

# 2018 ANNUAL REPORT



**ANZHF**

Australian & New Zealand Hip Fracture Registry



## Enhancing Outcomes for Older People

---

The ANZHFR would like to acknowledge and thank sincerely the clinical and administrative staff of the 56 hospitals that have contributed to the Patient Level Report and the 118 hospitals that contributed to the Facility Level Report. Without their support, dedication, and energy, this report would not be possible.

The ANZHFR receives funding and in-kind support from Neuroscience Research Australia, UNSW Sydney, the New Zealand Accident Compensation Corporation, Amgen Australia, the Australian Commission on Safety and Quality in Health Care, and Queensland Health.

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

**Report prepared on behalf of the ANZHFR Steering Group by:**

Ms Elizabeth Armstrong, AHFR Manager  
Professor Jacqueline Close, ANZHFR Co-Chair Geriatric Medicine  
Professor Ian Harris AM, ANZHFR Co-Chair Orthopaedics  
Mr Stewart Fleming, Webmaster

**Report Design:** patterntwo creative studio [www.patterntwo.com.au](http://www.patterntwo.com.au)

**Photography:** Craig Fardell, Elizabeth Armstrong, Harry Constantin, Jacqueline Close

**Suggested citation:** ANZHFR Bi-National Annual Report of Hip Fracture Care 2018. Australian and New Zealand Hip Fracture Registry, August 2018.

ISBN-13: 978-0-7334-3824-0



**NeuRA**

*Discover. Conquer. Cure.*



## CONTENTS

### **4 CO-CHAIRS FOREWORD**

### **6 EXECUTIVE SUMMARY**

### **8 INTRODUCTION**

### **10 HIP FRACTURE CARE CLINICAL CARE STANDARD**

Quality Statement 1: Care at presentation

Quality Statement 2: Pain management

Quality Statement 3: Orthogeriatric model of care

Quality Statement 4: Timing of surgery

Quality Statement 5: Mobilisation and weight-bearing

Quality Statement 6: Minimising risk of another fracture

Quality Statement 7: Transition from hospital care

### **12 PARTICIPATION**

Patient Level Audit

Facility Level Audit

### **15 ANZHFR PATIENT LEVEL AUDIT**

16 Data Caveats and Completeness

19 Section 1: Demographic information

26 Section 2: Care at presentation

34 Section 3: Surgery and operative care

49 Section 4: Postoperative care

61 Section 5: 30 and 120 day follow-up

### **77 ANZHFR FACILITY LEVEL AUDIT**

78 Results 1: General information

79 Results 2: Model of care

80 Results 3: Protocols and elements of care

84 Results 4: Beyond the acute hospital stay

### **86 APPENDICES**

86 Appendix 1: ANZHFR Steering Group

87 Appendix 2: List of abbreviations



# CO-CHAIRS FOREWORD



Welcome to our third patient level and sixth facility level report. Over the past year we have continued to see additional sites join and contribute data to the Registry. The facility level report contains information from all 116 public hospitals across Australia and New Zealand that operate on people with a hip fracture. We welcome the addition of two private hospitals that have joined us in 2017. The report also contains data from 56 hospitals contributing patient level data, a figure that has risen from 34 hospitals in the previous year and continues to increase. We now have over 20,000 data-sets in the Registry and opportunities exist to explore this data in more detail.

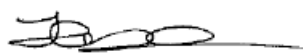
For the first time we are identifying hospitals. New Zealand has elected to publish the names of all hospitals entering patient level data, whilst Australia is identifying hospitals where individual site level approval has been obtained. Pleasingly, 83% of Australian hospitals agreed to be identified in this report. Our hope is that more clinicians of all professions will see their own data and use the data to drive change at a local level. Equally we want teams to share their successes and learnings with other Registry sites. What remains apparent is the marked variation in a number of the process measures, including indicators, which have a real impact for the patient: assessment and management of pain, time to surgery and secondary fracture prevention.

It is important that the Registry evolves over time from being a quality assurance activity (provision of data) to something that drives change (quality improvement). This year we asked some additional questions of the data around access to rehabilitation services for people living in residential aged care facilities, and those with a pre-existing cognitive impairment. There is huge variation in practice across hospitals in both these areas. We cannot comment on whether the variation in practice ultimately leads to different outcomes for these individuals but this is worthy of further evaluation. The Registry provides an ideal test bed to explore such questions in more detail.

In Australia, we were fortunate enough to secure some funding from states and commonwealth governments in 2018/19 and this provides the opportunity to work more closely with sites. It is apparent from talking to sites that there is a huge amount of good work happening and the ability to share and celebrate the successes is limited. We plan to set up a series of state-level hip fracture “festivals” designed to promote good practice, learn from each other and share great ideas. We will also continue to enhance the utility of both the website and the Registry, so as to continuously provide users with information that is timely and relevant to them. We welcome feedback and plan to continue our teleconference sessions with sites to create a peer network that allows users to ask questions about data entry and data definitions, and share solutions to identified issues.

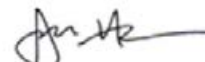
Collaboration with states in Australia, and at national level in New Zealand, remains important as much of the quality improvement activity is generated and driven at this level. This year we have produced a state and territory level supplementary report that allows jurisdictions to compare performance against the Hip Fracture Care Clinical Care Standard. Collection and reporting of data in a consistent manner across all states and territories provides the opportunity for meaningful comparison of performance. We will continue to explore mechanisms for embedding the minimum dataset within existing medical records on both sides of the Tasman, although this is not without its challenges.

Finally, a huge thanks to all those who have provided data for the facility level and/or patient level reports. We are aware of the challenges in collecting data and the time commitment of the busy clinicians who have been diligently entering data into the Registry. We hope that this report stimulates action to drive change and that these efforts will reap dividends for patients. We will continue to engage with hospitals not currently entering data with the intent in the near future of achieving 100% coverage of all public hospitals in Australia and New Zealand operating on people with a hip fracture.



**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 ANZHFR is a bi-national audit of hip fracture care and secondary fracture prevention in Australia and New Zealand. Its objective is to use patient level and facility level data to enable improvements to hip fracture care across both countries. This is the third report of patient level data and the sixth report of facility level data. For the first time, the patient level report uses hospital identifiers.

The steps required to achieve improvement in hip fracture care were clear from the outset. A Bi-National Guideline for Hip Fracture Care, a Hip Fracture Care Clinical Care Standard, and the Registry as a mechanism for tracking performance and driving change. The ANZHFR standardised dataset is aligned to the Hip Fracture Care Clinical Care Standard and data is collected and submitted by hospitals across Australia and New Zealand. The data are used to generate real-time feedback that contributors can use to review the hip fracture care they provide.

In September 2016, the Australian Commission on Safety and Quality in Health Care launched the Hip Fracture Care Clinical Care Standard and its accompanying resources. Importantly, the Hip Fracture Care Clinical Care Standard has been adopted by the Health Quality & Safety Commission New Zealand and this continues the bi-national collaboration commenced in 2012 to improve hip fracture care and secondary fracture prevention on both sides of the Tasman.

The Registry evaluates care against the Hip Fracture Care Clinical Care Standard and its seven quality statements: care at presentation; pain management; orthogeriatric model of care; timing of surgery; mobilisation and weight-bearing; minimising the risk of another fracture; and transition from hospital care. Over the three years of reporting, there is evidence of improvement in some aspects of hip fracture care however variation is evident and this provides a number of opportunities for quality improvement initiatives.

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 elements of hip fracture care, the facility level audit. For this report, patient level data was contributed from 56 hospitals: 15 New Zealand hospitals and 41 Australian hospitals; and facility level information was provided by 118 hospitals, two of which are private hospitals. 9408 records were contributed for the 2017 calendar year and have been used in this report: 7117 from Australia and 2291 from New Zealand.

Key findings this year include:

- Only one in five patients in New Zealand (20%) and a little more than one in three patients in Australia (36%) had a documented assessment of cognition prior to surgery
- 50% and 54% of patients in New Zealand and Australia, respectively, have a documented assessment of pain within 30 minutes of presentation to the emergency department
- The use of nerve blocks for the management of pain is showing steady improvement in both countries. In New Zealand, 61% of patients have a nerve block for the management of pain compared with 58% in 2017 and 51% in 2016. In Australia, 84% of patients have a nerve block for the management of pain, compared with 80% in 2017 and 59% in 2016.
- 40% of hospitals reported access to a planned operating theatre list or planned trauma list for hip fracture patients, unchanged over the six years of the facility level audit
- 54 hours is the average time patients are waiting for surgery if transferred to another hospital for their operation
- Fewer than one in ten patients are on active treatment for osteoporosis on admission and fewer than one in four have commenced active osteoporosis treatment prior to discharge from the operating hospital

Again this year, 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. For the first time, the Registry has highlighted variation in access to rehabilitation for people admitted to hospital from a residential aged care facility, or who have a cognitive impairment.

Rates of follow-up continue to be variable and numbers are low for some sites so the picture of recovery after hip fracture remains incomplete. There is work to be done on expanding coverage of the Registry and improving the rate of follow-up at 30 and 120 days, especially in Australia. Data is a powerful tool for driving change when that data is credible, accessible and provided in a manner that is both timely and meaningful. Reports like this provide a snapshot in time, and sites are encouraged to use the Registry on a regular basis to evaluate the hip fracture care provided.

# PATIENT LEVEL REPORT

53%

had a documented pain assessment within 30 min of arriving at ED

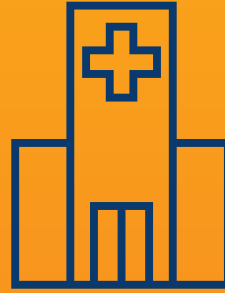


8%

were on active treatment for osteoporosis on admission

56

ANZ  
HOSPITALS



25%

of patients were on active treatment for osteoporosis on discharge



9,408  
RECORDS

78%

had a nerve block to manage pain before and/or after surgery



30 hours is the time to surgery unless a person is transferred and then it is 54 hours



32%



had a preoperative assessment of cognition

# FACILITY LEVEL DATA



118  
HOSPITALS

40%

of hospitals had access to planned operating lists for hip fracture patients



24%

of hospitals routinely provided individualised written information on prevention of future falls and fractures



56%

of hospitals reported having a pain protocol for hip fracture patients



# INTRODUCTION



Hip fracture is a common and serious injury of older people. Almost everyone who breaks their hip will be admitted to hospital and nearly all will have a surgical procedure. The consequences are significant. Health and social care systems bear considerable costs associated with the acute treatment, the ongoing costs of rehabilitation, assistance with day-to-day living activities, and the impact of long-term care placement. For individuals, a hip fracture impacts mobility and function, where they live, and even their survival. Yet research shows that effective and efficient hip fracture care and secondary fracture prevention are 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.

The Australian and New Zealand Hip Fracture Registry (ANZHFR) was established in 2015 with the goal of using data to improve hip fracture care, and ultimately, to improve outcomes for older people who fracture their hip. The patient-level and facility-level data collected by the ANZHFR are not easily captured in existing administrative data sets and are specifically focussed on measuring care against the Australian and New Zealand Guideline for Hip Fracture Care<sup>1</sup> and the Australian Commission on Safety and Quality in Health Care (ACSQHC) Hip Fracture Care Clinical Care Standard<sup>2</sup>. The Standard was developed in collaboration with the Health Quality & Safety Commission New Zealand and it 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 ANZHFR 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 elements of hip fracture care, the facility level audit. Both data collections allow progress to be mapped over time and should be used to drive change and inform ongoing improvements in the delivery of hip fracture care. Patient level data is used to generate real-time feedback to sites and there are plans to include the facility level audit in the database, but at the moment this function is not yet available.

Coverage is steadily increasing and this year, the third year of bi-national patient level reporting, data from 56 Australian and New Zealand hospitals is included. This represents a steady increase from 34 hospitals reported in 2017 and 25 hospitals in 2016, the first year of patient level reporting. Hospitals across both countries have provided facility level data for six years.

## PATIENT LEVEL REPORT

Public and private hospitals in Australia and New Zealand are eligible to participate if they provide definitive 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.



Hospitals looking to participate can contact the ANZHFR on [clinical@anzhfr.org](mailto:clinical@anzhfr.org) and they will be assisted through the ethics and governance approval process. Patients are able to opt-out of the Registry at any time.

At December 2017, 77 hospitals in Australia and New Zealand had approvals in place to collect and submit data to the ANZHFR, although not all hospitals had implemented data collection in time to be included in this report. This represents 65% of public hospitals in Australia and New Zealand identified as undertaking definitive treatment of hip fracture patients. This year, two private hospitals are included in the patient level report. Since patient level data collection commenced in 2015, 23 330 records have been created in the Registry: 18 424 Australian records and 4 906 New Zealand records.

For the first time, hospitals are identified in this report with a three-letter code used consistently throughout the report. New Zealand determined that all hospitals included in the patient level report would be identified. In Australia, individual sites were contacted and asked to opt-in to identified-reporting, and 34 of 41 hospitals agreed. Seven Australian hospitals not identified this year have been randomly allocated a number, also used consistently throughout, and the number has been provided to the local Principal Investigator.

In this report, the patient level audit has been divided into the following sections:

- Demographic Information
- Care at Presentation
- Surgery and Operative Care
- Postoperative Care
- 30 and 120 Day Follow-up

## FACILITY LEVEL AUDIT

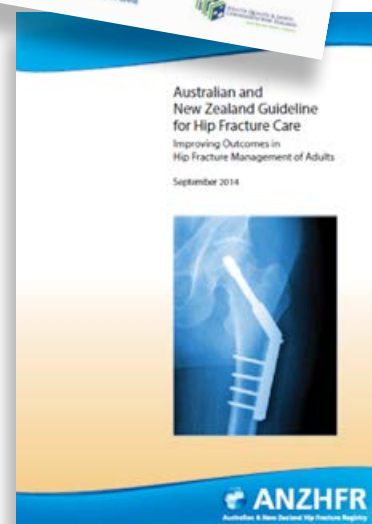
The aim of the facility level audit is to document and monitor over time the services, protocols and practices that exist across Australia and New Zealand in relation to hip fracture care. The first facility level audit was completed in 2013 and the audit has since been undertaken annually. Public hospitals identified as providing definitive management of hip fractures are invited to complete the survey, as are private hospitals participating in the Registry. The questions have been designed to enable comparison of services and protocols within and between States and Territories in Australia, and New Zealand. The 2018 snapshot of care is the sixth year of the audit and year-on-year results are published in this report.

In this report, the facility level audit has been divided into the following sections:

- General Information
- Model of Care
- Protocols and Elements of Care
- Beyond the Acute Hospital Stay

## REFERENCES

1. 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](http://www.anzhfr.org)
2. 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/>



# HIP FRACTURE CARE CLINICAL CARE STANDARD

The Hip Fracture Care Clinical Care Standard was developed by the Australian Commission on Safety and Quality in Health Care in collaboration with consumers, clinicians, researchers and health organisations. Its goal is to improve the assessment and management of patients with a hip fracture to optimise outcomes and reduce their risk of another fracture. The Clinical Care Standard includes seven 'quality statements' (shown below) that describe the clinical care that a patient should be offered to support the delivery of evidence-based high-quality care.

## 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.

- 78% of hospitals reported having a hip fracture pathway: 56% across the whole acute patient journey and 22% in the emergency department only
- 55% of hospitals reported the presence of a protocol for Computed Tomography (CT) / Magnetic Resonance Imaging (MRI) if plain imaging of a suspected hip fracture is inconclusive
- 59% of patients in both New Zealand and Australia are documented as having no cognitive issues prior to admission
- 20% and 36% of patients in New Zealand and Australia, respectively, have a documented assessment of cognition using a validated tool prior to surgery

## 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.

- 56% of hospitals responded that they had a pathway for pain management in hip fracture patients: 32% across the whole acute patient journey and 24% in the emergency department only
- 50% and 54% of patients in New Zealand and Australia, respectively, have a documented assessment of pain within 30 minutes of presentation to the emergency department
- 38% and 46% of patients in New Zealand and Australia, respectively, are receiving analgesia in transit or within 30 minutes of presentation to the emergency department
- 36% and 66% of patients in New Zealand and Australia, respectively, receive a nerve block before surgery

## 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.

- 55% of hospitals reported an orthogeriatric service for older hip fracture patients: 32% utilising a daily geriatric medicine liaison service; 23% utilising a shared-care arrangement with orthopaedics
- 24% and 63% of patients in New Zealand and Australia, respectively, are assessed by a geriatrician prior to surgery

#### 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.

- 80% and 77% of patients in New Zealand and Australia, respectively, are reported as being operated on within 48 hours of presentation to hospital
- 54 hours is the average time to surgery in both countries for patients transferred to the operating hospital from another 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.

- 87% and 89% of patients in New Zealand and Australia, respectively, are offered the opportunity to mobilise on the first day after surgery
- 93% and 96% of patients in New Zealand and Australia, respectively, 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
- 52% of patients were followed up at 120 days after presentation: of those followed up, 23% and 26% 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.

- 74% and 81% of patients in New Zealand and Australia, respectively, had undergone a fall-risk assessment during their inpatient stay
- 25% and 24% of patients in New Zealand and Australia, respectively, were receiving bone protection medication at discharge from hospital
- At 120 days after presentation, 38% and 30% of patients in New Zealand and Australia, respectively, were receiving bone protection medication

#### 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.

- 5% and 28% of hospitals in New Zealand and Australia, respectively, 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 who lived at home prior to injury and followed up at 120 days after presentation, 76% and 71% of patients in New Zealand and Australia, respectively, have returned to their own home at 120 days

# PARTICIPATION

## PATIENT LEVEL AUDIT

### AUSTRALIAN HOSPITALS

	REPORT ID	N		REPORT ID	N
Austin Hospital	NUMBER	187	Mater Hospital South Brisbane	MSB	91
Bankstown Lidcombe Hospital	BKL	166	Nambour Hospital	NBR	29
Blacktown Hospital	NUMBER	124	Nepean Hospital	NUMBER	220
Box Hill Hospital	BOX	253	Prince Charles Hospital	PCH	321
Cairns Hospital	CNS	180	Prince of Wales Hospital	POW	171
Campbelltown Hospital	-	-	Princess Alexandra Hospital	PAH	162
Coffs Harbour Hospital	CFS	28	Qeii Hospital	QII	35
Concord Hospital	CRG	110	Rockhampton Hospital	ROK	41
Dandenong Hospital	DDH	339	Royal North Shore Hospital	RNS	163
Fiona Stanley Hospital	FSH	539	Royal Prince Alfred Hospital	NUMBER	105
Flinders Medical Centre	NUMBER	167	Sir Charles Gairdner Hospital	SCG	250
Footscray Hospital	FOO	136	St George Hospital	STG	217
Frankston Hospital	FRA	133	St Vincent's Hospital Darlinghurst	NUMBER	99
Gosford Hospital	GOS	90	Sunshine Coast University Hospital	SCU	121
Ipswich Hospital	IPS	110	Tamworth Hospital	TAM	32
John Hunter Hospital	JHH	395	The Northern Hospital	TNH	189
Joondalup Hospital	NUMBER	173	The Sutherland Hospital	TSH	90
Launceston Hospital	LGH	122	Toowoomba Hospital	TWB	175
Liverpool Hospital	LIV	267	Townsville Hospital	TSV	195
Logan Hospital	LOG	109	Westmead Hospital	WMD	229
Lyell Mcewin Hospital	LMH	200	Wollongong Hospital	TWH	354

### NEW ZEALAND HOSPITALS

	REPORT ID	N		REPORT ID	N
Auckland City Hospital	ACH	238	Southland Hospital	INV	70
Christchurch Hospital	CHC	386	Tauranga Hospital	TGA	185
Dunedin Hospital	DUN	131	Waikato Hospital	WKO	169
Hawkes Bay Hospital	HKB	35	Wellington Hospital	WLG	170
Hutt Valley Hospital	HUT	91	Whakatane Hospital	WHK	21
Middlemore Hospital	MMH	255	Whanganui Hospital	WAG	35
North Shore Hospital	NSH	361	Whangarei Hospital	WRE	133
Rotorua Hospital	ROT	11			



# FACILITY LEVEL AUDIT

## New Zealand Hospitals

Auckland City Hospital  
Christchurch Hospital  
Dunedin Hospital  
Gisborne Hospital  
Grey Base Hospital  
Hawkes Bay Hospital

Hutt Hospital  
Rotorua Hospital  
Middlemore Hospital  
Nelson Hospital  
North Shore Hospital  
Palmerston North Hospital

Southland Hospital  
Taranaki Base Hospital  
Tauranga Hospital  
Timaru Hospital  
Waikato Hospital  
Wairarapa Hospital

Wairau Hospital  
Wanganui Hospital  
Wellington Regional Hospital  
Whakatane Hospital  
Whangarei Base Hospital

## Australian Hospitals

### NEW SOUTH WALES

Armidale Hospital  
Bankstown Lidcombe Hospital  
Bathurst Hospital  
Blacktown Hospital  
Bowral Hospital  
Campbelltown Hospital  
Canterbury Hospital  
Coffs Harbour Hospital  
Concord Hospital  
Dubbo Hospital  
Gosford Hospital  
Goulburn Base Hospital  
Grafton Base Hospital  
Hornsby Ku-ring-gai Hospital  
John Hunter Hospital  
Lismore Hospital  
Liverpool Hospital  
Maitland Hospital  
Manly Hospital  
Manning Hospital  
Mona Vale Hospital  
Nepean Hospital  
Orange Health Service  
Port Macquarie Hospital  
Prince of Wales Hospital  
Royal North Shore Hospital  
Royal Prince Alfred Hospital  
Ryde Hospital  
Shoalhaven Hospital  
South East Regional Hospital (Bega)  
St George Hospital  
St Vincent's Hospital  
Darlinghurst  
Sutherland Hospital

Tamworth Hospital  
The Tweed Hospital  
Wollongong Hospital  
Wagga Wagga Rural Referral Hospital  
Westmead Hospital  
Wollongong Hospital

### VICTORIA

Albury Wodonga Health  
Austin Hospital  
Ballarat Health Services  
Bendigo Hospital  
Box Hill Hospital  
Dandenong Hospital  
Frankston Hospital  
Goulburn Valley Health (Shepparton)  
Latrobe Regional Hospital  
Maroondah Hospital  
Mildura Base Hospital  
Northeast Health Wangaratta  
Royal Melbourne Hospital  
Sandringham Hospital  
South West Healthcare (Warrnambool)  
St Vincent's Hospital  
The Alfred  
The Northern Hospital  
University Hospital Geelong  
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  
Logan Hospital  
Mackay Base Hospital  
Mater Hospital South Brisbane  
Nambour General Hospital  
Princess Alexandra Hospital  
QEII Jubilee Hospital  
Redcliffe Hospital  
Robina Hospital  
Rockhampton Hospital  
Sunshine Coast University Hospital  
The Prince Charles Hospital  
The Townsville Hospital  
Toowoomba Hospital

### SOUTH AUSTRALIA

Flinders Medical Centre  
Lyell McEwin Hospital  
Mount Gambier and Districts Health Service  
Royal Adelaide Hospital  
The Queen Elizabeth Hospital

### WESTERN AUSTRALIA

Albany Hospital  
Fiona Stanley Hospital  
Geraldton Hospital  
Joondalup Health Campus  
Royal Perth Hospital  
Sir Charles Gairdner Hospital  
South West Health Campus (Bunbury)

### TASMANIA

Launceston General Hospital  
North West Regional Hospital  
Royal Hobart Hospital

### NORTHERN TERRITORY

Royal Darwin Hospital  
Alice Springs Hospital

### AUSTRALIAN CAPITAL TERRITORY

The Canberra Hospital

R





# PATIENT LEVEL AUDIT

# DATA CAVEATS AND COMPLETENESS

**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 automated and manual data completeness checks for each record. When logged into the Registry users can view the percentage of variables complete per record. Figure 1 shows the average completeness of data for each participating hospital.

**Correctness** refers to the accuracy of the data entered into each individual data field. The ANZHFR utilises data validation rules and inbuilt date/time sequence checks to ensure the integrity of its data variables. In 2017, a pilot project was undertaken to determine a consistent process for checking data quality and the findings will be used to develop a process that sites can use to ensure reliable data is held by the Registry.

**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. This may affect the generalisability of the findings.

This patient level report includes data from 56 of 118 hospitals. This year, 9408 records were contributed for the 2017 calendar year: 7117 from Australia and 2291 from New Zealand. One hospital reported in 2017 did not contribute the requisite ten records to be included in 2018. Of the 9408 records created in 2017, 4887 (52%) included 120-day follow-up data. The rate of 120-day follow up in Australia was 43% (3050 records of 7117) and in New Zealand was 80% (1837 records of 2291).

The figures provided in this report have the following caveats:

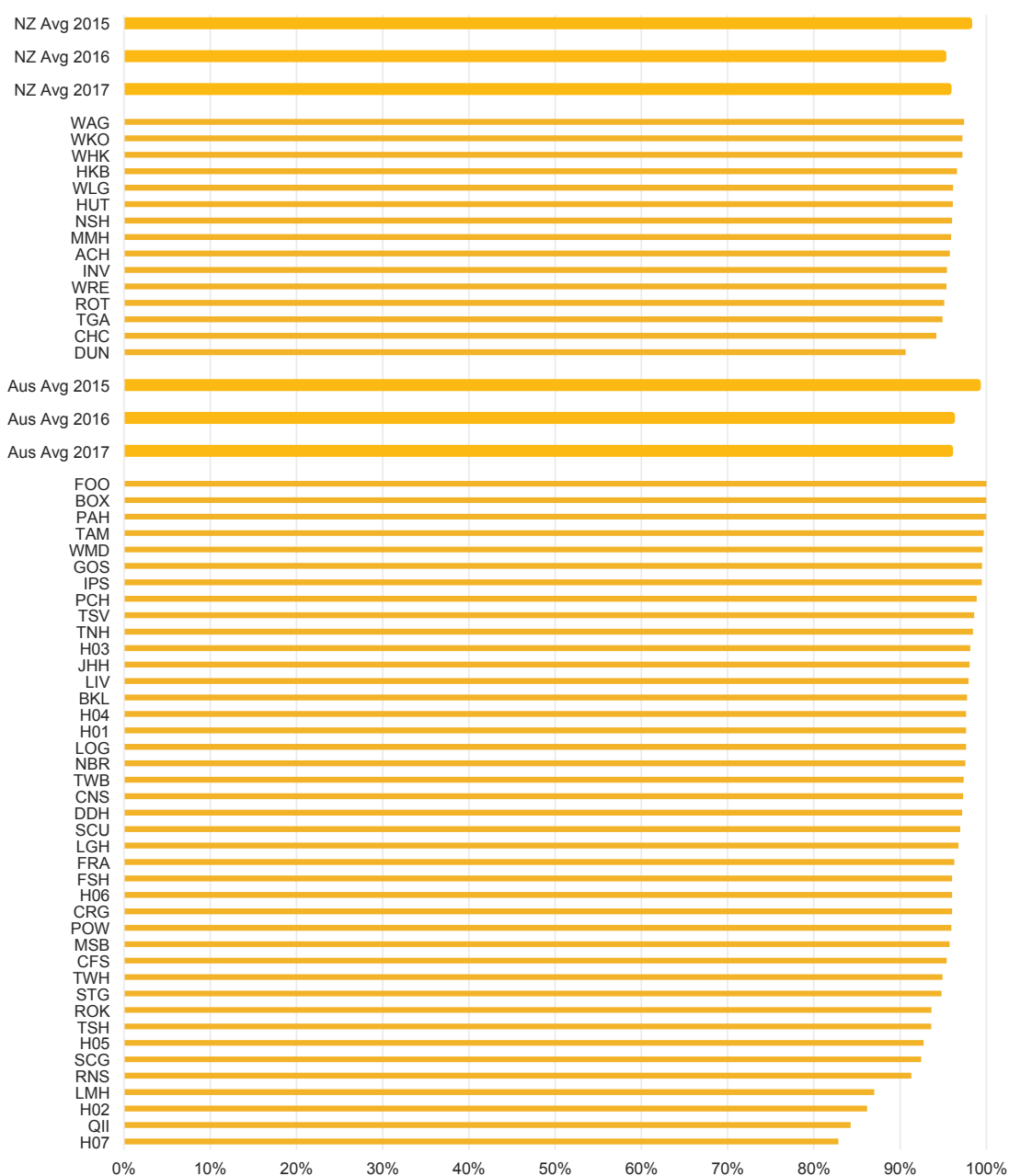
- Figures in this report include data from Australia and New Zealand for all patients with an Emergency Department Arrival or an In Hospital Fracture or a Transfer Date in the range of the 1st January 2017 up to and including 31st December 2017
- Hospitals must have contributed more than nine patient records during the relevant calendar year for inclusion in the patient level report
- Hospitals are identified using a hospital code. New Zealand has elected to identify all hospitals and in Australia, individual hospital executives and the local principal investigator have elected to opt-in to identified reporting
- Where hospital teams have not elected to opt-in to identified reporting, a randomly assigned number has been used consistently throughout this report. 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
- For 30 and 120 day outcomes, hospitals have only been reported if they have 80% or more of the patient's followed up
- Where the figure was included in a previous year the averages from all years have been included for comparison

The facility level report includes aggregated data only: responses were received from 118 hospitals, including two private hospitals.



## FIGURE 1 DATA COMPLETENESS

Figure 1 shows the average completeness of all 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.





**"I would encourage all hospitals that care for hip fracture patients to join the ANZHFR. Together we can optimise the care of patients with this fracture, as I'm sure you all know of someone who has sustained a fractured hip. It will also be beneficial to many of us, personally, to our own future health."**

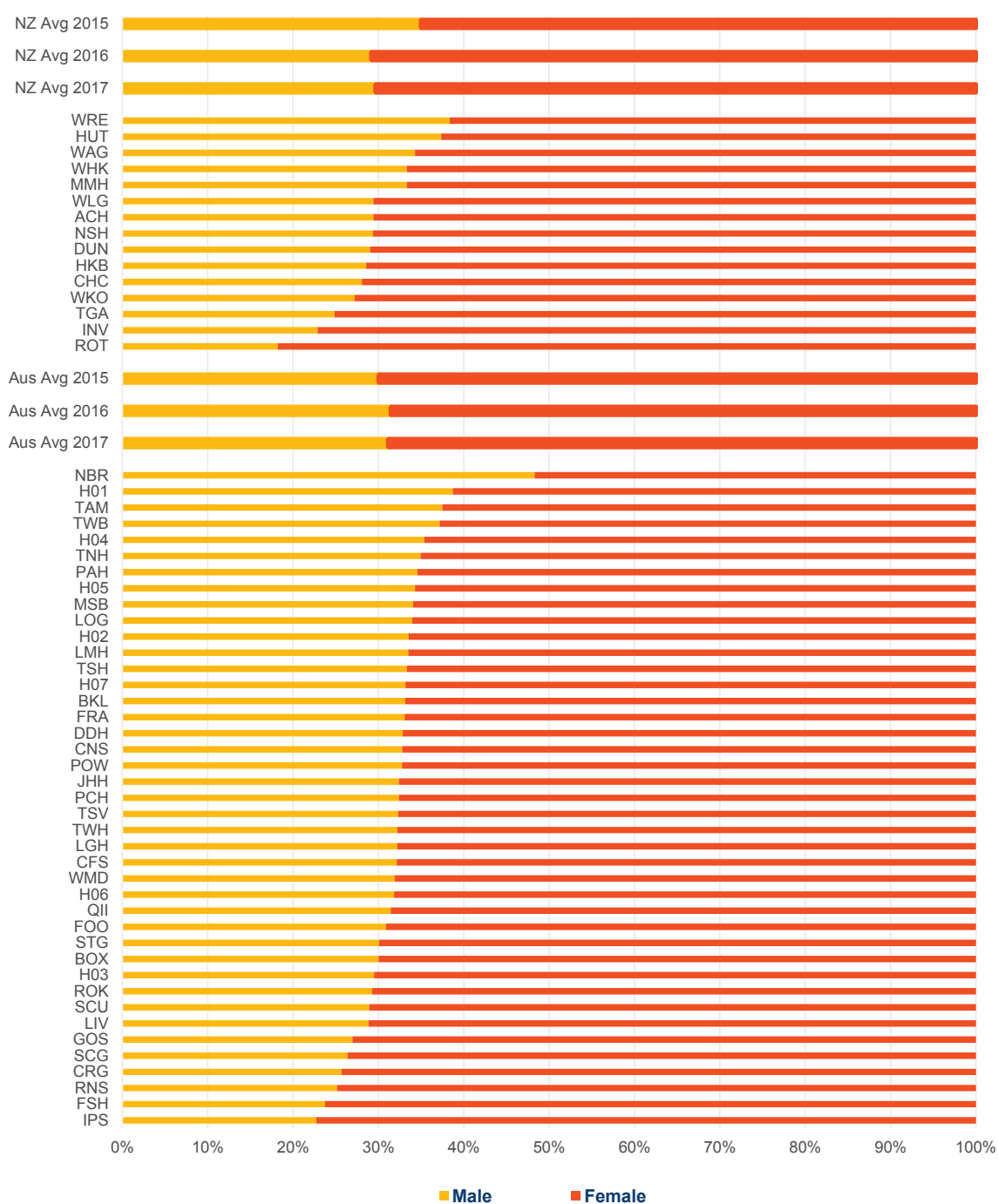
**Orthopaedic Clinical Nurse Consultant, Australia**

---

# SECTION I: DEMOGRAPHIC INFORMATION

**FIGURE 2 SEX**

Females comprised 70% and 69% of the New Zealand and Australian hip fracture patients in 2017, respectively. The make-up of the population varies between hospitals.



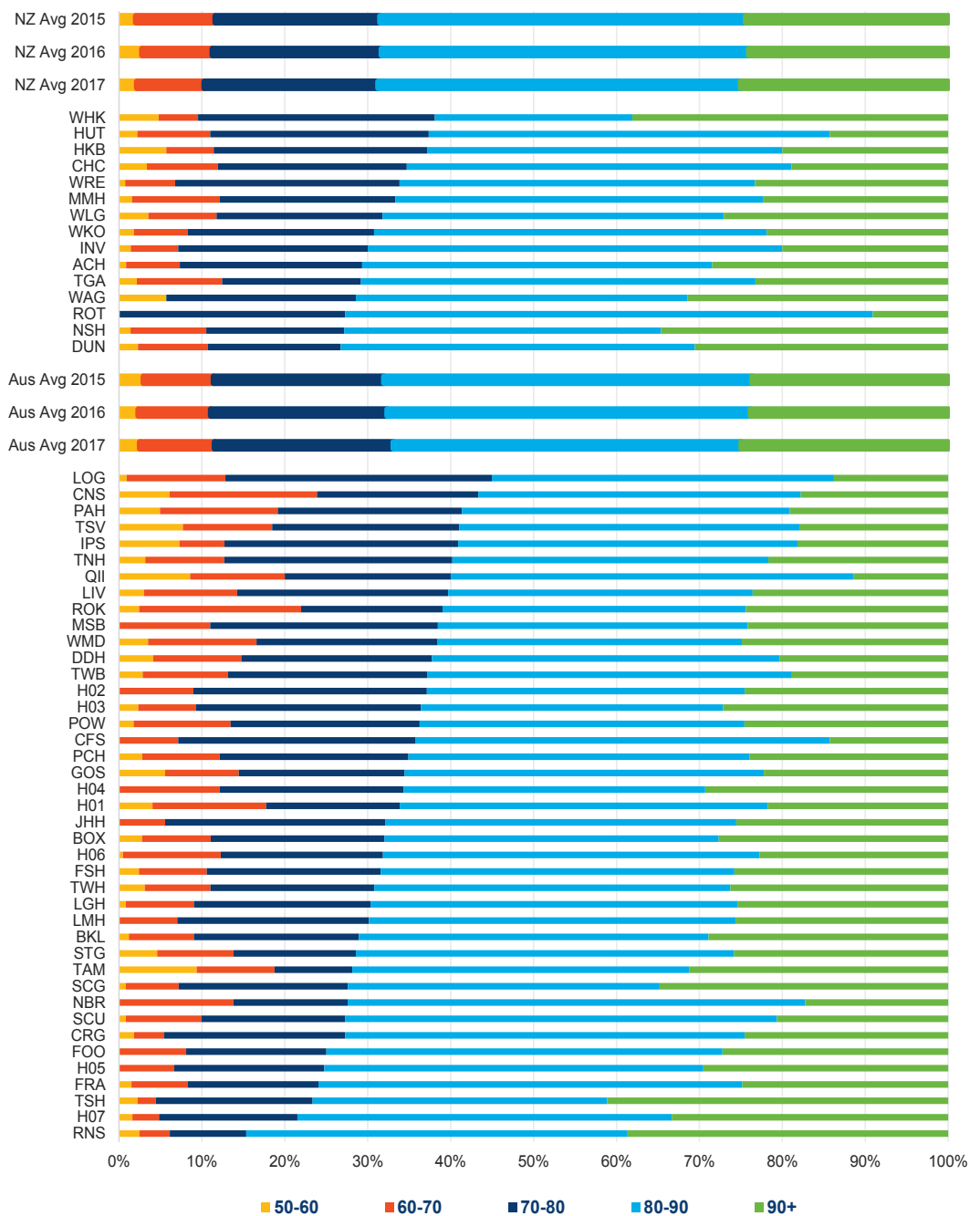


25%  
of hip fracture  
patients are 90  
years and older



**FIGURE 3 AGE AT ADMISSION**

The average age of hip fracture patients is 84 years in both New Zealand and Australia. The median age of males is 84 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 25% of hip fracture patients in both Australia and New Zealand.

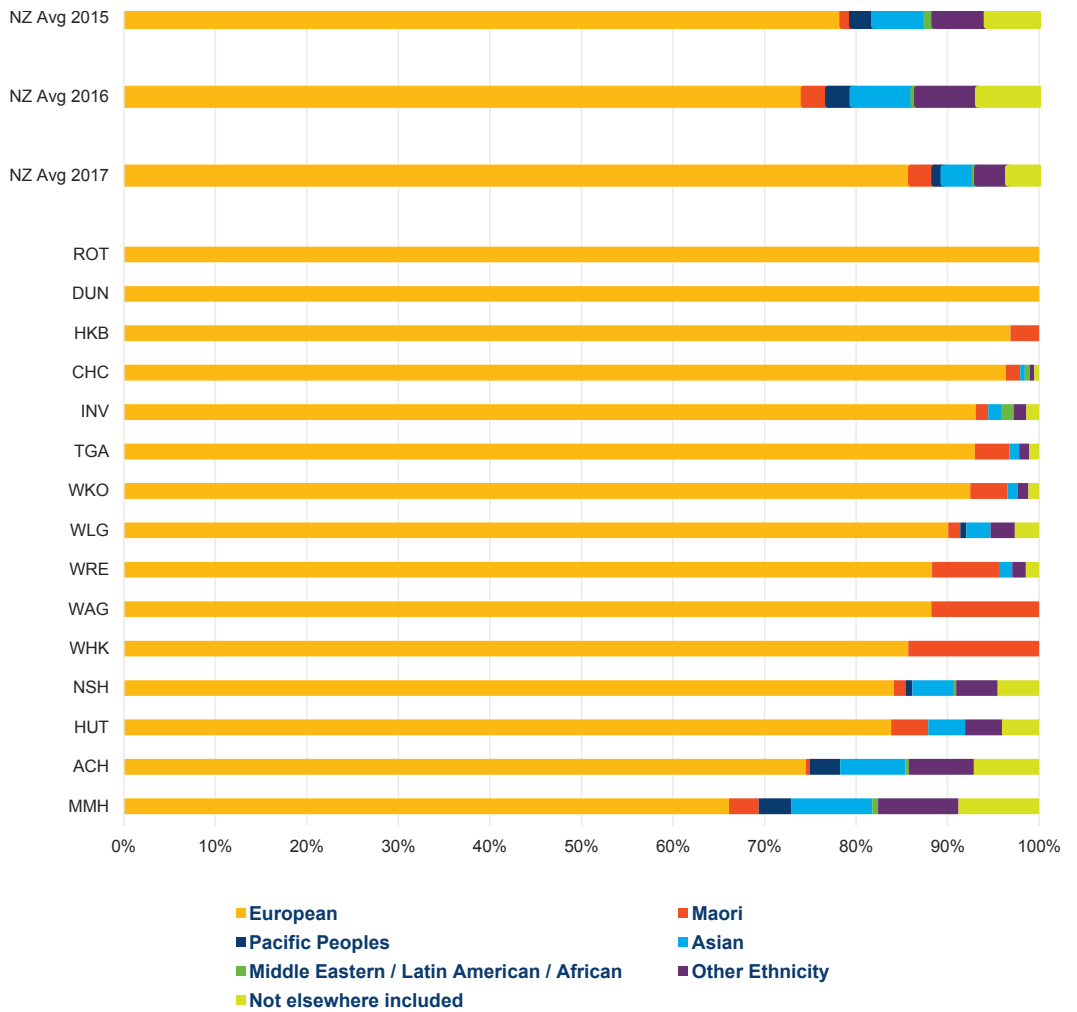






### FIGURE 4 NEW ZEALAND ETHNICITY

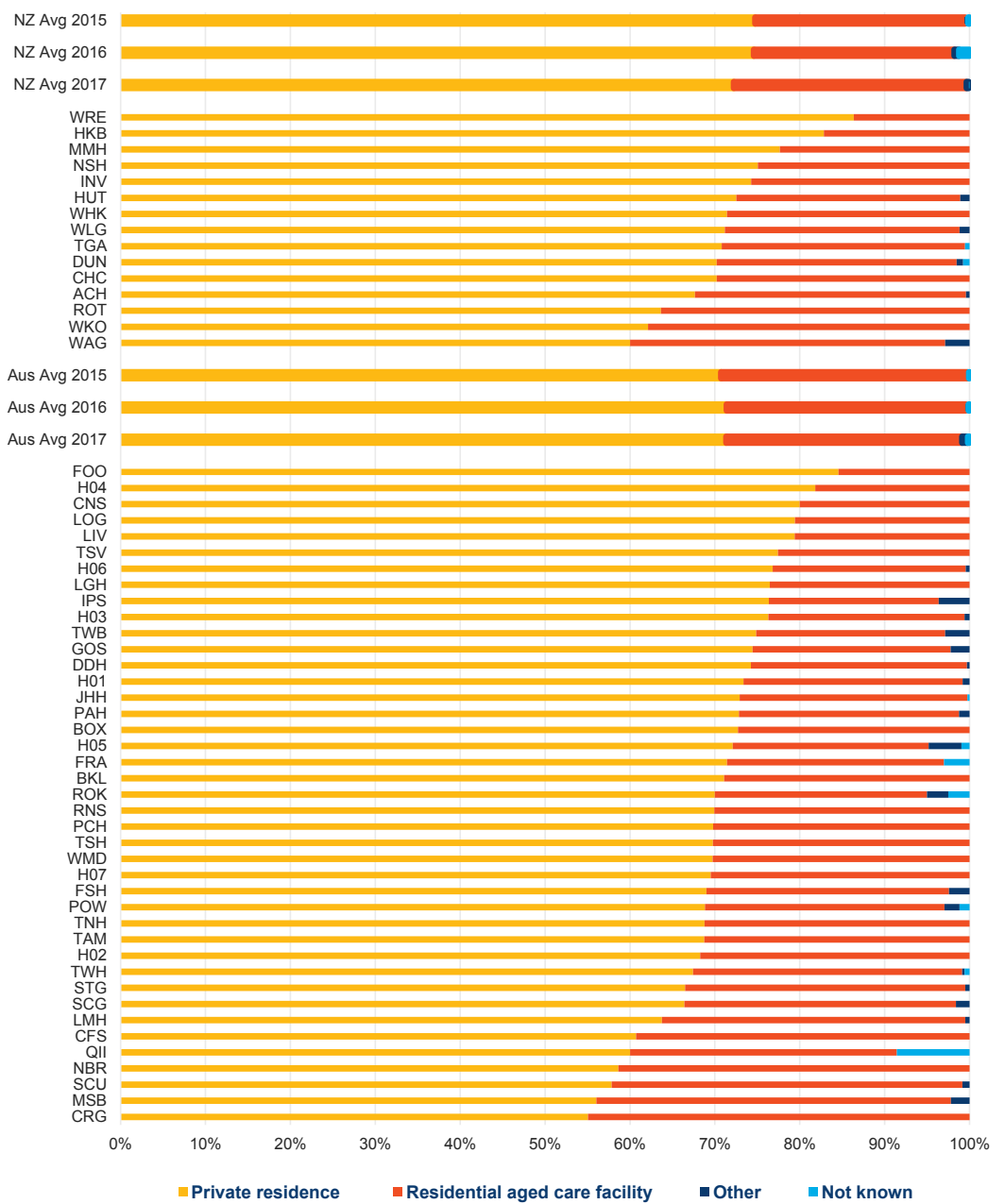
Indigenous populations constituted less than 1% of the Australian reported data. Maori and Pacific Peoples made up 3.6% of the New Zealand reported data. The majority of New Zealand hip fracture patients report being of European origin. Equivalent data were not collected in Australia. Accuracy in reporting of Indigenous status is known to be variable.





### FIGURE 5 USUAL PLACE OF RESIDENCE

The majority of people admitted to hospital with a hip fracture live at home: 72% 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.



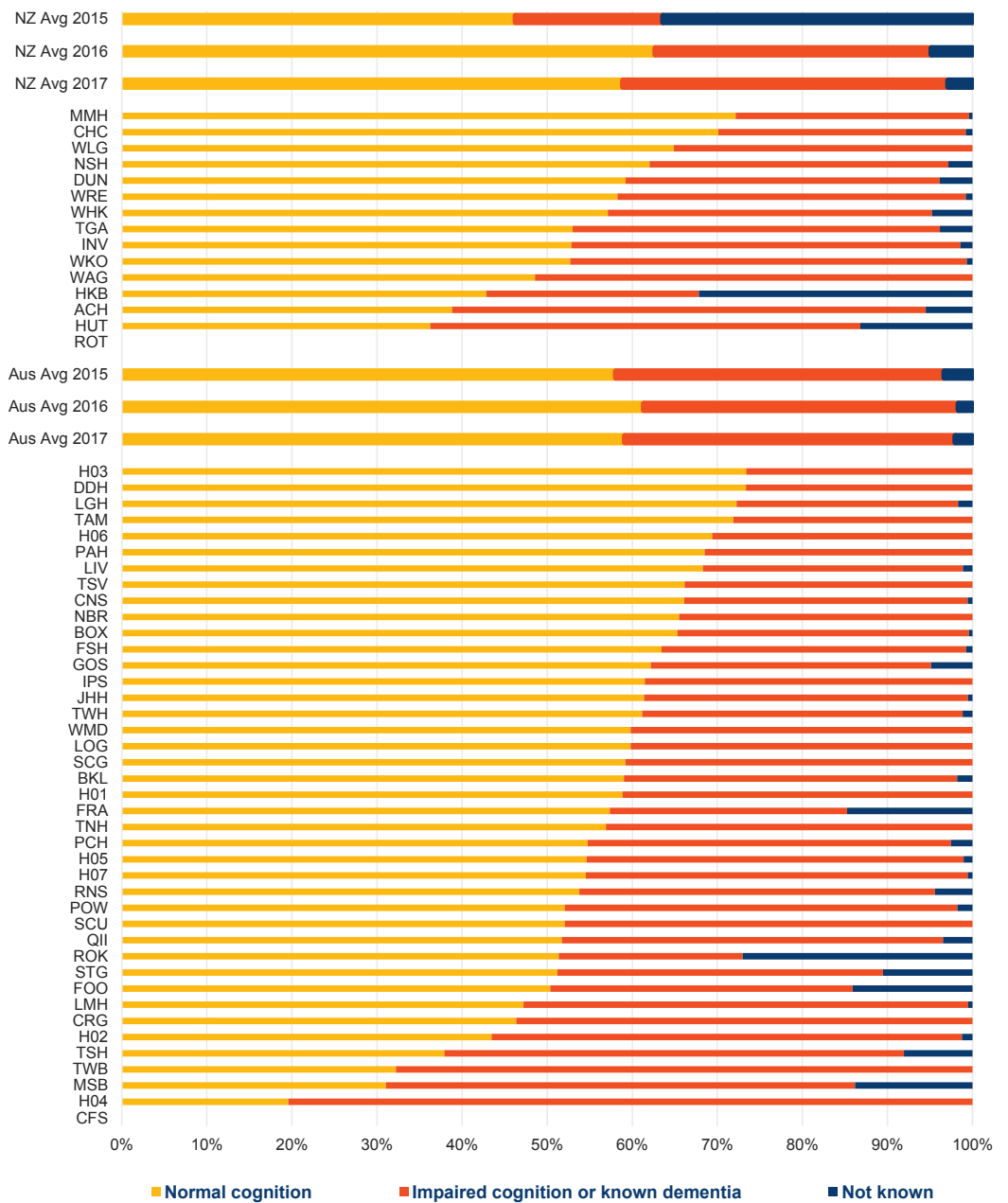
# 39%

of hip fracture patients had impaired cognition or known dementia at presentation



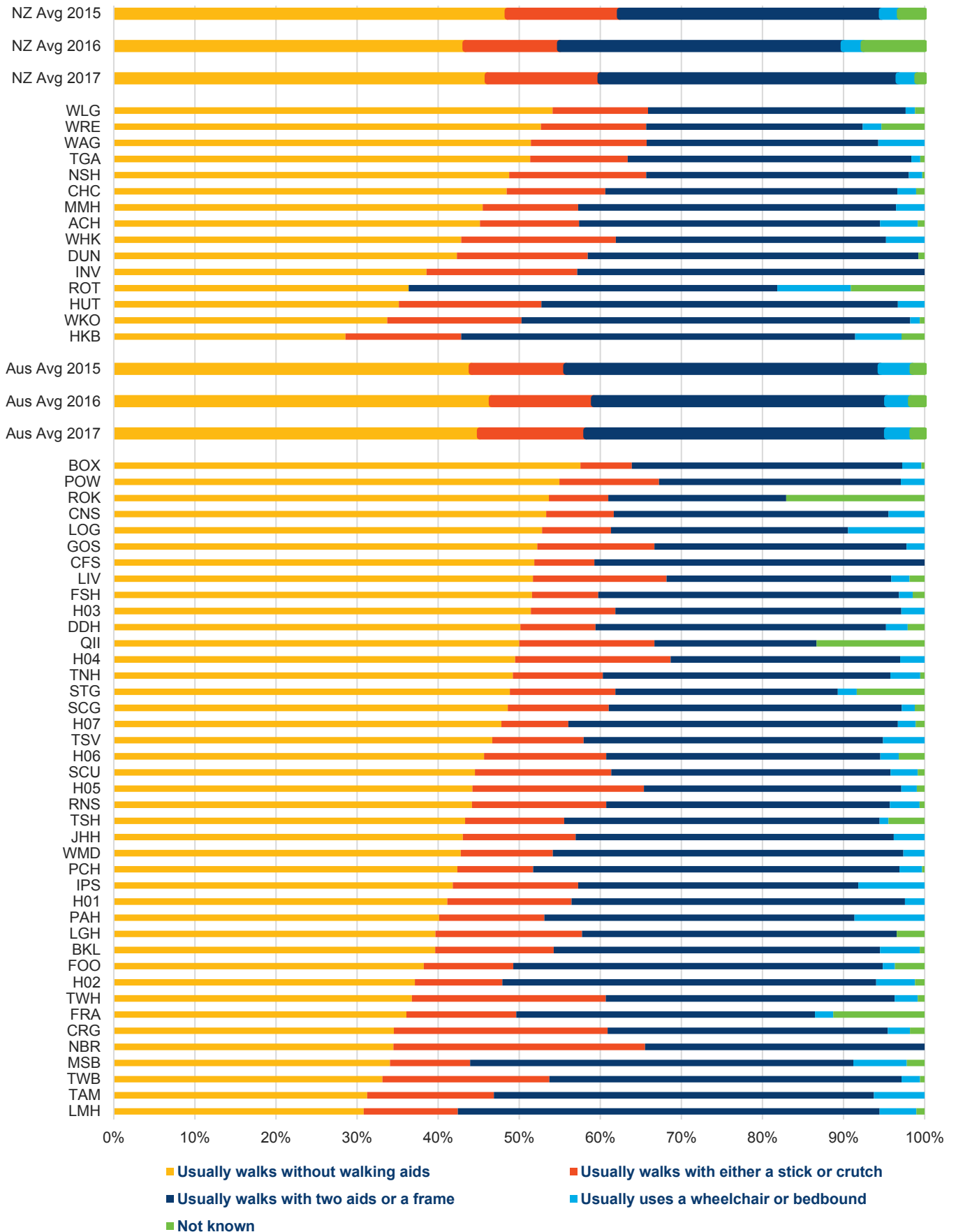
## FIGURE 6 PREADMISSION COGNITIVE STATUS

Fifty nine percent of patients in both New Zealand and Australia are documented as having no cognitive issues prior to admission. However, 39% of patients hospitalised in both countries had impaired cognition or known dementia. Cognitive status prior to admission is not known for 2% of patients.



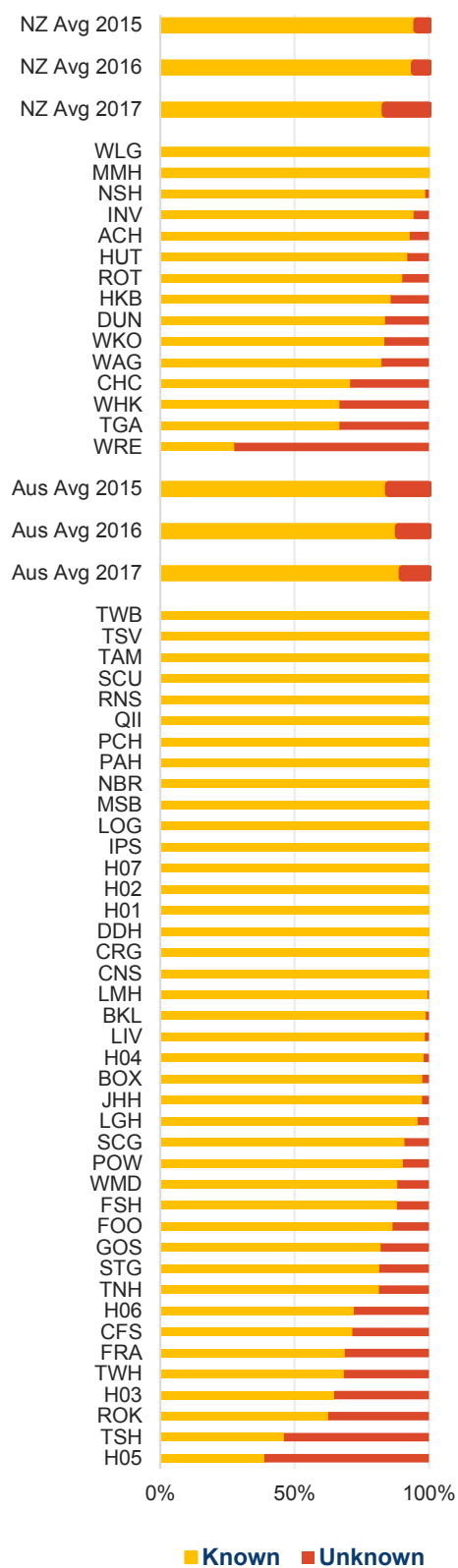
### FIGURE 7 PREADMISSION WALKING ABILITY

Pre-admission walking ability is used to assess the outcome of treatment, as it is a surrogate marker of overall health status. In New Zealand and Australia, 46% and 45% of hip fracture patients, respectively, walked without any assistive device prior to hospitalisation. There is variation seen between hospitals, which is likely to reflect the make-up of the local population.

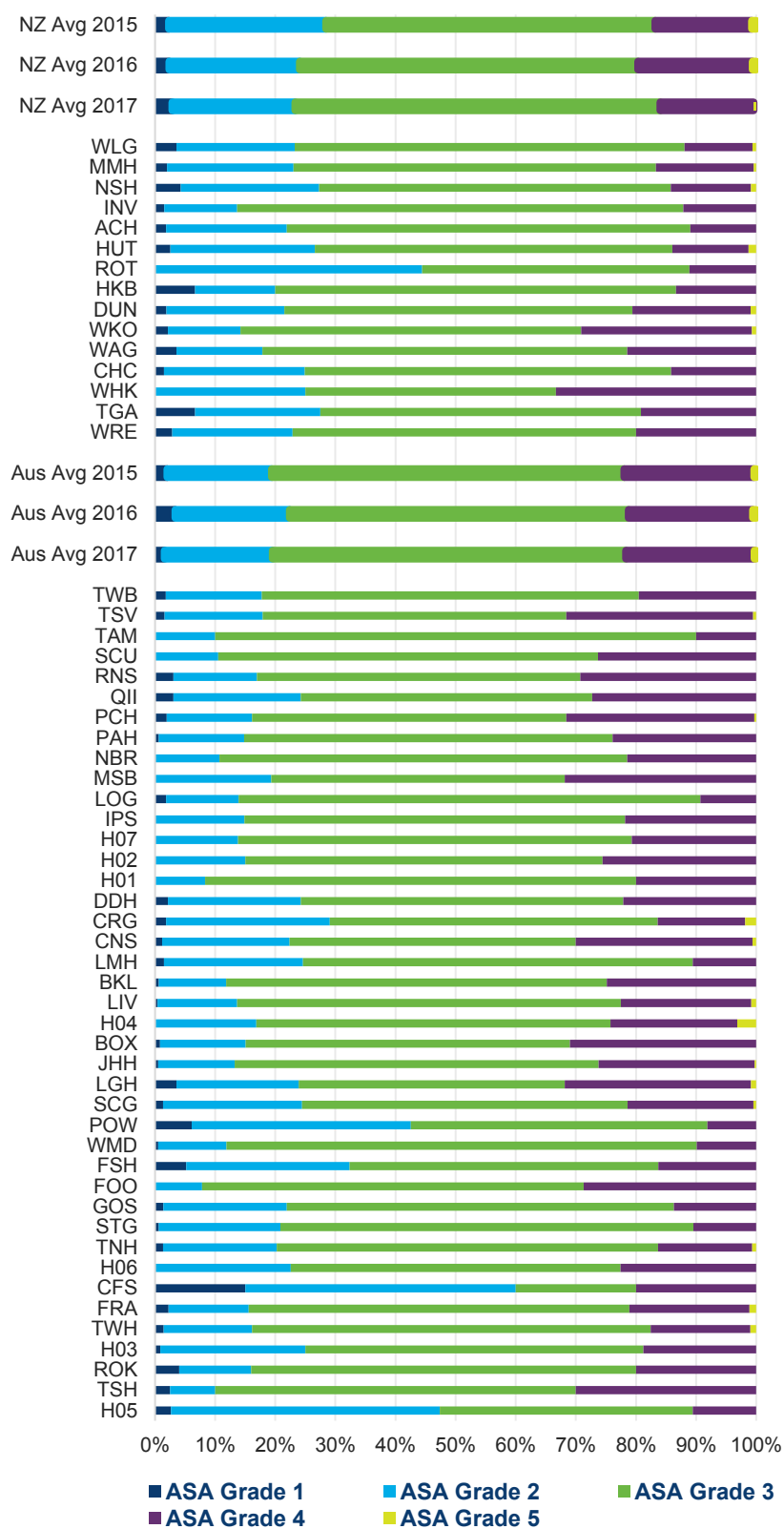




**FIGURE 8 ASA KNOWN**



**FIGURE 9 ASA GRADE**

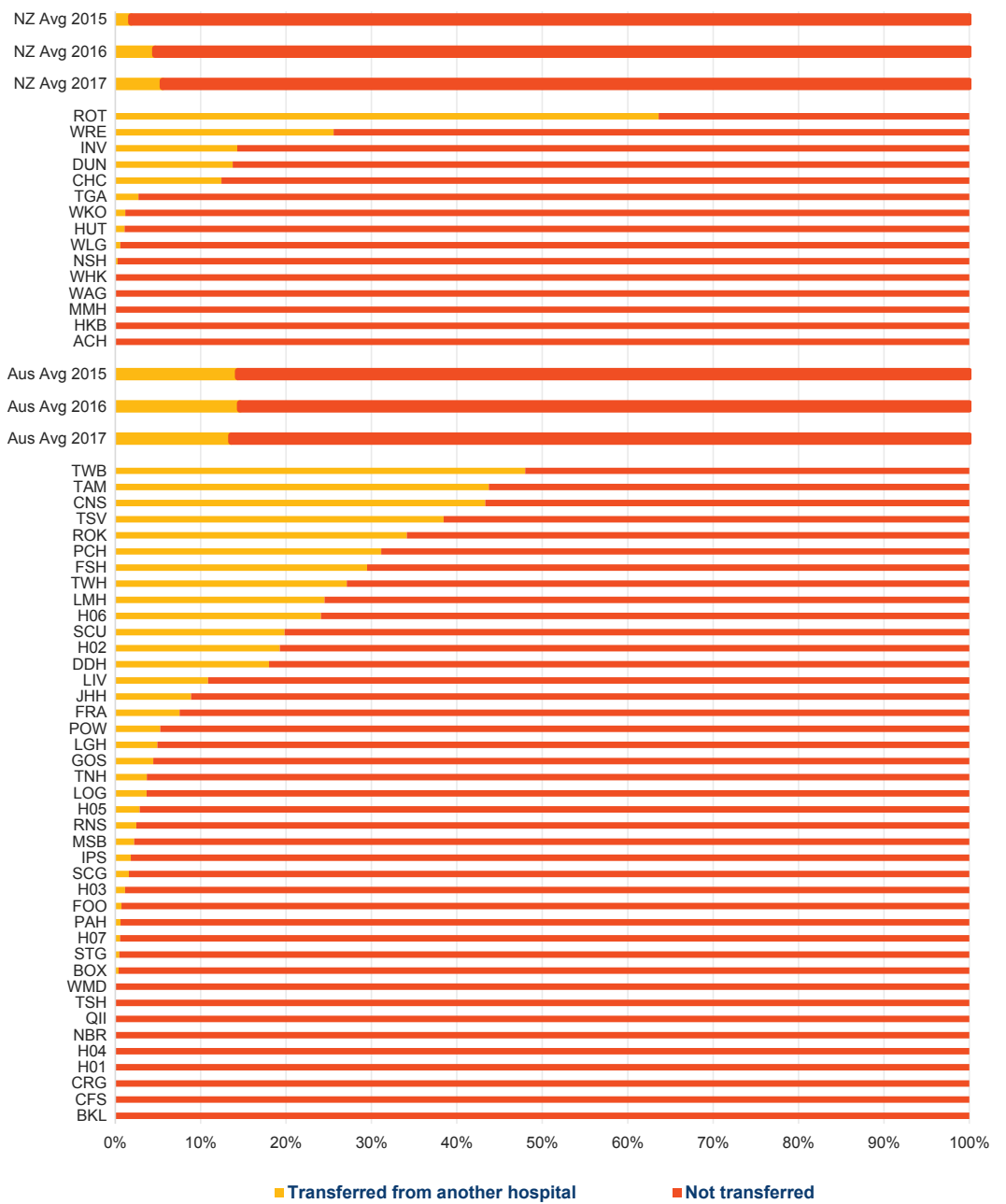


The ASA grading was developed by the American Society of Anesthesiologists (ASA). It is a measure of anaesthetic risk that is often used as a general measure of physical health or comorbidity. Increasing ASA Grade is associated with mortality and morbidity risk. For patients at each hospital for whom 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**

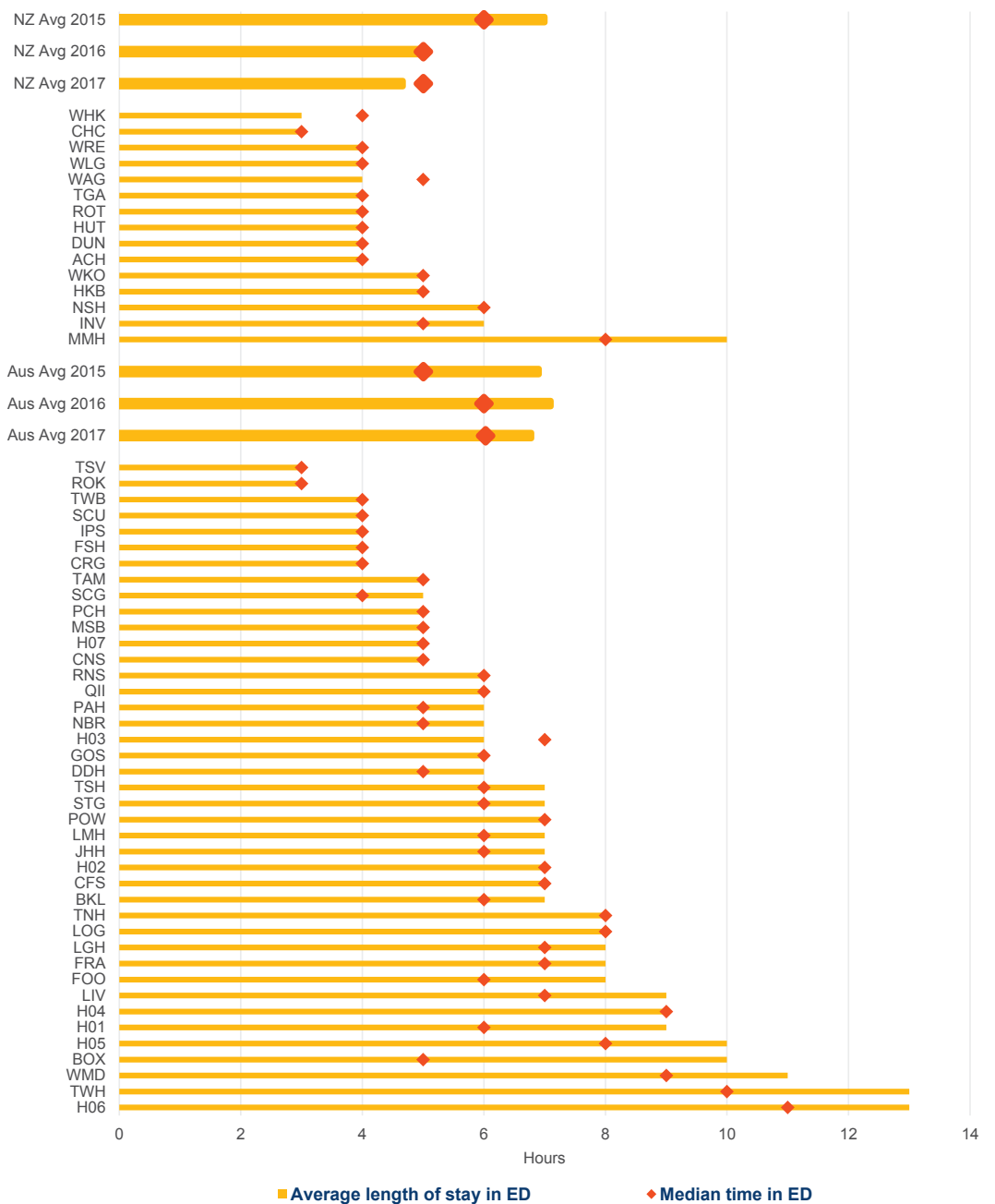
There is considerable variation between sites in the proportion of patients transferred in from other hospitals prior to definitive treatment. This variation reflects differences in geography, service delivery, and the role delineation of the hospital. It also impacts on time to surgery when the period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





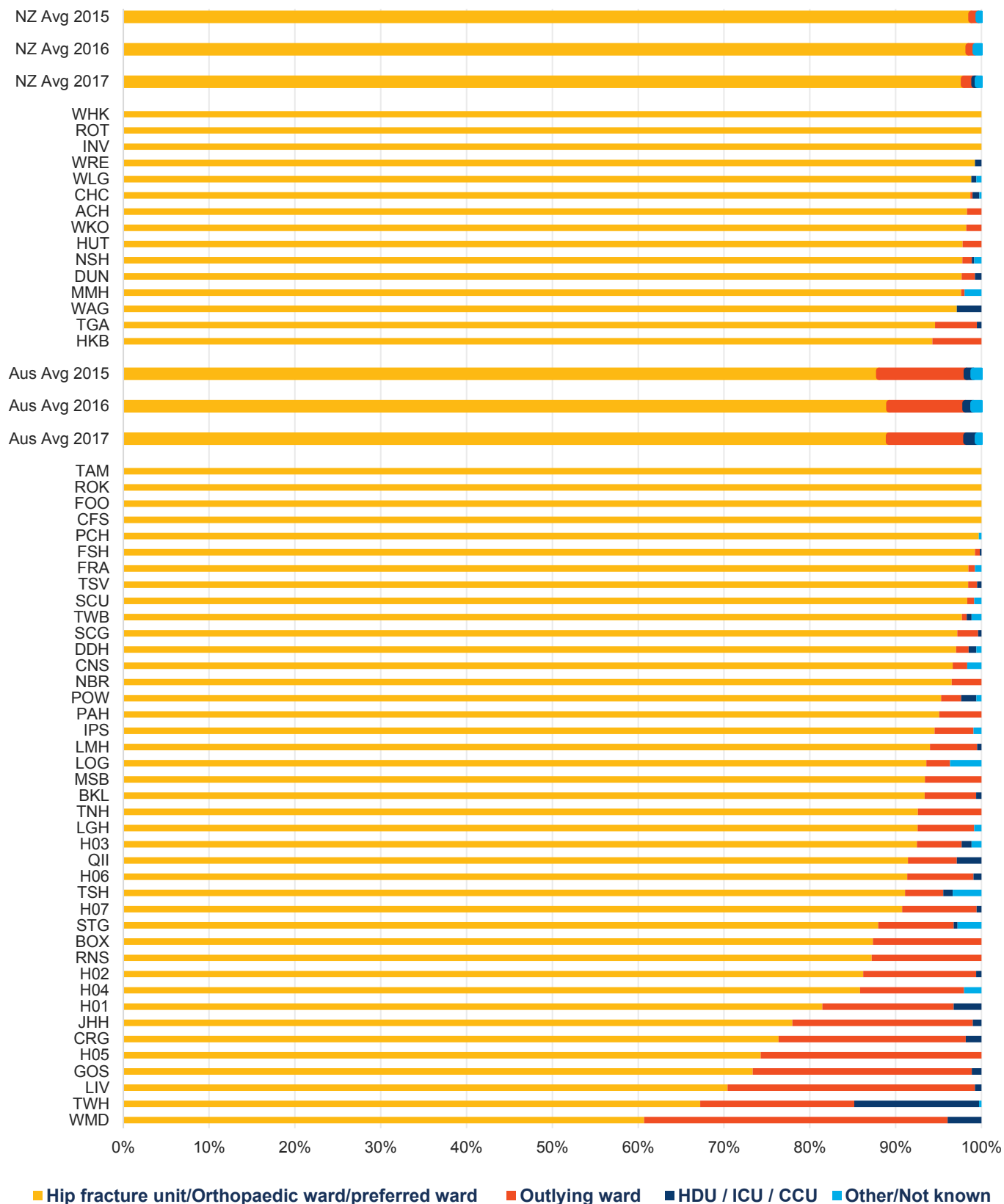
## FIGURE II AVERAGE LENGTH OF STAY IN THE EMERGENCY DEPARTMENT (ED)

Average length of stay in the Emergency Department (ED) decreased slightly between 2016 and 2017 in both countries, but variation in length of stay between hospitals remains. The median length of stay in ED did not change between 2016 and 2017 in both Australia (6 hours) and New Zealand (5 hours).



## FIGURE 12 WARD TYPE FROM THE EMERGENCY DEPARTMENT

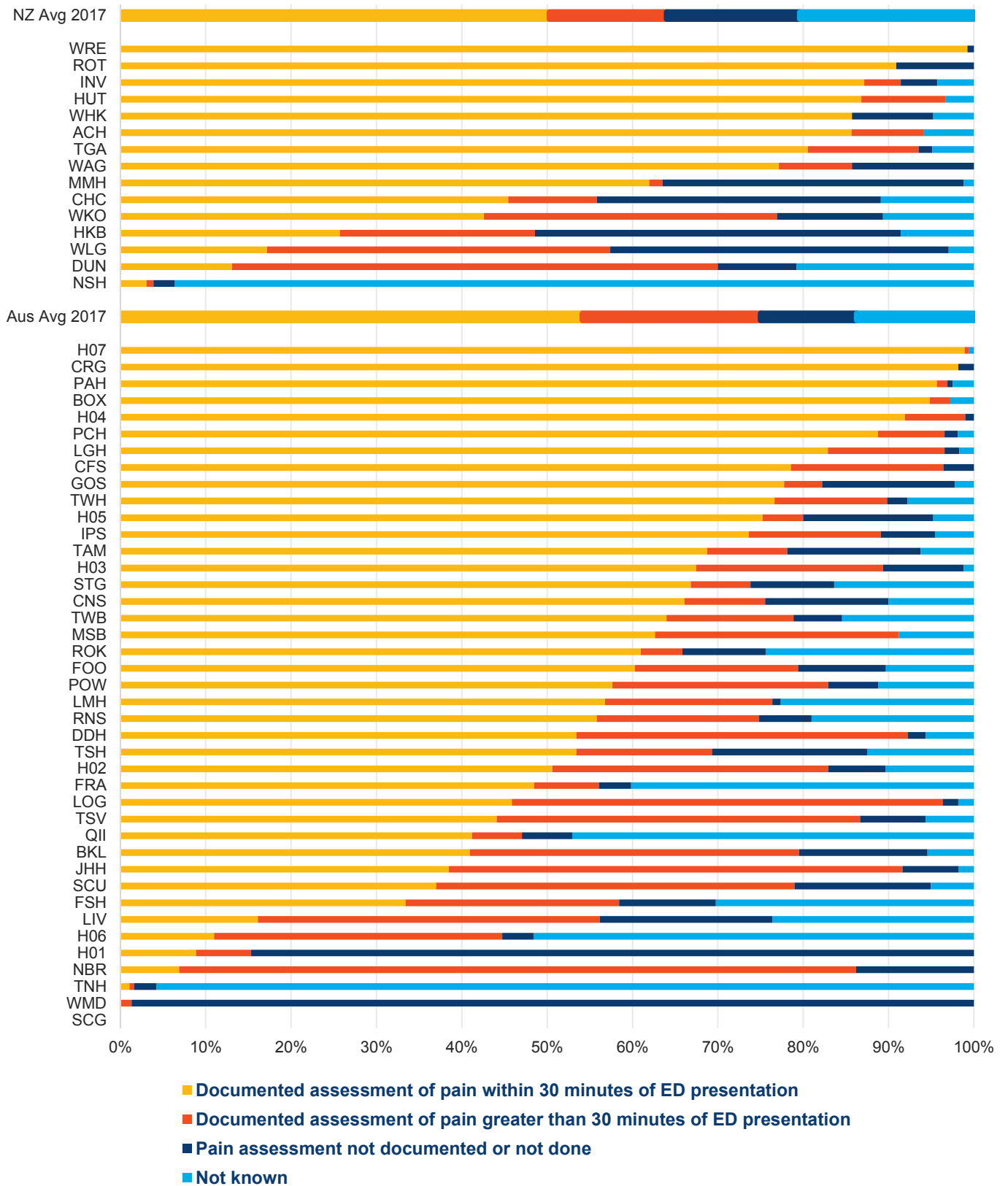
The type of ward used for hip fracture patients varies between sites due to factors such as the size and the role of the hospital. Despite this, the proportion of patients admitted to a specific hip fracture or orthopaedic ward in 2017 was 98% and 89%, respectively, in New Zealand and Australia. This is similar to previous years.





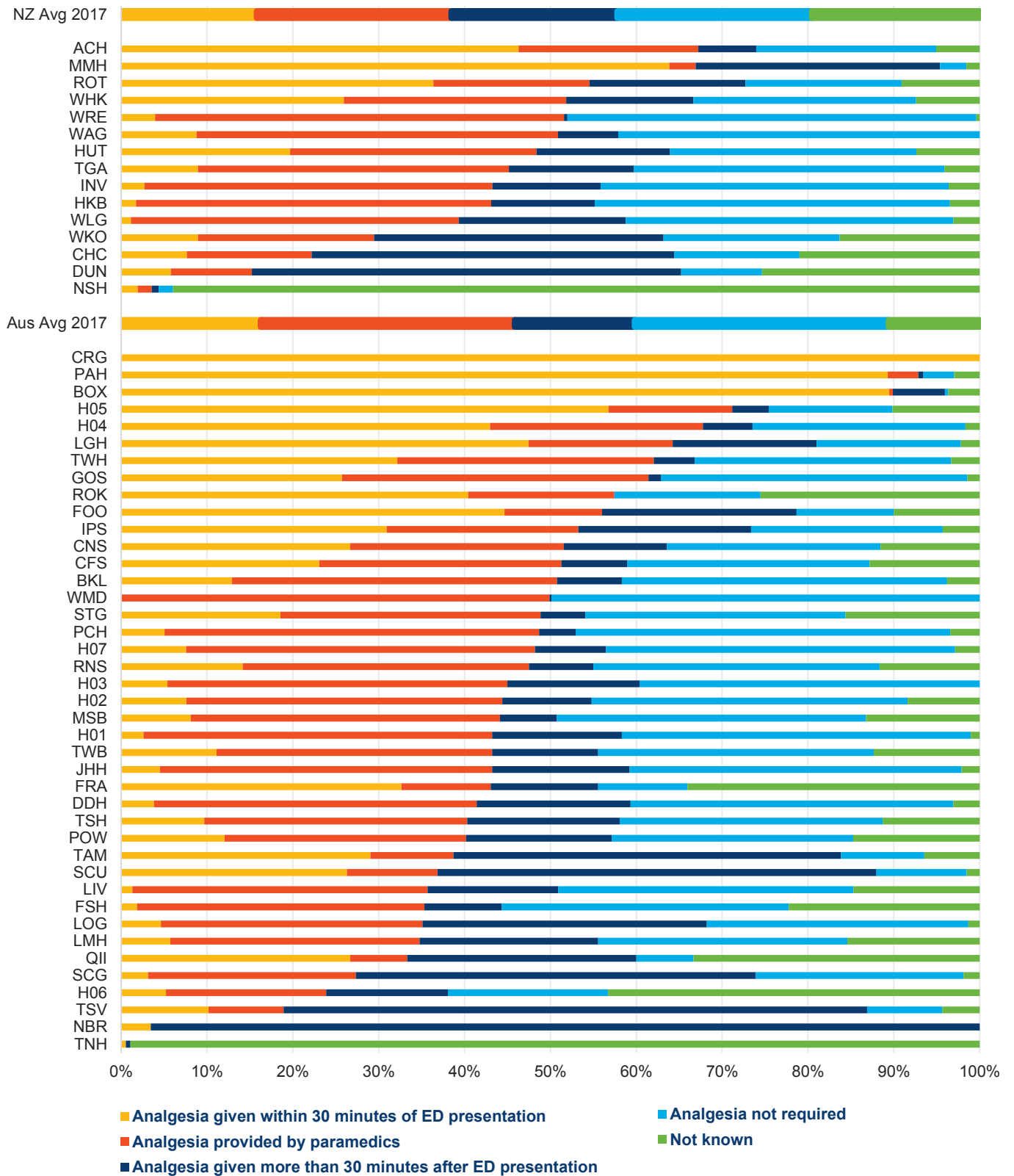
## FIGURE 13 PAIN ASSESSMENT IN THE EMERGENCY DEPARTMENT (ED)

There is considerable variation seen between hospitals in the proportion of patients who have a documented assessment of pain within 30 minutes of arrival in the ED, varying from 0% to nearly 100%. On average, 50% and 54% of the New Zealand and Australian hip fracture patients, respectively, have a documented assessment of pain within 30 minutes of presentation.



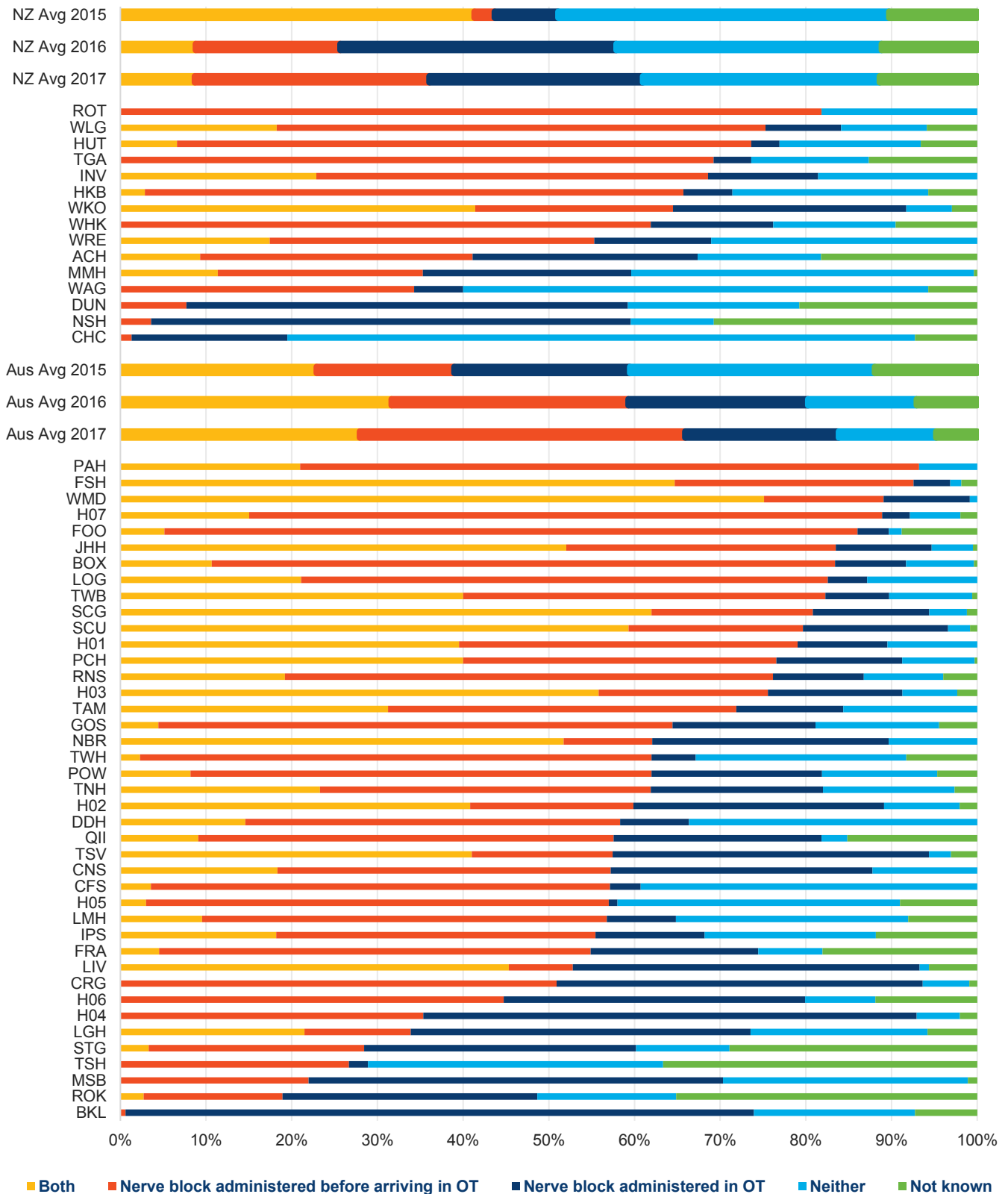
## FIGURE 14 PAIN MANAGEMENT IN THE EMERGENCY DEPARTMENT (ED)

It can be seen that 38% and 46% of the New Zealand and Australian hip fracture patients, respectively, received analgesia either in transit (by paramedics) or within 30 minutes of arrival at the ED.



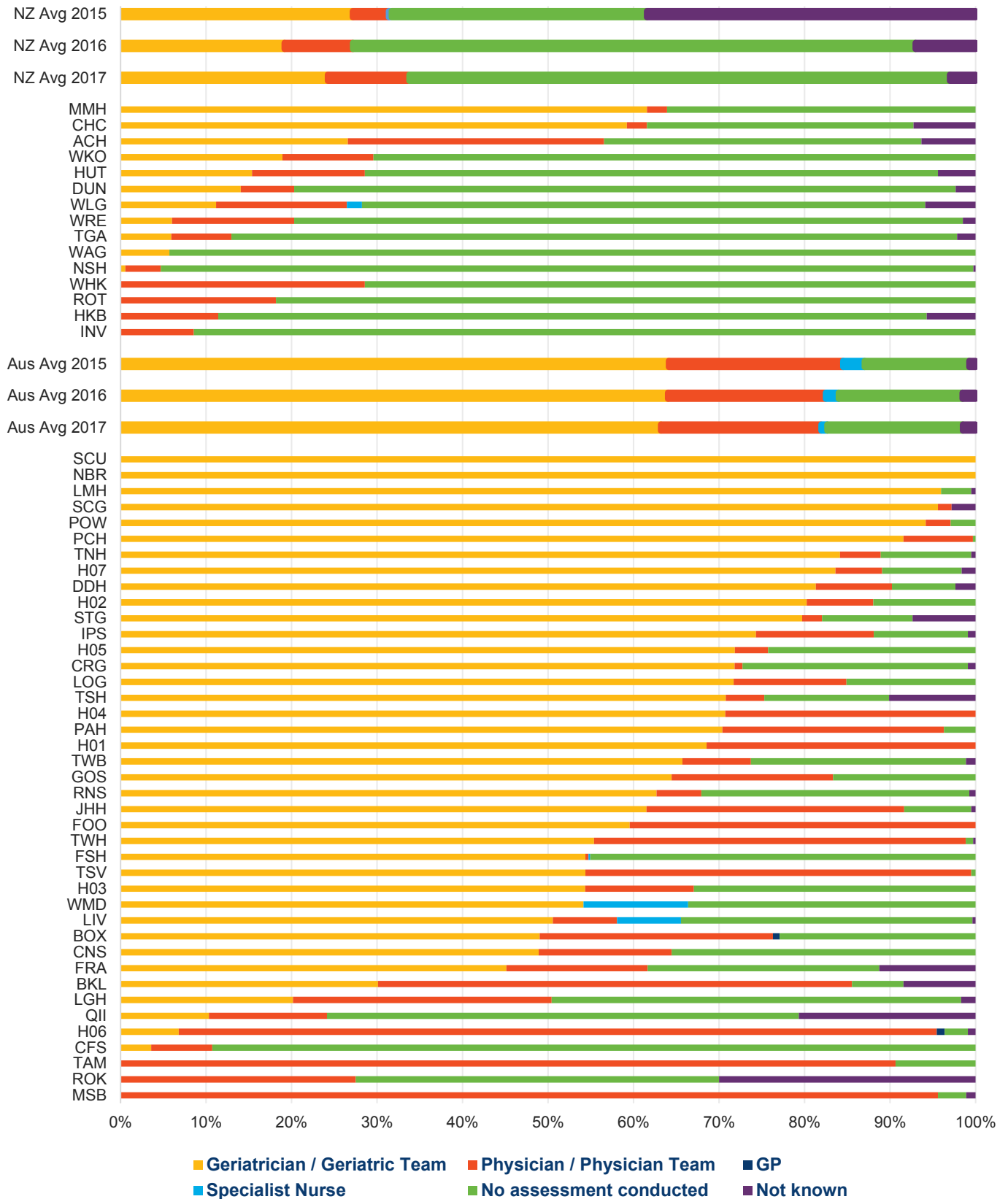
## FIGURE 15 USE OF NERVE BLOCKS

Nerve blocks are used to manage pain in the acute fracture setting and particularly in ED when a new hip fracture patient may be moved a number of times in order to investigate, assess and manage the fracture. The Registry does not record where the nerve block was administered prior to surgery, but for most hospitals this is likely to be in the ED. In 2017, there was an increased uptake in nerve blocks in both New Zealand and Australia compared to 2016. In New Zealand, 36% of patients had a nerve block administered before surgical intervention. In Australia, 66% of patients received a nerve block before surgical intervention. There is marked variation in practice across hospitals.



## FIGURE 16 PREOPERATIVE MEDICAL ASSESSMENT

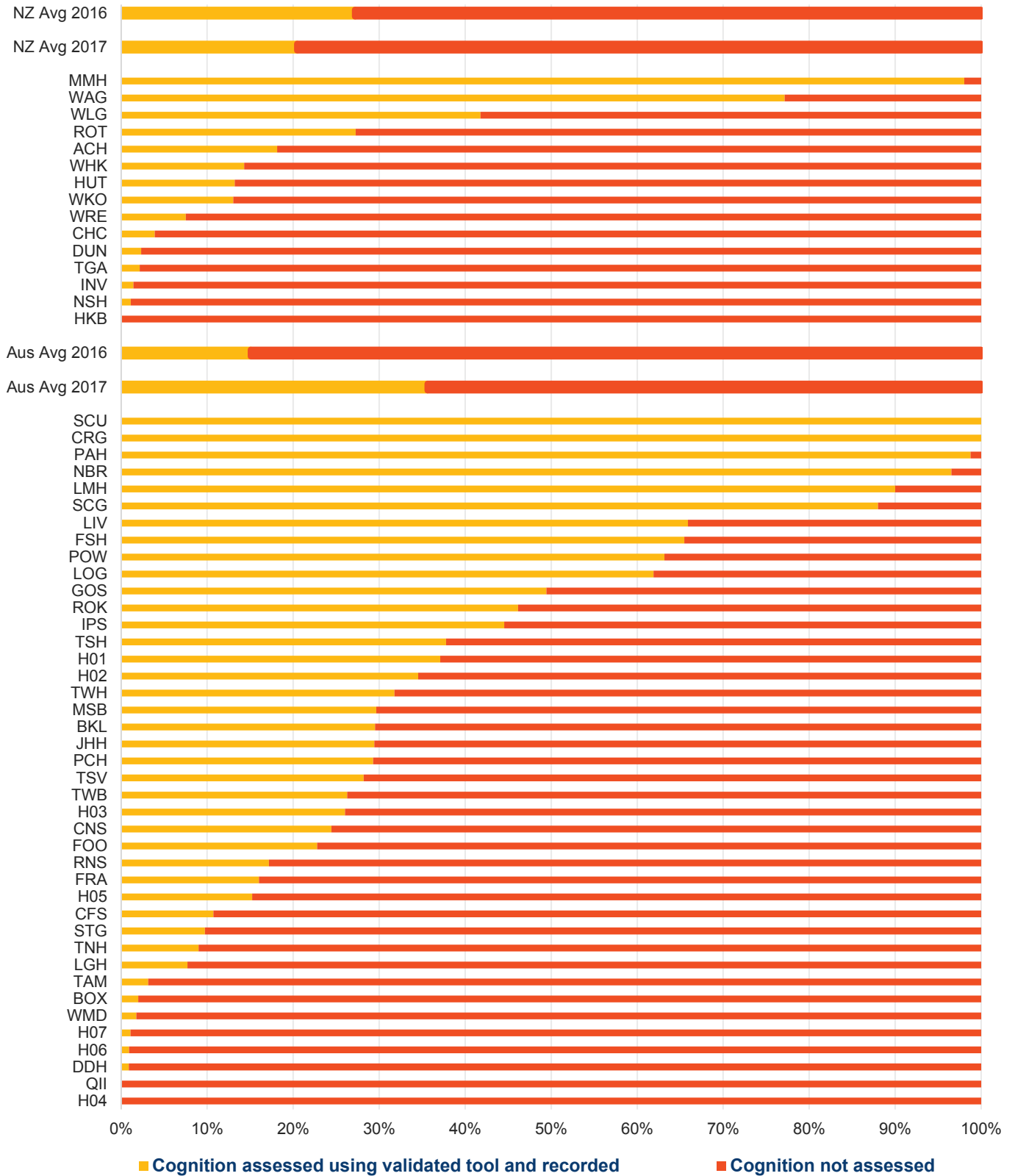
Twenty-four percent of patients in New Zealand are seen by a geriatrician prior to surgery. In Australia, 63% of patients are seen by a geriatrician prior to surgery. As more hospitals contribute data to the Registry this proportion may drop, as these sites may not have geriatric medicine services available.





# FIGURE 17 PREOPERATIVE COGNITIVE ASSESSMENT

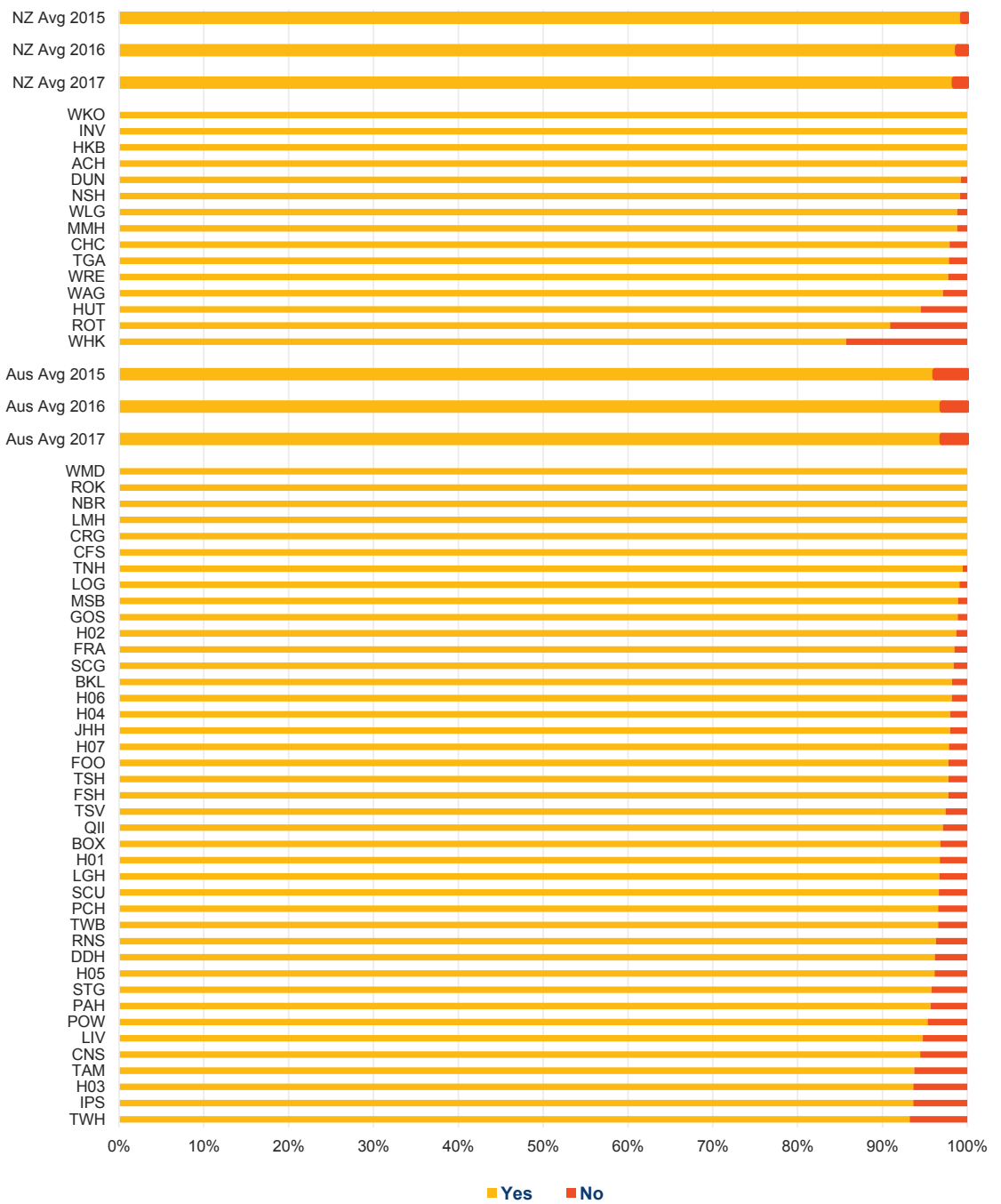
The Hip Fracture Care Clinical Care Standard recommends use of a validated tool to assess and document cognition prior to surgical intervention. In New Zealand, 20% of patients had their cognition assessed using a validated tool prior to surgery, and in Australia, 36% of patients had their cognition assessed and recorded, an improvement from 2016.



# SECTION 3: SURGERY AND OPERATIVE CARE

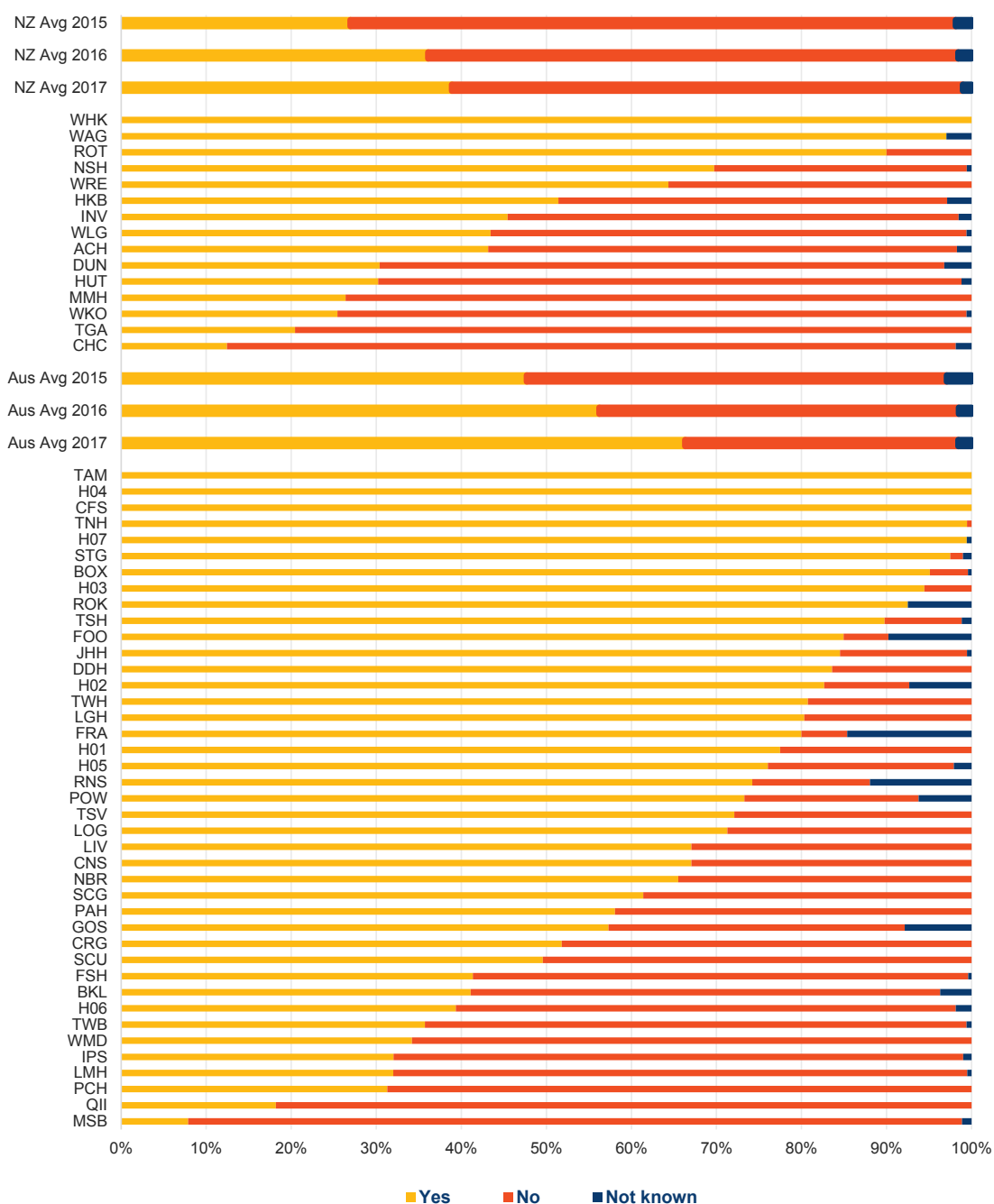
**FIGURE 18 TREATED WITH SURGERY**

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 18 show some variation between hospitals, which may reflect differences in clinical management and in the populations treated. 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.



## FIGURE 19 CONSULTANT SURGEON PRESENT DURING SURGERY

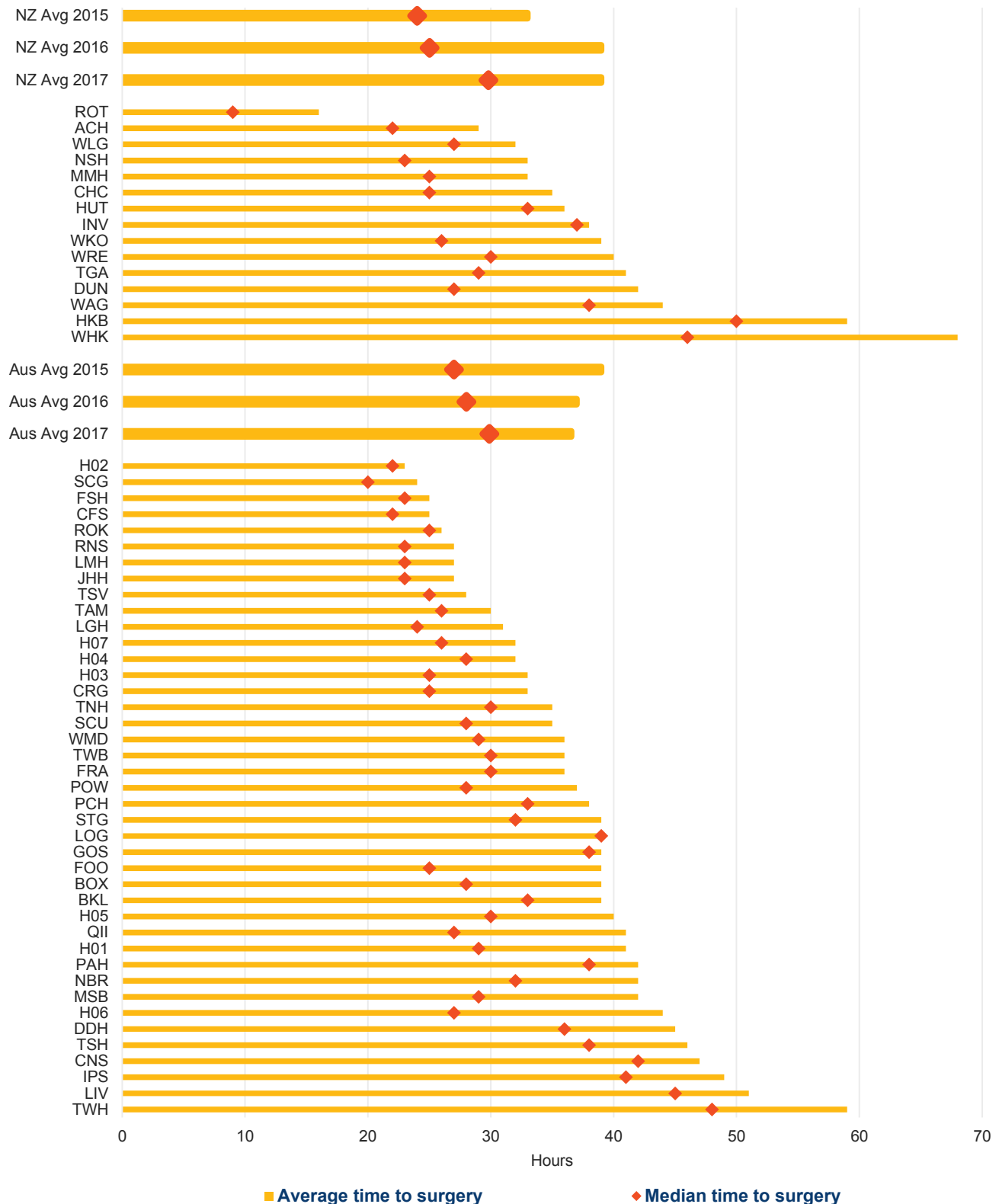
In both countries, the level of consultant supervision has increased each year since 2015. The high institutional variation seen in the proportion of surgical procedures that were supervised by a consultant likely reflects differences in staff levels, staff seniority and theatre availability. Hip fracture surgery that is performed on scheduled operating lists is 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 Care recommends performing hip fracture surgery on scheduled operating lists.



## FIGURE 20 AVERAGE TIME TO SURGERY EXCLUDING TRANSFERRED PATIENTS

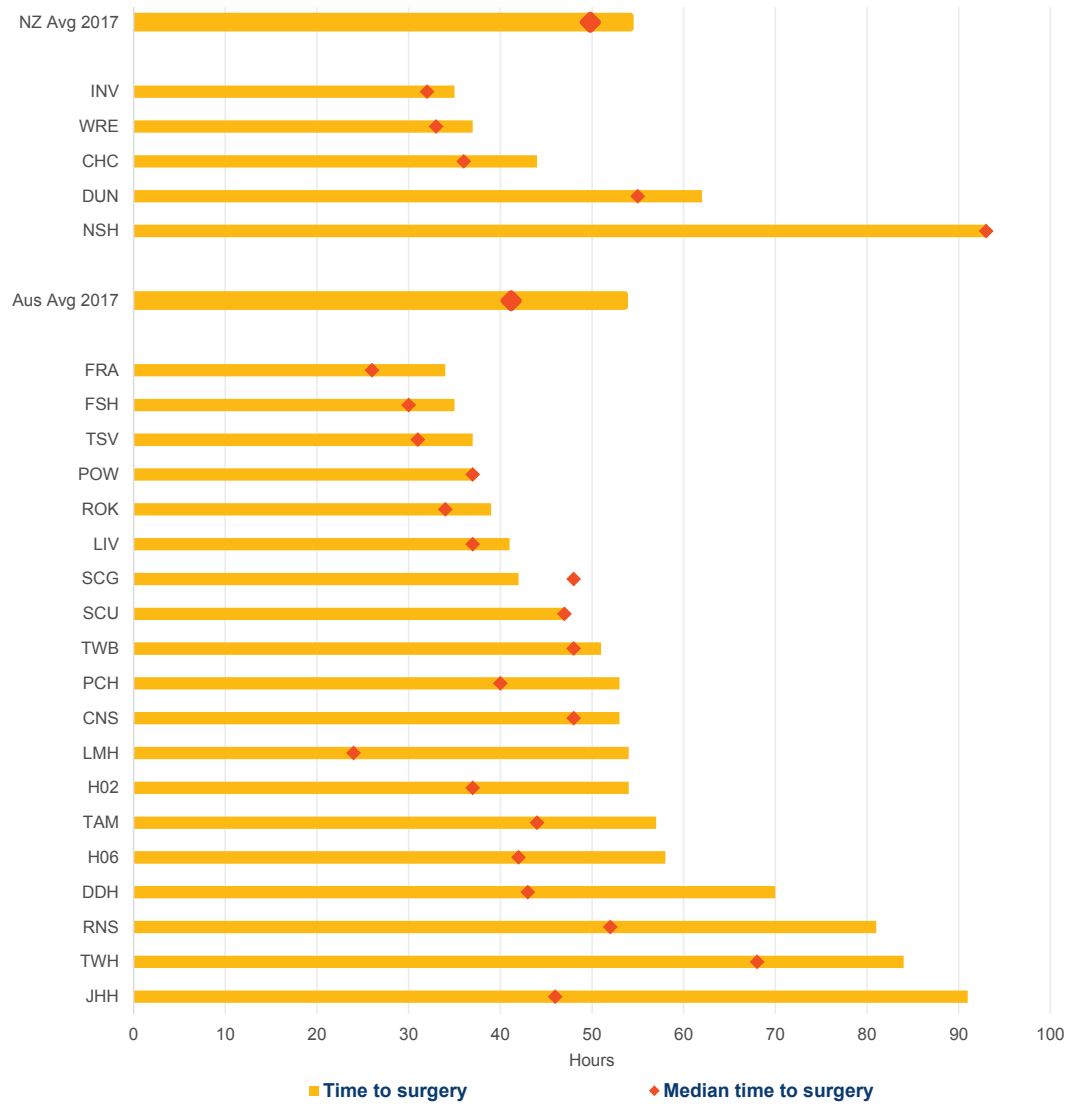
This year, Figure 20 excludes patients transferred into the treating hospital, reflecting the journey of a patient initially presenting to the treating hospital. Time to theatre is calculated by measuring the difference between the date and time of presentation to the operating hospital and commencement of anaesthesia. The median time between initial presentation and surgery has increased each year since 2015 and is currently 30 hours.

The Hip Fracture Care Clinical Care Standard 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 orange 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 note that small numbers of patients and a few outliers can significantly alter the average time to surgery.



**FIGURE 21 AVERAGE TIME TO SURGERY TRANSFERRED PATIENTS ONLY**

Figure 21 shows that the time to surgery is longer for patients who are transferred in from other hospitals. This measure takes into account the time spent at the (initial) transferring hospital and shows the treatment delays that result from systems that do not deliver patients directly to treating hospitals, or do not have expedited pathways for the transfer of hip fracture patients. The average time to surgery for transferred patients is 54 hours in both countries, higher than the 39 hours in New Zealand and the 37 hours in Australia for non-transferred patients.



**54 HOURS**  
is the average time to surgery for transferred patients

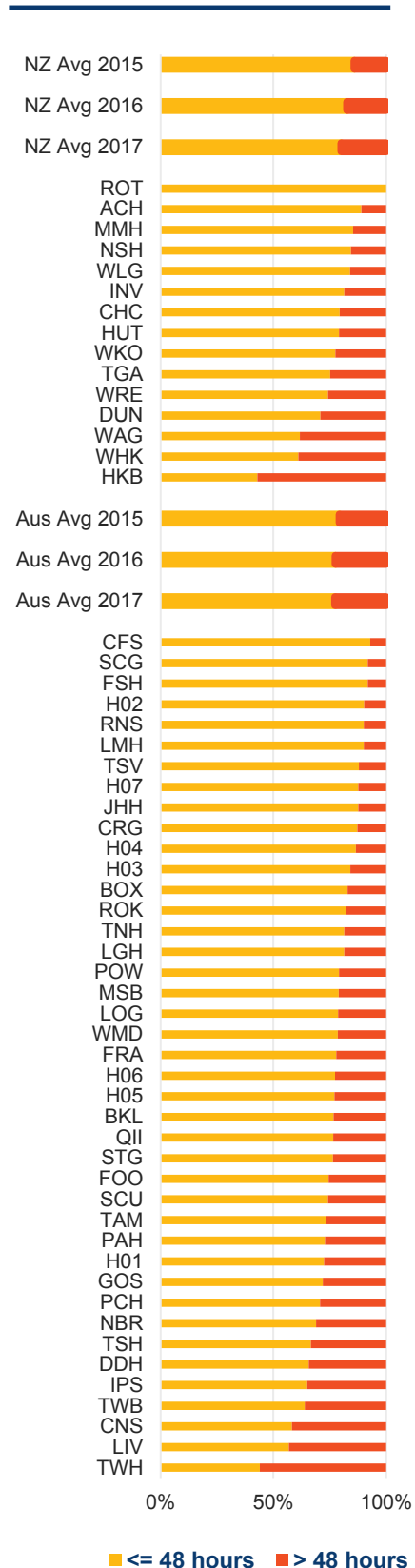
**"I fractured my left femur in 2016. The accident occurred at our farm: three hours drive from Sydney. I don't quite know how but my shoe seemed to stick to the tiled floor. I fell heavily and with one leg going off at a strange angle; it was clear I had broken something.**

**The two-kilometre drive from the house in the ambulance along a rough track to the public road was extremely painful despite the fact that I was loaded with opiates.**

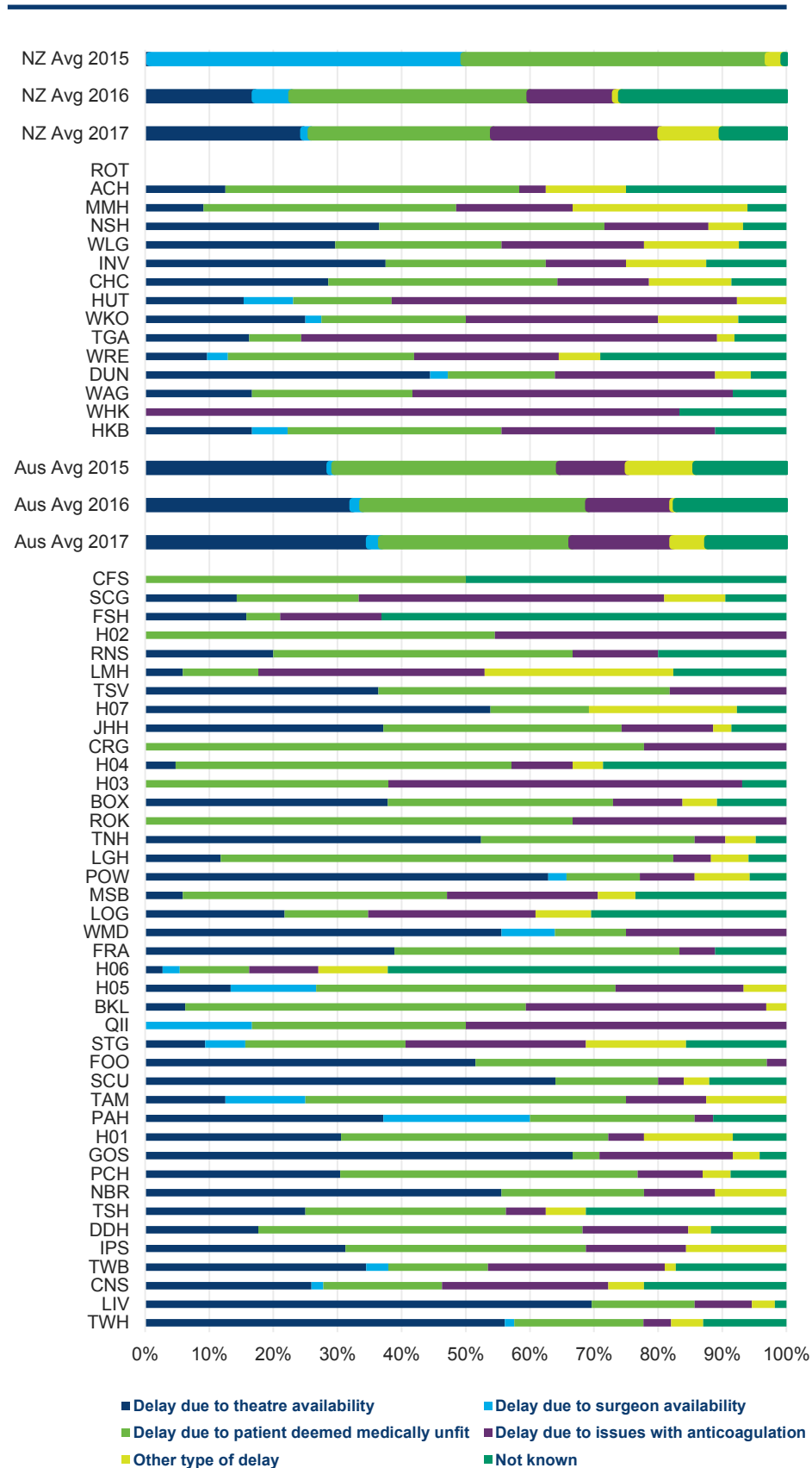
**The accident occurred on a Friday and because I chose to return to Sydney for surgery I spent the next couple of days in the local hospital before being transferred. It was not a comfortable period despite the dedicated care of the staff."**



**FIGURE 22 SURGERY WITHIN 48 HOURS**



**FIGURE 23 REASON FOR DELAY > 48 HOURS**



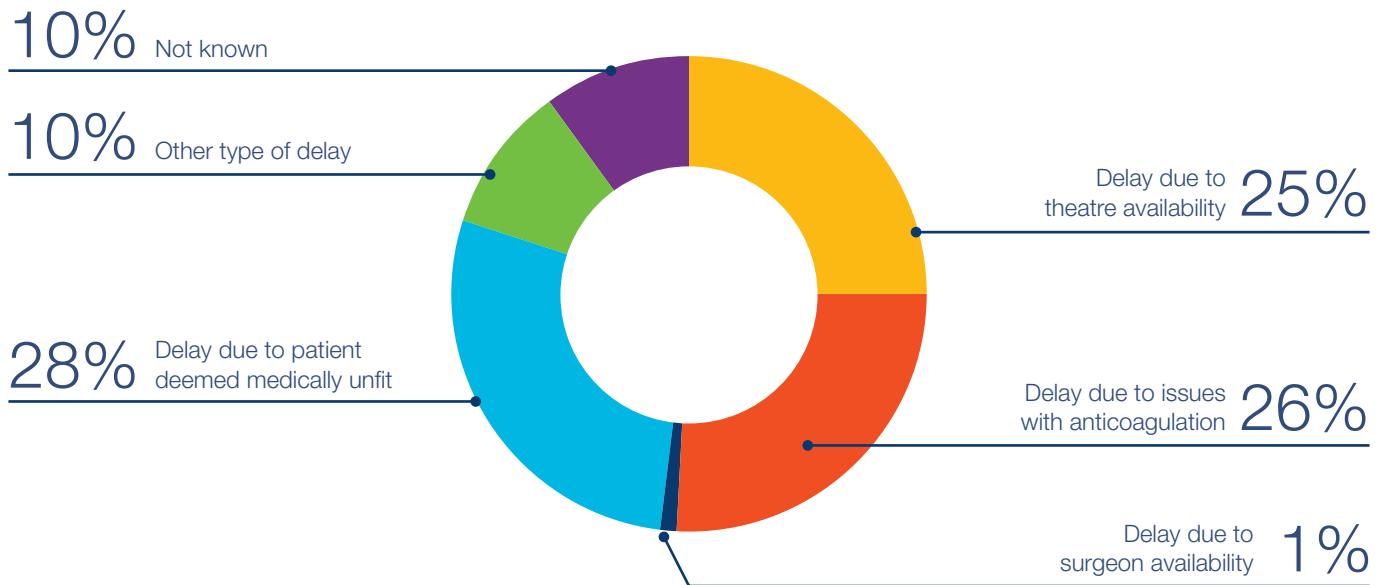
Figures 22 and 23 include patients admitted directly to the operating hospitals and those patients transferred in. Figure 22 shows that most patients were treated within 48 hours of presentation to the operating hospital but there is considerable variation in the reasons provided for any delays beyond 48 hours. Figure 23 provides useful information for sites wishing to improve the proportion of patients treated within 48 hours as it highlights modifiable causes for surgical delay.



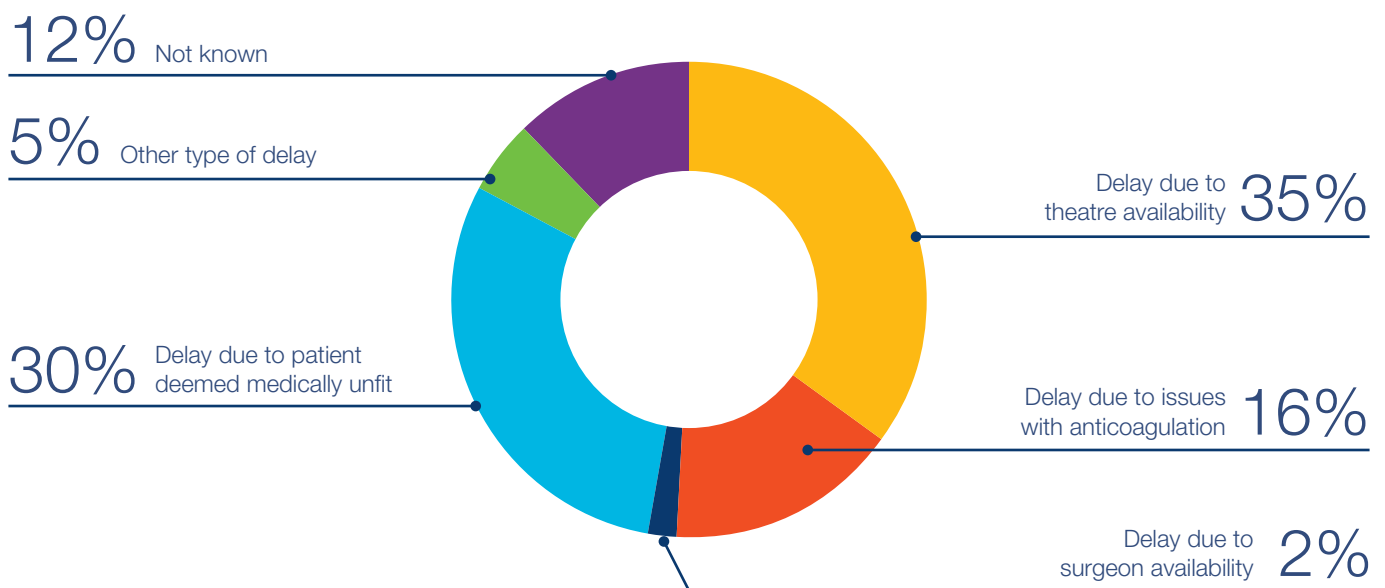
**51%**  
of patients are delayed  
to surgery for two  
modifiable reasons



**FIGURE 24 REASON FOR DELAY > 48 HOURS NEW ZEALAND**



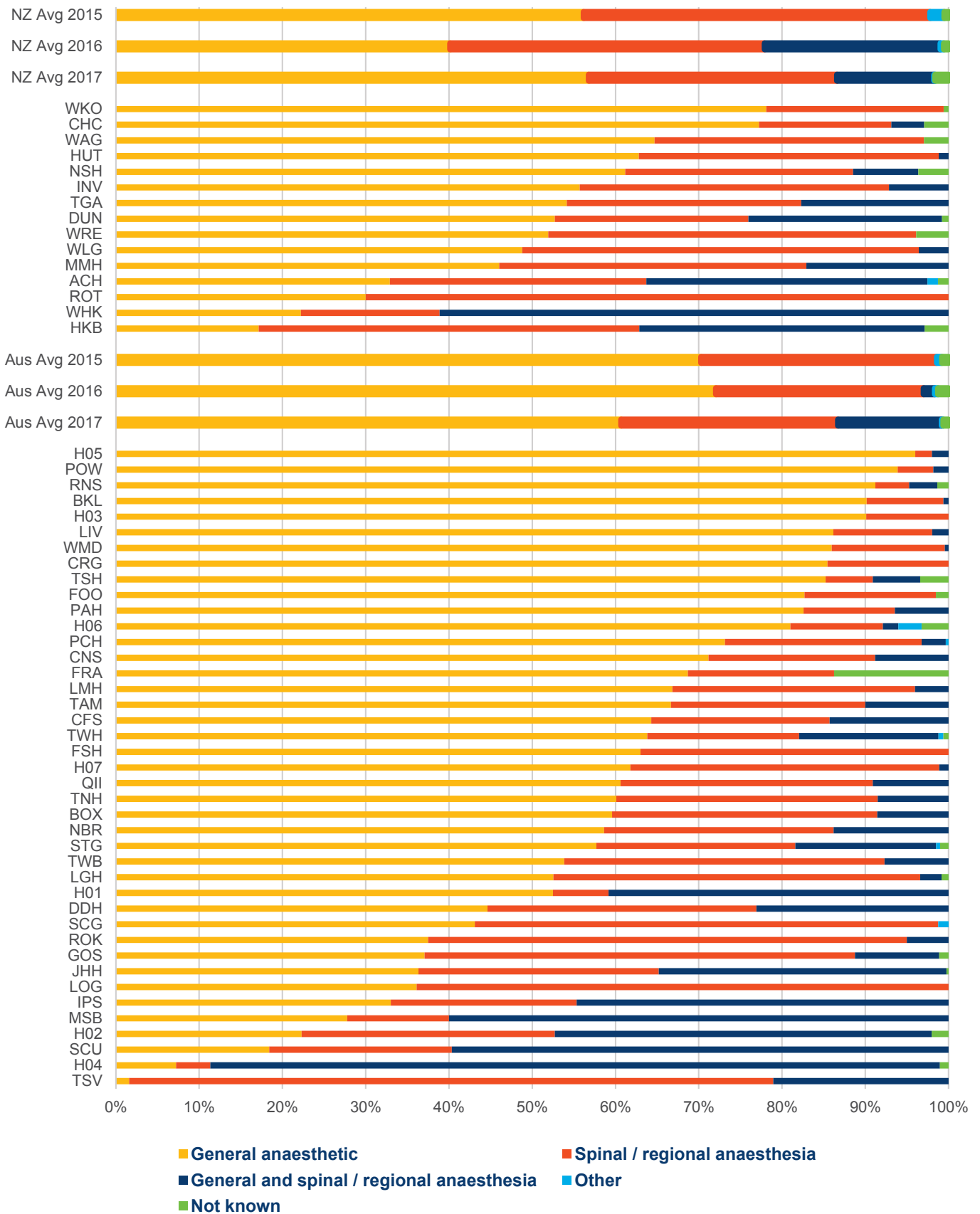
**FIGURE 25 REASON FOR DELAY > 48 HOURS AUSTRALIA**



Figures 24 and 25 are new figures for this report and provide a comparison between countries for the reasons for surgical delay. Fifty-one percent of patients in both countries are delayed to surgery due to two modifiable reasons: the availability of operating theatres or issues with anticoagulation.

## FIGURE 26 TYPE OF ANAESTHESIA

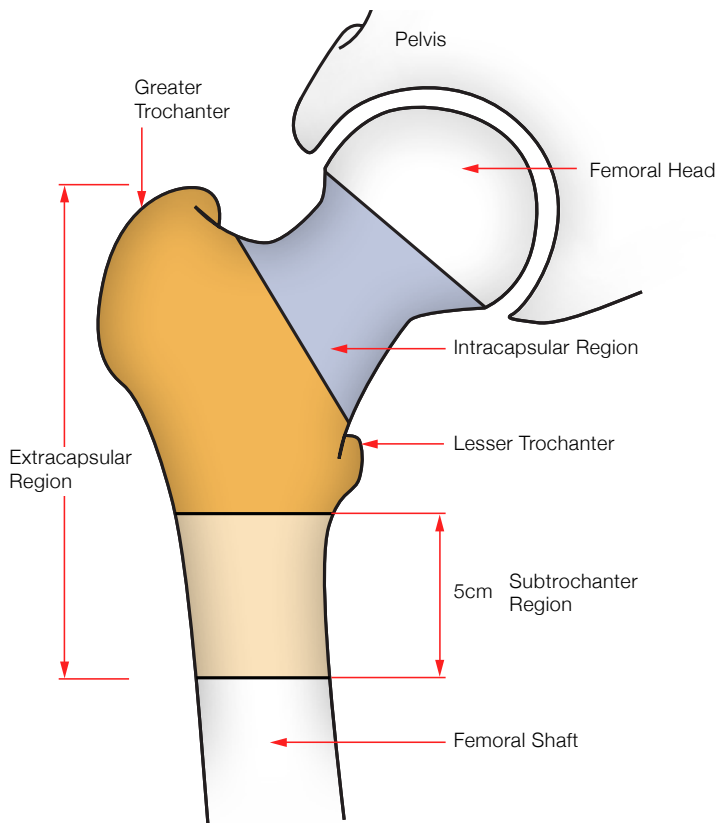
The majority of people undergoing operative intervention for a hip fracture have a general anaesthetic with or without regional anaesthesia: 69% in New Zealand and 73% in Australia. Marked variation is noted between hospitals and is likely to reflect the personal preference of the anaesthetist or the department.



**OPERATIONS BY TYPE OF FRACTURE**

The term “hip fracture” is used to describe different types of fracture of the proximal (upper) femur. The types of hip fracture are classified by the location of the fracture. 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 Diagram 1.

**Diagram 1: Zones of hip fracture**



The types of fracture seen at each site (Figure 27) are consistent with expectations in that between 5% and 10% are subtrochanteric, and the remainder are divided fairly evenly between intertrochanteric and intracapsular (subcapital) fractures. 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.

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 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 (intertrochanteric) generally undergo internal fixation with an intramedullary nail or a sliding hip screw and plate.

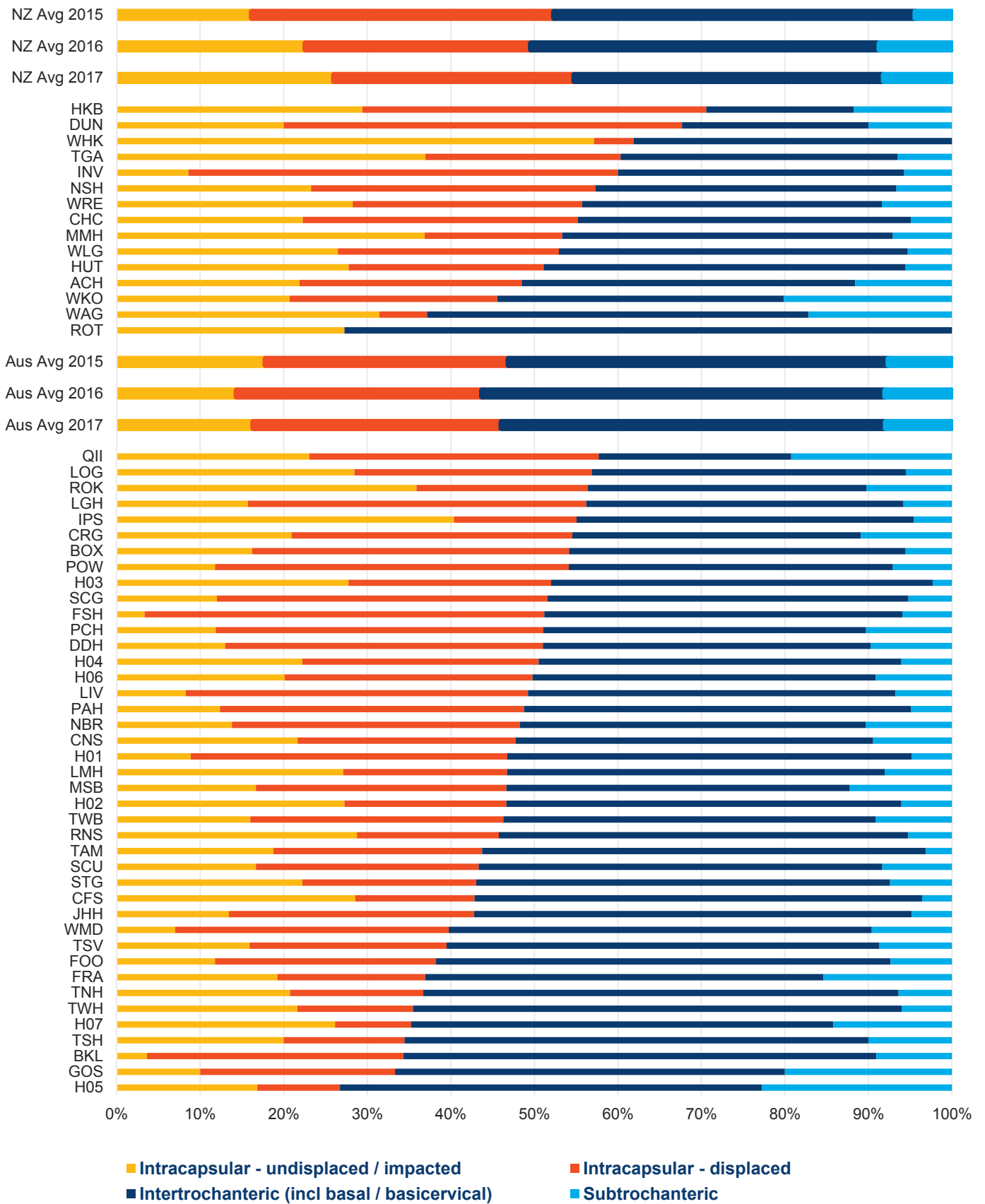
Figures 28 and 29 show the proportions of intracapsular (subcapital) fractures treated with various techniques, reported separately for undisplaced and displaced femoral neck (intracapsular/sub-capital) fractures. Note that undisplaced fractures (Figure 28) are often treated by inserting screws across the fracture (“cannulated screws”) rather than replacing the broken part of the bone (“arthroplasty”). Although the proportion of displaced intracapsular fractures treated with total hip arthroplasty is increasing, hemiarthroplasty remains the most common treatment for this fracture type.

Figure 30 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 (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 does not distinguish between simple and comminuted or unstable 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 Care), but intramedullary fixation is recommended for subtrochanteric fractures and this recommendation appears to have been followed as seen in Figure 31.

The ANZ Guideline for Hip Fracture Care recommends the use of cemented stems for hip arthroplasty. Figures 32 and 33 show the rates of cement use reported by sites for hemiarthroplasty and total hip arthroplasty.

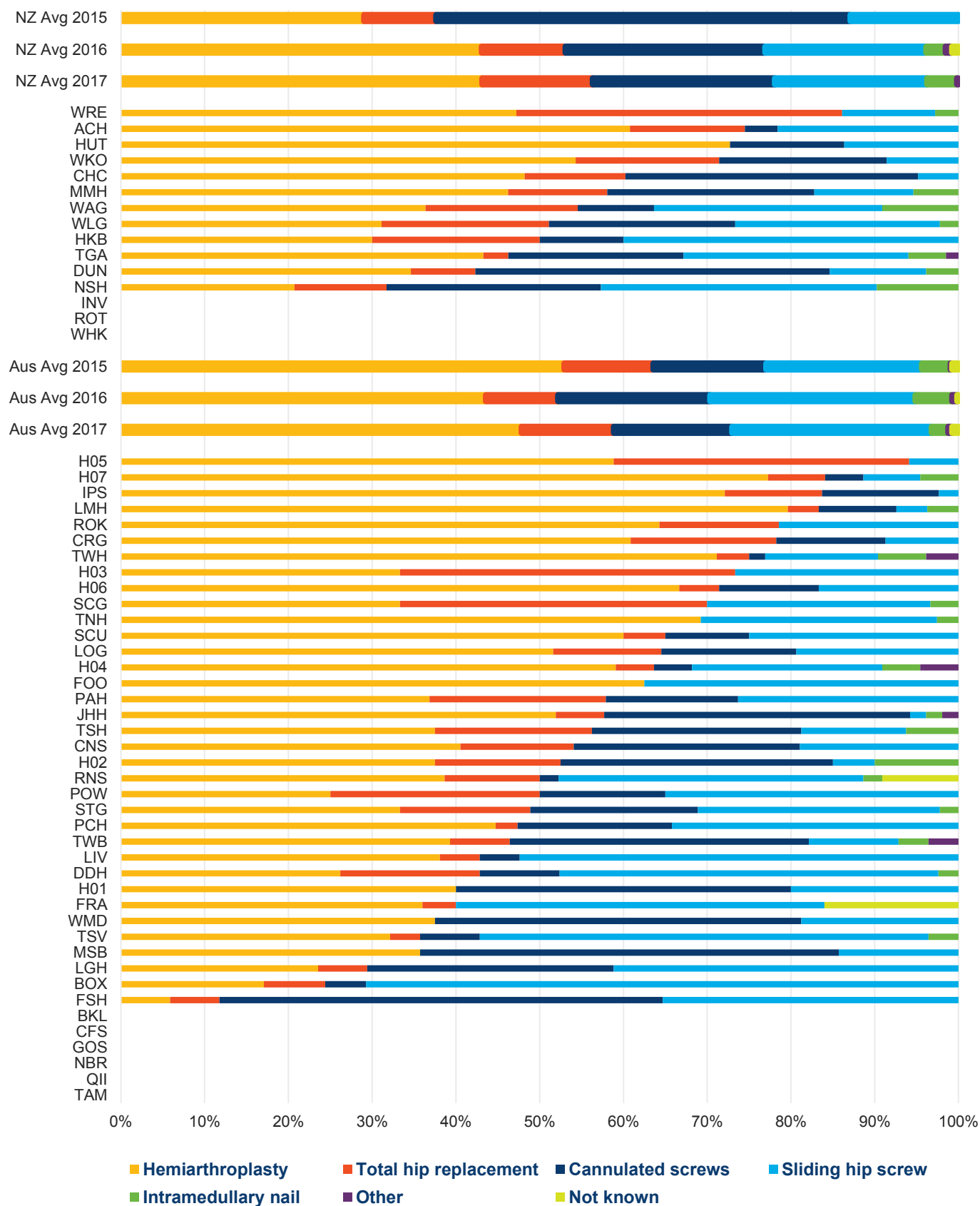
*NOTE: hospitals with fewer than ten (10) cases of the type of surgery have not been reported in Figures 27 to 33.*

**FIGURE 27 FRACTURE TYPE**

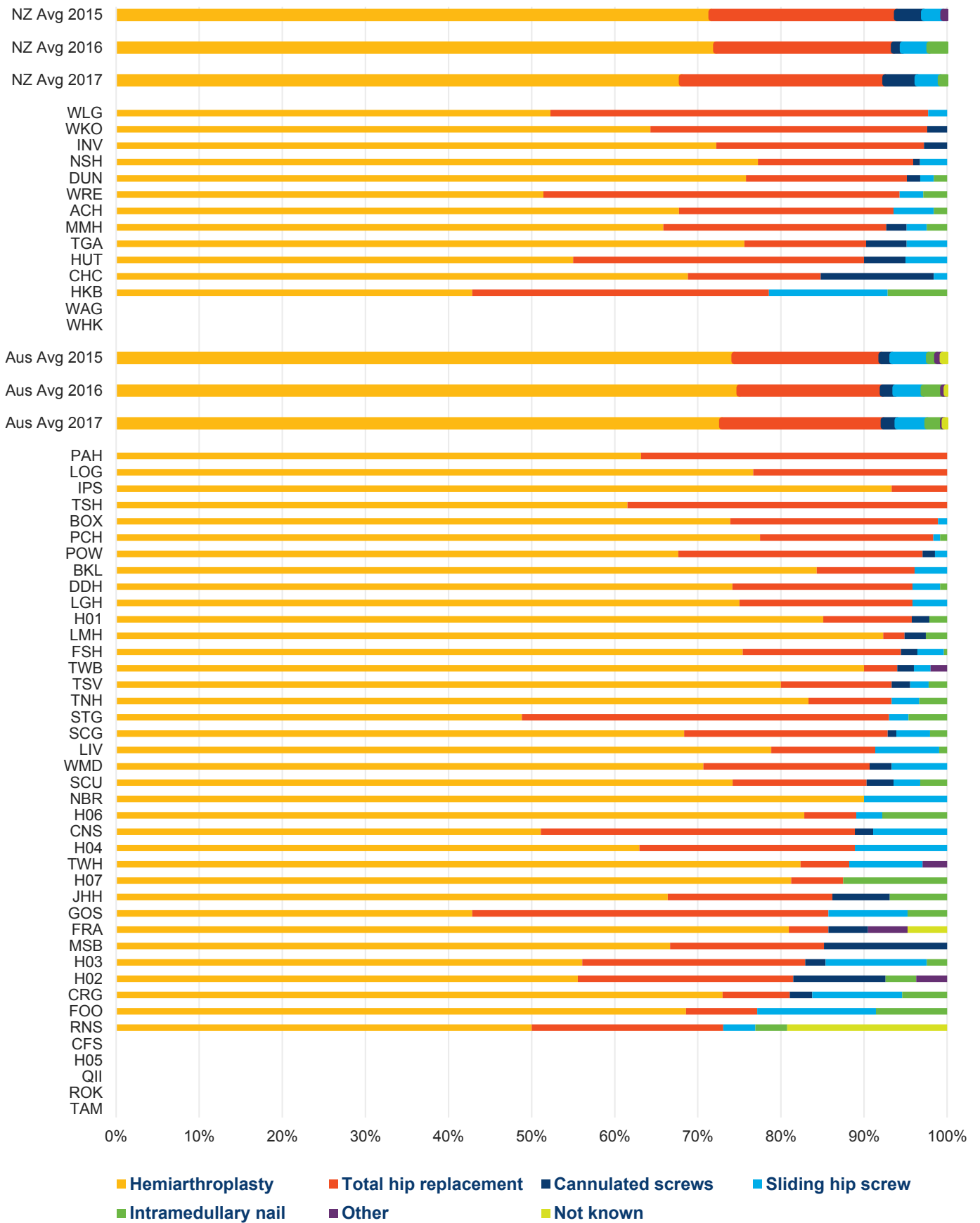




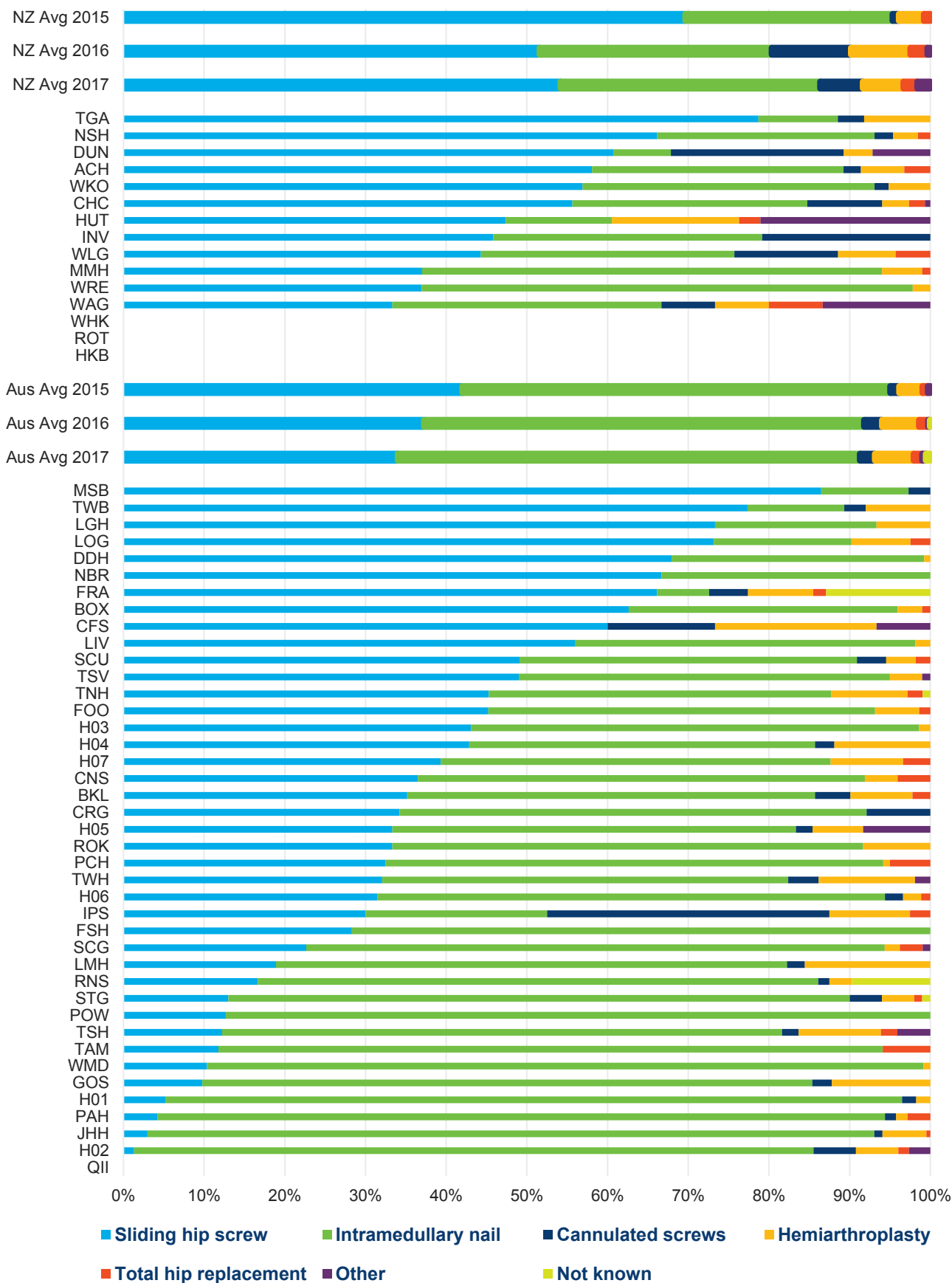
**FIGURE 28 PROCEDURE TYPE FOR INTRACAPSULAR FRACTURES UNDISPLACED/IMPACTED**



**FIGURE 29 PROCEDURE TYPE FOR INTRACAPSULAR FRACTURES DISPLACED**

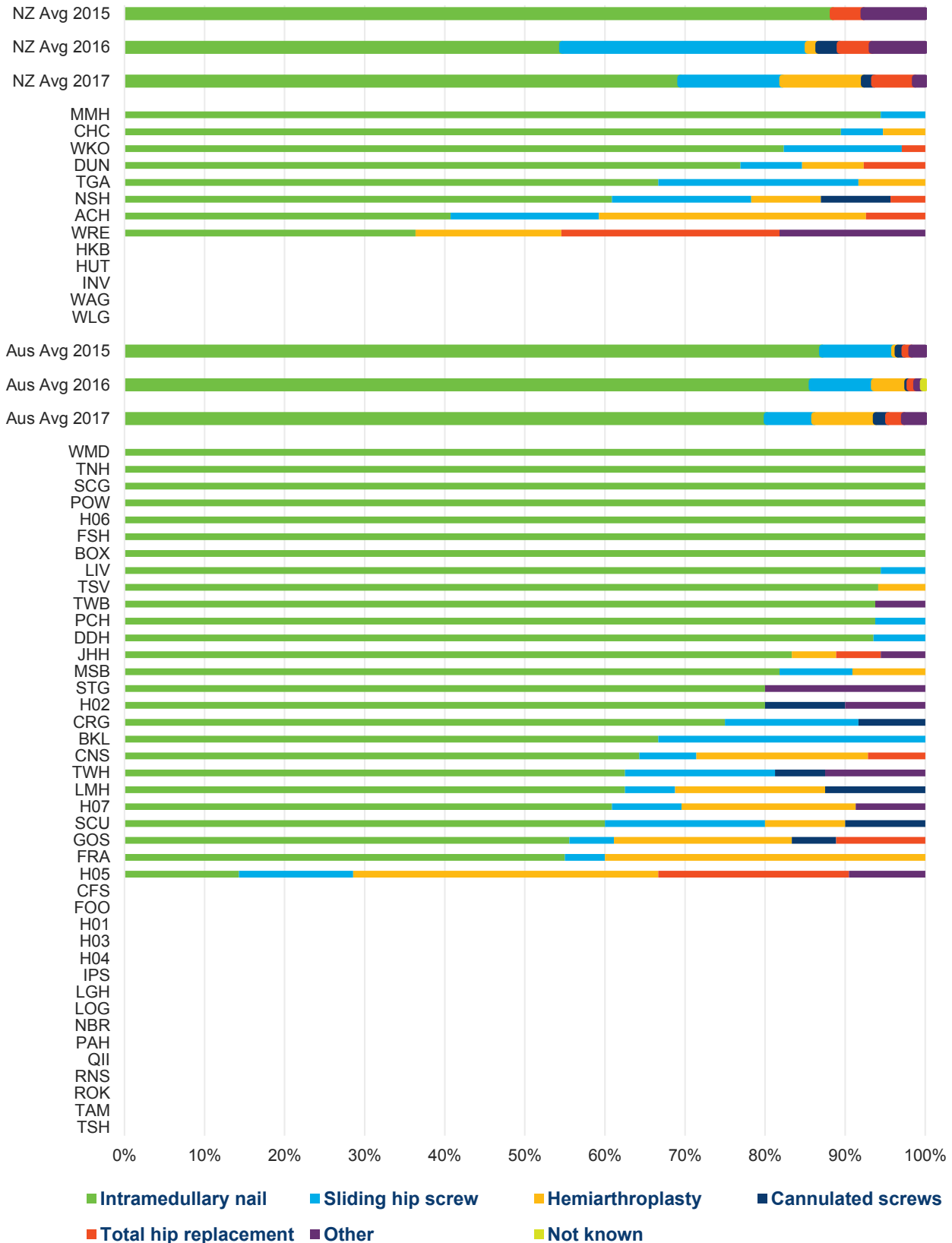


**FIGURE 30 PROCEDURE TYPE FOR INTERTROCHANTERIC FRACTURE INCLUDING BASAL/BASICERVICAL**



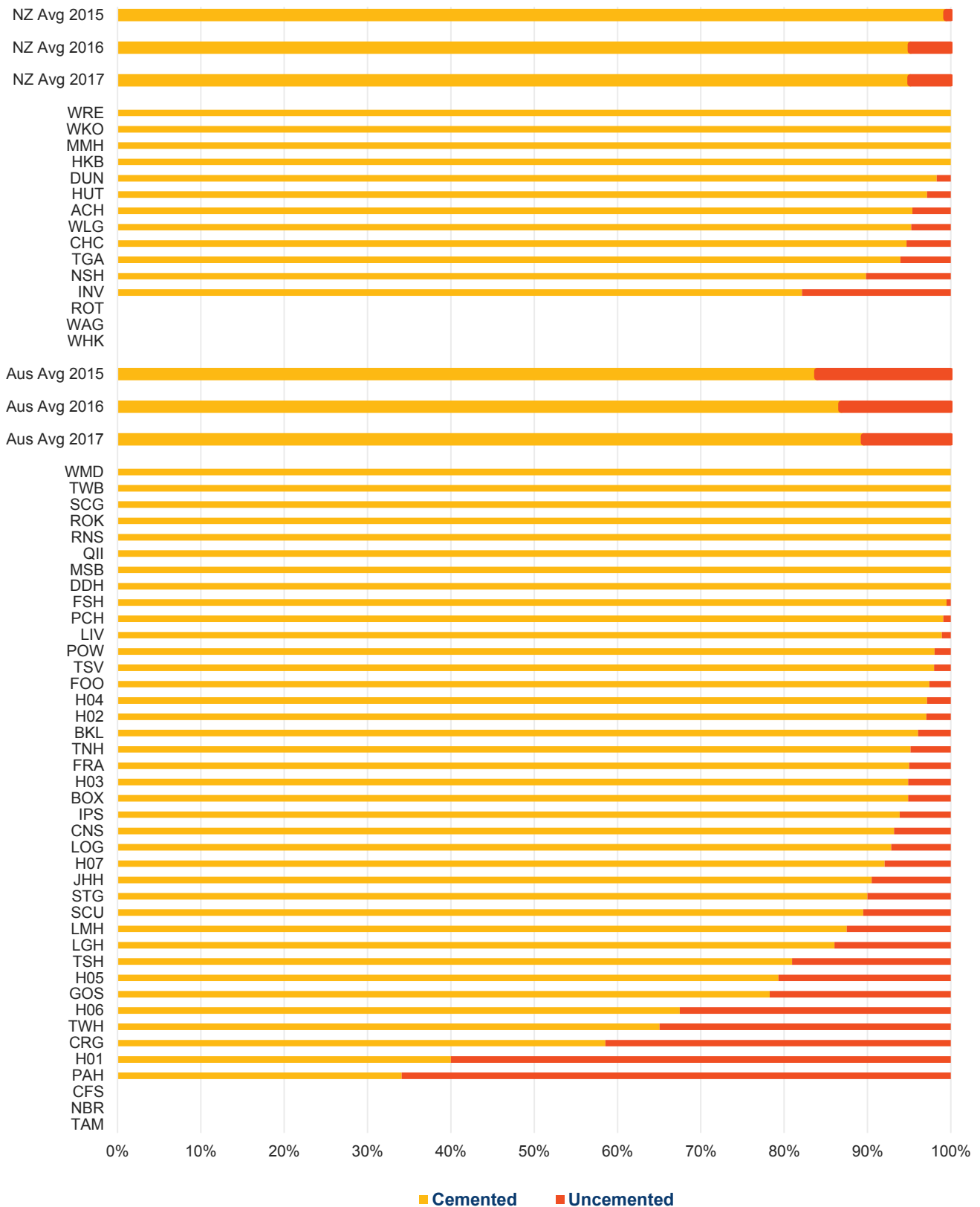


**FIGURE 31** PROCEDURE TYPE FOR SUBTROCHANTERIC FRACTURE



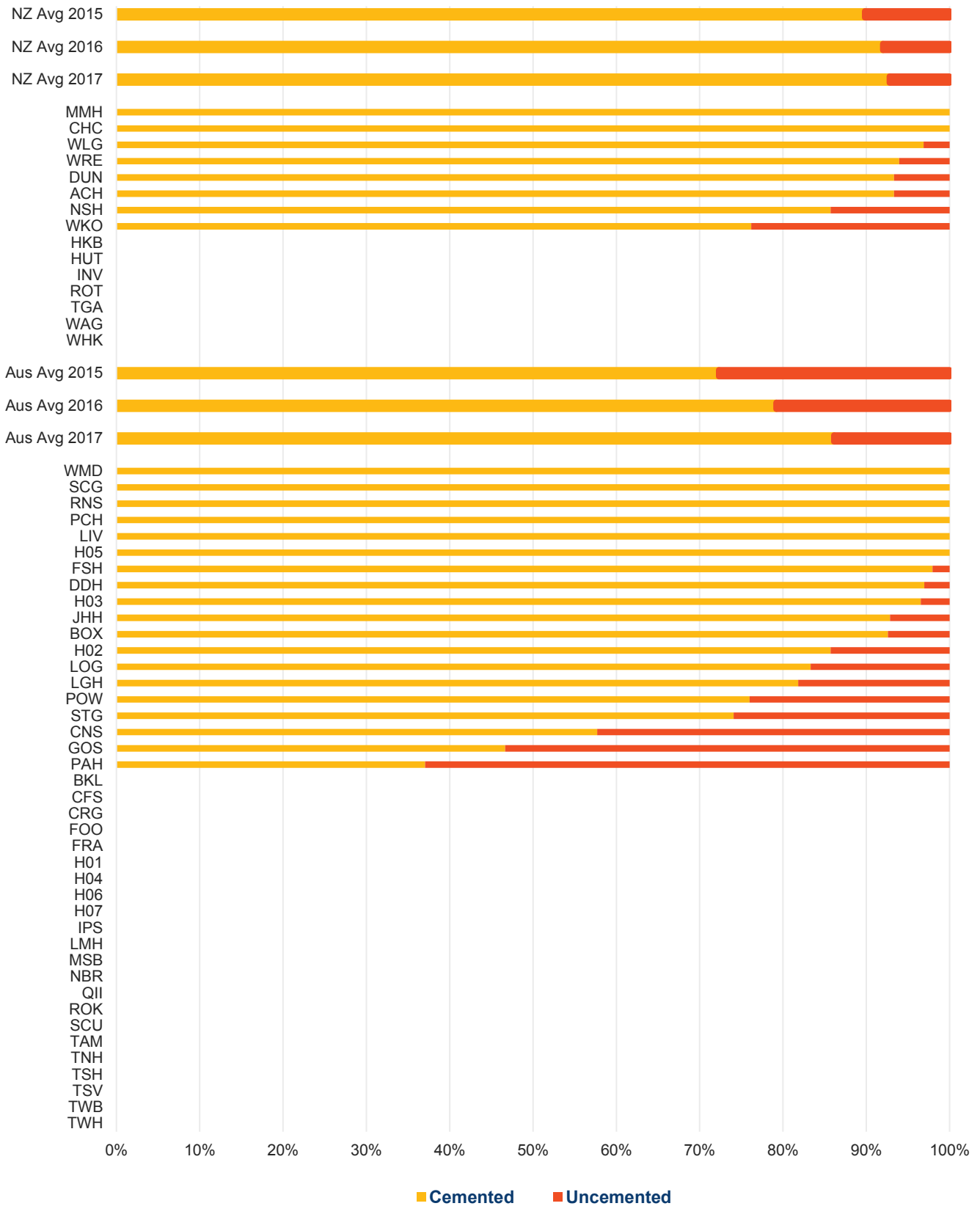


**FIGURE 32 HEMIARTHROPLASTY: USE OF CEMENT**





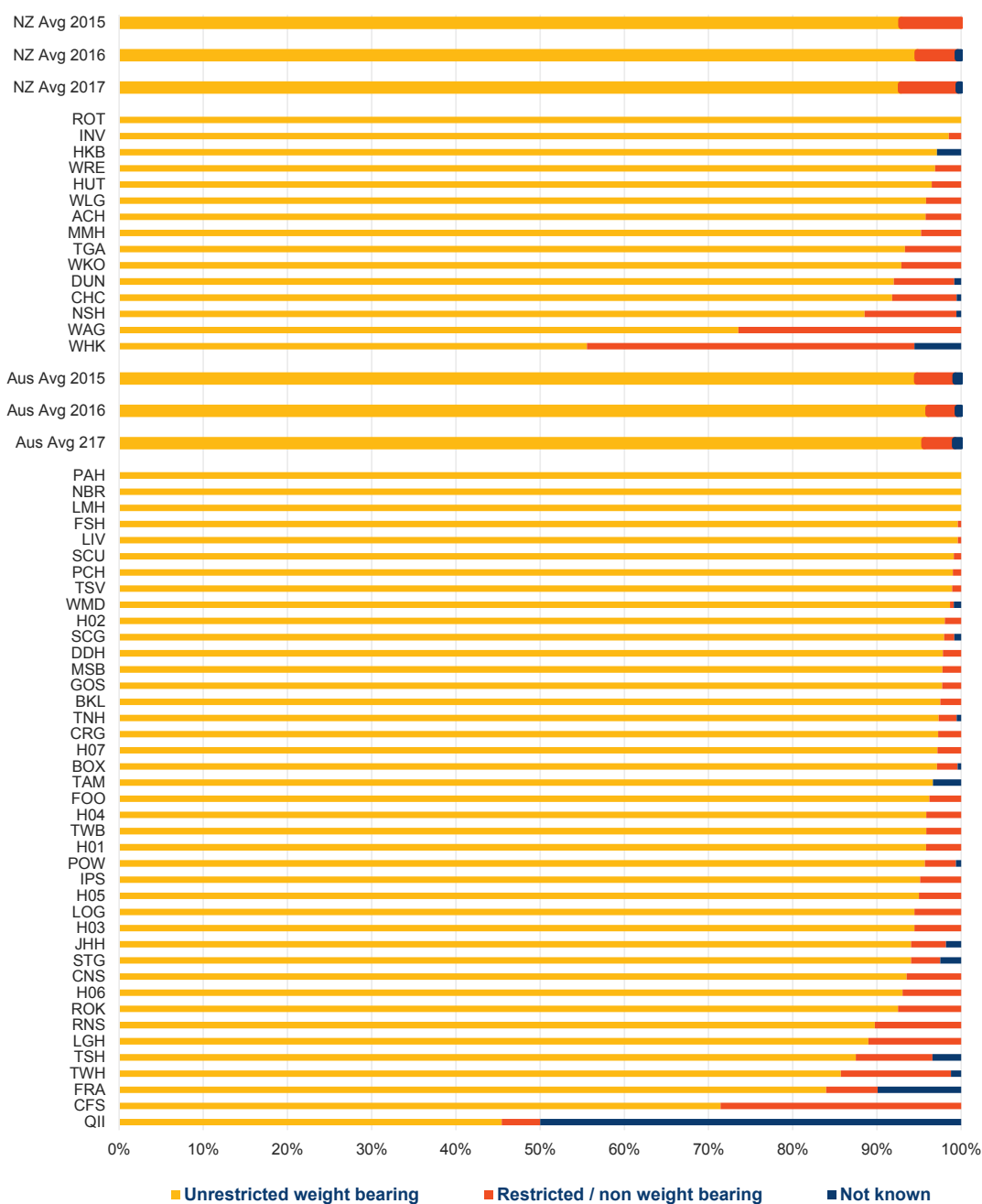
**FIGURE 33 TOTAL HIP REPLACEMENT: USE OF CEMENT**



# SECTION 4: POSTOPERATIVE CARE

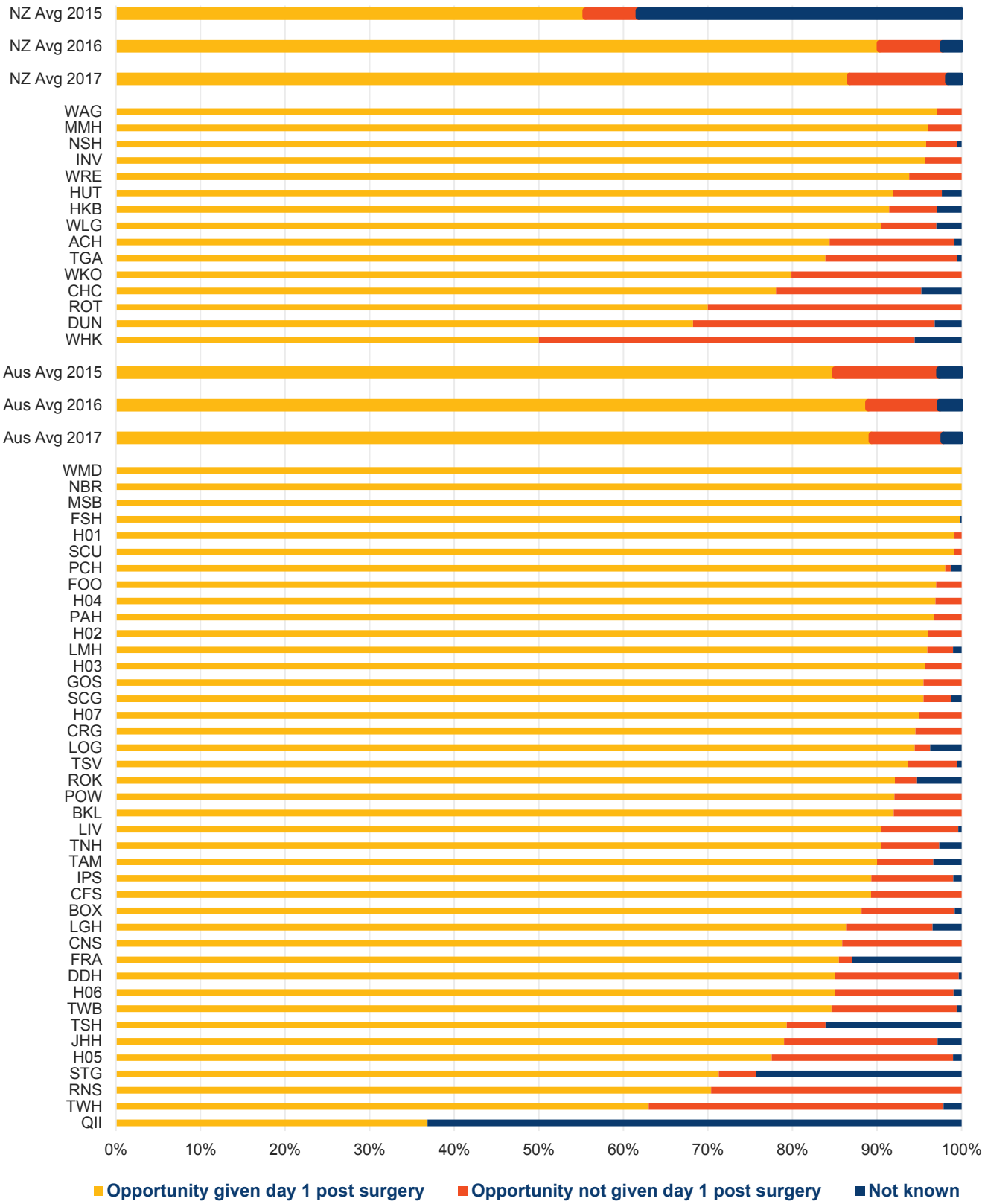
**FIGURE 34 WEIGHT BEARING STATUS AFTER SURGERY**

Previously, post-operatively, many patients were not permitted to weight bear fully 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 Care and the Hip Fracture Care Clinical Care Standard both recommend that patients be allowed full weight bearing without restriction immediately after surgery. Figure 34 shows that all but a small proportion of patients are allowed full weight bearing after surgery.



### FIGURE 35 FIRST DAY MOBILISATION

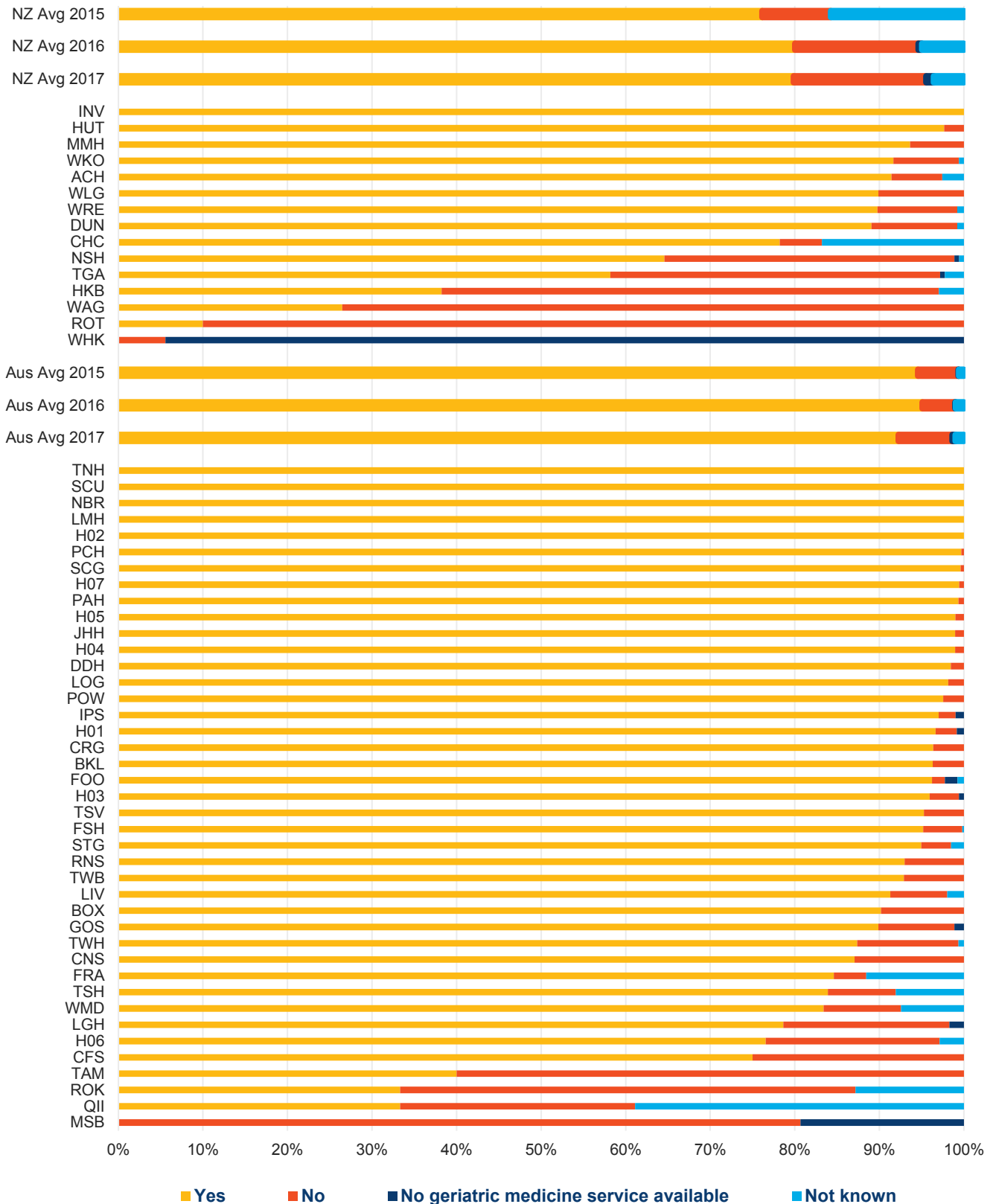
Quality statement 5 of the Hip Fracture Care Clinical Care Standard promotes early mobilisation of patients after hip fracture surgery. All hip fracture patients should be given the opportunity to sit out of bed and start to mobilise the day after surgery unless there is a specific documented contraindication. In New Zealand and Australia, 87% and 89%, respectively, of patients are given the opportunity to mobilise the day after surgery.



**FIGURE 36 ASSESSED BY GERIATRIC MEDICINE**

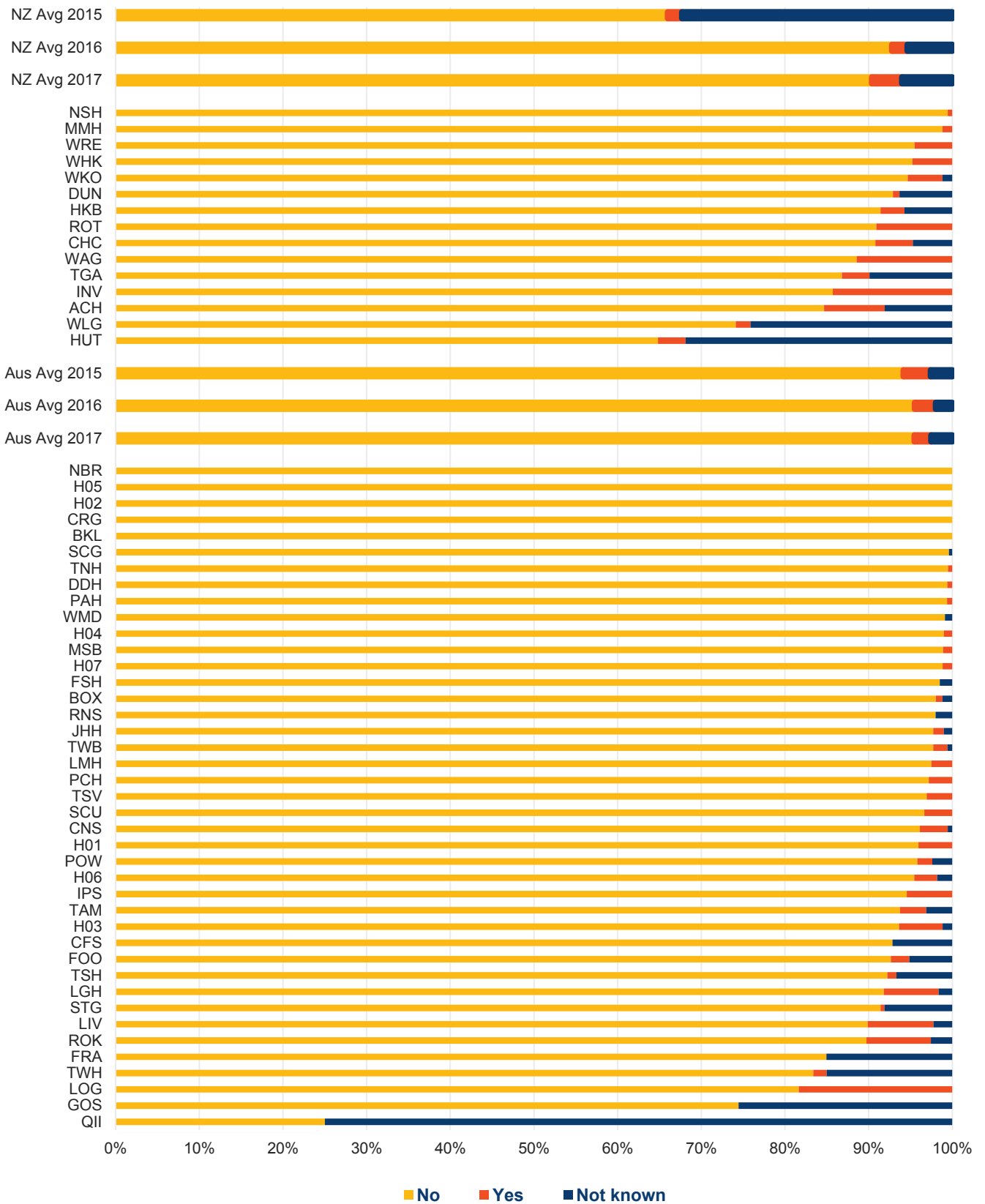
Quality statement 3 of the Hip Fracture Care Clinical Care Standard promotes the orthogeriatric model of care where physicians (usually geriatricians) provide medical support for hip fracture patients in partnership with the orthopaedic surgeons. Service models differ across hospitals with some offering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

In New Zealand, 80% of hip fracture patients saw a geriatrician at some stage in their acute hospital stay compared to 92% in Australia. As more hospitals join the Registry we may see a drop in this proportion as smaller sites and non-metropolitan sites are likely to have less access to a geriatrician.



### FIGURE 37 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, 3.6% and 2.0% of patients, respectively, are documented as having sustained a pressure injury.

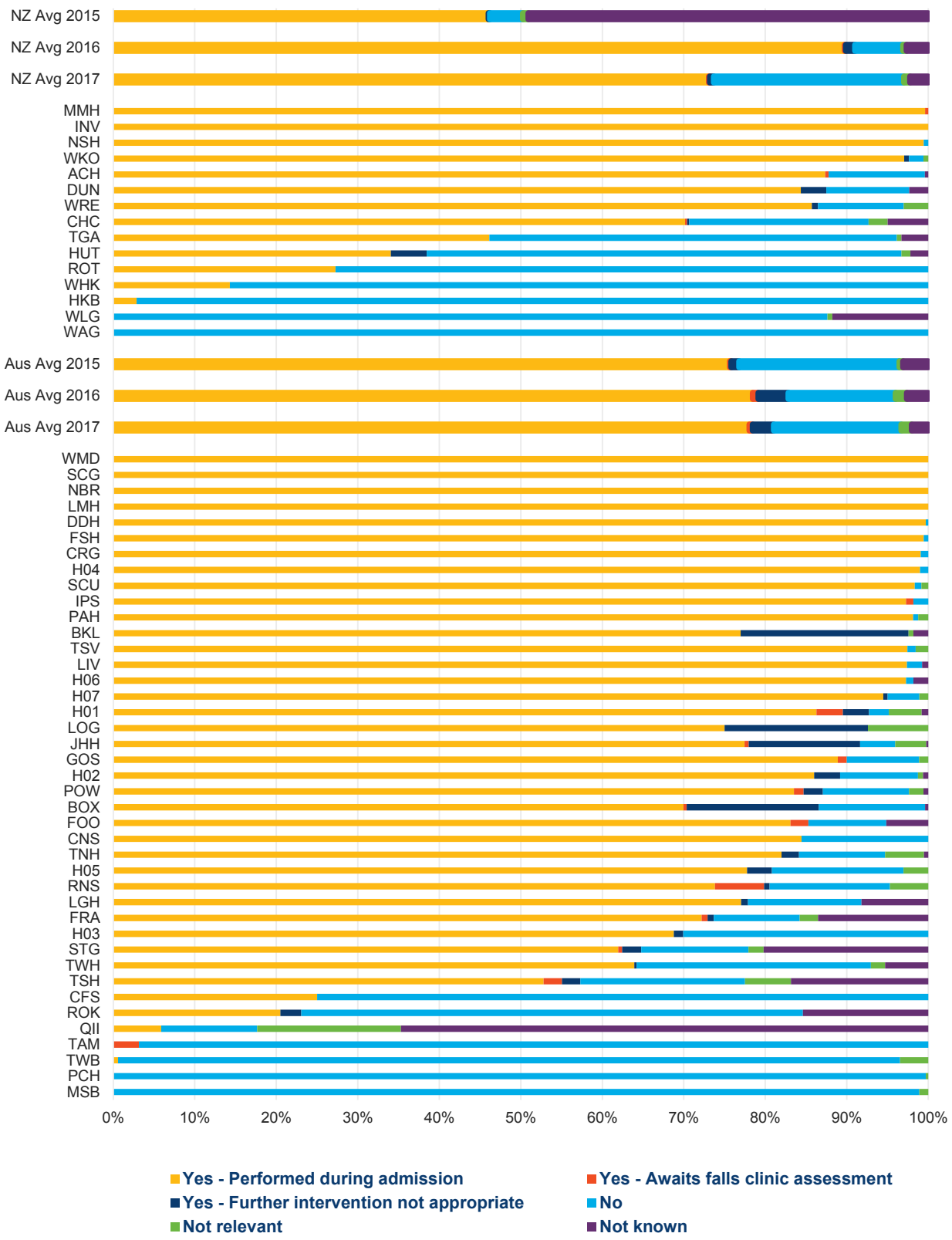




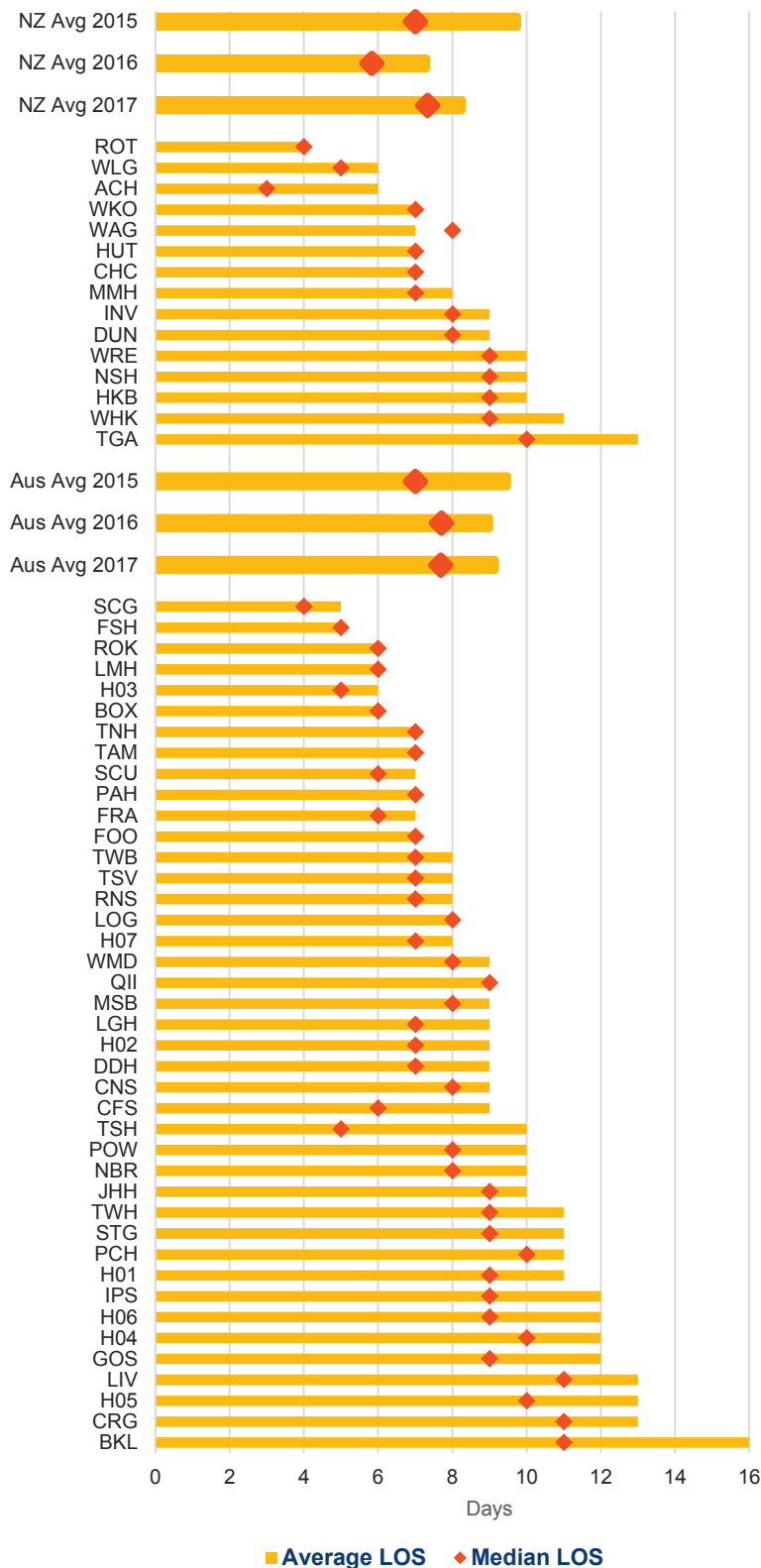
### FIGURE 38 SPECIALIST FALLS ASSESSMENT

A minimal trauma fracture is a strong predictor of risk of a second fracture. Quality statement 6 of the Hip Fracture Care Clinical Care Standard 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.

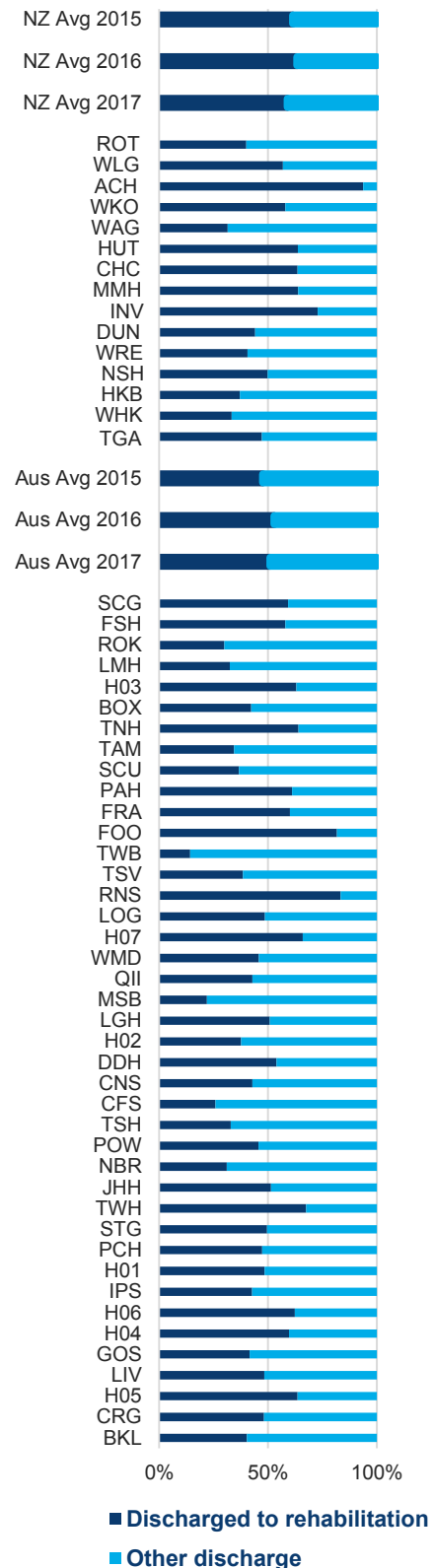
The ANZ Guideline for Hip Fracture Care recommends that hip fracture patients should be assessed for falls risk: this should consist of an assessment by a suitably trained health professional and cover fall history, risk factors for falls, including medication review, and formulation of a future plan to prevent further falls. In New Zealand, 74% of patients are reported to have undergone a falls assessment during their in-patient stay. In Australia, 81% of patients underwent a fall risk assessment during their in-patient stay.



**FIGURE 39**  
**ACUTE LENGTH OF STAY (LOS)**



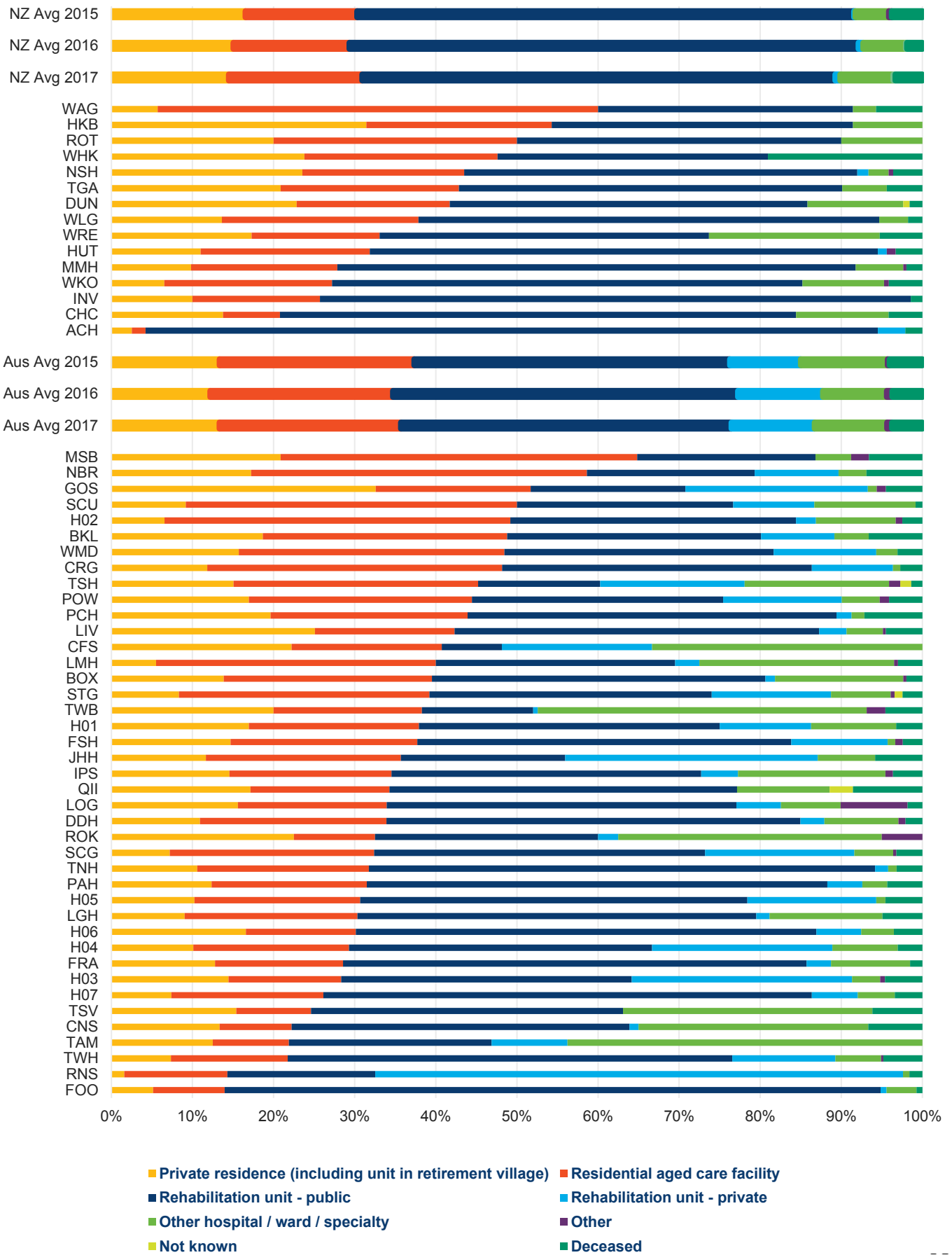
**FIGURE 40**  
**DISCHARGE TO REHABILITATION**



Substantial variation is seen in mean and median length of stay (LOS) in the acute ward in both New Zealand and Australia. The median LOS in New Zealand is 7.3 days and 59% of patients are transferred to rehabilitation. In Australia, the median length of stay in the acute ward is 7.7 days and 51% are transferred to rehabilitation.

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. Average total 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 4I DISCHARGE DESTINATION FROM THE ACUTE WARD**



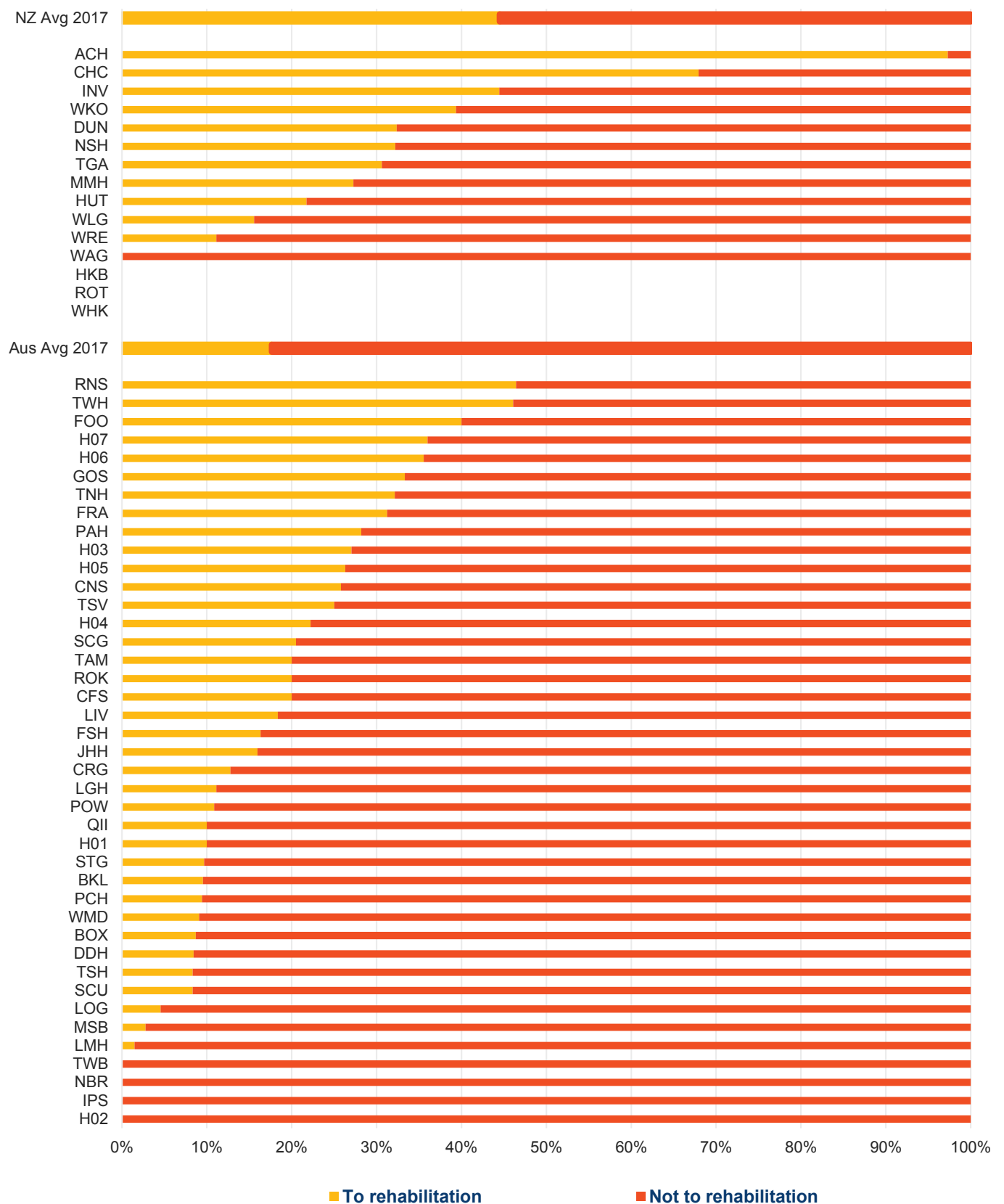


**“We are using the data to scope the opportunities for providing rehabilitation to patients who discharge to residential care and identifying the volume of work this would involve. Our staff are doing a great job collecting this data and I now feel that we can make the most of this rich information to generate new knowledge in hip fracture care. We now have clinically relevant information to add to existing databases.”**

**Geriatrician, New Zealand**



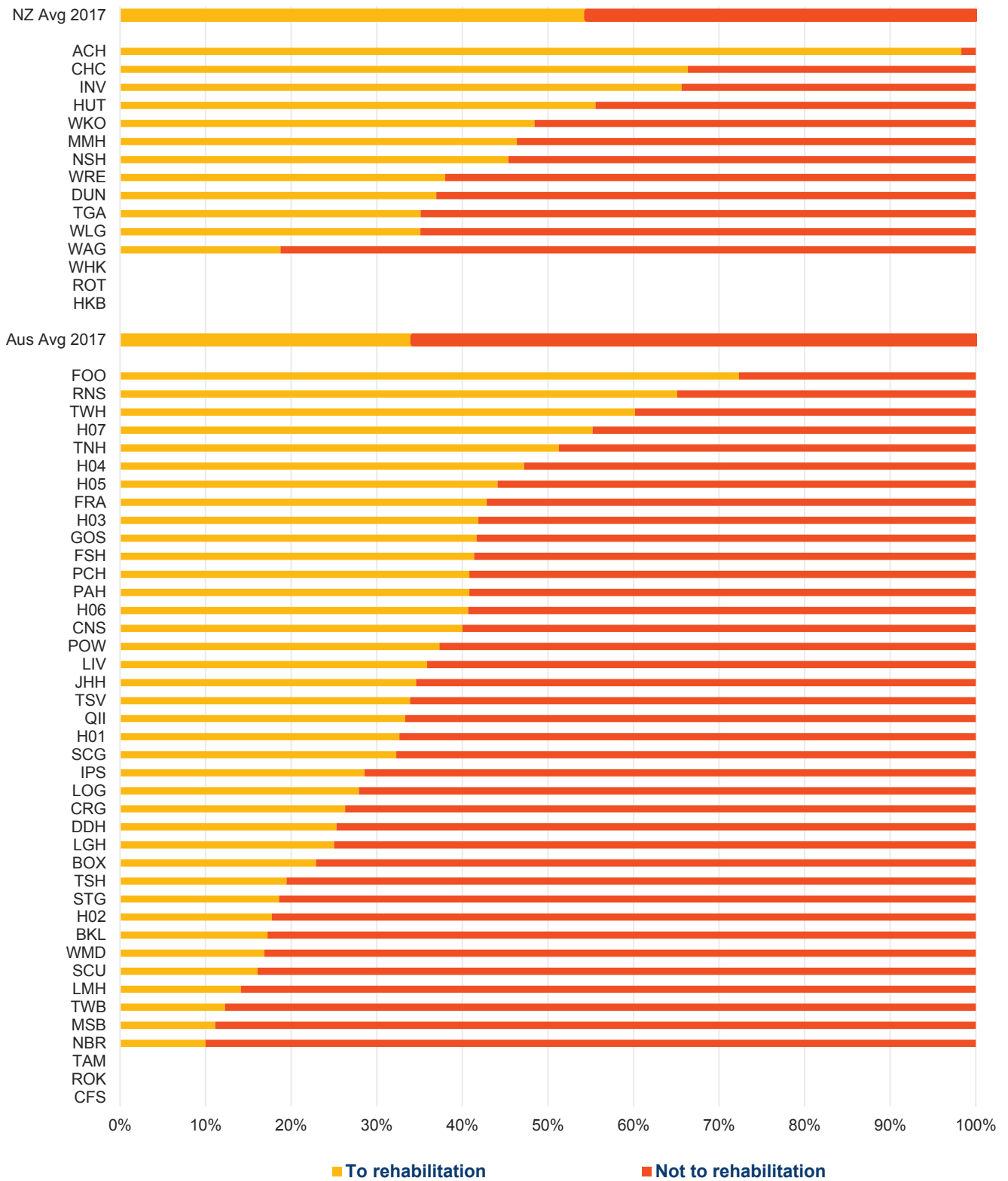
**FIGURE 42 RESIDENTIAL AGED CARE TO REHABILITATION (PUBLIC OR PRIVATE)**



Overall, 45% of people from residential aged care are transferred for rehabilitation after their acute care for their hip fracture in New Zealand. This contrasts with 18% of hip fracture patients in Australia. Wide variation in practice is evident. More work is needed in this area to explore why the variation exists and more importantly, the impact it has on the individual longer term.

## FIGURE 43 IMPAIRED COGNITION BEFORE ADMISSION AND DISCHARGED TO REHABILITATION

Overall, 55% of people with pre-existing cognitive impairment were transferred for rehabilitation after their acute care in New Zealand. This contrasts with 34% of hip fracture patients with pre-existing cognitive impairment in Australia. Wide variation in practice is evident. More work is needed in this area to explore why the variation exists and more importantly, the impact it has on the individual longer term.

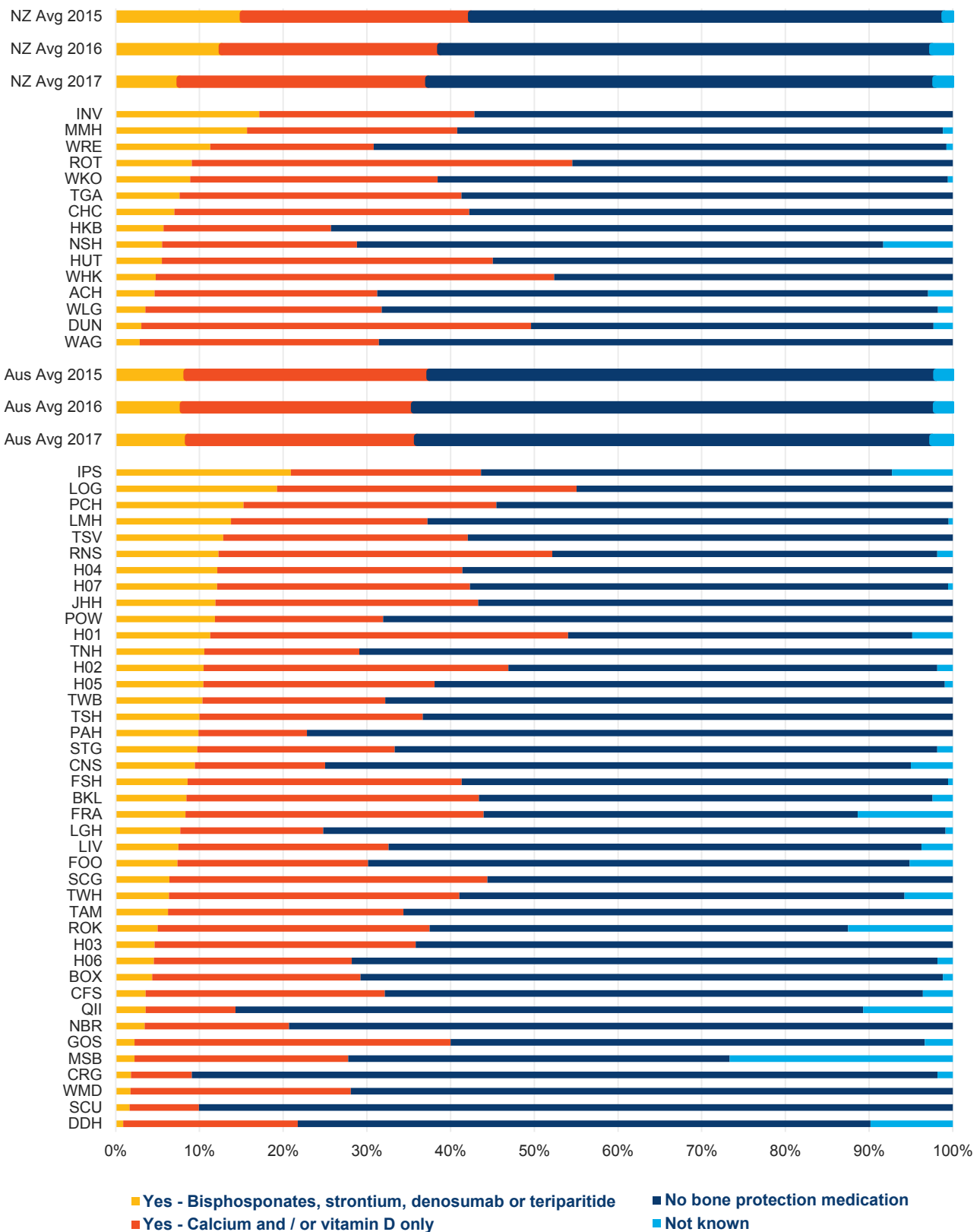




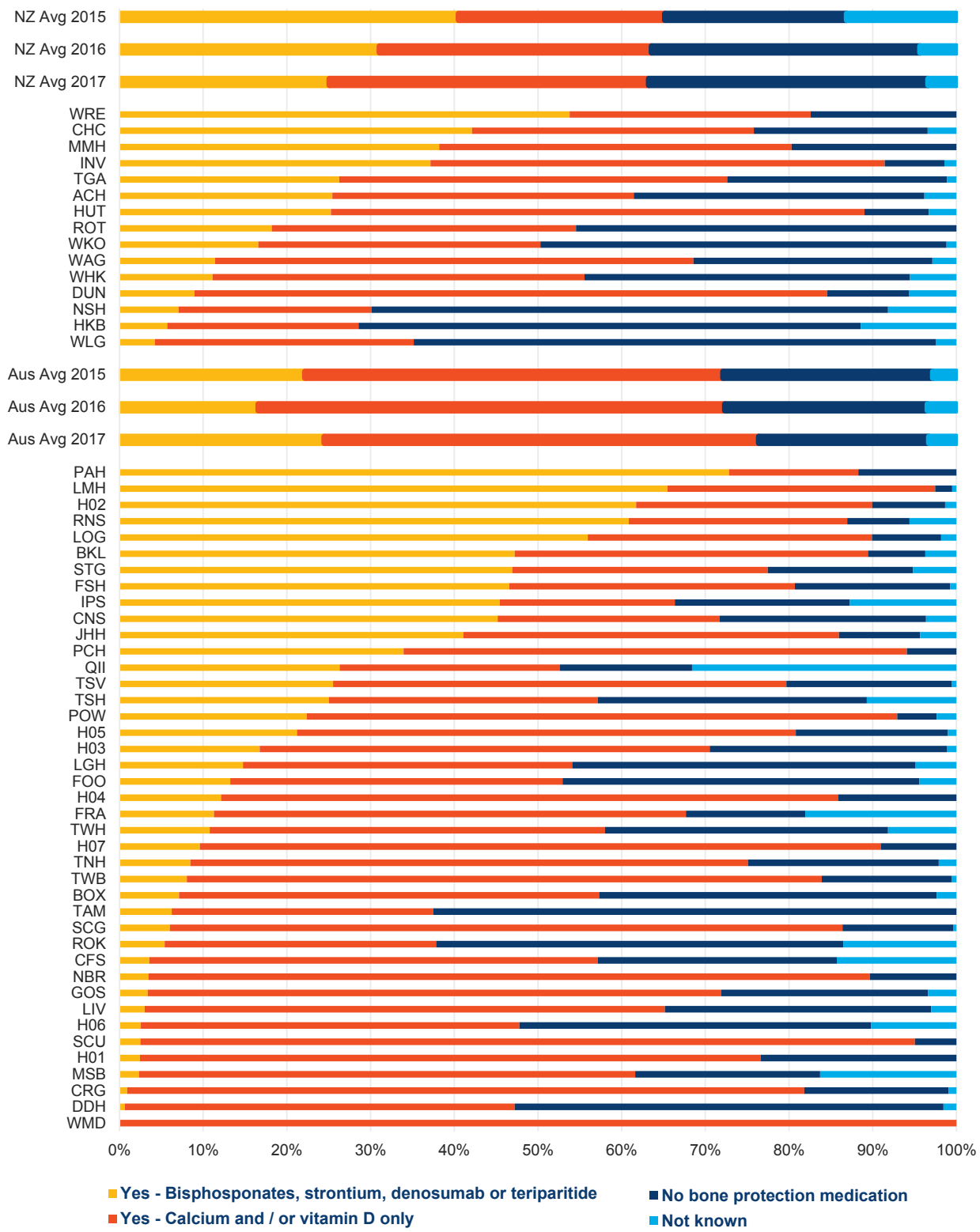
## FIGURE 44 BONE PROTECTION MEDICATION ON ADMISSION

The majority of people admitted with a hip fracture were not on any form of pharmacological treatment for bone health prior to their fracture despite evidence in the literature demonstrating that up to 50% of these people will have already sustained a minimal trauma fracture.

In New Zealand, 37% of people were recorded as on calcium and/or vitamin D at admission whilst 8% were recorded as taking active treatment for osteoporosis above and beyond calcium and/or vitamin D. In Australia, 36% of people were recorded as on calcium and/or vitamin D at admission whilst 9% were recorded as taking active treatment for osteoporosis above and beyond calcium and/or vitamin D. These proportions suggest a significant and ongoing care gap in secondary fracture prevention in both countries.



**FIGURE 45 BONE PROTECTION MEDICATION ON DISCHARGE**



Quality statement 6 of the Hip Fracture Care Clinical Care Standard 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, 25% of hip fracture patients left hospital on a bisphosphonate, denosumab or teriparatide compared to 8% on admission. In Australia, 24% of patients left hospital on a bisphosphonate, denosumab or teriparatide compared to 9% on admission. Whilst not always possible to initiate treatment in the acute setting, the data continues to highlight a significant care gap and missed opportunity to improve bone health and contribute towards secondary fracture prevention.

# SECTION 5: 30 AND 120 DAY FOLLOW-UP

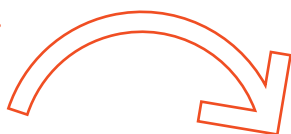


**“What I did not appreciate was the value that the follow-up phone calls have on individual patients. It made me realise we discharge these patients after a big operation and often long length of stay, with no follow up, just a good-bye. The follow-up allows the patient to feel valued and listened to, proud to tell their achievements.”**

**ANZHR Hip Fracture Coordinator**

Figures 46 and 47 show the rate of 30-day and 120-day follow-up for each hospital. Follow-up is undertaken by sites by telephone and the variation reflects local differences in resources and prioritisation, as this task requires the use of local staff to contact patients and is labour-intensive.

For figures 48 to 58, hospitals are reported only if they have followed up 80% or more of eligible patients.

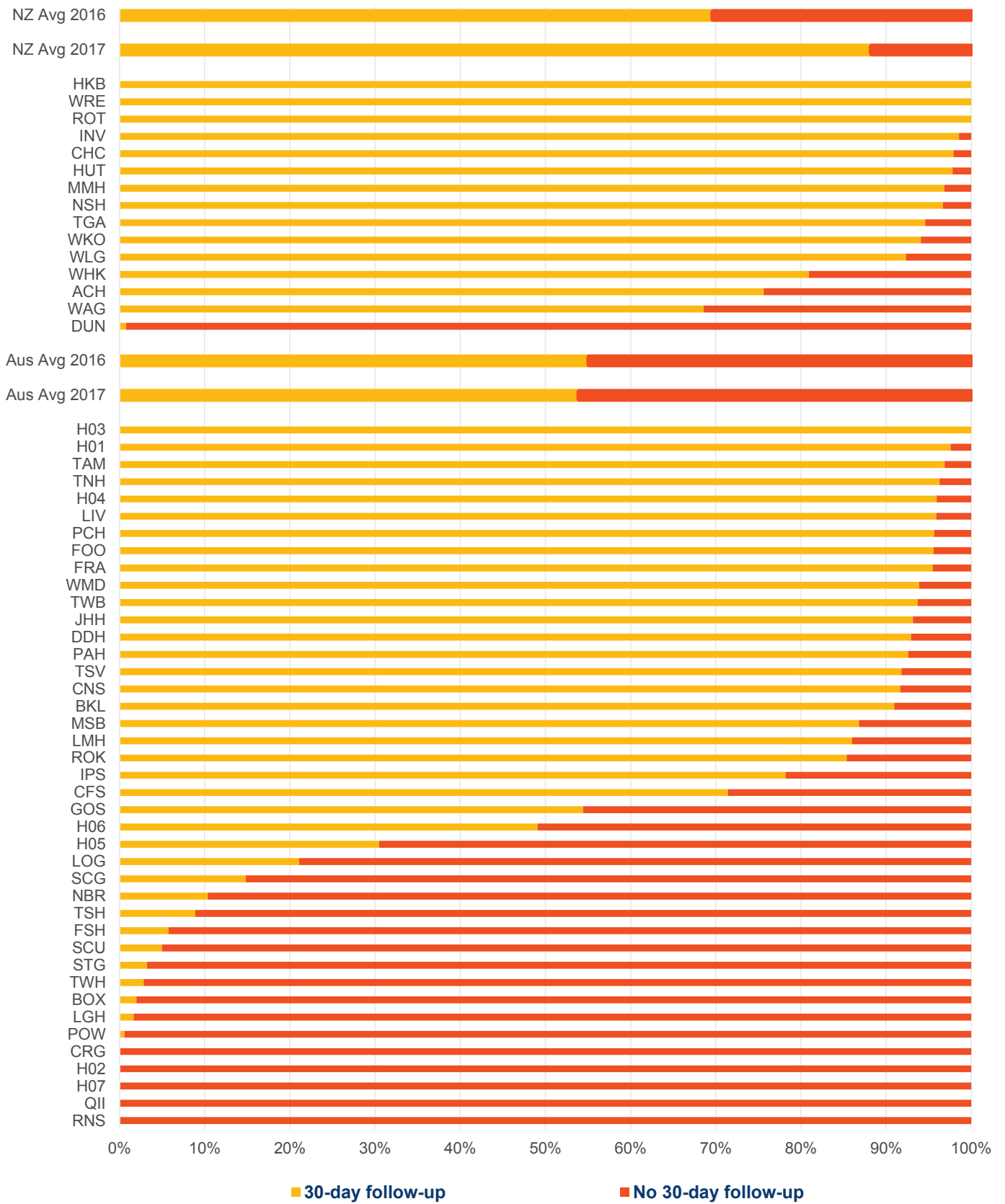


**In New Zealand 88% of patient records had 30-day follow up data and 80% had data for 120-days.**

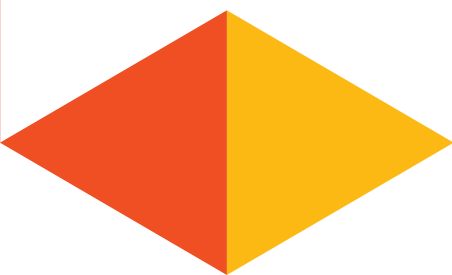
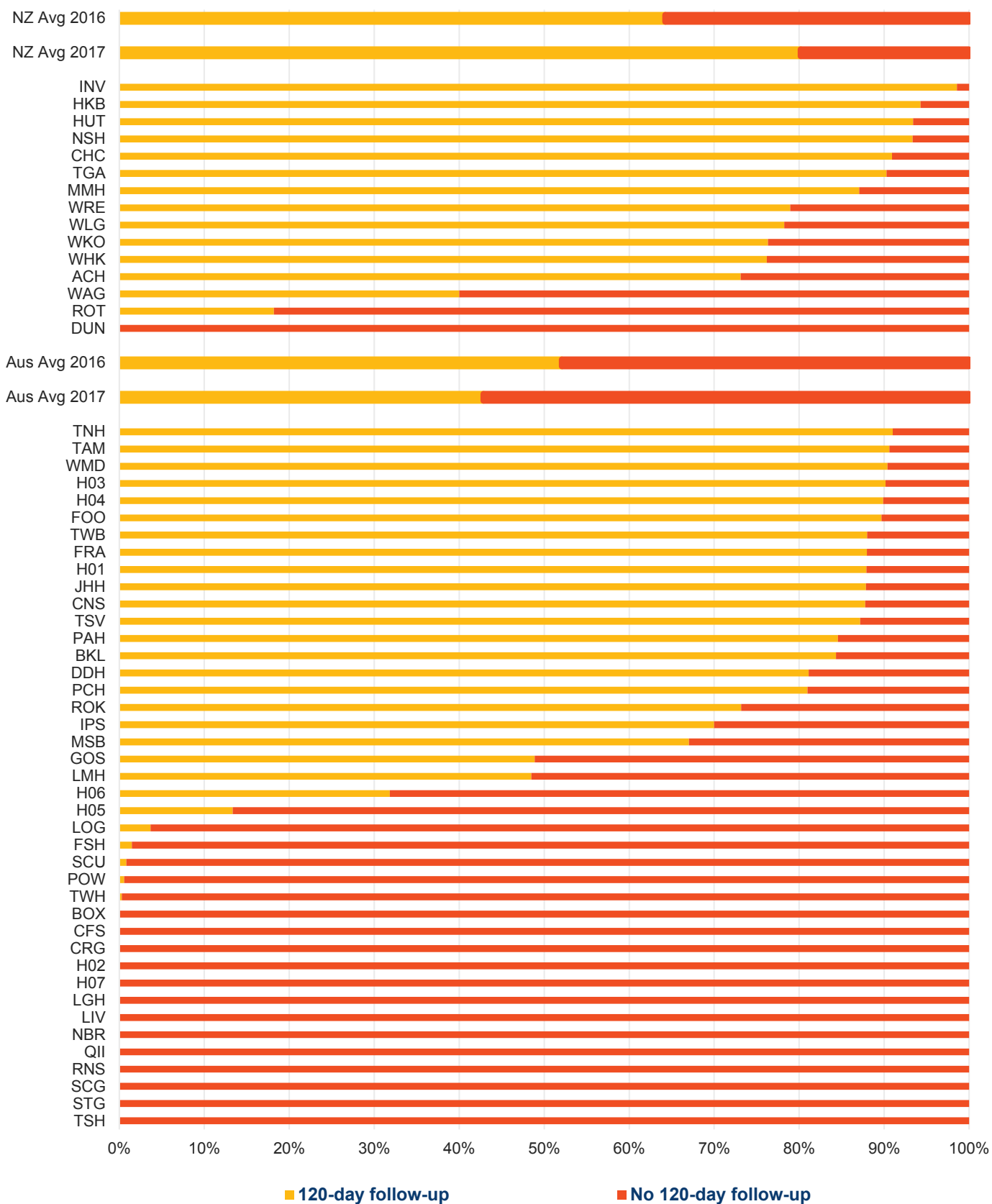


**In Australia, 54% of patient records had 30-day follow up data and 43% had data for 120-days.**

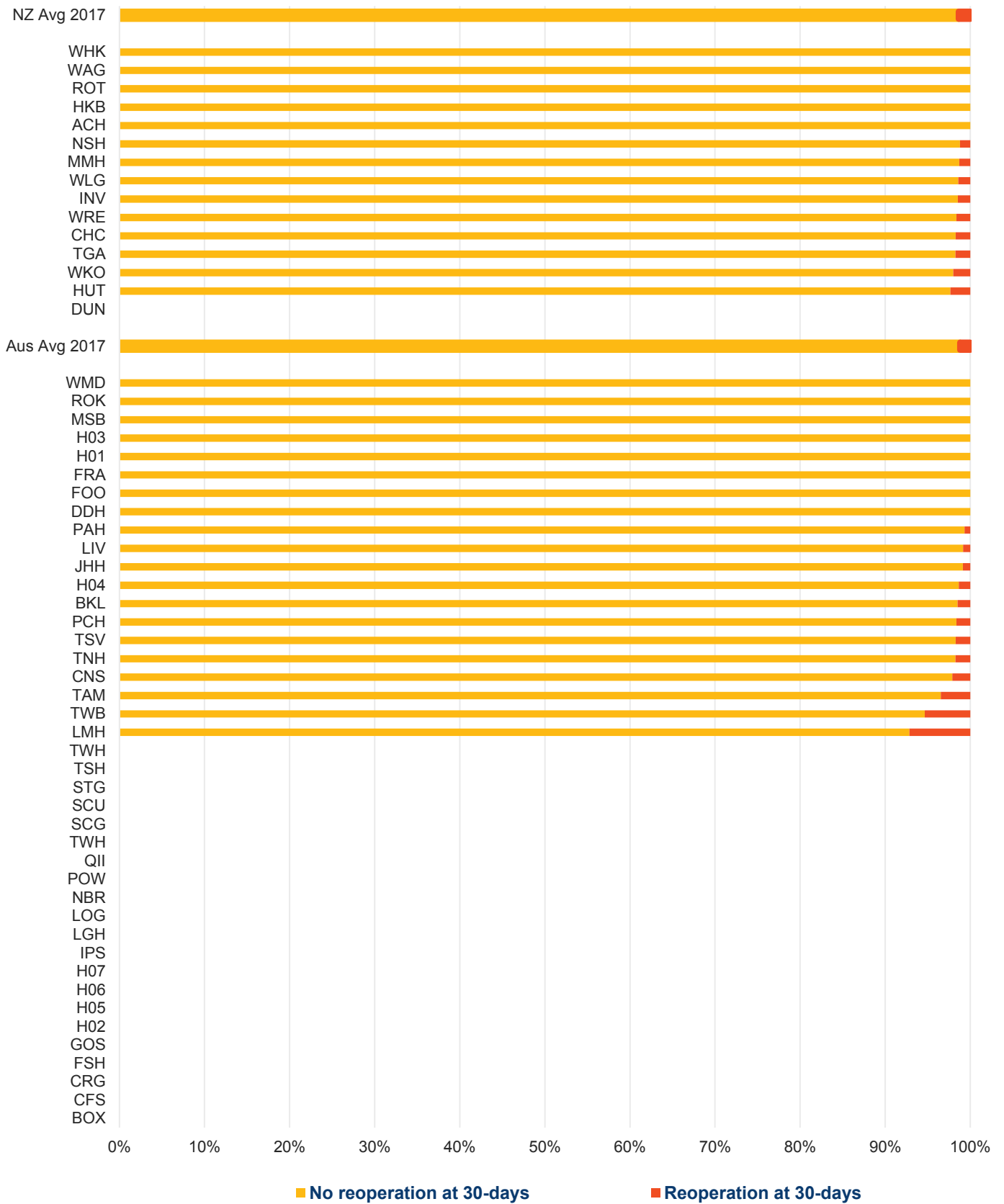
**FIGURE 46 FOLLOW UP AT 30-DAYS**



**FIGURE 47 FOLLOW UP AT 120-DAYS**



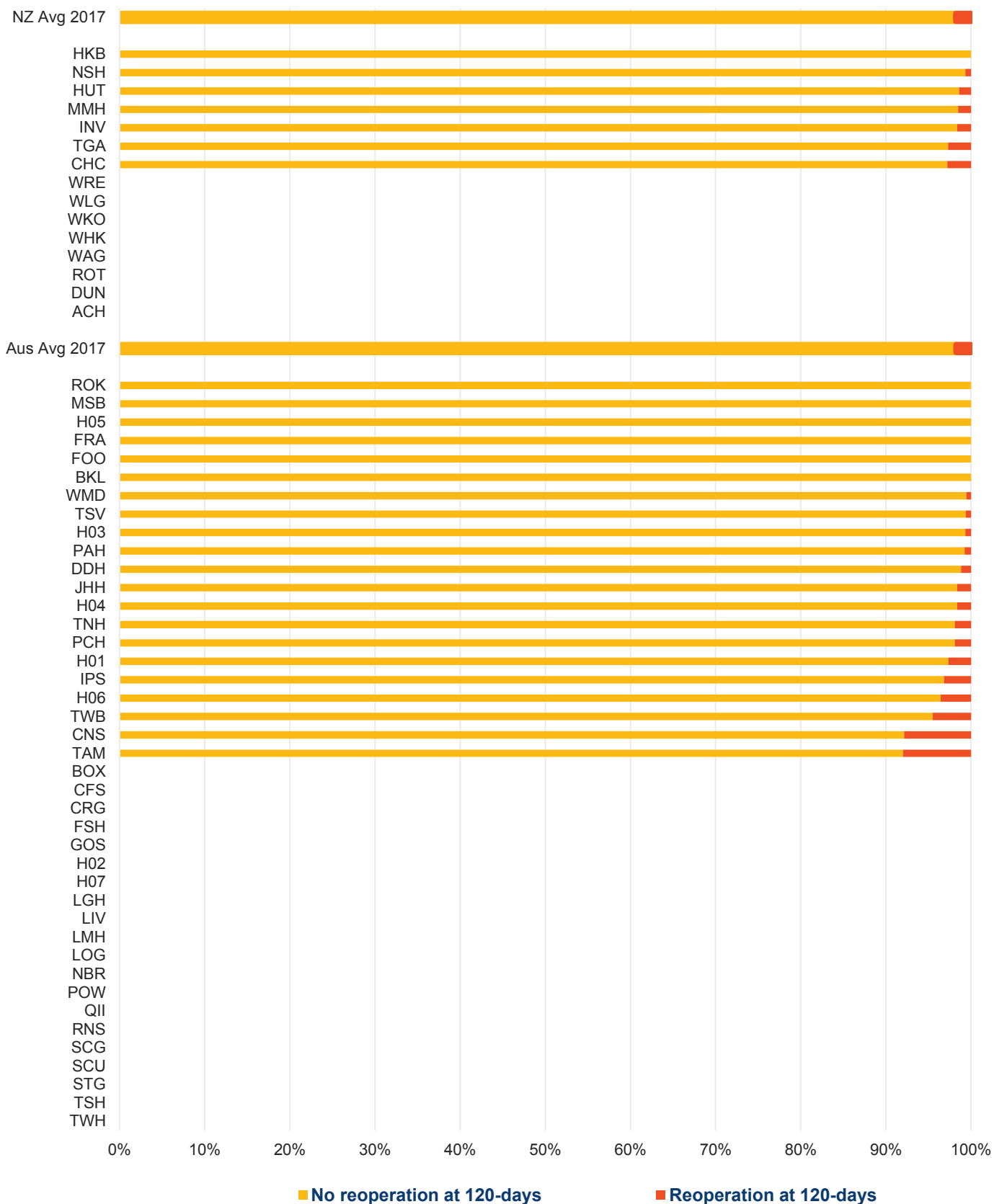
**FIGURE 48 REOPERATION AT 30 DAYS**



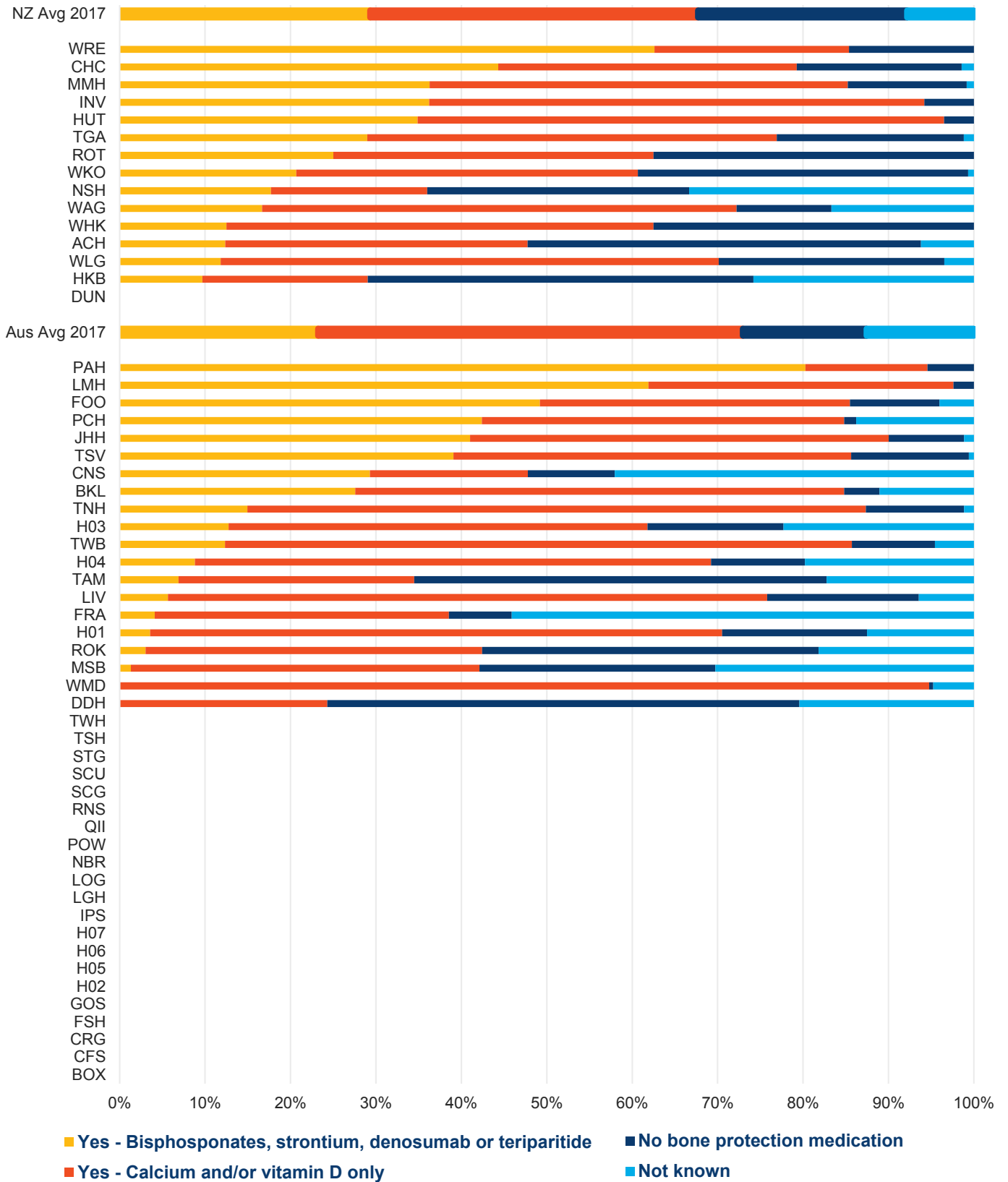
Figures 48 and 49 show that at 30- and 120-days, the rate of reoperation was low.



**FIGURE 49 REOPERATION AT 120-DAYS**



**FIGURE 50 BONE PROTECTION MEDICATION AT 30-DAYS**

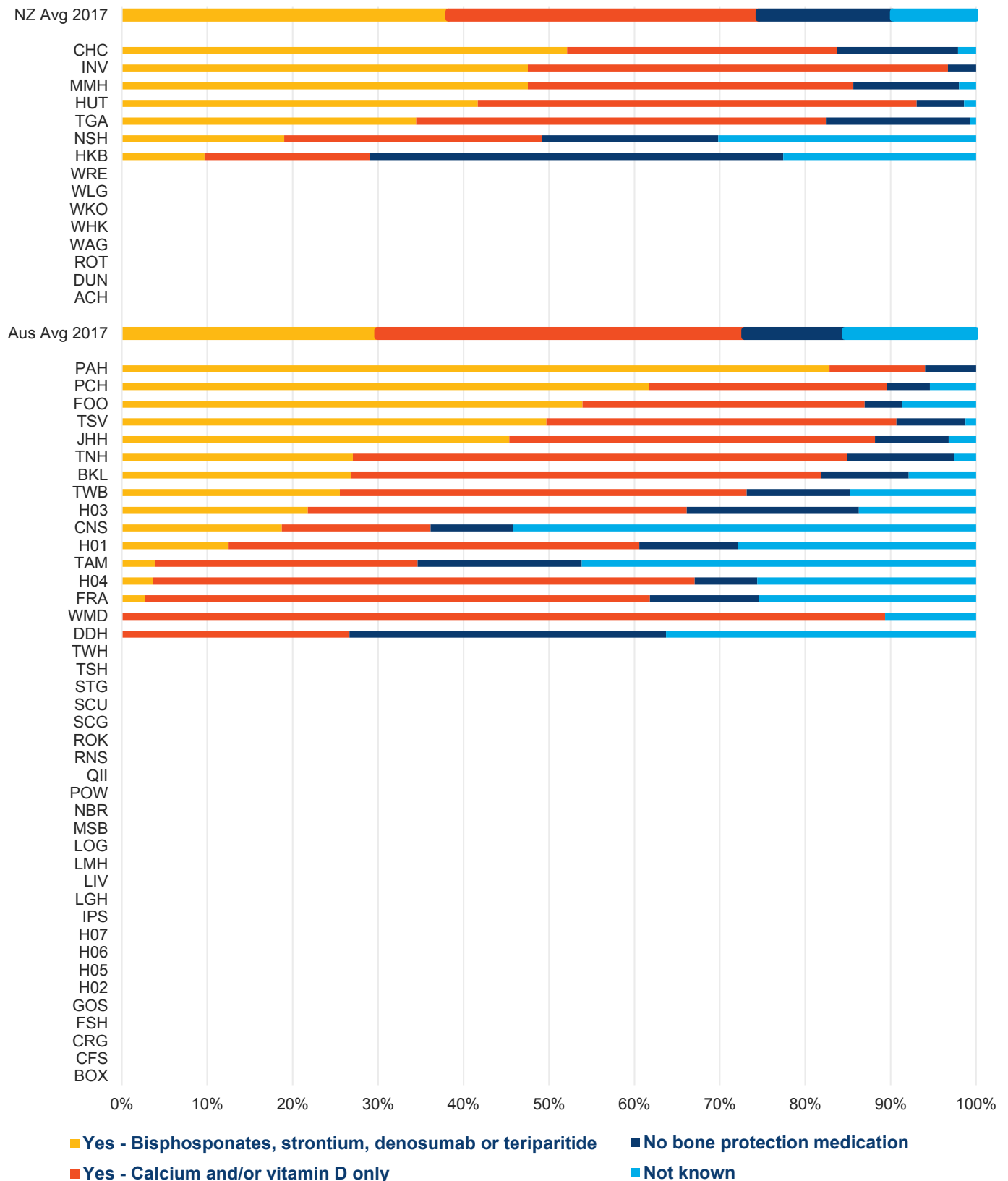


Figures 50 and 51 show that most patients are not provided with medication to prevent further fractures at 30 or 120 days after admission to hospital. There is considerable variation between hospitals and the data suggests minimal improvement in the care gap in secondary fracture prevention seen at discharge from hospital.

**"I work as a Fracture Liaison Nurse and the Registry has highlighted a gap in our patient's after-hospital bone health care. Our patient's are now followed-up by the Fracture Prevention Service. I really do love this role and the outcome of making a difference."**

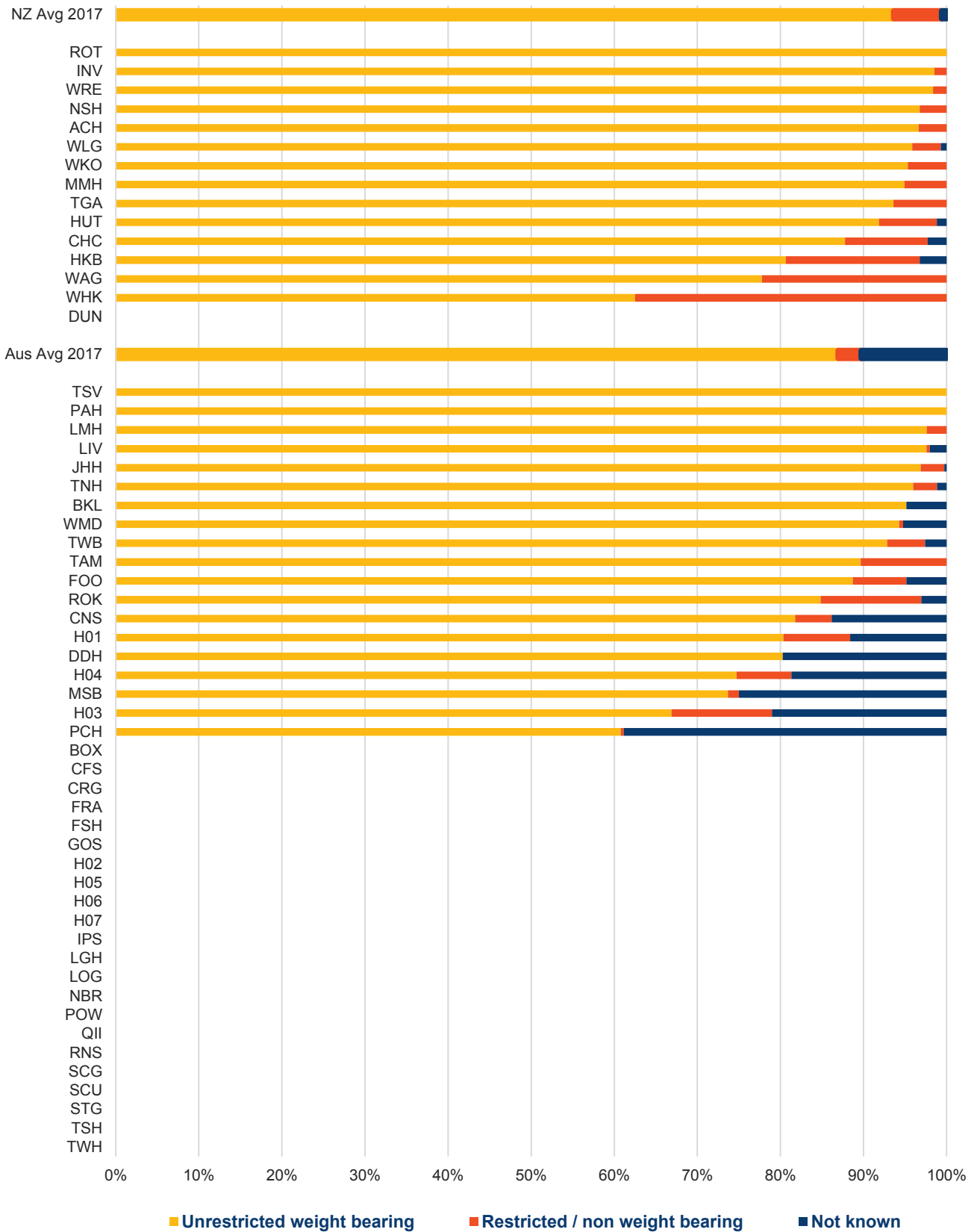
**Fracture Liaison Nurse**

**FIGURE 51 BONE PROTECTION MEDICATION AT 120-DAYS**



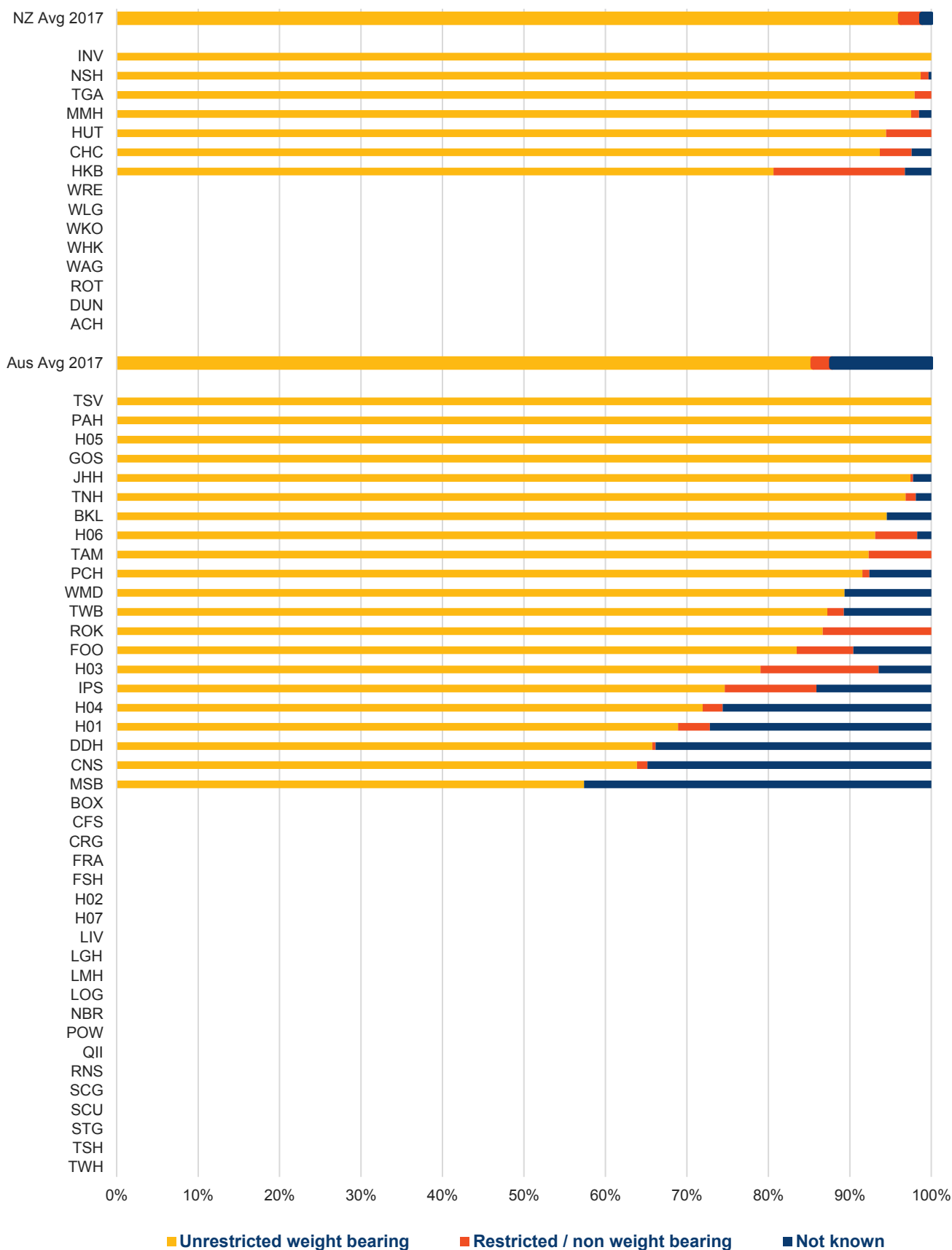
## FIGURE 52 UNRESTRICTED WEIGHT BEARING AT 30-DAYS

Figure 52 shows that a small proportion of patients remain with weight bearing restrictions at 30-days post-operatively. This is likely to be because weight-bearing restrictions are usually applied for a period of at least 6 weeks post-surgery.



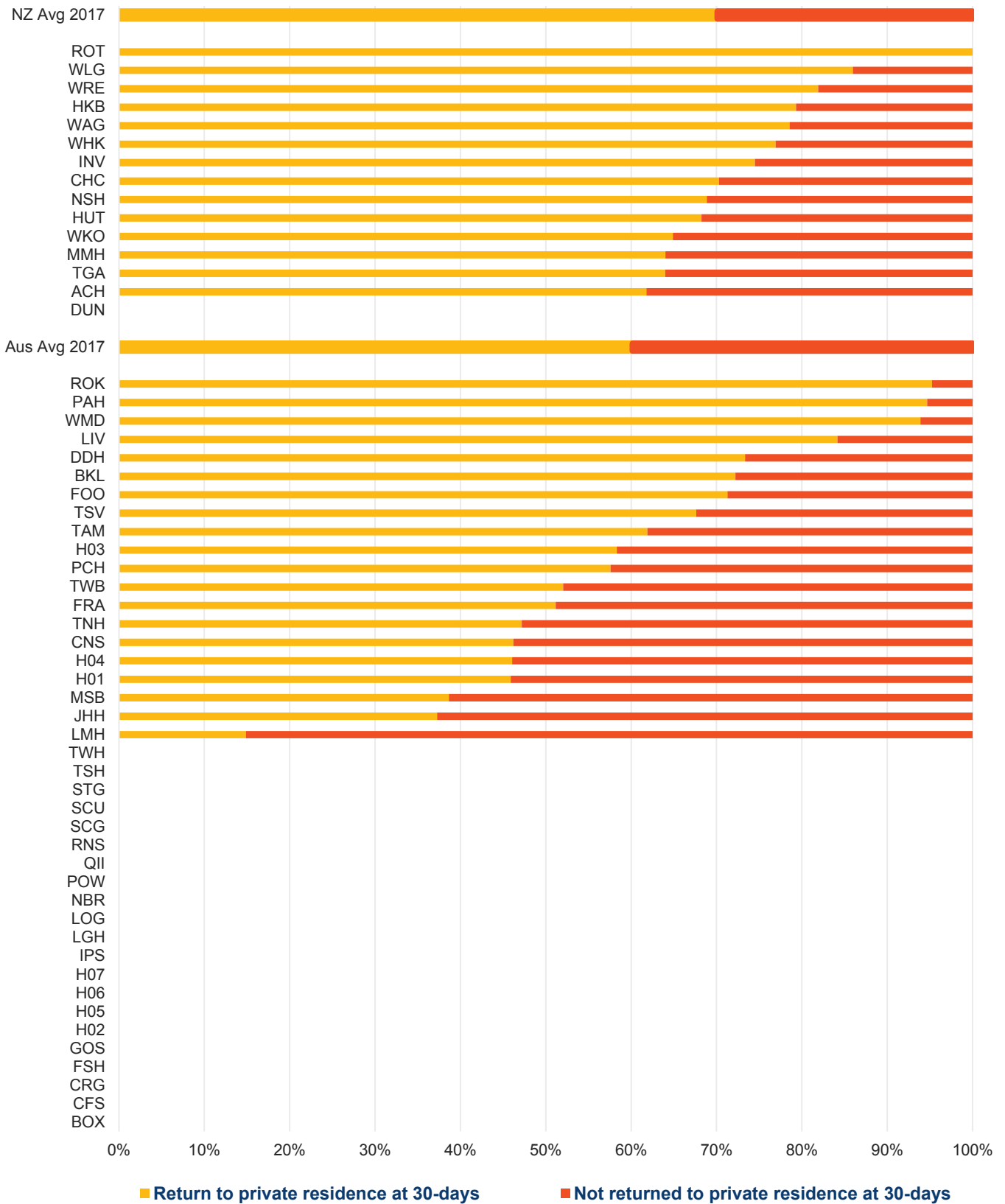
### FIGURE 53 UNRESTRICTED WEIGHT BEARING AT 120-DAYS

Figure 53 shows a small proportion of patients still have weight bearing restrictions at 120-days, which is not usually recommended. This may reflect lack of orthopaedic review and continuation of previously applied restrictions.



## FIGURE 54 RETURN TO PRIVATE RESIDENCE AT 30-DAYS

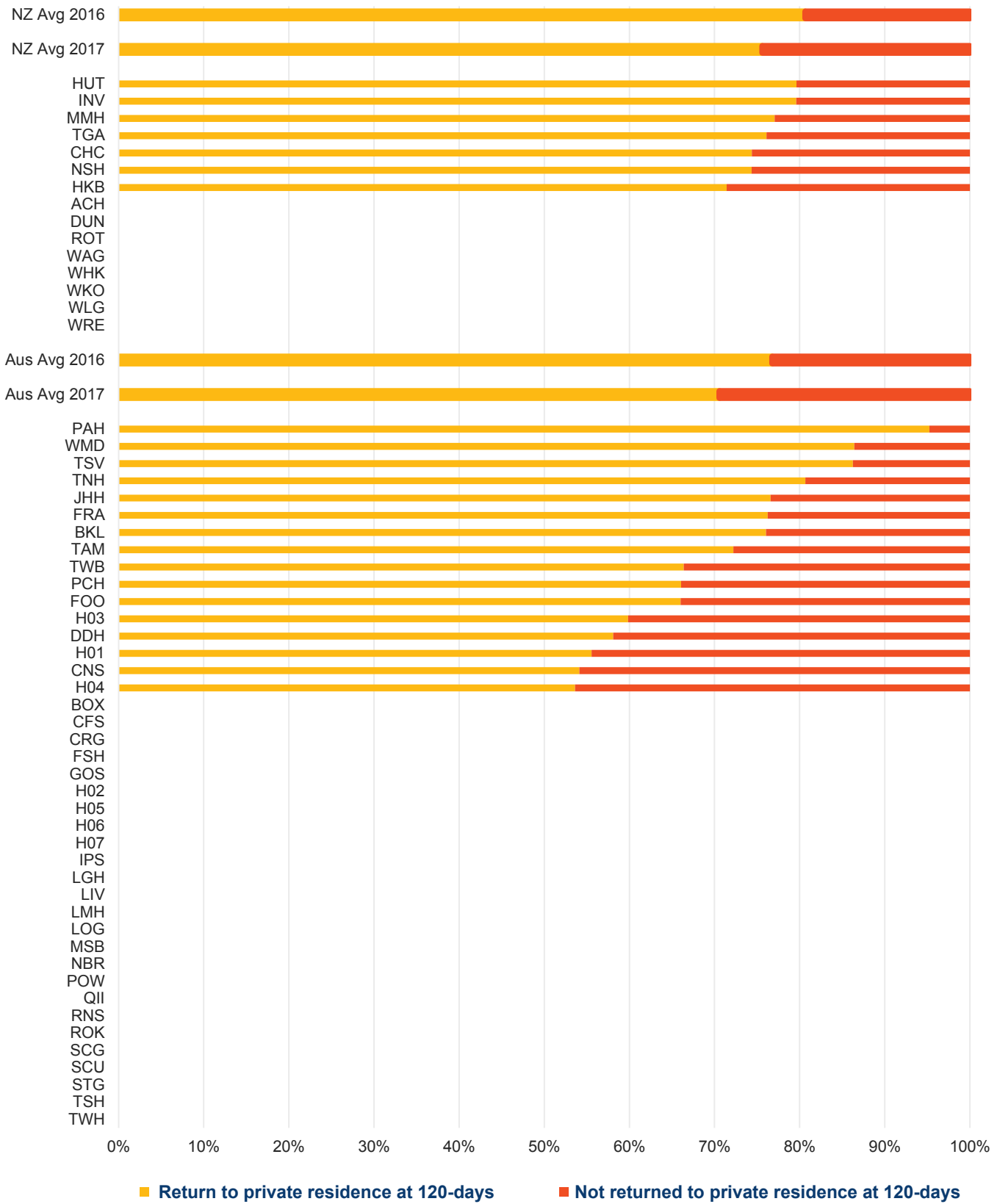
Figure 54 shows that of the group of patients who were living at home prior to admission, approximately two-thirds had returned to their place of residence at 30-days after admission.





### FIGURE 55 RETURN TO PRIVATE RESIDENCE AT 120-DAYS

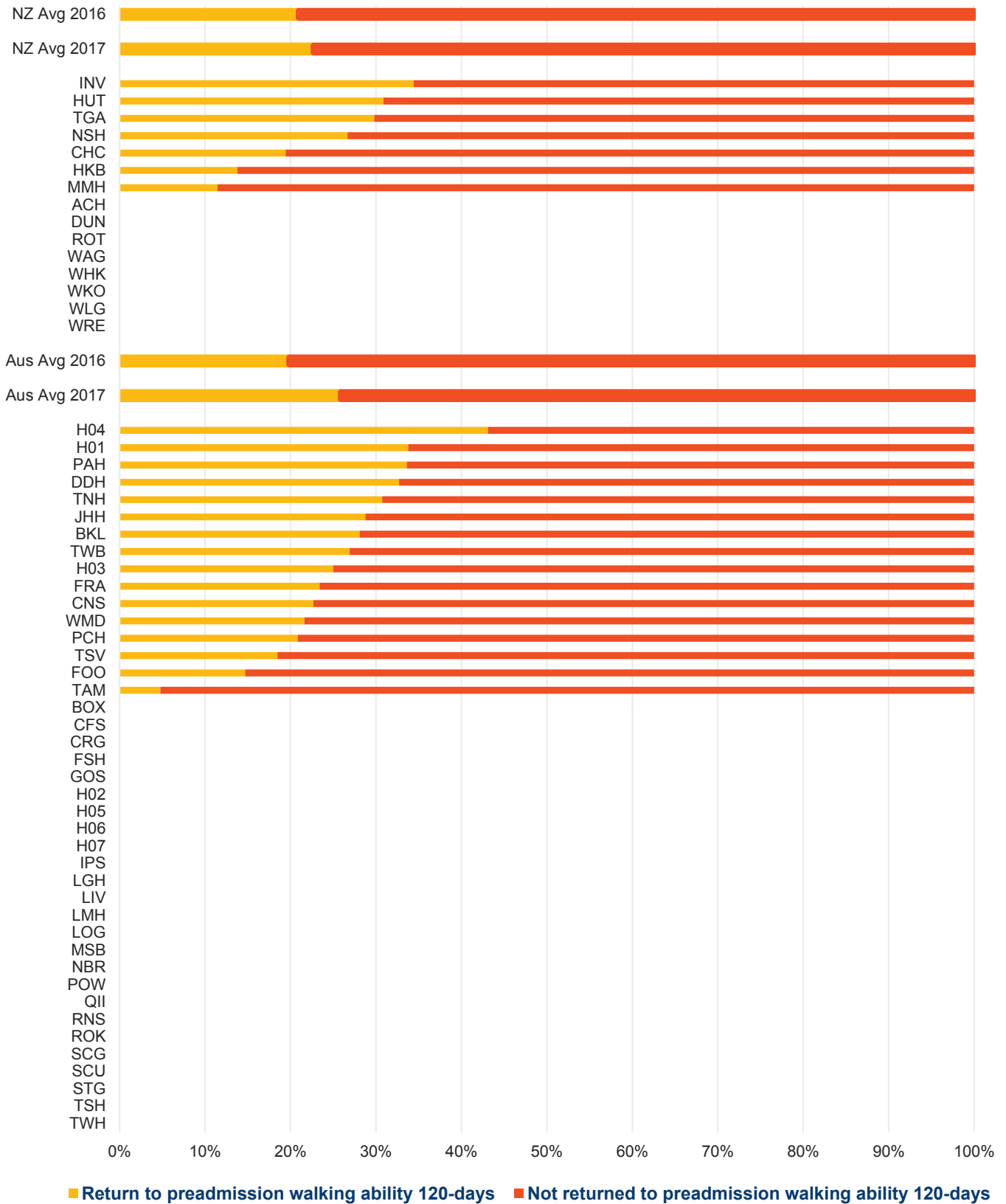
Being able to return home after a hip fracture is one of the most important outcomes for a patient following a hip fracture. Of those who lived at home prior to hip fracture, and were followed-up, 76% of patients in New Zealand and 71% of patients in Australia returned to their own home at 120-days after their hip fracture surgery.



## FIGURE 56 RETURN TO PREADMISSION MOBILITY AT 120-DAYS

From a patient perspective, the recovery of function including mobility is a critical outcome following a hip fracture. Mobility at 30-days after presentation is not reported as this is early in the course of recovery. Of those followed up at 120-days in 2017, 23% of patients in New Zealand and 26% of patients in Australia had returned to their pre-injury 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.



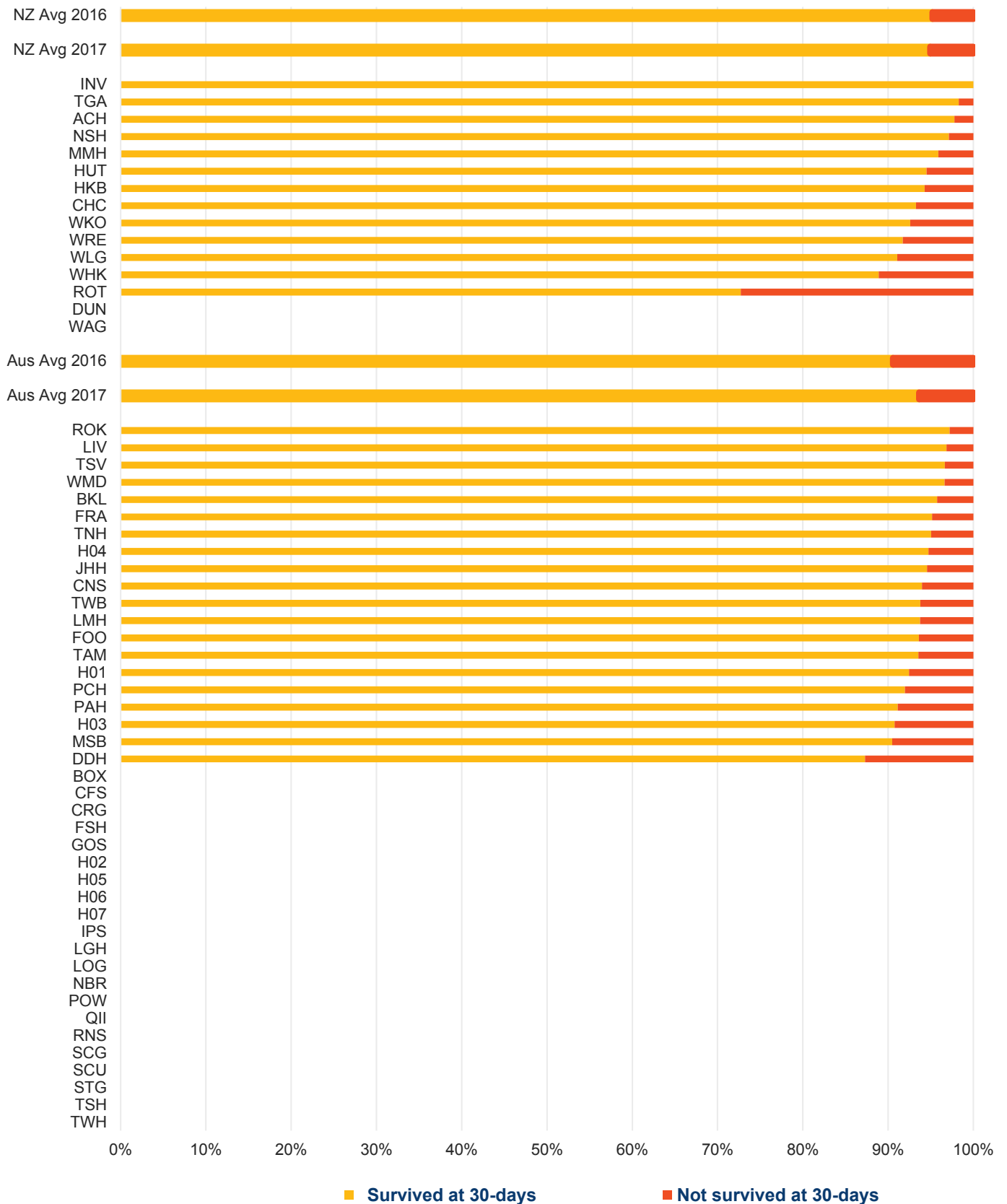


**"In 2017, I fell heavily backwards when hand feeding cattle. The resulting compressed fracture of a vertebra (L3) healed quite readily but the impact on my lower back, already arthritic and degenerating, was quite profound. I was checked several years ago for osteoporosis, after I broke my hip, and I was fine but I mention this because I have to wonder if there has been a change and I need to be reassessed."**



## FIGURE 57 SURVIVAL AT 30-DAYS

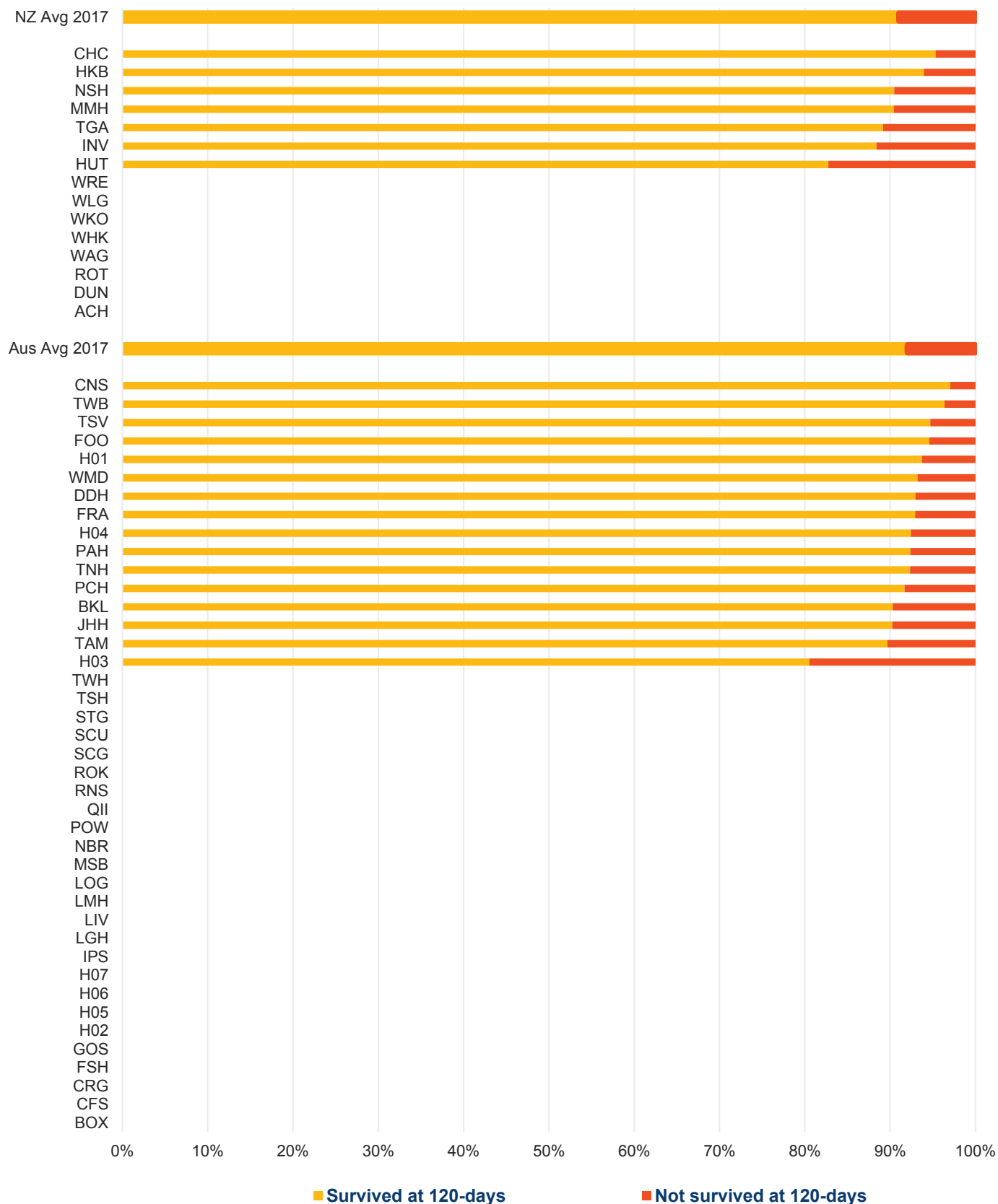
Figure 57 shows the survival (proportion of patients still alive) at 30 days from hospital presentation. The survival at 30 days in 2017 was 95% for New Zealand and 94% for Australian hospitals. The high variation between hospitals is likely to represent random variation due to the low number of patients followed up at 30 days in some hospitals.





## FIGURE 58 SURVIVAL AT 120-DAYS

Survival at 120-days post-surgery is over 90%, but the accuracy of survival data and possible selection bias in those followed up means that these figures should be interpreted with caution. In the future, data linkage with mortality data may increase the accuracy of reporting survival after-hip fracture, and increase the efficiency of the Registry.



R

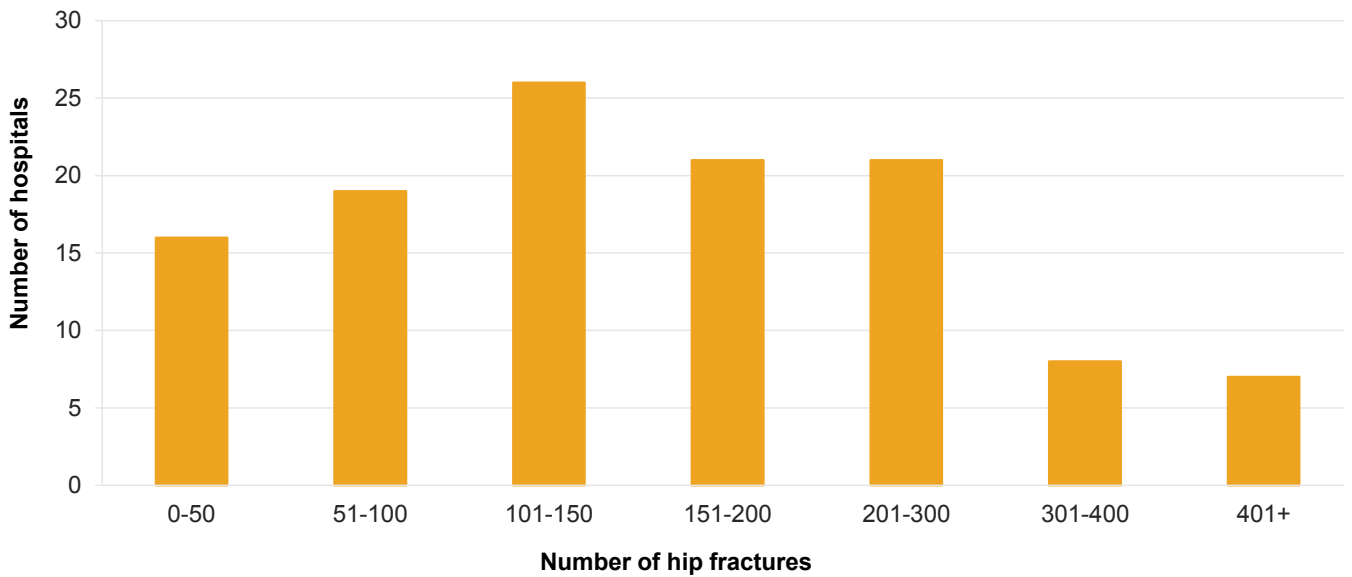


# FACILITY LEVEL AUDIT

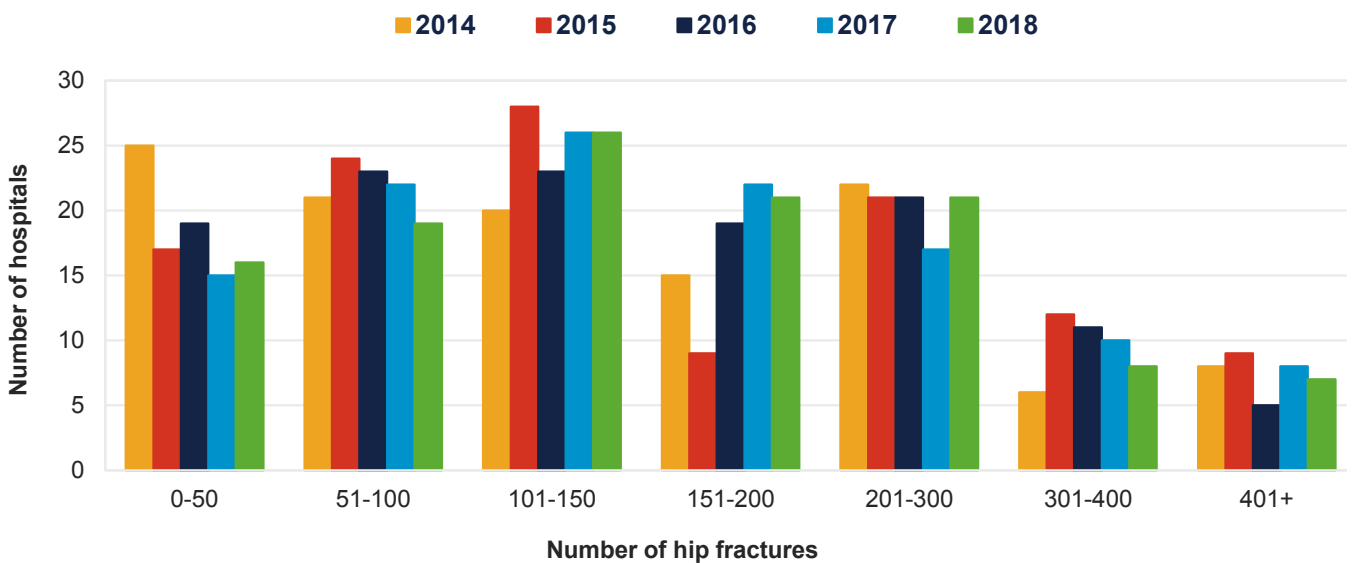
# RESULTS I: GENERAL INFORMATION

Hospitals were asked to categorise how many hip fractures were treated in the 2017 calendar year: 0-50 hip fractures; 51-100; 101-150; 151-200; 201-300; 301-400; and 401+. See Figure 59. Seventy percent of hospitals (81/118) reported treating more than 100 hip fracture patients during 2017 (Figure 60).

**FIGURE 59 NUMBER OF HIP FRACTURES TREATED 2018**



**FIGURE 60 NUMBER OF HIP FRACTURES TREATED 2014–2018**

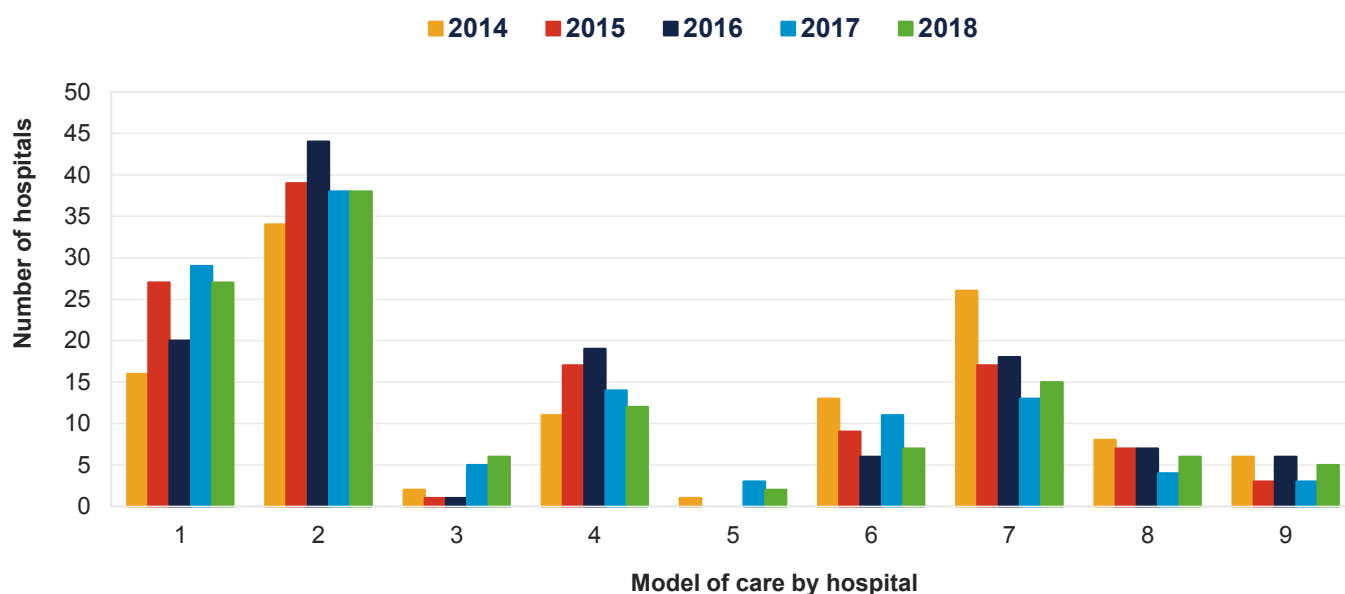


# RESULTS 2: MODEL OF CARE

Orthogeriatric care involves a shared care arrangement for 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. Hospitals that do not have access to a geriatric medicine service must look for ways to provide a model of orthogeriatric care that utilises alternative medical practitioners, such as orthopaedic surgeons, anaesthetists, physicians, and general practitioners.

In 2018, shared care arrangements were present in 23% (27/118) of hospitals. The most common model for provision of care is an orthogeriatric liaison service, which occurs in 32% (38/118) of hospitals (Figure 61). Both results are similar to the previous year and indicate 55% of hip fracture patients have access to an orthogeriatric service at least daily during the working week.

**FIGURE 61 MODEL OF CARE FOR OLDER HIP FRACTURE PATIENTS 2014–2018**



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 CARE

Systems and protocols can support clinicians to provide hip fracture patients with high quality care. Investigation, assessment and management of a patient's injury and their medical conditions must be provided in a timely and effective way throughout a patient's admission. Health services are encouraged to develop protocols aligned with the ANZ Guideline for Hip Fracture Care and the Hip Fracture Care Clinical Care Standard.

Figure 62 shows responses from all hospitals in Australia and New Zealand on the presence of protocols and elements of care. Figures 63 and 64 show the reported elements of care for each country for a six-year period.

## HIP FRACTURE PATHWAY

In 2018, 78% (92/118) reported having a pathway for hip fracture patients: 22% in the emergency department only and 56% for the whole acute journey. Whilst similar to 2017, there has been a steady increase in the proportion of hospitals that report a pathway for the management of a patient with a hip fracture through the whole acute journey.

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

In 2018, the presence of a protocol or pathway to access either CT or MRI for inconclusive plain imaging of hip fracture was available in 55% (65/118) of hospitals, similar to 2017. This question was first asked in 2014 with 46% (54/117) of sites reporting presence of a protocol: in 2013, the audit question listed MRI as the only imaging modality hence comparison must be done with caution. The absence of substantial change in this area over the six years of the facilities audit provides services an opportunity for improving the quality of assessment at a person's presentation to hospital.

## VENOUS THROMBOEMBOLISM (VTE)

This question has remained constant over the six years of the audit. In 2018, 87% (103/118) of respondents said "yes" when asked if their hospital had a VTE protocol. This is similar to 91% (109/120) in 2017 and 88% (107/121) in 2016.

## PAIN PATHWAY

In 2018, a protocol or pathway for pain was available at 56% (66/118) of hospitals: 24% in the emergency department only and 32% for the whole acute journey. This is similar to the previous year and continues to show little change over the six years of the facilities audit. The facilities audit also asks respondents if patients are offered local nerve blocks as part of preoperative and postoperative pain management. In 2018, 89% (105/118) responded that patients were offered nerve blocks preoperatively "always" or "frequently" and 81% (95/118) responded that patients were offered nerve blocks for postoperative pain relief "always" or "frequently".

## CHOICE OF ANAESTHESIA

This question has remained constant since 2014, and asks if hip fracture patients are routinely offered a choice of anaesthesia. In 2018, 76% (90/118) of hospitals were reported as routinely offering a choice of anaesthesia "always" or "frequently", similar to 2017 at 73% (88/120).

## PLANNED THEATRE LIST

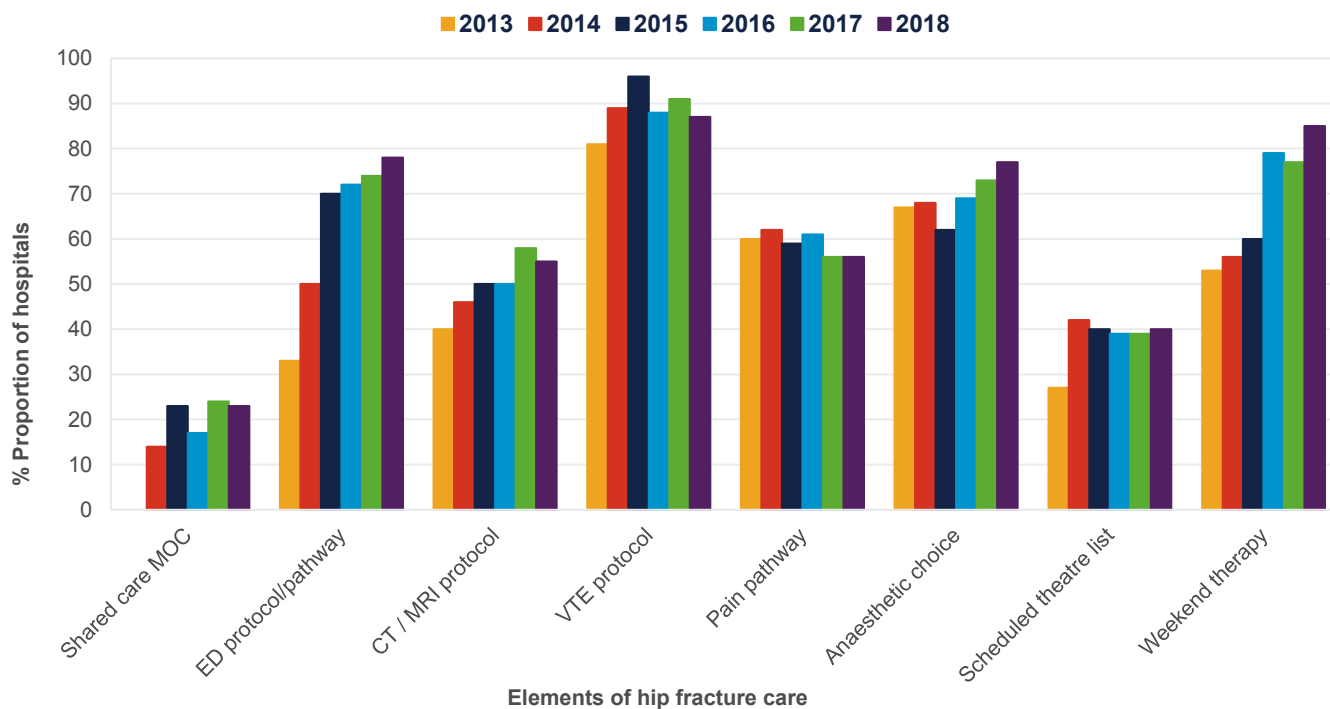
In 2018, 40% of respondents reported having access to a planned operating theatre list or planned trauma list for hip fracture patients. This is similar to previous years: 39% (47/120) in 2017; 39% (47/121) in 2016; 40% (48/120) in 2015 and 42% (49/117) in 2014.

## WEEKEND THERAPY

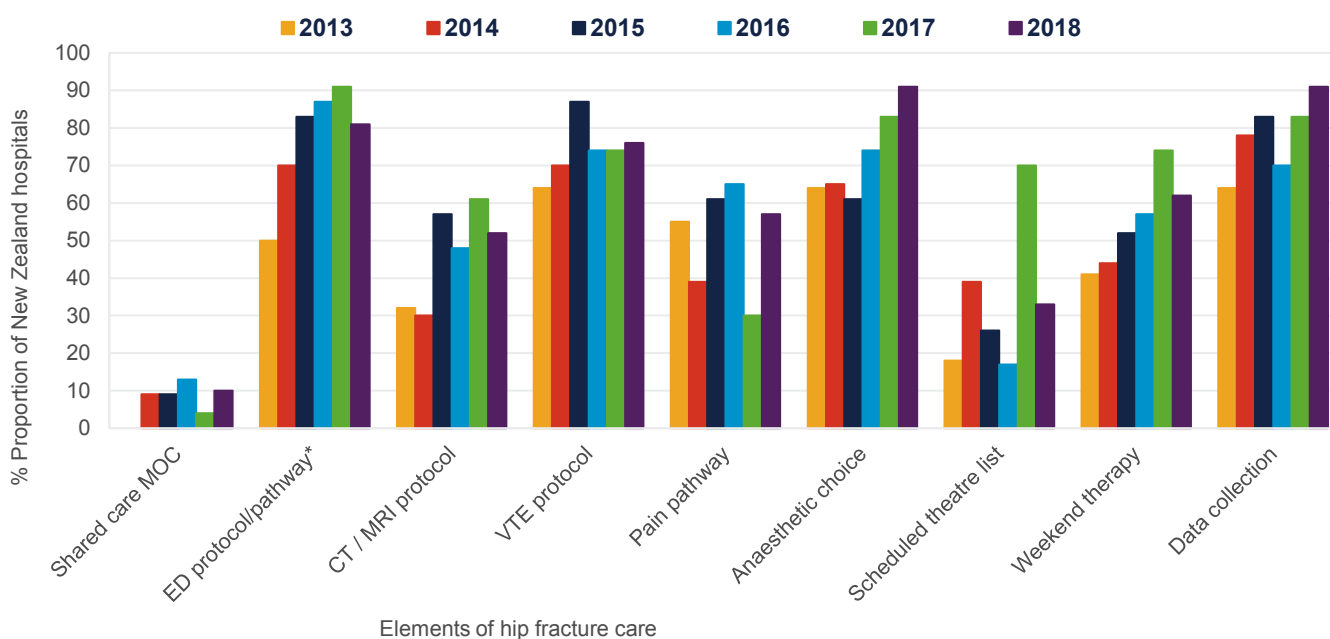
In 2018, 85% (100/118) of hospitals reported having routine access to weekend therapy services, predominantly physiotherapy services (80%). There has been a steady increase over the six years of the facilities audit. Mobilisation on the day of, or day after, hip fracture surgery helps patients restore movement and function and prevent complications. Provision of access to weekend therapy provides the opportunity to mobilise early and ensures that the day of surgery doesn't impact the rehabilitation process.



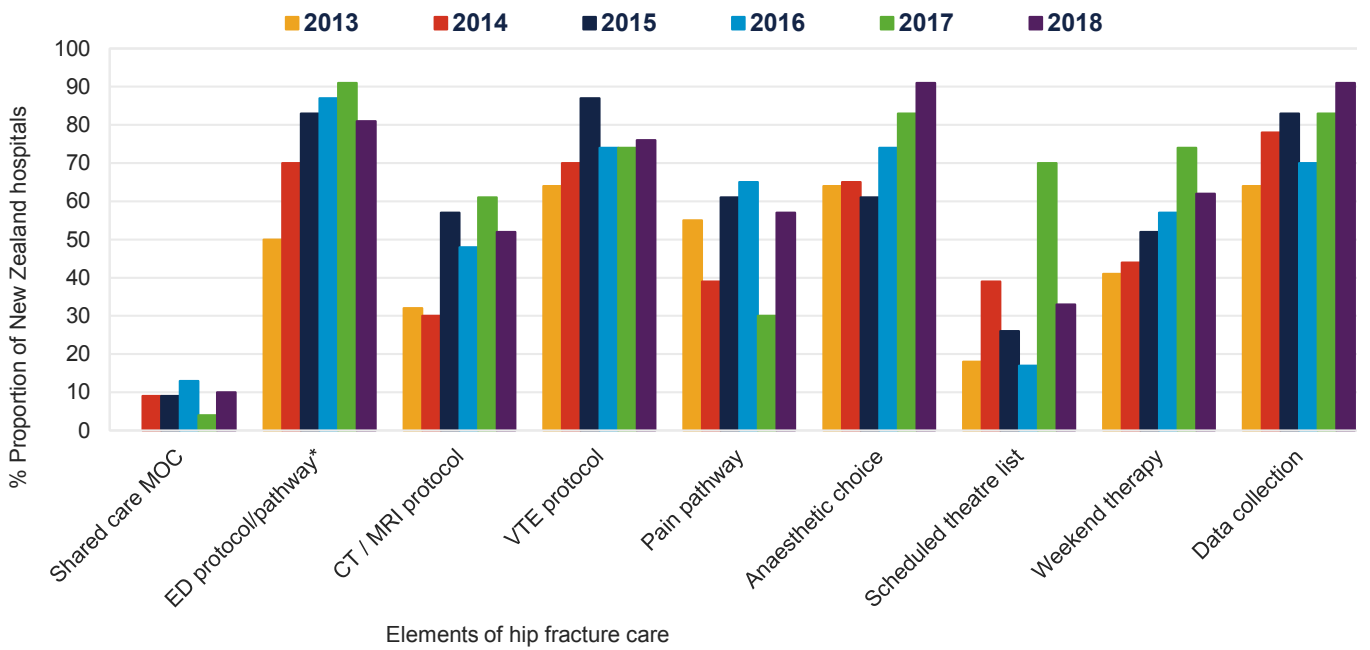
**FIGURE 62 PRESENCE OF PROTOCOLS FOR ELEMENTS OF HIP FRACTURE CARE 2013–2018**

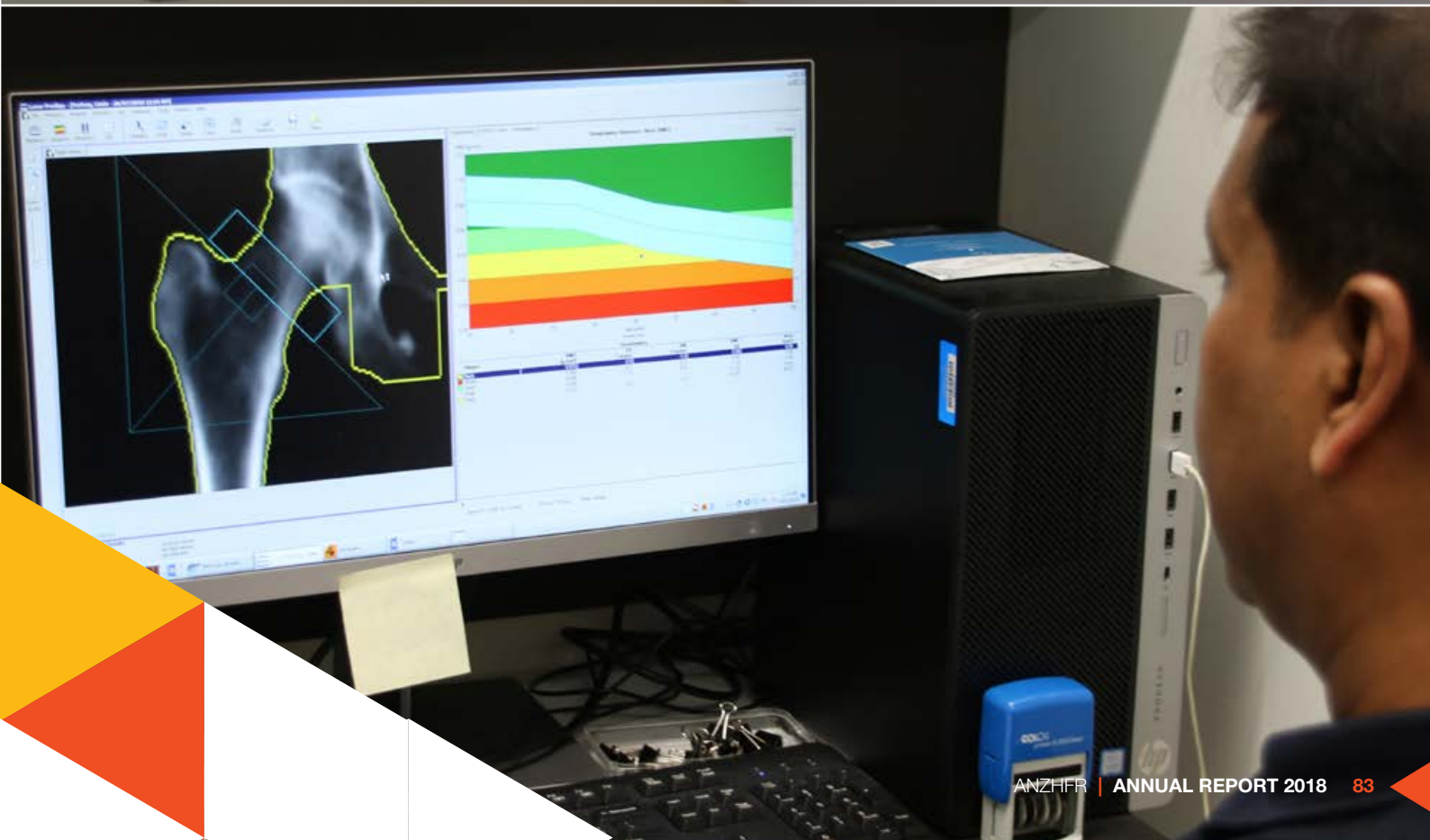


**FIGURE 63 NEW ZEALAND HOSPITALS REPORTED ELEMENTS OF CARE 2013–2018**



**FIGURE 64 AUSTRALIAN HOSPITALS REPORTED ELEMENTS OF CARE 2013–2018**







# RESULTS 4: BEYOND THE ACUTE HOSPITAL STAY

The Facilities Audit asked 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 from the 2018 audit is provided below with comparison to previous years in Table 1 and Figure 65.

## REHABILITATION

In 2018, 36% (42/118) of responding hospitals reported access to both onsite and offsite rehabilitation services, a small increase from 33% reported in 2017. Access to onsite rehabilitation only is reported by 39% (46/118), and access to offsite rehabilitation only was reported by 25% (30/118). Access to an early, supported home-based rehabilitation service was reported by 42% (50/118) of hospitals this year.

## FRACTURE LIAISON SERVICE (FLS)

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. The availability of fracture liaison services remains limited, however, the small but steady increase seen in previous years has continued and access to a FLS was reported by 36% (43/118) of hospitals. Of these services, 30% (35/118) were for patients with any minimal trauma fracture (including hip fracture) and 7% (8/118) were specifically for hip fracture patients only.

## OUTPATIENT CLINICS

In 2018, variable access to public outpatient clinics was again observed and this provides opportunity to health services to review services to increase access for hip fracture patients. There is widespread access to orthopaedic clinics at most sites – 93% (110/118). However, access to clinics targeting secondary fracture prevention, and the prevention of future falls and fractures, remains limited. In 2018, access to a public falls clinic is reported at 60% (71/118), access to an osteoporosis clinic at 44% (52/118), and access to a combined falls and bone health clinic at 20% (24/118).

## PATIENT AND CARER INFORMATION

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

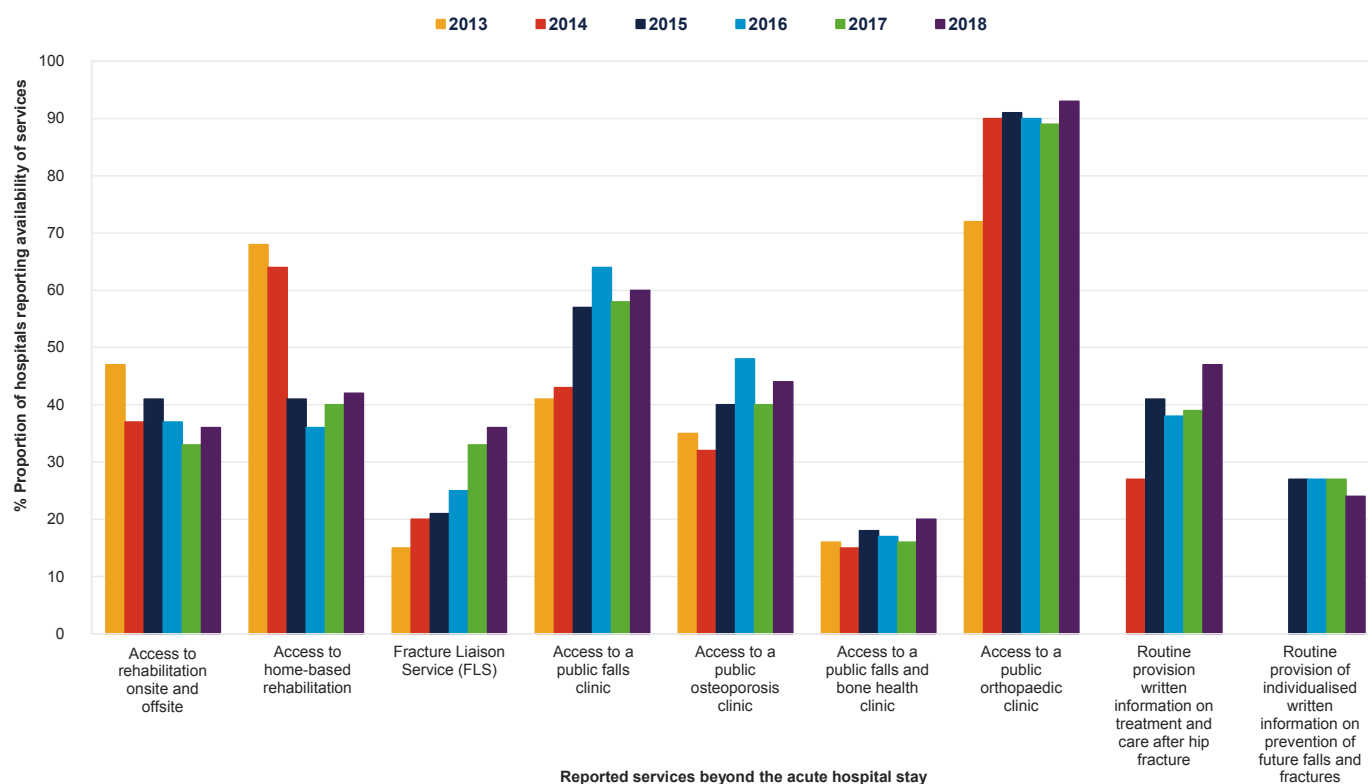
In 2018, 47% (55/118) of hospitals responded “yes” to the provision of written information to patients about their hip fracture treatment, an increase from 39% in 2017. Only 24% (28/118) of respondents said they provided written information to patients on discharge that included recommendations for future falls and fracture prevention (not the same as a discharge summary): 5% (1/21) hospitals in New Zealand and 28% (27/97) in Australia.

**TABLE I REPORTED SERVICES AVAILABLE BEYOND THE ACUTE HOSPITAL STAY AUSTRALIAN AND NEW ZEALAND HOSPITALS 2013–2018**

	2013 (n = 116)	2014 (n = 117)	2015 (n = 120)	2016 (n = 121)	2017 (n = 120)	2018 (n = 118)
<b>Access to rehabilitation onsite and offsite</b>	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%	Onsite 39% Offsite 25% Both 36%
<b>Access to home-based rehabilitation</b>	68%	64%	41%	36%	40%	42%
<b>Fracture Liaison Service (FLS)</b>	15%	20%	21%	25%	33%	36%
<b>Access to a public falls clinic</b>	41%	43%	57%	64%	58%	60%
<b>Access to a public osteoporosis clinic</b>	35%	32%	40%	48%	40%	44%
<b>Access to a public falls and bone health clinic</b>	16%	15%	18%	17%	16%	20%
<b>Access to a public orthopaedic clinic</b>	72%	90%	91%	90%	89%	93%
<b>Routine provision written information on treatment and care after hip fracture</b>	n/a	27%	41%	38%	39%	47%
<b>Routine provision of individualised written information on prevention of future falls and fractures</b>	n/a	n/a	27%	27%	27%	24%

n/a = not asked

**FIGURE 65 REPORTED AVAILABLE SERVICES BEYOND THE ACUTE HOSPITAL STAY AUSTRALIAN AND NEW ZEALAND HOSPITALS 2013–2018**



# APPENDIX I:

# ANZHFR STEERING GROUP

THE ANZHFR is based at the Falls, Balance and Injury Research Centre at Neuroscience Research Australia (NeuRA)

## MEMBERS OF THE ANZHFR STEERING GROUP ARE:

**Professor Jacqueline Close**, Geriatrician Co-Chair

**Professor Ian Harris**, Orthopaedic Surgeon Co-Chair

**Dr Laura Ahmad** (Geriatrician, RACP)

**Ms Elizabeth Armstrong** (Australian Registry Manager)

**Dr John Barry** (Anaesthetist, ANZCA)

**Mr Brett Baxter** (Physiotherapist, APA)

**Prof Ian Cameron** (Rehabilitation Physician, AFRM)

**A/Prof Mellick Chehade** (Orthopaedic Surgeon, ANZBMS)

**Dr Owen Doran** (Emergency Medicine Physician, ACEM)

**A/Prof Kerin Fielding** (Orthopaedic Surgeon, RACS)

**Mr Stewart Fleming** (Webmaster)

**Ms Christine Gill** (CEO, Osteoporosis New Zealand)

**Dr Roger Harris** (Geriatrician, ANZSGM)

**A/Prof Raphael Hau** (Orthopaedic Surgeon, Victoria)

**A/Prof Rebecca Mitchell** (Injury Epidemiologist, AIHI)

**Dr Kris Dalzell** (Orthopaedic Surgeon, NZOA)

**Ms Chris Pegg** (New Zealand Registry Manager)

**Dr Gretchen Poiner** (Consumer Representative)

**Dr Hannah Seymour** (Geriatrician, ANZSGM)

**Dr Ralph Stanford** (Orthopaedic Surgeon, AOA)

**Ms Anita Taylor** (Nurse Practitioner, ANZONA)

## ATTENDEES

**Ms Linda Roylance** (Secretariat)

# APPENDIX 2: LIST OF ABBREVIATIONS

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



**ANZHF**

Australian & New Zealand Hip Fracture Registry