilateral – complete a separate record for each fracture
Atypical fracture	Type of fracture
<input type="radio"/> Not a pathological or atypical fracture <input type="radio"/> Pathological fracture <input type="radio"/> Atypical fracture See data dictionary if uncertain of definitions	<input type="radio"/> Intracapsular – undisplaced / impacted <input type="radio"/> Intracapsular - displaced <input type="radio"/> Per / intertrochanteric <input type="radio"/> Subtrochanteric Note: Basal/basicervical #s are to be classed as per/intertrochanteric

Did the patient undergo surgery	Date & time of primary surgery
<input type="radio"/> Yes <input type="radio"/> No	____ / ____ / ____ : ____ hrs Record time using 24hr clock
Reason if delay > 48 hours	Anaesthesia
<input type="radio"/> No delay- surgery < 48 hrs <input type="radio"/> Yes, delayed due to patient deemed medically unfit <input type="radio"/> Yes, delayed due to issues with anticoagulation <input type="radio"/> Yes, delayed due to theatre availability <input type="radio"/> Yes, delayed due to surgeon availability <input type="radio"/> Other type of delay (state reason) <input type="radio"/> Not known Note: Delay is calculated from time of presentation to ED or diagnosis of hip fracture for those transferred from other hospital or in-patient fall	<input type="radio"/> General anaesthetic <input type="radio"/> Spinal / regional anaesthesia <input type="radio"/> Other – state <input type="radio"/> Not known
Analgesia (nerve block)	Consultant present during surgery
<input type="radio"/> Nerve block administered preoperative (before arriving in OT) <input type="radio"/> Nerve block administered in OT <input type="radio"/> Both <input type="radio"/> Neither <input type="radio"/> Not known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known
Operation Performed	Intra-operative Fracture
<input type="radio"/> Cannulated screws (e.g. multiple screws) <input type="radio"/> Sliding hip screw <input type="radio"/> Intramedullary nail – short <input type="radio"/> Intramedullary nail – long <input type="radio"/> Hemiarthroplasty – stem cemented <input type="radio"/> Hemiarthroplasty – stem uncemented <input type="radio"/> Total hip replacement – stem cemented <input type="radio"/> Total hip replacement – stem uncemented <input type="radio"/> Other <input type="radio"/> Not known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> No operation <input type="radio"/> Not known
Postoperative weight bearing status	First day mobilisation
<input type="radio"/> Unrestricted weight bearing <input type="radio"/> Restricted / non weight bearing <input type="radio"/> Not known	<input type="radio"/> Patient out of bed and given opportunity to start mobilising day 1 post surgery <input type="radio"/> Patient not given opportunity to start mobilising day 1 post surgery <input type="radio"/> Not known
New Pressure ulcers	
<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Not known Note: Grade 2 + above during acute admission	
Assessed by Geriatrician in acute phase of care	Date initially assessed by Geriatrician
<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No geriatric medicine service available <input type="radio"/> Not known	____ / ____ / ____
Specialist falls assessment	Bone protection medication at discharge from operating hospital
<input type="radio"/> No <input type="radio"/> Performed during admission <input type="radio"/> Awaits falls clinic assessment <input type="radio"/> Further intervention not appropriate <input type="radio"/> Not relevant <input type="radio"/> Not known	<input type="radio"/> No bone protection medication <input type="radio"/> Yes, calcium and/or vitamin D only <input type="radio"/> Yes, biphosphonate (oral or IV) strontium, denosumab or teriparatide (with or without calcium and/or vitamin D) <input type="radio"/> Not known
Date of discharge from acute / orthopaedic ward	Discharge destination from acute / orthopaedic ward
____ / ____ / ____	<input type="radio"/> Private residence (including retirement village) <input type="radio"/> Residential care facility <input type="radio"/> Rehabilitation unit - public <input type="radio"/> Rehabilitation unit - private <input type="radio"/> Other hospital / ward / speciality department <input type="radio"/> Deceased <input type="radio"/> Other <input type="radio"/> Not known
Date of final discharge from hospital system if known	Discharge destination from health system if known
____ / ____ / ____	<input type="radio"/> Private residence (including retirement village) <input type="radio"/> Residential aged care facility <input type="radio"/> Deceased <input type="radio"/> Other <input type="radio"/> Not known

FOLLOW UP

Follow Up Date	30 days ____/____/____	120 days ____/____/____
Alive at 30 / 120 days	<input type="radio"/> No <input type="radio"/> Yes If discharged from hospital, confirm date of final discharge from hospital system ____/____/____	<input type="radio"/> No <input type="radio"/> Yes If wasn't discharged at 30 day follow up, confirm date of final discharge from hospital system ____/____/____
Residential status	<input type="radio"/> Private residence (including unit in retirement village) <input type="radio"/> Residential aged care facility <input type="radio"/> Rehabilitation unit - public <input type="radio"/> Rehabilitation unit - private <input type="radio"/> Other hospital / ward / speciality department <input type="radio"/> Deceased <input type="radio"/> Other <input type="radio"/> Not known	<input type="radio"/> Private residence (including unit in retirement village) <input type="radio"/> Residential aged care facility <input type="radio"/> Rehabilitation unit - public <input type="radio"/> Rehabilitation unit - private <input type="radio"/> Other hospital / ward / speciality department <input type="radio"/> Deceased <input type="radio"/> Other <input type="radio"/> Not known
Weight bearing status	<input type="radio"/> Unrestricted weight bearing <input type="radio"/> Restricted / non weight bearing <input type="radio"/> Not known	<input type="radio"/> Unrestricted weight bearing <input type="radio"/> Restricted / non weight bearing <input type="radio"/> Not known
Walking Ability	<input type="radio"/> Usually walks without walking aids <input type="radio"/> Usually walks with a stick or crutch <input type="radio"/> Usually walks with two aids or frame <input type="radio"/> Usually uses a wheel chair/ bed bound <input type="radio"/> Not known	<input type="radio"/> Usually walks without walking aids <input type="radio"/> Usually walks with a stick or crutch <input type="radio"/> Usually walks with two aids or frame <input type="radio"/> Usually uses a wheel chair/ bed bound <input type="radio"/> Not known
Bone protection	<input type="radio"/> No bone protection medication <input type="radio"/> Yes - Calcium and/or vitamin D only <input type="radio"/> Yes - Bisphosphonate (oral or IV) strontium, denosumab or teriparatide (with or without calcium and/or vitamin D) <input type="radio"/> Not known	<input type="radio"/> No bone protection medication <input type="radio"/> Yes - Calcium and/or vitamin D only <input type="radio"/> Yes - Bisphosphonate (oral or IV) strontium, denosumab or teriparatide (with or without calcium and/or vitamin D) <input type="radio"/> Not known
Re-operation within 30 / 120 days	<input type="radio"/> No reoperation <input type="radio"/> Reduction of dislocated prosthesis <input type="radio"/> Washout or debridement <input type="radio"/> Implant removal <input type="radio"/> Revision of internal fixation <input type="radio"/> Conversion to Hemiarthroplasty <input type="radio"/> Conversion to THR <input type="radio"/> Girdlestone/excision arthroplasty <input type="radio"/> Surgery for periprosthetic fracture <input type="radio"/> Not relevant <input type="radio"/> Not known Note: Most significant procedure only	<input type="radio"/> No reoperation <input type="radio"/> Reduction of dislocated prosthesis <input type="radio"/> Washout or debridement <input type="radio"/> Implant removal <input type="radio"/> Revision of internal fixation <input type="radio"/> Conversion to Hemiarthroplasty <input type="radio"/> Conversion to THR <input type="radio"/> Girdlestone/excision arthroplasty <input type="radio"/> Surgery for periprosthetic fracture <input type="radio"/> Not relevant <input type="radio"/> Not known Note: Most significant procedure only

3. Facility Level Audit Form

Questions are answered for the previous calendar year.

Australian and New Zealand Hospitals Hip Fracture Facility Level Audit	Options
General Information	
Name of person completing the audit	
Role of person completing the audit:	Orthopaedic surgeon Geriatrician Nurse Allied Health Other
State (Aus) / LHB (NZ)	
Acute hospital name	
Is your hospital a designated major trauma Centre?	Yes / No
Estimated number of hip fractures in 2016 (January 2016 to December 2016 inclusive)	0-50 51-100 101-150 151-200 201-300 301-400 401+
Model of Care	
<p>*Orthogeriatric care involves a shared care arrangement of hip fracture patients between the specialties of orthopaedics and geriatric medicine. The geriatrician is involved in the pre-operative optimisation of the patient in preparation for surgery and then takes a lead in the post-operative medical care and coordinates the discharge planning process. Implicit in this role are many of the aspects of basic care including nutrition, hydration, pressure care, bowel and bladder management, and monitoring of cognition (ANZHFR Guideline 2014, p.68).</p>	
Was there a formal orthogeriatric* service in place in 2016?	Yes / No
Select the model of care that best describes the service provided for care of older hip fracture patients in your hospital.	<p>A shared care arrangement where there is joint responsibility for the patient from admission between orthopaedics and geriatric medicine for all older hip fracture patients.</p> <p>An orthogeriatric liaison service where geriatric medicine provides regular review of all older hip fracture patients (daily during working week)</p> <p>A medical liaison service where a general physician or GP provides regular review of all older hip fracture patients (daily during working week)</p> <p>An orthogeriatric liaison service where geriatric medicine provides intermittent review of all older hip fracture patients (2-3 times weekly)</p> <p>A medical liaison service where a general physician or GP provides intermittent review of hip fracture patients (2-3 times weekly)</p> <p>A geriatric service where a consult system</p>

	<p>determines which patients are reviewed i.e. referral on a needs basis</p> <p>A medical service where a consult system determines which patients are reviewed i.e. referral on a needs basis</p> <p>No formal service exists</p> <p>Other – describe</p>
Protocols and Processes	
For a suspected hip fracture, does your hospital have a protocol or pathway for access to CT / MRI for inconclusive plain imaging?	Yes / No
Do you have an agreed hip fracture pathway?	Yes – ED only Yes – whole acute journey No
Does your hospital have a VTE protocol?	Yes / No
Does your hospital have a protocol or pathway for pain in hip fracture patients?	Yes – ED only Yes – whole acute journey No
Does your hospital have a planned list / planned trauma list for hip fracture patients?	Yes / No
Are hip fracture patients routinely offered a choice of anaesthesia?	Always Frequently Rarely Never
Are hip fracture patients offered local nerve blocks as part of pain management prior to surgery?	Always Frequently Rarely Never
Are local nerve blocks used at the time of surgery to help with postoperative pain?	Always Frequently Rarely Never
Does your hospital offer hip fracture patients routine access to therapy services at weekends?	Yes – Physiotherapy only Yes – other No
Does your hospital routinely provide patients and/or family and carers with written information about treatment and care for a hip fracture?	Yes / No
Beyond the Acute Hospital Stay	
Access to in-patient rehabilitation	Onsite <input type="checkbox"/> Tick appropriate box Offsite <input type="checkbox"/> Both <input type="checkbox"/>
Does your hospital have access to an early supported home-based rehabilitation service (not the same as the Commonwealth funded transitional aged care program or community services)?	Yes / No
Does your service provide individualised written information to patients on discharge that includes recommendations for future falls and fracture prevention? (not the same as a copy of a discharge summary)	Yes / No

Does your service have access to a Falls Clinic (Public)	Yes / No
Does your service have access to an Osteoporosis Clinic (Public)	Yes / No
Does your service have access to a combined Falls and Bone Health Clinic (Public)	Yes / No
Does your service have access to an Orthopaedic Clinic (Public)	Yes / No
Do you have a Fracture Liaison Service, whereby there is systematic identification of fracture patients by a fracture liaison nurse/coordinator, with a view to onward referrals and management of osteoporosis?	Yes – hip fracture patients only Yes – all fracture patients (including hip) No
Other	
Does your hospital routinely collect hip fracture data?	Yes – ANZ Hip Fracture Registry Yes – local system No
If yes, Who collects it?	Orthopaedic surgeon Geriatrician Nurse Allied Health Other
Do you have any plans to alter any of your service provision for hip fracture patients over the next 12 months – if so please give details?	Yes / No Give details
Are there identified barriers to any proposed service redesign?	Yes / No Give details

TERMS AND ABBREVIATIONS

ACEM	Australasian College of Emergency Medicine
AFRM	Australasian Faculty of Rehabilitation Medicine
ANZ	Australia and New Zealand
ANZBMS	Australian and New Zealand Bone and Mineral Society
ANZCA	Australian and New Zealand College of Anaesthetists
ANZHFR	Australian and New Zealand Hip Fracture Registry
ANZONA	Australian New Zealand Orthopaedic Nurses Association
ANZSGM	Australian and New Zealand Society for Geriatric Medicine
AOA	Australian Orthopaedic Association
APA	Australian Physiotherapy Association
ASA	American Society of Anesthesiologists
AUS	Australia
CCU	Coronary Care Unit
CT	Computed Tomography
ED	Emergency Department
FLS	Fracture Liaison Service
GP	General Practitioner
HDU	High Dependency Unit
ICU	Intensive Care Unit
METeOR	Metadata Online Registry
MRI	Magnetic Resonance Imaging
NHFD	National Hip Fracture Database
NHMRC	National Health and Medical Research Council
NZ	New Zealand
NZOA	New Zealand Orthopaedic Association
OA	Osteoporosis Australia
ONZ	Osteoporosis New Zealand
OT	Operating Theatre
RACP	Royal Australasian College of Physicians
RACS	Royal Australasian College of Surgeons
VTE	Venous Thromboembolism
RACS	Royal Australasian College of Surgeons
VTE	Venous Thromboembolism

