



AUSTRALIAN & NEW ZEALAND FRAGILITY FRACTURE REGISTRY

ANZFFR ANNUAL REPORT 2025





WITH THANKS TO OUR SPONSORS

He aha te mea nui o te ao? He tāngata! He tāngata! He tāngata!

What is the most important thing in the world? It is people! It is people! It is people!

This second Annual Report reflects that we continue to have this whakataukī at our centre as it talks to the importance of human connection and relationships. This is what creates community and enables people to flourish. It values the human being in all of us and reminds us of what is most important – not money, not success, not a job or a thing – it is people. Without the people, this report would not have been possible.

The Australian & New Zealand Fragility Fracture Registry (ANZFFR) acknowledges Māori as tāngata whenua and Treaty of Waitangi partners in Aotearoa and within Australia pay our respect to Elders, past and present, who are custodians of the land in which we live and work. We acknowledge Country as the foundation of health and well-being and, through all our activities, we are committed to improving health outcomes for First Nations Peoples.

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Reported prepared on behalf of the ANZFFR Steering Group by: Mrs Nicola Ward, NZ National Coordinator; Mr Stewart Fleming, Webmaster; Dr Frazer Anderson, ANZFFR Clinical Lead for New Zealand and Mrs Christine Gill, Osteoporosis New Zealand Clinical Programme Director. With special thanks to Paul Mitchell for his continued support and wealth of knowledge (Adj. Prof., University of Notre Dame Australia). Report Designer: Deep.Ltd, deeplimited.com

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FOREWORD: MAKING A DIFFERENCE

Welcome to the second Annual Report of the ANZ Fragility Fracture Registry. Last year our focus was on beginnings: bringing on board Fracture Liaison Services (FLS) around New Zealand and developing the mechanics of the Registry to make sure it was both of a high standard and clinically useable in day-to-day practice. This year, we have a different kind of beginning: we actually have some results, still early but enough to start exploring the only important question – are we doing something useful here, are we making a difference?

Our goal is to reduce the huge and rising number of people in our two countries who have a fragility fracture; that is, a fracture which happens after a minor accident which would not have been enough to break a healthy bone. Falls are by far the most common cause of a fragility fracture. There are two ways to stop fragility fractures: prevent people from falling and/or strengthen bones to make them less fragile. Thanks to decades of international evidence we know what works – the challenge is to deliver it to the right people at the right time.

By themselves, clinical registries don't do this. What they do is gather information that supports health care professionals to provide the best evidence-based care in accordance with international standards to the people most at risk of a fragility fracture. To be effective, a registry must be comprehensive, supporting clinical teams to deliver high-quality care to all, regardless of ethnicity and socioeconomic disadvantage. Those easiest to miss are often those with most to gain.

So, are we making a difference? In this document, we report a large 17% increase in recruitment and a high percentage of people (72%) recruited receiving evidence-based care. One-year follow up of last year's cohort shows lower refracture rates (3.3%) than would have been predicted had they not taken part. This is not conclusive proof of effectiveness but it is definitely a good start. Of course, there is still a lot to do. In New Zealand we seem to be missing some types of fracture with large variations between centres. In Australia the project has yet to gain the momentum to take it from a small group of pioneers to a nationwide programme.

That being said, the ANZFFR is already an astonishing achievement. Our FLS teams are delivering gold-standard care to more people than services in other much larger countries who started similar projects before us.

So yes, we are beginning to make a difference.



MAKING THE FIRST FRACTURE THE LAST

The ANZFFR would like to thank all of the staff in the twenty New Zealand and two Australian Fracture Liaison Service teams, the Accident Compensation Corporation (ACC), and at Health NZ - Te Whatu Ora for their ongoing dedication to improving fragility fracture care, provision of high-quality services and for their hard work participating in the ANZFFR. Their passion and commitment in this second-year report is highlighted throughout with the overall commitment to improving patient care.

KEY MESSAGES



DR FRAZER ANDERSON

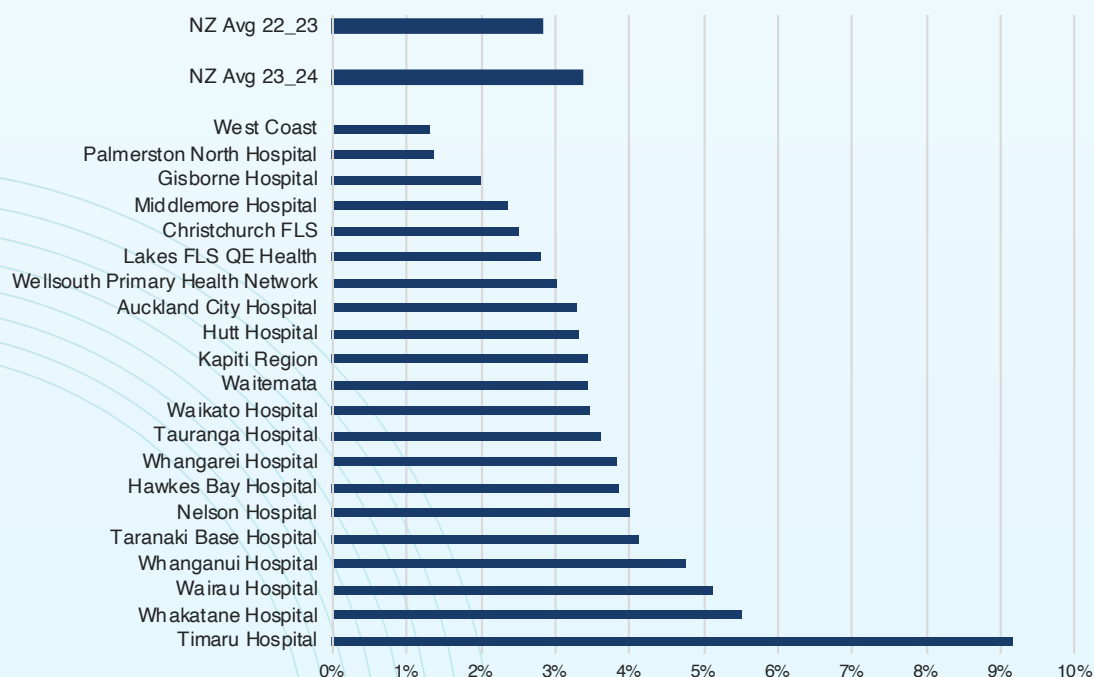
Co-chair ANZFFR Steering Committee and
Clinical Lead for New Zealand

- Enrolment has risen from **55%** to **72%** of all predicted fractures in NZ
- FLS teams now cover **98%** of the NZ population
- ACC has committed to continuing project funding in NZ until 2027
- **96%** of eligible patients had a Bone Health Assessment completed within 12 weeks
- After one year, **75%** of people advised to start or continue treatment are taking a proven fracture prevention medication
- The Refracture Tracker shows fewer people having a further fracture than predicted based on previous research studies.

The Refracture Tracker is an “app within an app” built into the main Registry database. It constantly monitors personal details of people with fractures being entered into the Registry and “pings” when these match someone already included in the database. Staff at each centre can see how many people in their own district have had a further fracture since they were enrolled and all staff can see the national numbers.

REFRACTURE EVENTS

The percentage of patients with at least 1 refracture event in 23/24. National = 3.33 % or 33/1000 (22_23 = 2.8%)



Small centres are highly sensitive to random “toss a coin” variations in fracture rate. Timaru, for example, has had just 12 more refractures than the whole-country average and West Coast just 4 fewer. These differences are not statistically significant.

The national figure appears slightly higher this year than last because it took several months into the 2022-23 year to get the Tracker working properly.



PROFESSOR NICHOLAS HARVEY

President, International Osteoporosis Foundation
Director, MRC Lifecourse Epidemiology Centre,
University of Southampton

It is a privilege and pleasure to endorse this report on behalf of the International Osteoporosis Foundation. New Zealand is at the forefront of global efforts to address secondary fracture prevention and a key component of this success is the ANZ Fragility Fracture Registry. The coordinated approach through the Registry, Osteoporosis New Zealand and government constitutes a world leading example of what can be achieved through national collaboration and will make a real positive difference for patients living with osteoporosis.



PAUL (PK) KENNEDY

Manager, Targeted Investment, Injury Prevention, ACC

THE IMPORTANCE OF INVESTING IN OSTEOPOROSIS PREVENTION

Osteoporosis presents a critical challenge to national health systems globally.

1 in 3 woman and 1 in 5 men will suffer from osteoporosis-related fractures, leading to more days spent in hospital than breast cancer or heart attack. The lifetime risk of dying from hip fracture complications is the same as for breast cancer in women or prostate cancer in men.

Governments and health systems must prioritise the prevention of osteoporosis-related fractures to alleviate the substantial economic, social and personal burdens these injuries impose. Investing in early diagnosis, lifestyle interventions, medication, and patient education is evidenced to reduce fracture incidence by 30-40%. The benefits of investment include reducing hospital bed days, lowering associated healthcare costs, empowering people to maintain their independence and quality of life so that they remain in their own homes longer, and alleviating pressure on hospitals and aged residential care facilities so we can increase our focus on less preventable and more complex health priorities.

ACC is proud of the part it has and continues to play in establishing a world leading fracture liaison service and fragility fracture registry. Our effort and the effort of our partners means New Zealand is well positioned to proactively address a significant contributor to health system demand. To ensure New Zealand and New Zealanders realise the full benefit of this effort, it is essential that ACC gets support from key health system stakeholders. Only by working together, across agencies and the system, can we effectively, affordably and sustainably optimise the wellbeing on New Zealander's and protect the sustainability of our health system and ACC Scheme.



He Kaupare. He Manaaki.
He Whakaora.
prevention. care. recovery.





AUSTRALIAN COMPONENT OF ANZFFR PROJECT UPDATE

Dr Kirtan Ganda, Endocrinologist, Concord Hospital, NSW & Co-chair ANZFFR Steering Committee

The Australian branch of the ANZFFR is under the stewardship of the Australian Fragility Fracture Foundation (AFFF), a not-for-profit charitable trust. The initiation and development of the Registry in Australia was initiated and funded by the Australian National Alliance for Secondary Fracture Prevention (SOSFA). During the first two years the Registry also received an unencumbered educational grant from Amgen Australia.

The Registry has been functioning in Australia since 2022 and is currently being used at Concord Hospital, Sydney, NSW, and Western Health, Melbourne, Victoria. Colleagues at Sir Charles Gairdner Hospital, Perth, WA are expected to join the Registry shortly. However, despite being freely available, easily integrated into clinical processes and serving as an excellent tool to assess KPI's for any fracture treating facility in real time, there has been limited uptake in Australia so far.

The AFFF is working towards expanding the Registry to all FLS across Australia and, to this aim, is applying for funding for IT support and data entry personnel. On a national level, SOSFA and AFFF have been advocating for the Australian Commission on Safety and Quality in Health Care (ACSQHC) to include secondary fracture prevention as a component of their planned Clinical Standards for Osteoporosis Management.

In Australia, there is an urgent need for the development of Clinical Care Standards for Secondary Fracture Prevention alongside the nationwide roll-out of a functional Fragility Fracture Registry. Clinical Care Standards for FLS already exist in New Zealand which provide a foundation for the ANZFFR, these standards have been endorsed by numerous organisations in Australia, including

ANZBMS, ANZHFR, ENSA, SOSFA, as well as internationally by the International Osteoporosis Foundation (IOF) and the Fragility Fracture Network (FFN). However, formally adopting such clinical standards in Australia seems to be a low priority and have yet to be developed and endorsed by the Australian Commission of Safety and Quality in Health. The combination of clinical standards and a national Registry will help standardise outcome measures, providing benchmarking of care between FLS and thereby improve care of patients who suffer from minimal trauma fractures.



From L to R: Dr Marjy Grealish, Endocrinology Advanced Trainee, Prof Markus Seibel, Senior Consultant & Klaus Sommer, Clinical Nurse Consultant from Concord Hospital FLS.

was heterogeneity noted both in regard to the structure of the FLS and the processes employed to manage patients and enter patient data. Barriers to uptake of the Registry included a lack of resources to fund personnel for data entry, lack of funds for IT support, lack of awareness of the Registry and a lack of national Clinical Standards. Enablers to Registry participation included reimbursement of staff time for data entry, improving awareness of the Registry, development of national standards, and training & integration with existing electronic medical records.

The AFFF is currently in talks with other facilities across Australia about potential participation and encourages any facilities who would like to learn more to reach out to admin@fragilityfracture.com.au.

The AFFF has put together some online resources to promote the Registry – firstly a general overview of the Registry Project and secondly a user demonstration which highlights the speed and ease of using the registry for patient management. <https://fragilityfracture.com.au/>

To understand the barriers to participation in the Registry, the AFFF conducted a Facility Survey in 2024. Amongst an estimated 36 FLS in Australia, 13 responded to the survey (8 from NSW, 1 from SA, 2 from Victoria, and 1 each from WA and QLD). There



From L to R: Dr Myrle Sales, Exercise Physiologist, Solange Bernardo, FFR CNC & Dr Lauren Nacey, Geriatrician. Western Health FLS team, Victoria

PARTICIPATION

Data in this report shows a 72% capture rate of fragility fractures expected in NZ each year. As of 30th June 2024, 20 FLS in New Zealand entered data into the ANZFFR, with QE Heath/Lakes joining in November 2023 and Hutt FLS expanding out to Kapiti region in February 2024. Wairarapa health services are in discussion to start an FLS which will bring New Zealand to 100% coverage.



YEAR FLS ESTABLISHED IN NZ



NEW ZEALAND FRACTURE LIAISON SERVICES PARTICIPATING IN ANZFFR

New Zealand Total Record Count for 2023/24

The analysis presented in the rest of this report does not include data from the two Australian FLS participating in the Registry as the small sample size makes it unlikely that they are representative of the Australian population overall.

FACILITY	23/24 COUNT	22/23 COUNT	PARTICIPATION START
Auckland City Hospital	1,065	959	1/07/2022
Christchurch FLS	2,083	1,289	1/11/2022
Gisborne Hospital	201	203	2/07/2022
Hawkes Bay Hospital	596	577	1/07/2022
Hutt Hospital	573	463	8/08/2022
Kapiti Region	87	0	02/05/2024
Lakes FLS QE Health	356	0	17/08/2023
Middlemore Hospital	1,730	1,311	1/07/2022
Nelson Hospital	449	376	1/07/2022
Palmerston North Hospital	434	220	3/11/2022
Taranaki Base Hospital	556	339	3/07/2022
Tauranga Hospital	916	836	1/07/2022
Timaru Hospital	327	279	3/07/2022
Waikato Hospital	1,360	894	1/07/2022
Wairau Hospital	196	169	10/07/2022
Waitemata*	1,856	1,796	01/06/2022
Wellsouth Primary Health Network	759	553	1/07/2022
West Coast	153	74	26/11/2022
Whakatane Hospital	182	189	2/07/2022
Whanganui Hospital	315	274	4/07/2022
Whangarei Hospital	832	799	1/07/2022
TOTAL	15,026	11,600	

* Year 1 data recorded as Northshore Hospital

52 WEEK FOLLOW UP DATA – OUTCOMES (INTEGRATION)

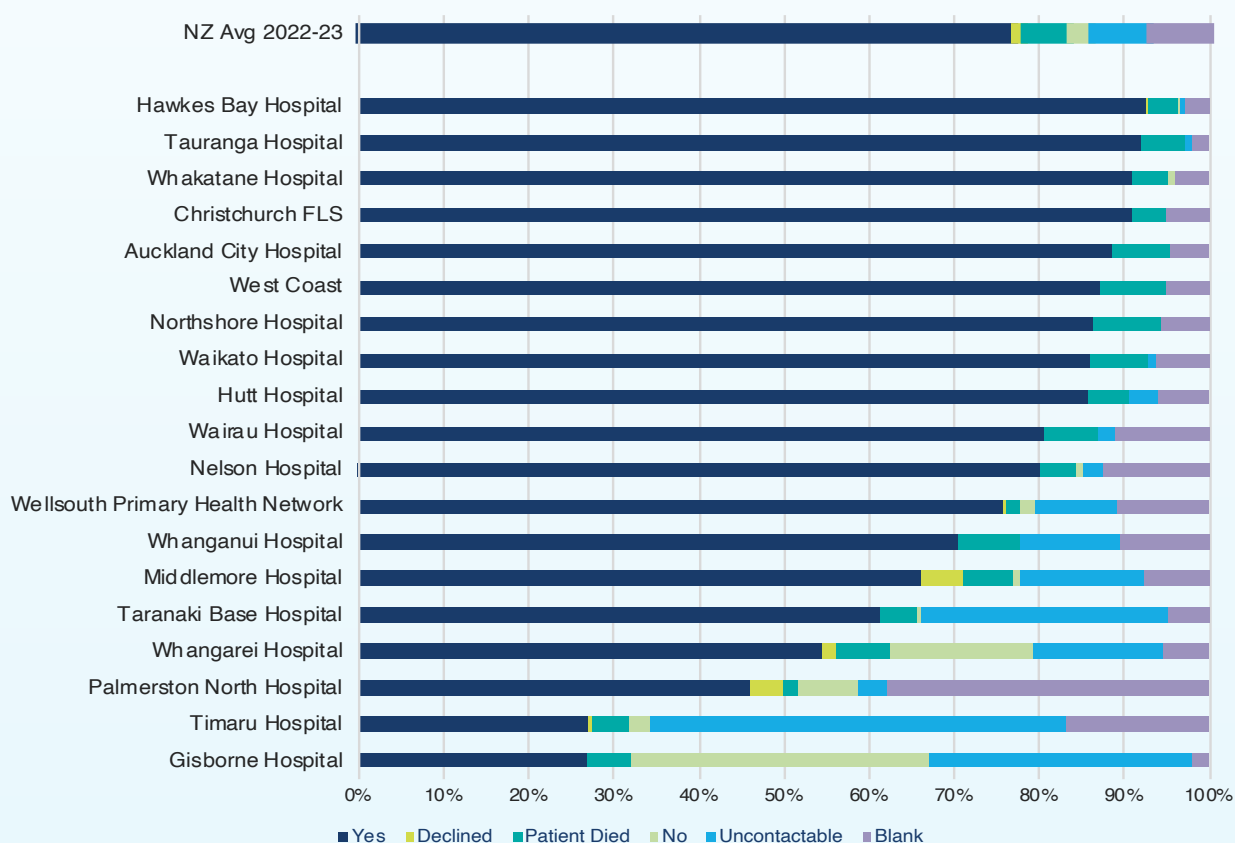
People who agree to take part in the Registry and are recommended treatment are followed up one year after their fracture. This year, for the first time, we have follow-up data on a full year cohort: the 11,600 people in NZ who enrolled between 1st July 2022 and 30th June 2023.

Figure 1 shows how many people we managed to contact at one year post-fracture. The national average was 77% but the range was very wide. Smaller centres and those with a new FLS struggled more. We are pushing hard to improve overall performance this year.

FIGURE 1 – //KPI 13 PEOPLE TAKING OSTEOPOROSIS-SPECIFIC TREATMENT 52 WEEKS AFTER FRACTURE

Percentage of (NZ national) deaths = 6%

Values are Yes = 4,738, Declined = 56, Patient Died = 346, No = 145, Uncontactable = 428 and Blank = 424.



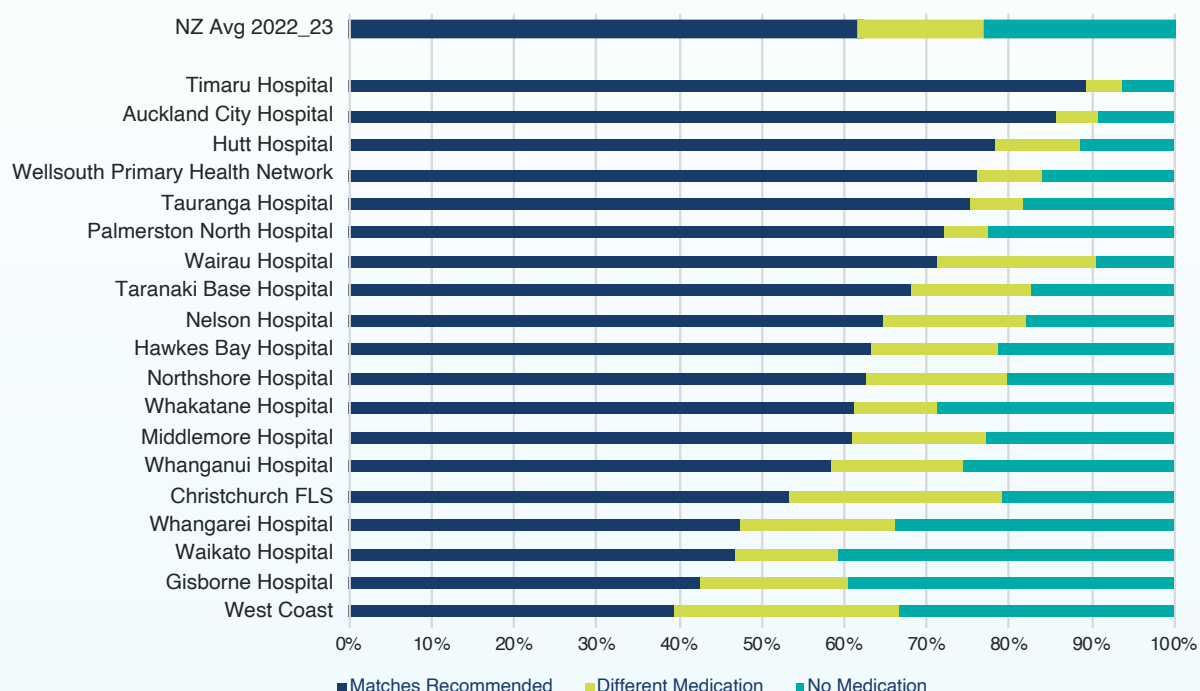
At 52 weeks, people were asked about the changes in their mobility after their fracture. 20% reported reduced mobility such as now using a walking stick or frame. Pleasingly, about 5% reported improved mobility, perhaps a result of physiotherapy after their fracture.

The data shows changes in living arrangements. 9% had moved into an Aged Residential Care Facility (ARCF), although these figures do not capture those who moved in with another family member who provided care. Regional variation hints that there may be more care being provided by family members in areas with greater ethnic diversity and/or poorer access to formal care services including ARCFs.

The core purpose of the Registry is to get more people to start fracture prevention treatment and stay on it for long enough to reduce further fractures. Figures 2 and 3 show that, at 52 weeks, just under 75% of people were taking treatment and in most cases, these were either what the FLS had recommended or another effective treatment. This figure is exceptionally high by international standards and represents 52.9% of the whole cohort (including those not recommended for treatment). The IOF standard for excellence is 50% of all fracture patients.

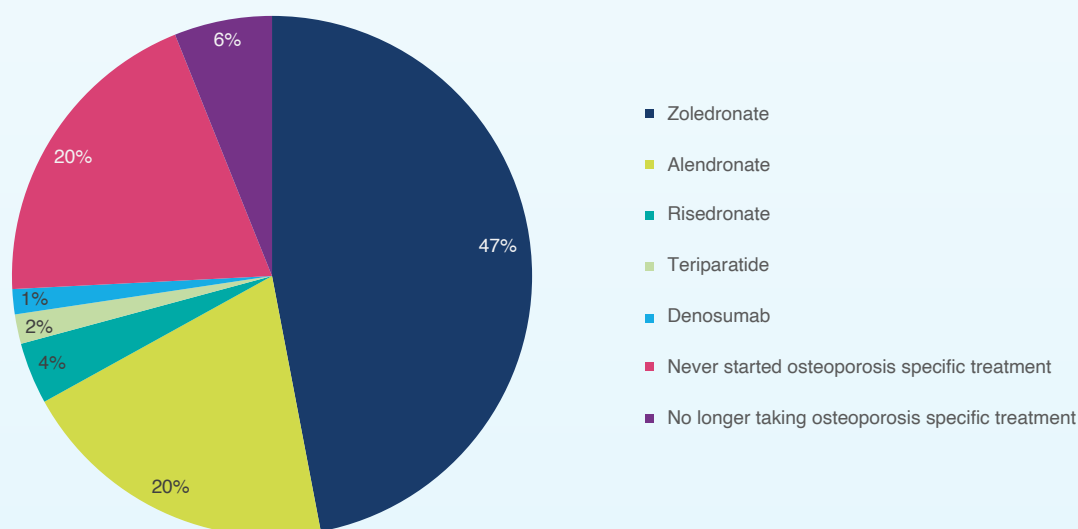
FIGURE 2 – TREATMENT RECOMMENDATION MATCHES 52 WEEK MEDICATION

Only includes where Osteoporosis-Specific Treatment is recommended (Not 'Continue current treatment', 'Referred to specialist', 'Clinical assessment not yet completed' or 'Awaiting specialist opinion' and excludes where Medication 52 is incomplete or 'Not known'.



25% of people recommended treatment had either stopped or never started it. We have rewritten this part of the questionnaire for next year to better understand the reasons why.

FIGURE 3 – MEDICATION AT 52 WEEKS



The use of zoledronic acid / zoledronate infusion is rapidly becoming first choice – this is in line with expert consensus in many other countries.

Janet featured in our first report and remains on our national committee as a consumer representative, her 52 week follow up still includes her adherence to Fosamax. She is aware to take it for five years as per clinical guidelines. She decided against zoledronic infusion in case it did not agree with her, and she was happy to continue taking a tablet once a week.

Janet, Mapua, Tasman, age 63



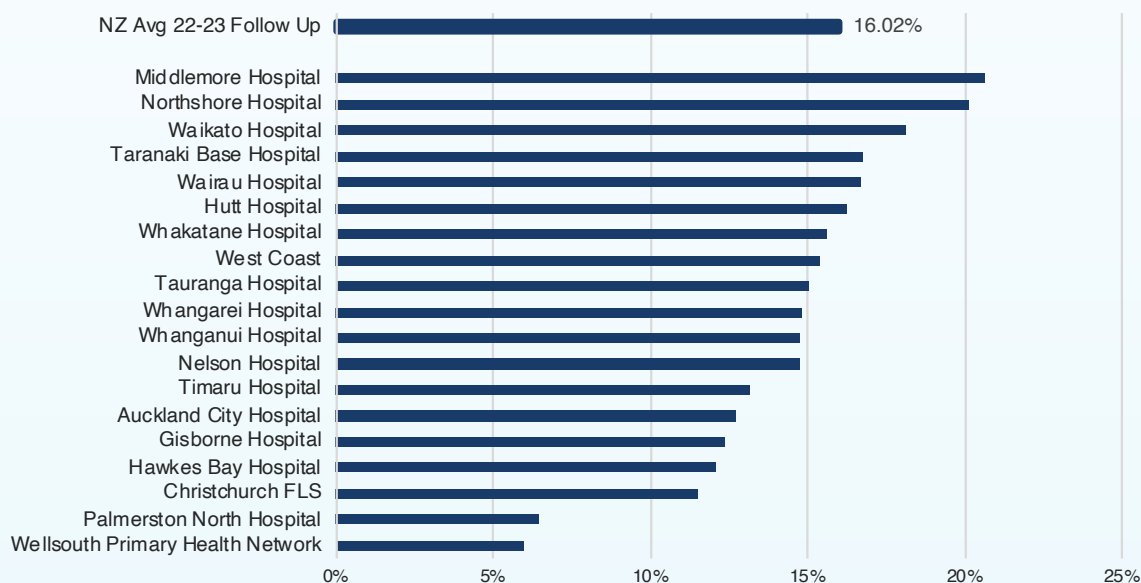
MORTALITY DATA

Fragility fractures are serious injuries. Most occur in older people, many of whom are not in good overall health due to other medical conditions; this is known as frailty. Frailty increases the impact of a fracture on someone's health and fractures, in turn, increase frailty. Sadly, some people do not survive major fractures and a major fracture can be a sign of someone approaching the end of their life. In this group, fracture prevention treatment is unlikely to do any good and we do not recommend treatment or follow them up. We have undertaken two analyses of the 2022-23 cohort to compare mortality with and without this group.

Figure 4 shows survival at 52 weeks in Registry participants recommended treatment.

FIGURE 4 - MORTALITY 52 WEEK

The table below shows the % mortality for all records in the 22/23 52 week follow up data slice.



It is too early to know whether the work of the FLS teams whom the Registry supports is reducing mortality at a statistically significant level but most evidence from other comparable countries shows one-year mortality of around 20%, so this is encouraging.

FIGURE 5 - MORTALITY 22-23

The table below shows the % mortality for all records in the 22/23 data slice

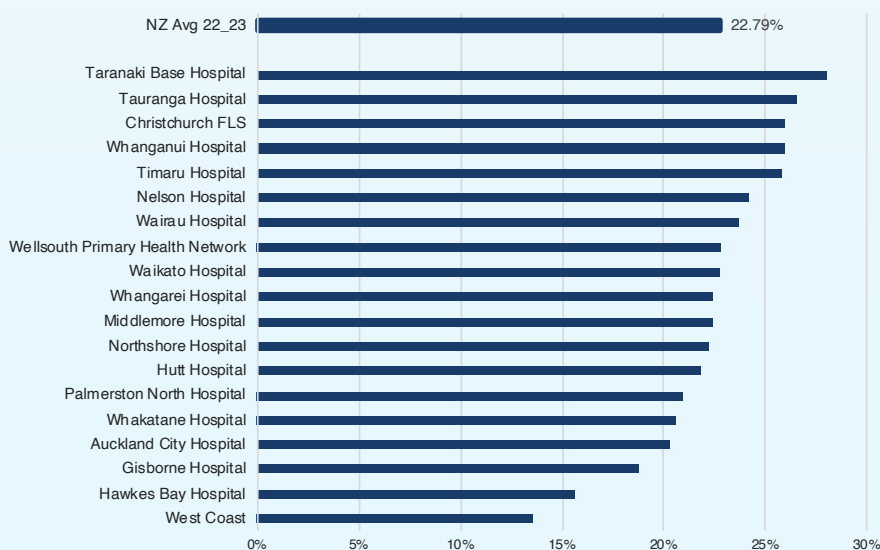


Figure 5 shows survival at 52 weeks in all people enrolled in the Registry in 2022-23, taken from a separate search of the NZ national health database.

Mortality is 40% higher in the second analysis, supporting the expectation that outcomes are worse in the frailest people who were not recommended treatment and so are not included in the first analysis.

Further analyses of outcome by ethnicity are inconclusive due to low numbers, but the trend so far is for lower mortality among Maori and Pacific Peoples.

NEW SERVICE ON THE BLOCK: QE HEALTH/LAKES FLS

Queen Elizabeth (QE) Health is a private/community trust funded rehabilitation centre in Rotorua. It started life in 1942 as a rehabilitation hospital (Queen Elizabeth Hospital) for World War Two returned servicemen and evolved into a national centre of excellence in rheumatology. Today it is a clinically integrated health and wellness centre providing a wide range of health and rehabilitation services. In 2023, QE Health staff finally moved into a brand new, modern, purpose-built facility which enables the efficient provision of all its health and wellness services.

The newest service which QE Health provides is a Fracture Liaison Service to all residents within the Lakes region which includes Rotorua, Taupō and Tūrangi. QE Health is contracted to Lakes Te Whatu Ora, to provide services for all those who meet the criteria for inclusion.

Dr Thomas Armingeat, Rheumatologist, is the Clinical Lead for the Fracture Liaison Service and reports the bone density scan results to the referrer/GP, along with his recommendations for treatment and /or further investigations. Rachel Gregory is the FLS Co-ordinator, liaising with ACC and Lakes Te Whatu Ora regarding the contract, KPI targets, screening ACC and ED lists and referral triage. Sara Kelly, FLS Nurse, completes the bone density scans, provides education around bone health, falls risk assessments, referrals to strength and balance classes or other health services as needed, FFR follow up. Kuljeet Kaur provides administration services.

Being a new service, we are starting to understand how different services around the country operate and that differences in service provision can be for a variety of reasons. For our service, there is a DXA machine on site and there is a minimal wait time of 2-3 weeks for clients to be able to have their scan. At the same appointment, bone health information and education are discussed and a falls risk assessment completed. Clients can be referred to both strength and balance classes in the community and classes at QE Health along with referrals to other health services. Another benefit to our service is knowing that intravenous (IV) zoledronate is funded in the Lakes region through POAC (Primary Options for Acute Care) and provided by most general practices. So, there are minimal barriers for our clients to access bisphosphonates.

Like any new service it took a while to become familiar with the expectations of service provision, the FFR, time management, clarifying roles and tasks and moulding the service into that which is unique to QE Health. Clear communication and development of a positive working relationship between QE Health, ACC and Lakes Te Whatu Ora has been key to progress. Some challenges at the start were around patient access between health organisations.

Overall, after having the service running for just over a year, we are fully functioning and believe that we are capturing the majority of our fracture patients. Positive feedback from clients shows real appreciation for having the opportunity to be involved in proactive healthcare delivery.

L to R: Dr Thomas Armingeat, Rheumatologist, Sara Kelly, FLS Nurse, Kuljeet Kaur, Admin & Rachel Gregory, FLS Coordinator.



INTERNATIONAL OSTEOPOROSIS FOUNDATION CAPTURE THE FRACTURE® PROGRAMME



The Capture the Fracture® Programme guides healthcare systems in implementing their own FLS and provides a platform for the global exchange of existing projects and resources on FLS and local implementation strategies. The implementation of FLS is the single most important thing that can be done to directly improve patient care and reduce spiralling fracture-related healthcare costs worldwide. The Best Practice Framework (BPF) serves as the measurement tool for IOF to award Capture the Fracture® Best Practice Recognition in celebration of successful FLS worldwide.

Read more at www.capturethefracture.org

NZ FLS WITH IOF ACCREDITATION

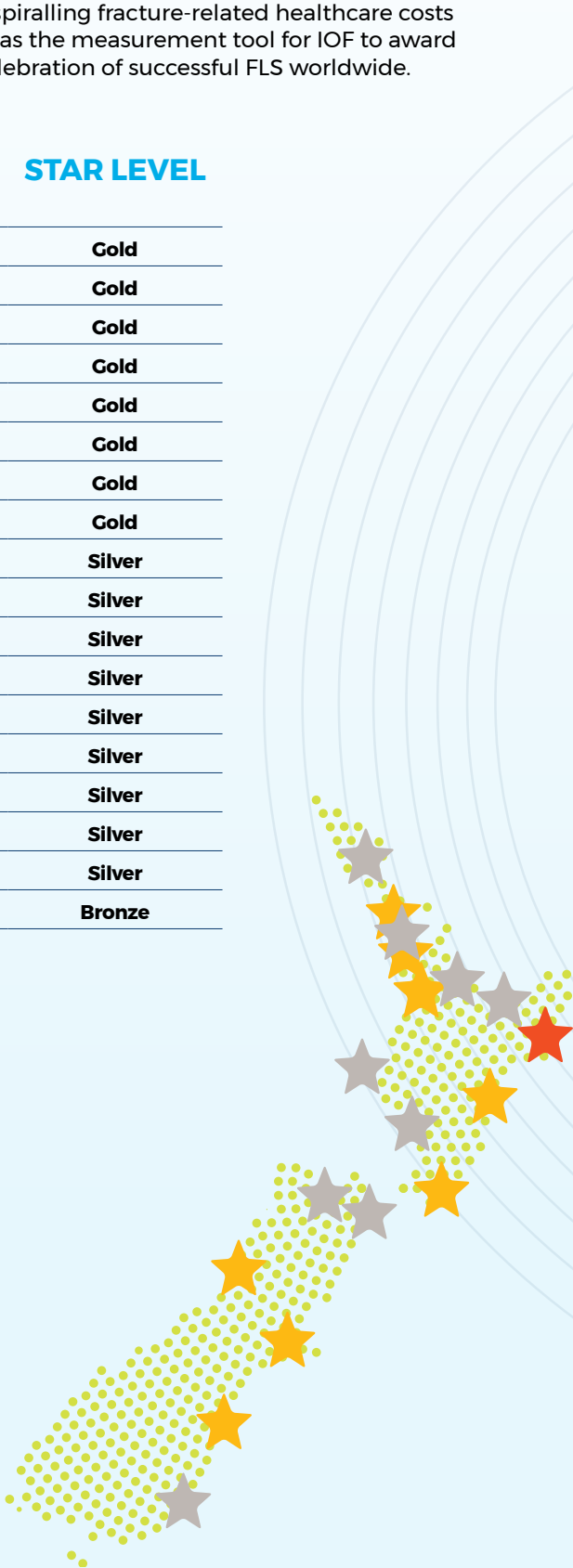
as of June 2024

STAR LEVEL

Waitemata	Gold
Middlemore	Gold
Waikato	Gold
Christchurch	Gold
West Coast	Gold
Hawkes Bay	Gold
Timaru	Gold
Hutt	Gold
Northland	Silver
Auckland	Silver
Tauranga	Silver
Whakatane	Silver
Whanganui	Silver
Wellsouth	Silver
Taranaki	Silver
Nelson	Silver
Wairau	Silver
Gisborne	Bronze

FLS yet to apply: Palmerston North and QE Health/Lakes.

OVERALL RATING



IOF CAPTURE THE FRACTURE® IMPLEMENTATION DRIVES QUALITY: HAWKES BAY FLS AND TARANAKI FLS



The Hawke's Bay Fracture Liaison Service was re-established in January 2021 following a lengthy dormant, non-staffed period. In May 2022, after 14 months in operation, we were successful in gaining Silver Capture the Fracture accreditation. This application process enabled us to identify the accreditation requirements and to more firmly embed appropriate quality practices. With time, we identified opportunities for further service improvement and methods to accomplish them. This included ways to capture non-clinical and clinical vertebral fragility fractures, more appropriate identification and inclusion of primary care and rest home clients, and enhanced treatment recommendation reporting to clients.

Two years after our first application, with a lot of hard work and support, we've been successful in achieving the Gold Capture the Fracture accreditation. As we identify more clients each year our focus remains on ensuring that the quality of service which each client receives continues to only improve, and that each individual is provided with the tools they need to maximize their bone health and minimise their future fracture risk.

L to R: Kate Davidson, Admin, Leon Penny, FLS Coordinator, Manish Chebbi, Clinical Lead

The Taranaki FLS was created in June 2022 with the aim to reduce fractures and acts as a bridge between acute hospital care and GP practices, to reduce barriers to managing osteoporosis. "We are excited to have been recognised with a Silver Rating on the IOF Map of Best Practice," says Jack "this recognition is extremely rewarding and provides a sense of meaningful contribution to our community. It's a great motivator for our team to help improve the quality of life for patients by providing comprehensive fracture care."

L to R: Dr Jennifer James, Clinical Lead, Jack Saju, FLS Nurse & Amy Marsh, Admin



SNAPSHOT OF SECONDARY FRACTURE PREVENTION IN NZ



HOW MANY PEOPLE WITH FRAGILITY FRACTURES DID WE FIND?

15,939
fragility fractures
occurred among

15,026
people,
representing:

72%
of the fractures
predicted to occur
annually in
New Zealand

FLS TEAMS
IDENTIFIED

67%

OF PREDICTED NON-SPINE
FRACTURES

FLS TEAMS IDENTIFIED

101%

OF PREDICTED SPINE
FRACTURES

WHO ARE THE PEOPLE THAT HAD A FRAGILITY FRACTURE?

76%
were NZ European

4%
Māori

1%
Pacific Peoples

5%
Indian/SE Asian

2%
Chinese

Average age
77 YEARS

46%
were over 80

OVER 88%
living in their own home

OVER 66%
did not use a walking aid
before their fracture

18%
had known dementia
or were cognitively
impaired

WHAT BONES DID THEY BREAK?

81%
of all fractures were top 5 expected sites for
osteoporotic fractures:

HIP 23.6 %

WRIST 22.2%

SPINE 18%

HUMERUS 10.2%

PELVIS 7%

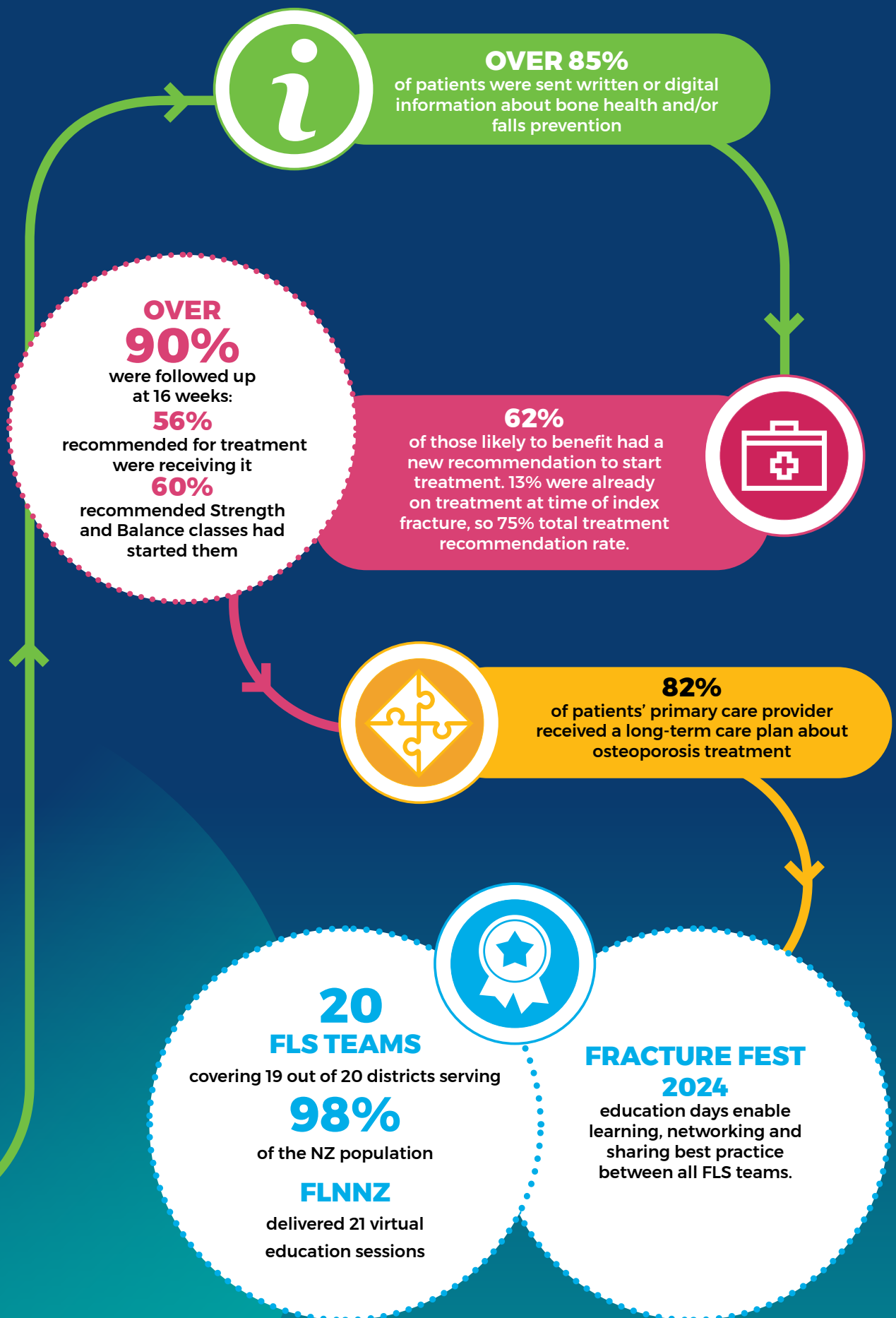
WITHIN 12 WEEKS OF THEIR FRACTURE



96.5%
of patients had a bone
health assessment

52.5%
recommended for
DXA scan had it completed

99%
had a falls risk
assessment



DIANE'S STORY

"WHAT A SHOCK!"



Diane Alder says it was a huge shock to learn that she had osteoporosis because she thought it was an older person's condition.

The 58-year-old nurse from Taranaki had a nasty fall on New Year's Day 2024 which resulted in her fracturing her distal radius (wrist) and ulna (forearm) in her left arm. Diane went to Taranaki Base Hospital (Te Whatu Ora-Taranaki) where she was put into a cast for six weeks. Her injury has had a big impact on her and those around her.

"It was just a real hassle to be honest," she says. "I was in pain which was especially difficult when trying to get to sleep at night. Trying to get comfortable with an arm that is sore and aching was really annoying and frustrating. Showering was a real hassle and making meals was a challenge".

It has been a challenging recovery for Diane and early in her rehabilitation she received a call from the Fracture Liaison Service (FLS) to book her in for a bone density scan.

"It was a real bonus to receive that call and get booked in for a scan to see if there were any underlying issues," she says. Diane leads an active life. She goes to the gym a few times a week and walks her dogs on the beach often. She had never broken a bone, so she thought her double fracture was just an unlucky accident. "It was a huge shock to learn that I had osteoporosis. I think of it as an older-person condition, and I don't consider myself an old person, yet" she says.

Diane says her experience shows that it is better to prevent an injury happening in the first place because the older you get, the harder and slower it is to recover.

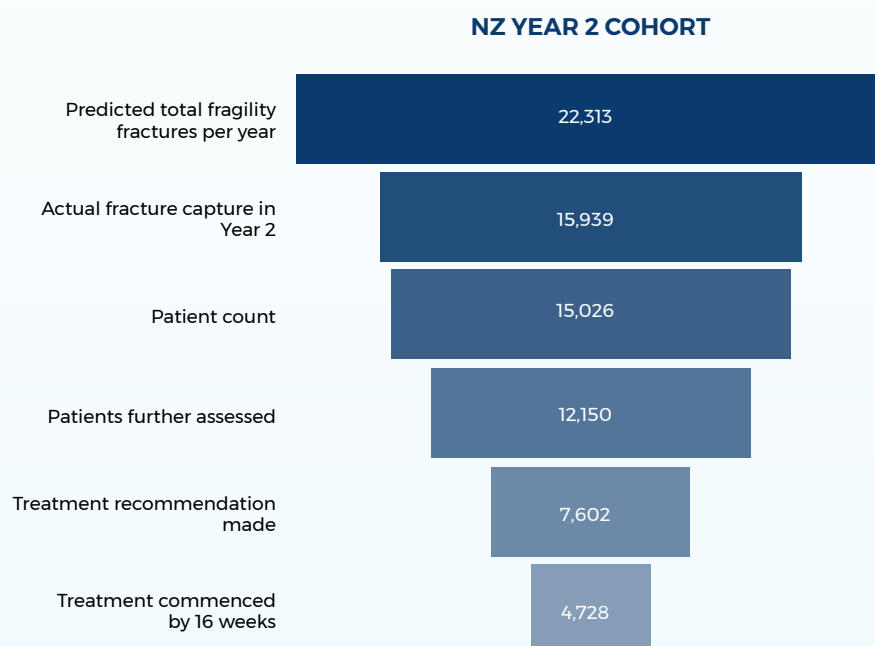
Diane expresses the FLS was a great experience. "They were excellent to deal with and you want to know what is going on with your body so you can manage it and make sensible decisions going forward." She returned to work as a nurse three weeks later on light duties and says it was great to get back into her role and connect with her workmates. "When you have an experience like this it gives you more empathy of being on the other side of the line," she says.

ANZFFR thanks Diane for sharing her story.



WHERE WE ARE AFTER YEAR 2

This diagram shows the number of fractures and people expected, identified, included in the Registry, assessed, recommended for and started on treatment. New treatment recommendations were made in just over half of all patients. Delays from recommending to starting treatment are important because the risk of further fracture is highest in the first 12-18 months and all treatments take several months to reach their full effect. Few FLS members are prescribers and we rely mainly on GPs to prescribe the medications. We are working with Primary Care to reduce delays but GP services in NZ are severely overstretched.



MAKING GOOD WITH THE 5IQ MODEL

We continue to use the 5IQ based clinical standards for Fracture Liaison Services in New Zealand. This system is also used in other long-term conditions, where it has been shown to improve health outcomes by increasing adherence to evidence-based clinical standards.



The first “i” describes which specific patient groups should be **identified** for clinical assessment.



The second “i” describes which **investigations** should be undertaken to characterise the patient’s risk of sustaining subsequent events.



The third “i” relates to what types of **information** the patient and their families and/or carers should be provided with to engage them in their care.



The fourth “i” relates to the **interventions** that should be offered to the patient, including pharmacological interventions where indicated, non-pharmacological interventions – such as falls prevention programmes – and lifestyle advice relating to diet, exercise, alcohol consumption and so forth.



The fifth “i” is concerned with **integration** of care across the various sectors of the health system, including primary care, secondary care, and tertiary care, with a view to ensure seamless transitions of care and to ensure that long-term care plans are devised and adhered to, with clear delineation of where clinical responsibility for provision of care resides at various stages in the long-term management of the patient.



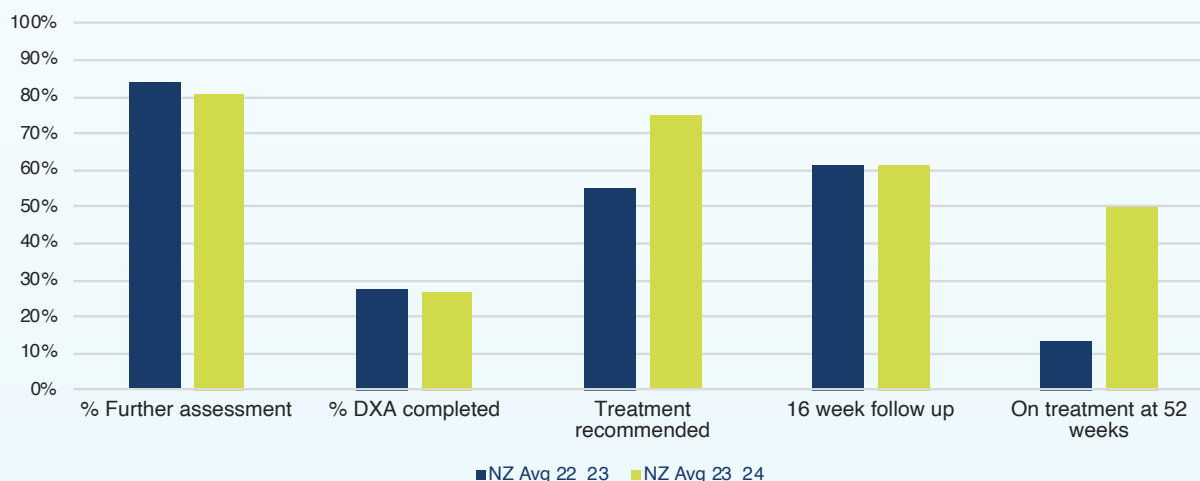
The “q” of the 5IQ clinical standards relates to **quality**, which includes efforts to benchmark performance of FLS Teams against the 5IQ clinical standards, involving the use of registries or other information technology tools. The registries provide real-time feedback to FLS teams to enable continuous evaluation of their performance, and a continuous approach to quality improvement.

FRACTURE LIAISON SERVICES IN NEW ZEALAND

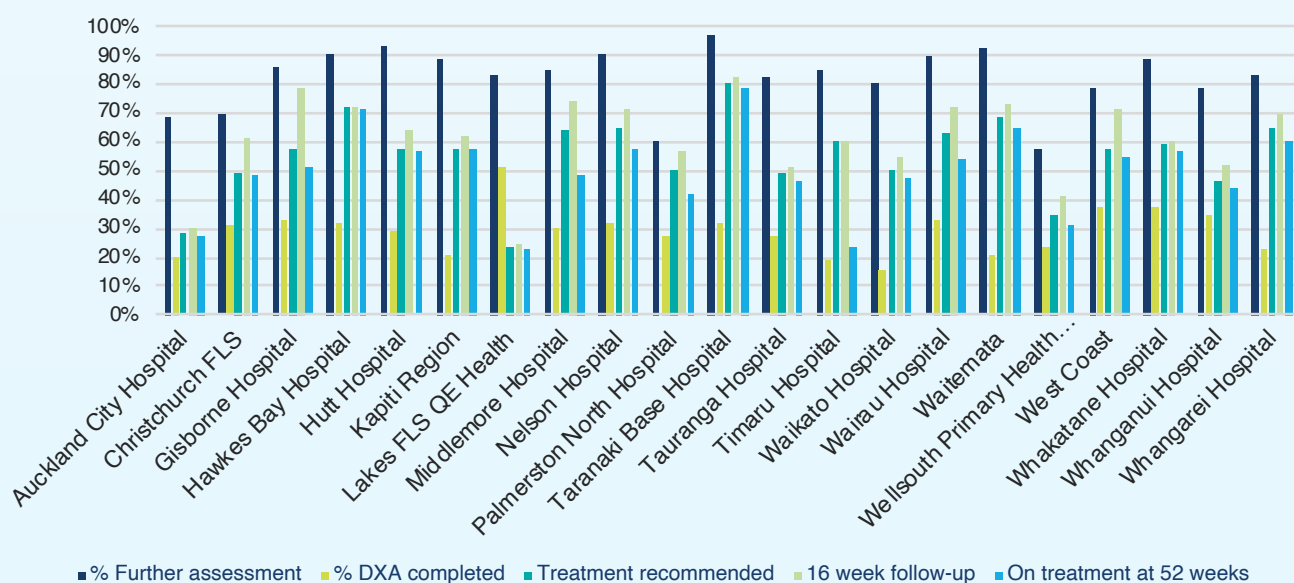
The following pages highlight the journey of **15,026** patients after their fragility fractures across **20 Fracture Liaison Service sites in New Zealand** from **1st July 2023 to 30th June 2024**. This includes completed 16 week follow up data to 31st October 2024 where applicable. Overall, only 112 patients opted out of registry participation (0.75%).

Where a national line percentage-only figure is shown, the expanded individual site figure can be viewed in the electronic report. New data variables for year 2 were added to improve clarity on the patient journey and support FLS teams with patient management to highlight true outcomes and data. (see appendix in e-report www.fragilityfracture.co.nz).

GRAPH 1: SHOWS NATIONAL COMPARISONS TO THE PREVIOUS YEAR



GRAPH 1A: SHOWS THIS YEAR'S PERFORMANCE IN EACH OF THE ABOVE FIVE MEASURES BY EACH FLS



SECTION 1: PATIENT DEMOGRAPHICS

WHAT DID OUR FRAGILITY FRACTURE PATIENTS LOOK LIKE?



76%
WOMEN



24%
MEN

1% DIFFERENCE FROM
LAST YEAR



AGE

NATIONAL
MEDIAN AGE =
78

NATIONAL
AVERAGE AGE =
77

1 YEAR INCREASE IN AVERAGE
AGE COMPARED TO YEAR 1
FIGURES

46%
WERE OVER
80 YRS OLD



RESIDENCE DATA

88%
LIVING IN THEIR
OWN HOMES



66%
DID NOT USE A
WALKING AID
BEFORE THEIR
FRACTURE



18%
HAD KNOWN
DEMENTIA
OR WERE
COGNITIVELY
IMPAIRED

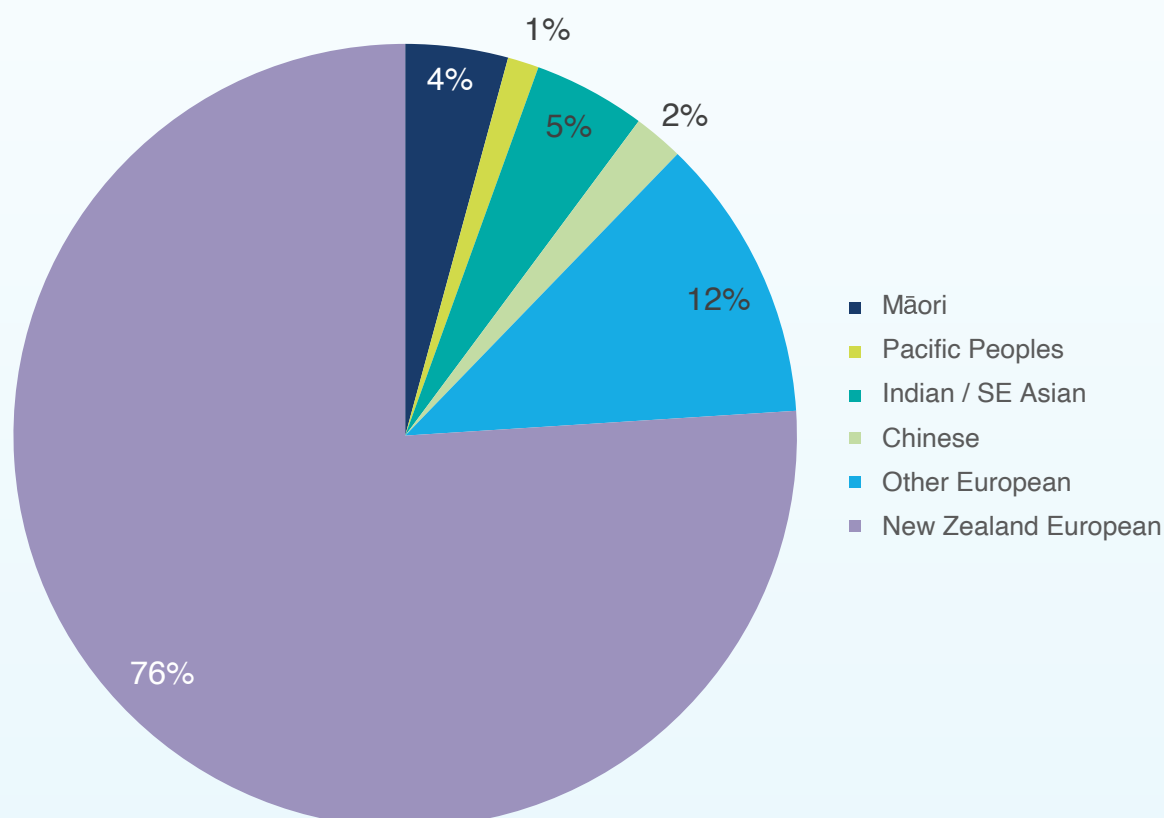
**ALL SIMILAR
TO LAST YEAR'S
FIGURES**

and in line with
expectations for a large
group of people with
this age distribution.

ETHNICITY IDENTIFICATION

FIGURE 6 – ETHNICITY

Australian, Canadian and American have been grouped into Other European. Cook Island Māori, Fijian, Niuean, Tongan, Samoan and Other Pacific People have been grouped into Pacific Peoples. Middle Eastern / Latin American / African and Not elsewhere included have been omitted as they were less than 0.2%.



Ethnicity in New Zealand's public records is self-declared and people are free to identify with more than one so totals usually exceed 100%. For analysis of public services, Stats NZ corrects to 100% by recording one ethnicity per person according to a system where Māori and Pacific Peoples ethnicities take first priority. Others follow, grouped in ascending order of prevalence. NZ European (i.e. people born in NZ to parents of European ancestry) is by far the largest group, so any other declared ethnicity takes priority over it for this purpose.

Based on national statistics, we are enrolling substantially fewer people of Māori and Pacific heritage than predicted by raw demographics. However, these do not adjust for age – one of the strongest risk factors for fragility fracture. Both groups are significantly younger than the NZ average. On the other hand, Indian and SE Asian people are significantly over-represented in our recruitment according to share of the population.

We are keen to ensure equitable access to people of all ethnic backgrounds and monitor our services closely for any evidence of differences in service provision. However current evidence is that there is no disparity and indeed people of Māori heritage are more likely to receive bone protection treatment. Standard of care and outcomes for Māori patients with neck of femur fractures – *Taylor G et al. "Standard of care and outcome measures for patients with neck of femur fractures – an Australian and New Zealand Hip Fracture Registry (ANZHFR) study." ANZ Journal of Surgery 2024; 94: 1949-55* showed a "A higher proportion of Māori received bone protection prescription on discharge (36% vs. 29% $P < 0.001$)".

STANDARD 1: IDENTIFICATION

All people aged 50 years or over who sustain a fragility fracture will be systematically and proactively identified by the FLS.

FIGURE 7 - //KPI 1 & //KPI 2: IDENTIFICATION

Percentage of predicted new non-spine (KPI 1) and spine (KPI 2) fractures for each hospital.

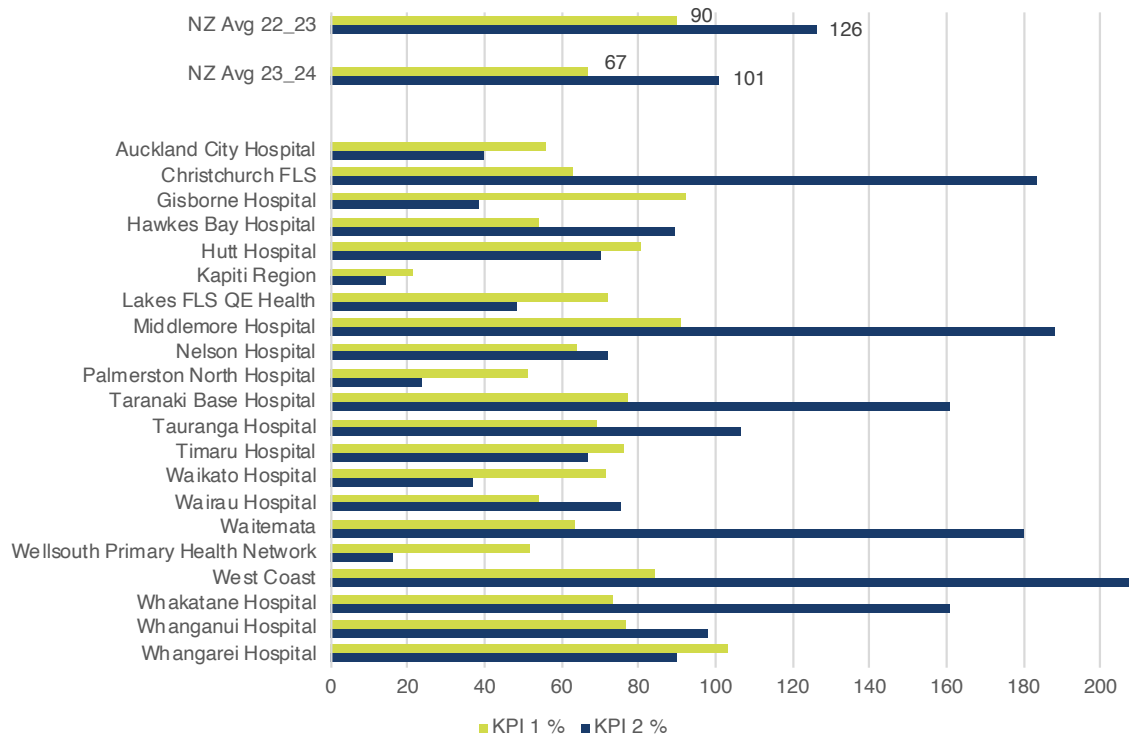
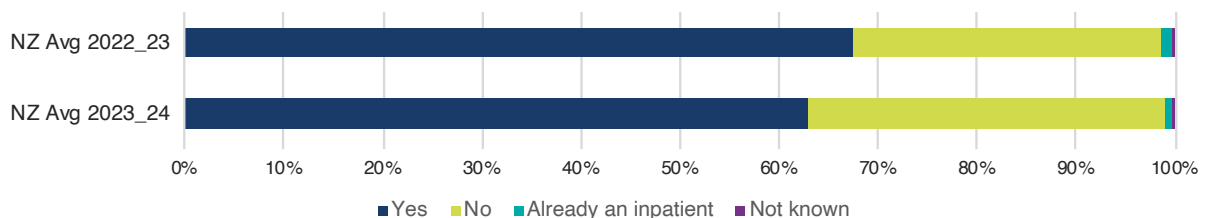


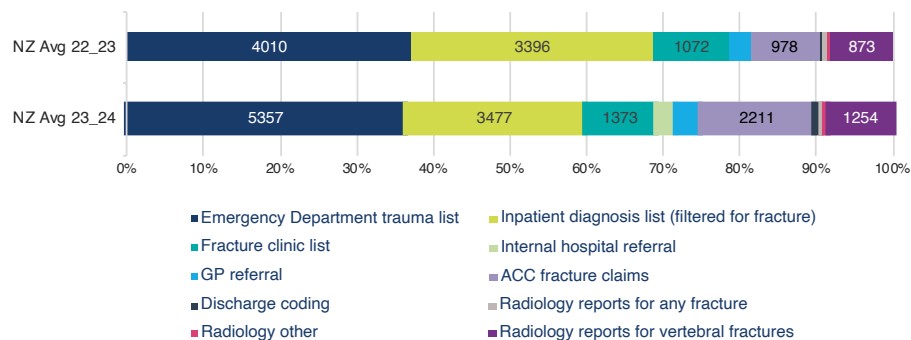
FIGURE 8 - ADMISSION TO HOSPITAL

Yes = 62%, No = 36%, Already an inpatient = 1%, Unknown = 0%



Year 2 saw a small increase in the proportion of people recruited after outpatient management as compared to hospital admission. This reflects better capture of less severe fracture types which are more often missed.

FIGURE 9 - IDENTIFICATION METHOD



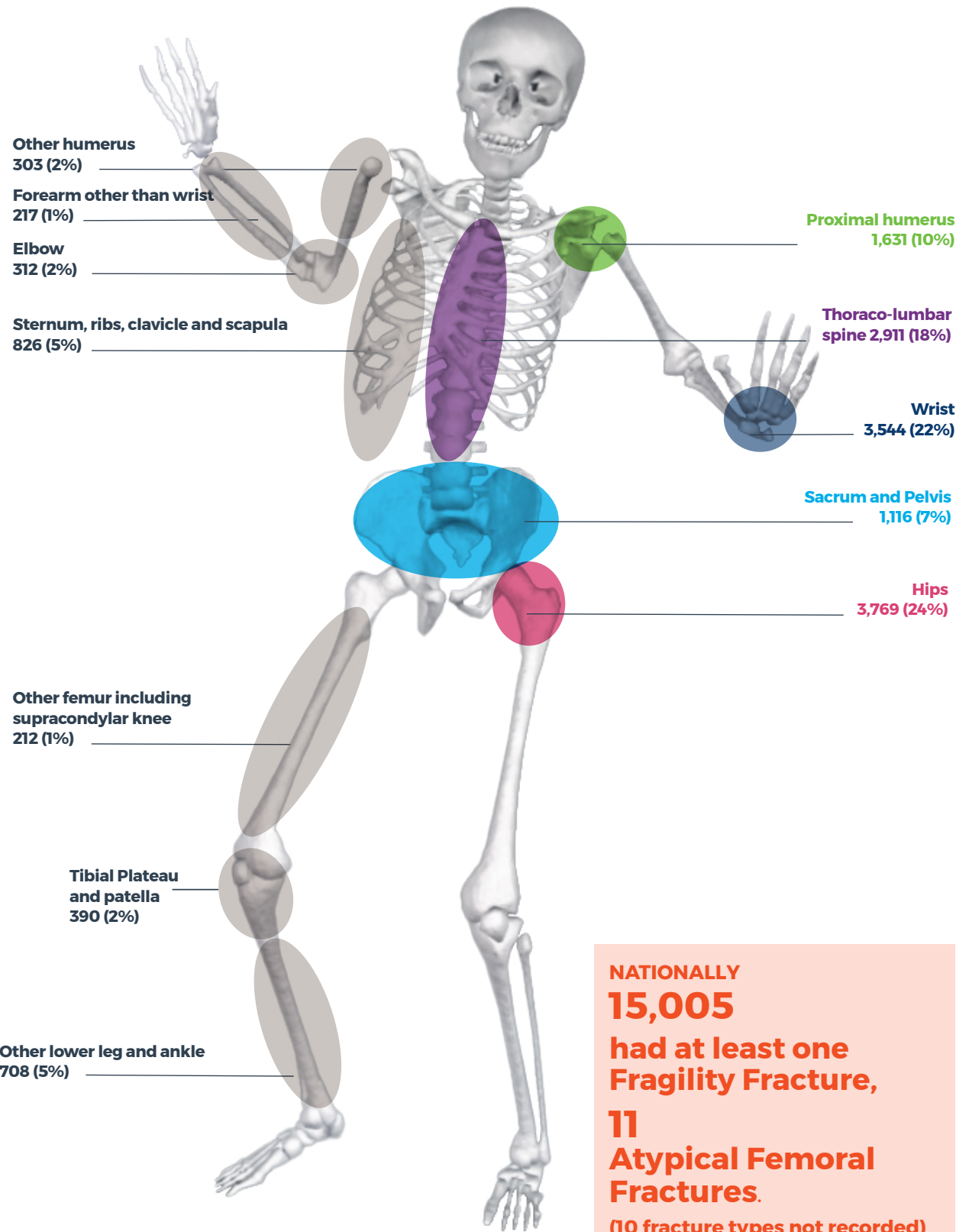
Recording of fractures in health records is inconsistent and incomplete. We search a wide range of record types for mention of "fracture" to ensure we find as many as possible.



**IDENTIFICATION OF
PEOPLE WITH FRAGILITY FRACTURES**

FIGURE 10 – FRACTURE SITES AT PRESENTATION

There are 15,939 separate fractures. 5.42% (864) of patients recorded a second simultaneous fracture site and 0.46% (73) patients had a third fracture site.

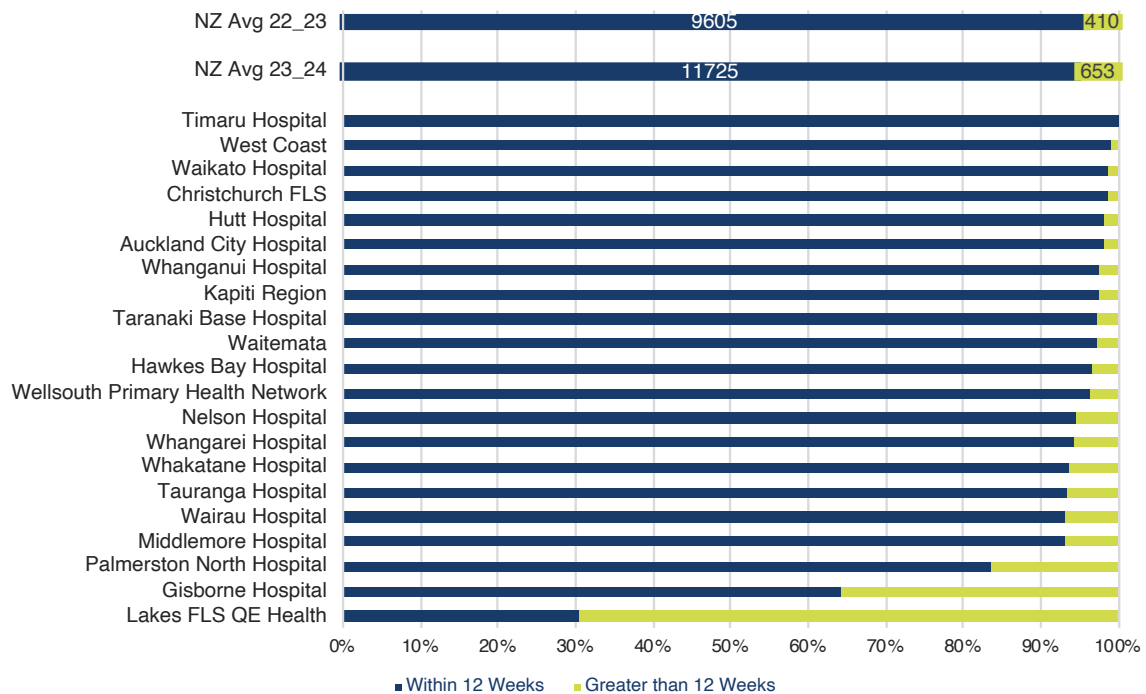


NATIONALLY
15,005
had at least one
Fragility Fracture,
11
Atypical Femoral
Fractures.
(10 fracture types not recorded)
81% are the top 5 osteoporotic
fracture sites.

STANDARD 2: INVESTIGATION

People with a fragility fracture will undergo timely assessment for future fracture risk including bone health (i.e. osteoporosis) and falls risk.

**FIGURE 11 – //KPI 3: DATE OF ASSESSMENT
WITHIN 12 WEEKS OF INDEX FRACTURE DATE**



81% of the total cohort went on to have a full Fracture Liaison Service assessment. Reasons why people did not have an assessment included: in palliative care (13%), frailty / life expectancy less than a year (26%) and end stage renal failure (7%). As there would be no likelihood of benefit from treatment, assessment is pointless and burdensome for the patient. 13% were recorded as deceased.

Fracturing your humerus can be very debilitating and it is a long journey to recovery. Florence tripped over her frame one morning on her way to the bathroom, Florence reports "I was aware I had done some damage straight away due to the pain". She had a lengthy six weeks in hospital due to both the uncertainty by orthopaedics to operate or not and the inability to go to the bathroom unassisted. Florence's daughter Diana says, "waiting many weeks for operation decision was difficult and hard for Mum as she was in a lot of pain". Florence has a long history of fractures and osteoporosis spanning 20 years, she was given an IV zoledronate infusion while in hospital. At 16 week follow up, she has had some physiotherapy to help with her range of movement and function of her arm but is still unable to comb her own hair and feels she has not recovered well, she wishes she was operated on so she could have started using her arm sooner.

Florence, 98, Bay of Plenty.



**INVESTIGATION INCLUDING TIMELY
ASSESSMENT OF BONE HEALTH AND FALLS RISK**

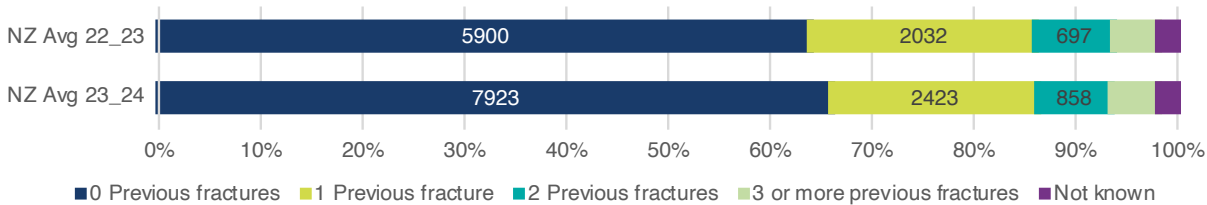
BONE HEALTH ASSESSMENT

Patients are assessed about risk factors related to osteoporosis.

EARLY MENOPAUSE remains the highest risk at **22%** for this year’s cohort, with lifestyle factors of **ALCOHOL USE** and **SMOKING** making up **35%**, **PARENTAL HIP FRACTURE HISTORY** was **15%** and **STEROID USE** and **RHEUMATOID ARTHRITIS** is at **28%**.

One-third of people recruited had had at least one previous fracture, far more than the age-adjusted population average of 12% of women and 8% of men over 50. This supports previous evidence that people who have had a fracture are the most likely to have another, and that we are, therefore, targeting the group most likely to benefit from intervention.

FIGURE 12 - REPORTED PREVIOUS FRAGILITY FRACTURES

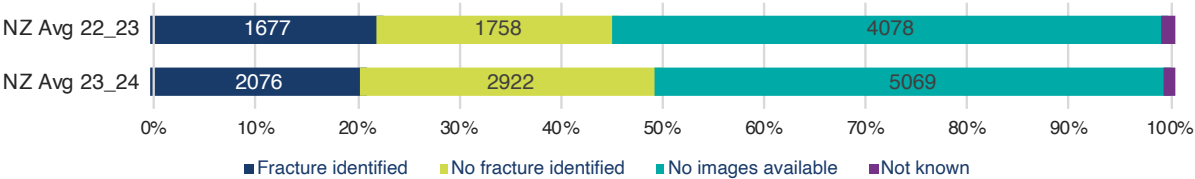


13% reported already taking an osteoporosis-specific treatment prior to this fracture; zoledronic and alendronic acids accounted for 87% of these. The best-treatments reduce fracture risk by about half, so unfortunately some people will still have another fracture while on treatment. 20% report having had osteoporosis-specific treatment in the past but not taking it now.

Around half (48%) had had previous spine X-rays or CT, of whom 40% had a fracture.

FIGURE 13 - THORACO-LUMBAR IMAGING

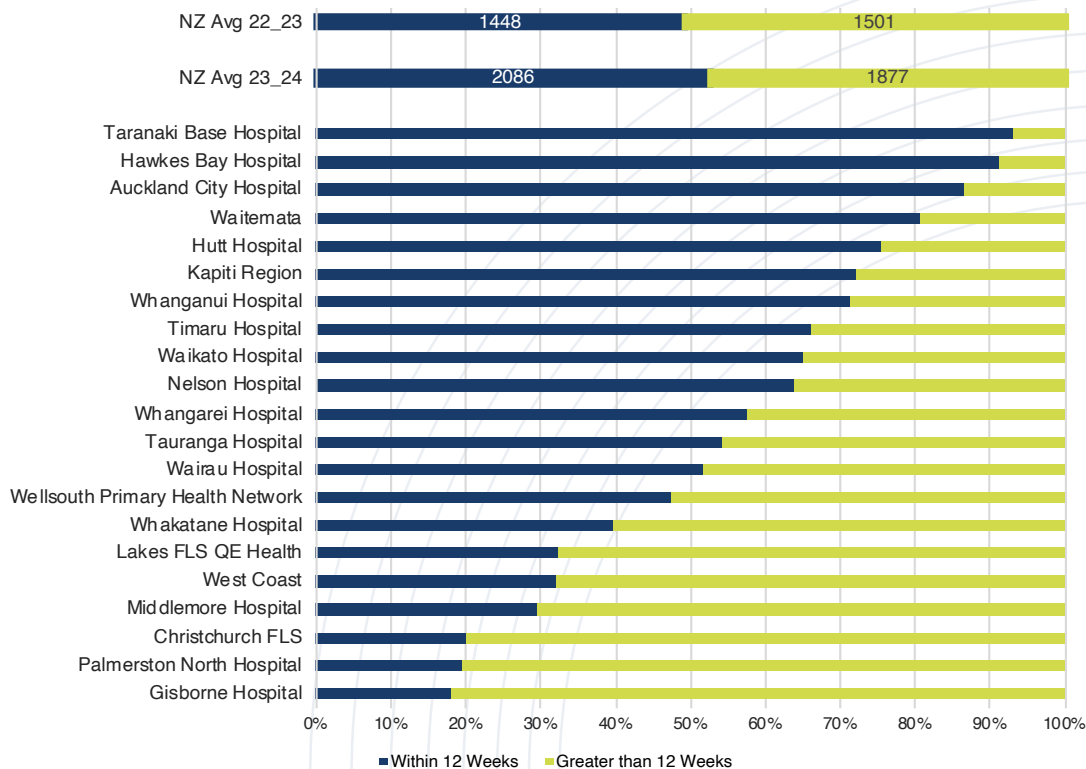
Thoraco-lumbar imaging count: 10,094 (83%), 4,932 not recorded



94% of the cohort had previous blood results and records checked for evidence of other conditions which might decrease bone strength (secondary causes), a significant increase of 14% from the previous year.

FIGURE 14 - //KPI 4: DXA DATE WITHIN 12 WEEKS

2,056 with DXA within 12 weeks, 1,911 outside 12 weeks



For those that did not receive a DXA scan, the main reason was “not appropriate” (80%), likely related to age and patients’ health. 15% had a recent scan and the other 5% was patient declined or not available in their health locality.

IN-HOUSE DXA FINALLY ARRIVES: WAITEMATA FLS

“Waitemata FLS team had an eventful 2024, and without a doubt the most exciting highlight was that of getting our own DXA machine at North Shore Hospital” states David Kim, FLS Clinical Lead.

Since the inception of Waitemata FLS, patients who needed DXA had it performed by an external private provider, this was not efficient to cover our needs. It was felt that time was right to re-visit the plan to establish our own DXA service to better serve our population; something that the Waitemata Endocrinology Department has been contemplating for some time. Pleasingly, our business case was approved in 2023, and it was then a matter of going ahead with purchasing a DXA scanner, recruiting staff with relevant skills or for the existing staff to upskill. We have FLS nurses and Diabetes CNS learning to scan patients. We are particularly grateful to the Auckland Hospital DXA team, who has been kindly supporting our patients while our own service was being set up and helped us with training Waitemata staff for scanning and reporting. Our DXA machine arrived on site in May 2024, we are proud to be the first site in New Zealand to offer and routinely provide trabecular bone score (TBS) – a well-validated tool in DXA imaging that provides indirect information on bone microarchitecture.



The TBS feature required a software upgrade and is proving to be useful additional information in making patient management decisions. Our DXA service is still in its infancy but we can scan high risk patients, such as our FLS patients, in a timely fashion now and we are gradually increasing our capacity.

L to R: Dr Simon Young, Endocrinology Clinical Director, Janice Kirkpatrick, Service Manager, Dr David Kim, Endocrinologist & FLS Clinical Lead, Andrea Belgera, FLS CNS, Julia Spinley, FLS CNS and Narrinder Shergill, Diabetes Research CNS.



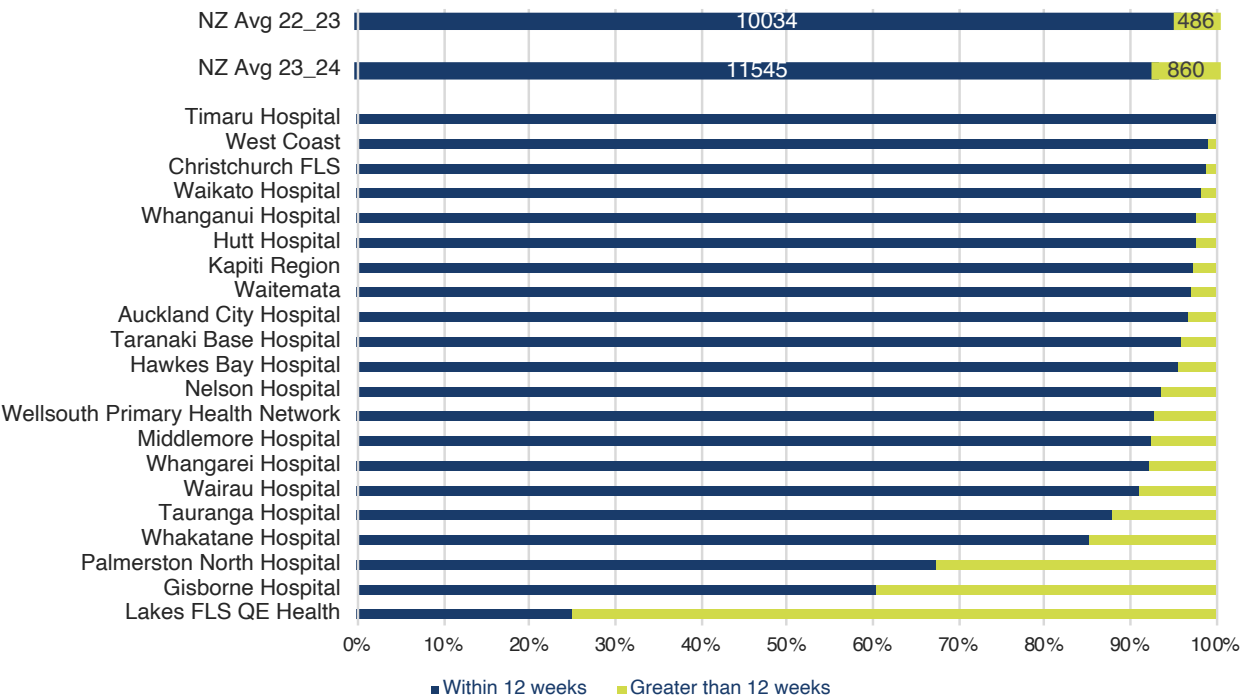
**INVESTIGATION INCLUDING TIMELY
ASSESSMENT OF BONE HEALTH AND FALLS RISK**

FALLS RISK ASSESSMENT

//KPI 5: FALLS ASSESSMENT

Almost all centres carried out falls risk assessments on the vast majority of their patients at the same time as their bone health assessment. As a result, this figure is almost identical to Figure 11.

FIGURE 15 - FALLS RISK ASSESMENT



This assessment included questions on symptoms indicating a possible cardiac cause of falls, such as loss of consciousness or feeling faint before falling. Such symptoms could indicate a need for further specialist assessment. Less than 5% of patients reported any relevant symptoms.

FLS teams also asked about non-cardiac falls risk factors such as fear of falling, awareness of reduced muscle strength before the fall and previous slips/trips. These were used to guide decisions on referral to interventions such as community strength and balance classes.



MOVE IT OR LOSE IT: SPORT AND HEALTH WORKING TOGETHER

Many thanks to the Move It or Lose It – Rangiora, a popular strength & balance class based in Waimakariri, Waitaha Canterbury.

RURAL COMMUNITY MAKING A DIFFERENCE WITH FLS

In Gisborne / Tairāwhiti region, the Fracture Liaison Service sits within our wider Healthy Ageing service (Te Ara Tiaki Pakeke) and the FLS Coordinator also holds the Fall Prevention role within our rohe. Our Healthy Ageing service also consists of Needs Assessors, Home Care Support services, Allied Health, Community Strength & Balance, Geriatric CNS and the non-acute rehabilitation pathway.

The advantage for our FLS service is that fragility fractures receive timely fall prevention education as we send out fall prevention information packs to all clients over 70 as standard practice and for FLS screening, I ask questions around falls and can do a more thorough falls assessment either over the phone or organise a home visit as needed. Having the Allied Health & Community Strength and Balance teams within the same office also means following up if clients are attending classes or receiving S&B exercises is very time efficient.

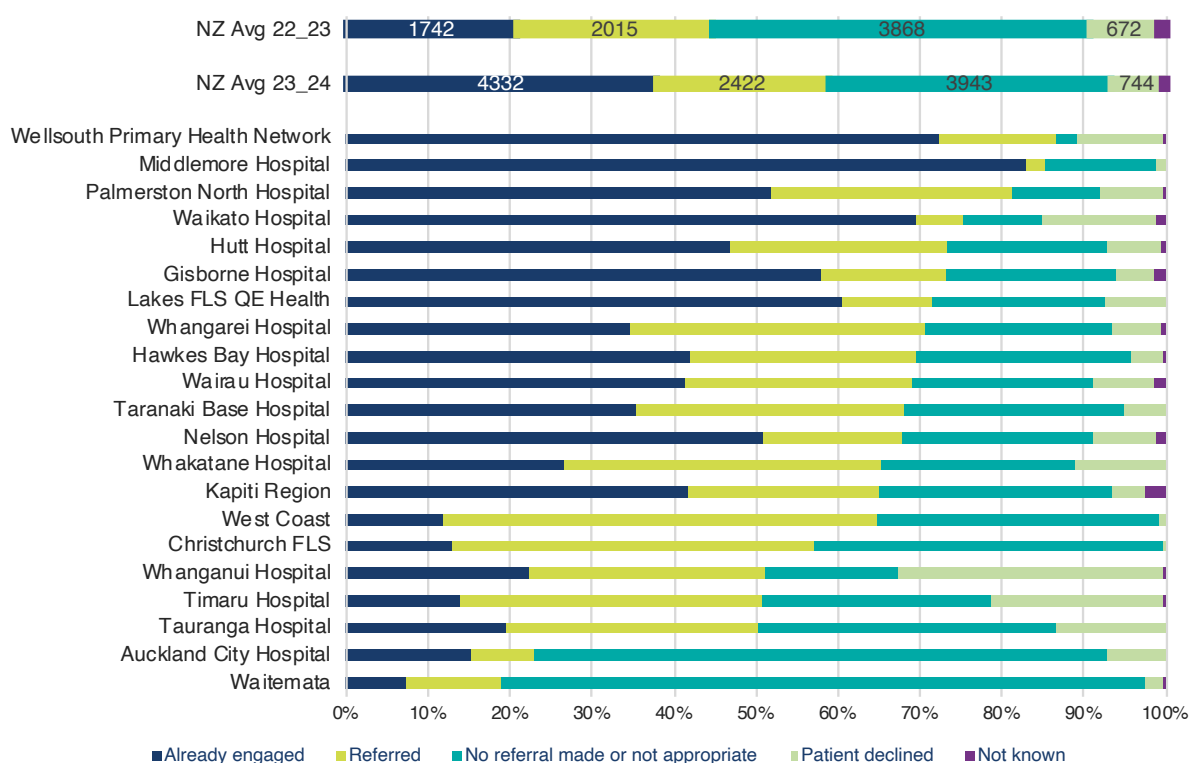
As the fall prevention nurse, I provide education talks to groups like aged care facilities, pakeke & kaumātua groups, community strength & balance classes and other community organisations like Rotary and Lions. Most recently we have been reaching out to our East Coast community and their various kaumātua groups sharing information about preventing falls, osteoporosis risks & screening and community strength & balance as access to preventative and acute healthcare is limited on the Coast with long distances involved in travel and many locum GPs. I often have clients that have gone through the FLS come up to me at these sessions, introduce themselves and talk about the changes they have made to their home environment or how the exercises have made a difference to their quality of life which is amazing to hear.

L to R: Maree Donaldson, FLS Nurse & Tammy Chaffey, FLS admin.



FIGURE 16 – STRENGTH AND BALANCE REFERRALS

Strength and Balance referrals count: 11,476 (94%)



The differences between centres reflect enormous variation in access to falls prevention services. Consistent engagement with strength and balance training providers supports their viability, improving access and builds towards a nationwide falls prevention service.



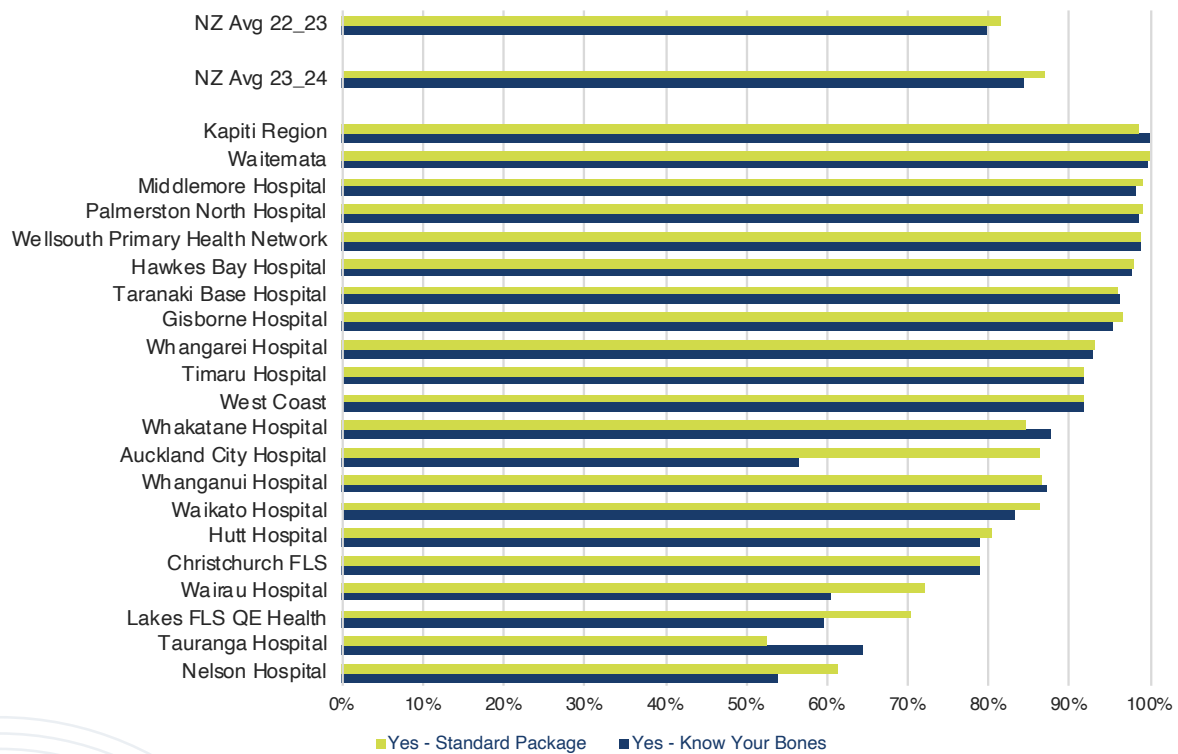
**INVESTIGATION INCLUDING TIMELY
ASSESSMENT OF BONE HEALTH AND FALLS RISK**

STANDARD 3: INFORMATION

People with fragility fracture, their family members and whānau or carers will be provided with information – in their own language and in plain language – on bone health, lifestyle measures (including exercise, alcohol and smoking), nutrition (including calcium and vitamin D intake), sun exposure and the relationship between osteoporosis and fracture risk.

FIGURE 17 - //KPI 6: INFORMATION PACKAGE AND //KPI 7: KNOW YOUR BONES™

This graph shows the percentage of patients marked for Further Assessment that receive a Standard Package or Know Your Bones™ leaflet.



REPORTING IDENTIFIES IMPROVEMENT OPPORTUNITIES: MIDDLEMORE FLS

From the last Annual Report, we noted that we didn't do very well with sending info out. Previously, we sent the information at 16 weeks, depending on the patient's plan. After discussion with our Clinical Lead, we now send the packs out to every patient on identification if they are for further assessment. The administrator makes the packs and sends them out. The pack includes information on Live Stronger for Longer programs, vitamin D, FLS standards and treatment options. Plus, the ANZFFR participation sheet and calcium factsheet.

Geethu Jose, FLS Coordinator, Middlemore Hospital

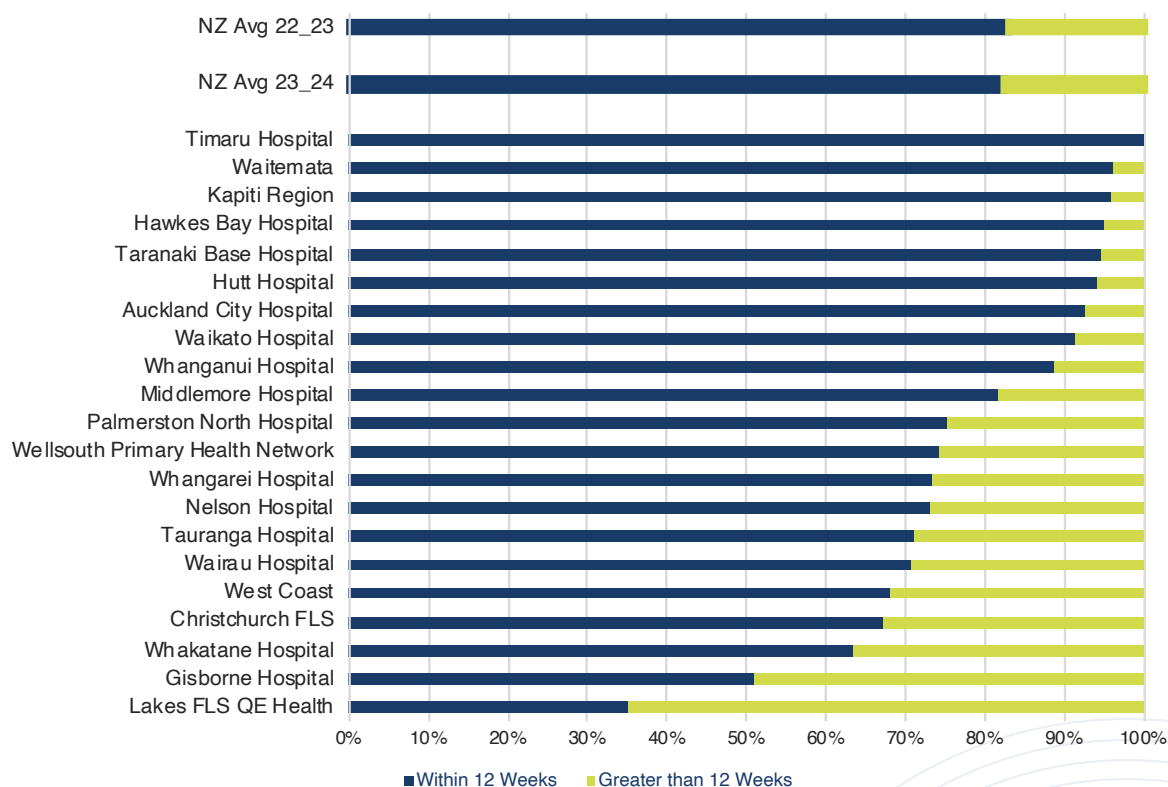


STANDARD 4: INTERVENTION

People with a fragility fracture determined to be at high risk of sustaining future falls and/or fractures will be offered appropriate osteoporosis treatment with PHARMAC subsidised medicines and be referred for interventions to reduce falls risk.

FIGURE 18 - //KPI 8: DATE OF OSTEOPOROSIS TREATMENT RECOMMENDATION

6,778 within 12 weeks, 1,440 outside 12 weeks



JOAN'S STORY

In November 2023 Joan, 94, slipped from her bed and broke her wrist, and unfortunately in January 2024 she tripped in her kitchen, breaking her hip. She spent three weeks in hospital.

When talking about her hospital care, Joan praised staff for their care and was pleased she was given treatment for osteoporosis. Despite her mother having osteoporosis, Joan did not think it would happen to her.

At her FLS follow up, Joan is frustrated that she is still using a walker. "My daughters insist" Joan said. She is having physiotherapy at home and doing her exercises. "I'm pleased to be back at my card and mahjong afternoons with friends".

This photo was taken at Joan's home, three weeks after her discharge from hospital.



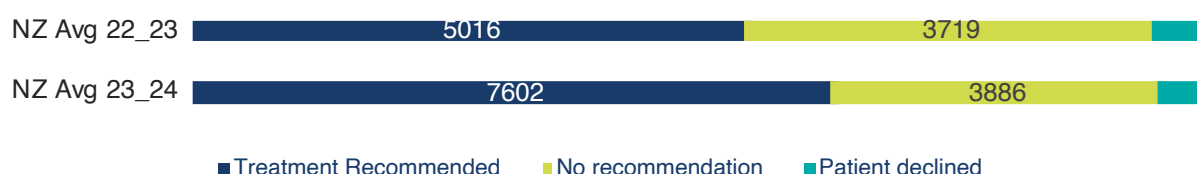
**INTERVENTION WITH OSTEOPOROSIS-SPECIFIC
TREATMENT AND PREVENTION**

TREATMENT OUTCOMES DATA

62% of assessed patients were recommended osteoporosis-specific treatment and a further 13% were already taking it.

FIGURE 19 – OSTEOPOROSIS TREATMENT RECOMMENDATION VS NO RECOMMENDATION

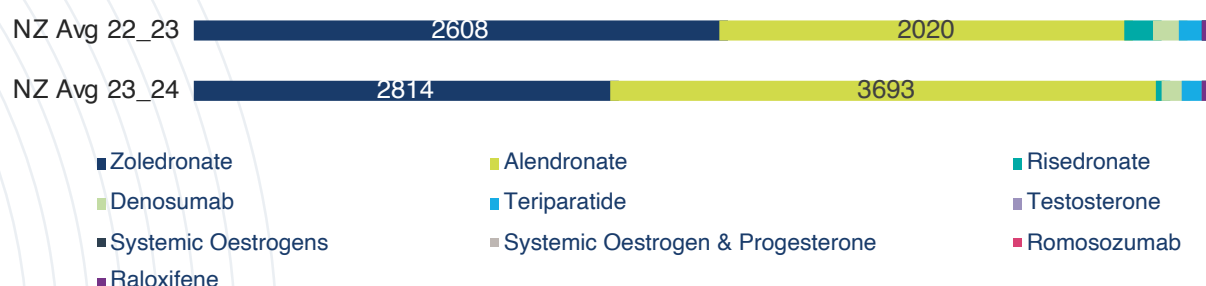
7,602 recommended for treatment, 3,886 not recommended or unknown and 473 patients declined. 189 records have null for this value.



Most people (~80%) who started treatment in hospital were given a first dose of intravenous zoledronate. For people at home, FLS either advised a specific treatment or left it to the patient and their GP to decide. The vast majority (>90%) of those chose alendronate so Figure 20 combines the option “prescriber’s choice” with alendronate.

FIGURE 20 – OSTEOPOROSIS-SPECIFIC TREATMENT RECOMMENDATION

The numbers below show actual medications and exclude “Bisphosphonate therapy (prescriber’s choice)” (3,313)



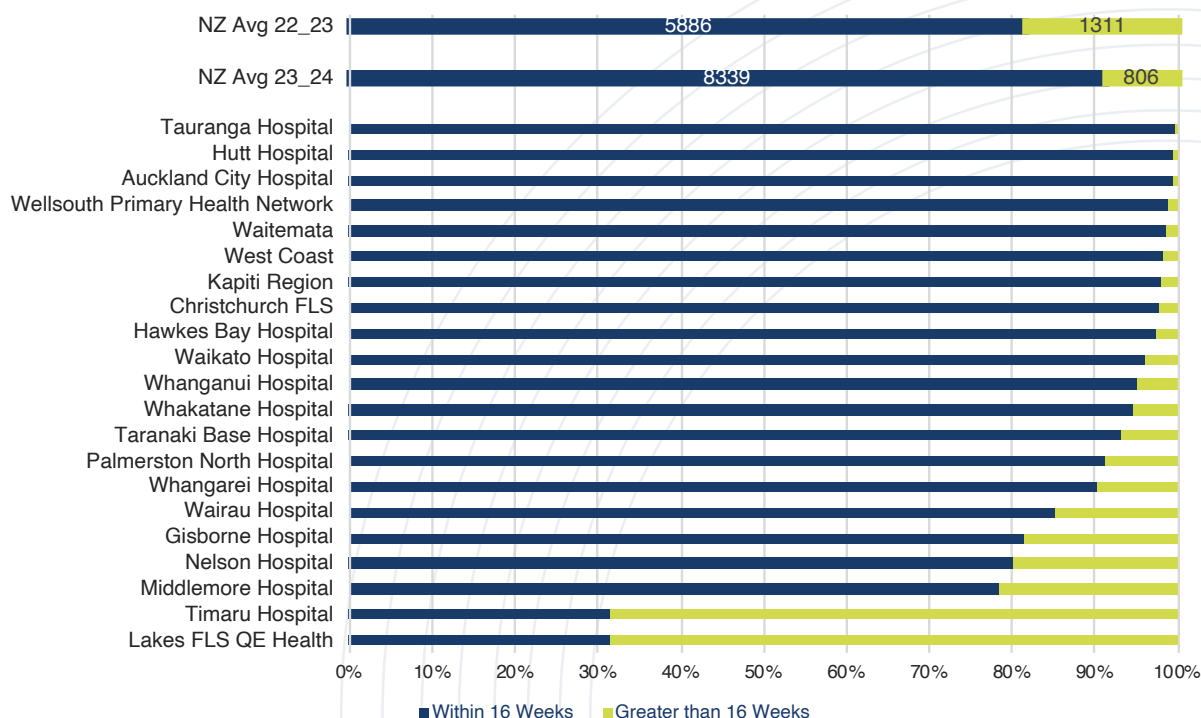
For those that did not require treatment after their FLS assessments and investigations (3886 patients) 64% showed all assessments indicate treatment not required at present and 17% registered with renal function too poor to take the bisphosphonate treatments safely, with no further medication options available. 10% were deemed as too frail with a poor life expectancy.

As per the previous year, 88% of ARCF residents enrolled in ANZFFR were recorded as taking vitamin D at the time of their fracture. Vitamin D supplementation for those living in ARCFs is advised as it may help reduce their falls risk.

Dr David Kim, Endocrinologist and FLS Clinical Lead at Waitemata reports “The FLS Clinical Leads group has endorsed and provided feedback to Pharmac’s proposal of widening access to the Prolia brand of denosumab, RANK-ligand inhibitor, approved for management of osteoporosis. The Clinical Leads group wrote a letter of support and the co-chairs have been involved on projects with Pharmac to improve medication access for osteoporotic patients.”

FIGURE 21 - //KPI 9: 16 WEEK FOLLOW UP DATE

The 16 week follow up is intended as a conversation between FLS and patient to ensure that advice has been received, that the patient has had an opportunity to think about it and that treatment has started.



92% of those recommended an osteoporosis-specific treatment were followed up at, or soon after, 16 weeks. 87% had returned to their own home and 58% were using no aids to walk/mobilise at the time of follow up.

Hutt FLS also manages Kapiti region and in August 2024 also opened their service to the Wellington region. Natasha Nagar, Fracture Liaison Pharmacist discusses how follow up is carried out: "We run three different registries, and there are three of us so we take responsibility for a region each. We all have different ways to approach it, which includes having set days to do follow ups for the week or doing it in down-time. It's important we communicate when someone is on leave for cover. At the follow up mark, we take the opportunity to make sure clinical assessments are on track i.e. DXAs are done or ordered, infusions have been organised and if not, there is a chance for us to intervene. For patients we start on oral bisphosphonates, we also make sure PINP's are completed."

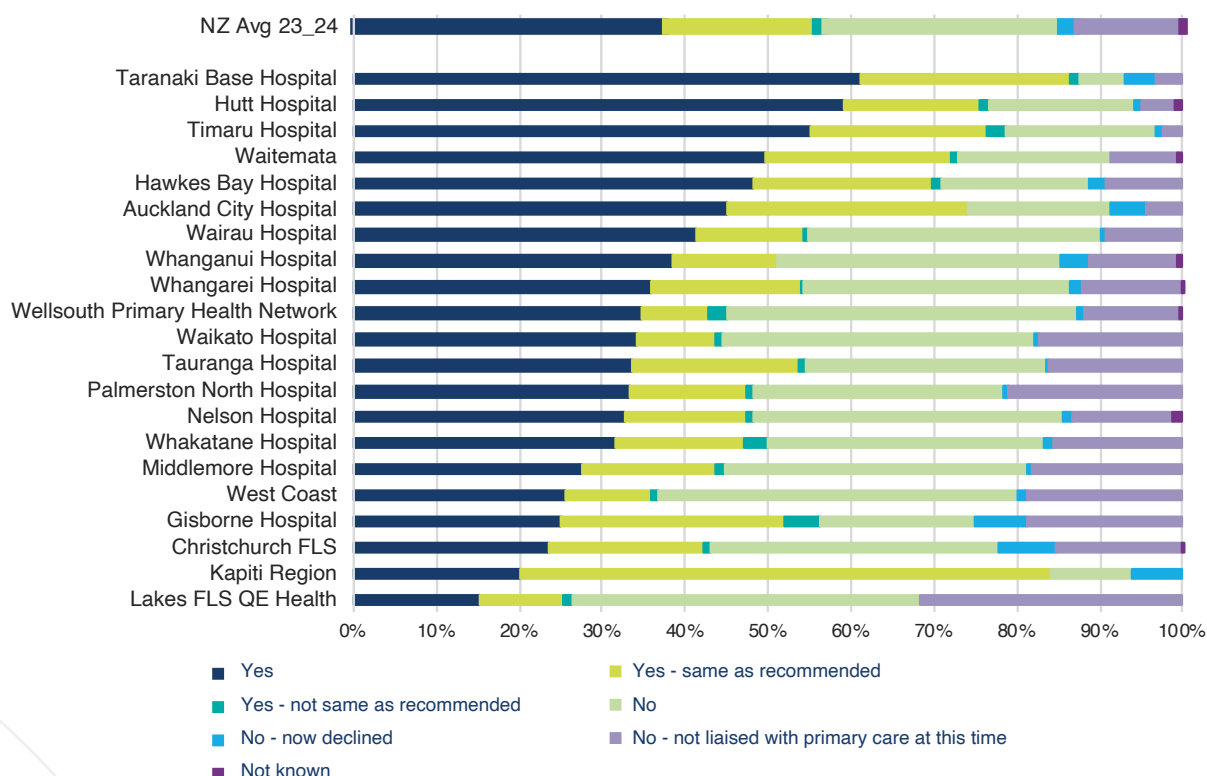
L to R: Tatiana Raevskaya, FLS Admin, Mary Daly, FLS Nurse Practitioner, Radhika Patel, FLS CNS, Natasha Nagar, Fracture Liaison Pharmacist & Dr Jo Williams, FLS Clinical Lead.



INTERVENTION WITH OSTEOPOROSIS-SPECIFIC TREATMENT AND PREVENTION

FIGURE 22 - //KPI 10: OSTEOPOROSIS-SPECIFIC TREATMENT COMMENCED AT 16 WEEKS

56% Medication Commenced, 43% No



Sandy Knight, FLS Coordinator from Timaru reports: "Most of the 16 week follow up patients received zoledronate as an inpatient or started on an oral bisphosphonate. As we are a small hospital and FLS is based in the hospital, I get to see all of these patients face to face. To improve uptake, I meet with the new orthopaedic ward doctors and explain what our service does and how they can support us, with blood tests for example, I feel that doing this has benefitted the patients with the good communication that we all have. Also, the doctors have the link to our Clinical Lead if they need more clarification on the bisphosphates."

Eric Bindewald, Clinical Lead at Timaru says: "Some of the patients go untreated due to renal insufficiency so we look forward to the availability of denosumab for that cohort. Sandy's presence and actions on the orthopaedic ward and the participation of the orthopaedic team have been effective."

Where medication is recommended, patients have to see a GP to discuss and, if agreeable, start it. Given the challenges with provision of GP services across the country this has been the biggest barrier to prompt treatment.

FIGURE 23 - 16 WEEK MEDICATION TYPE

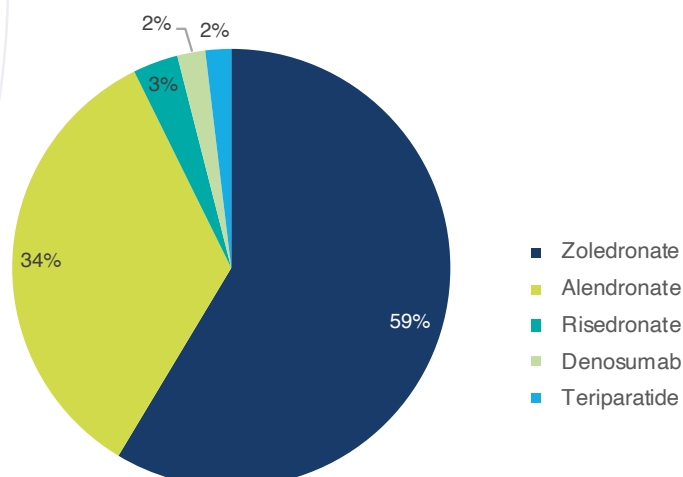
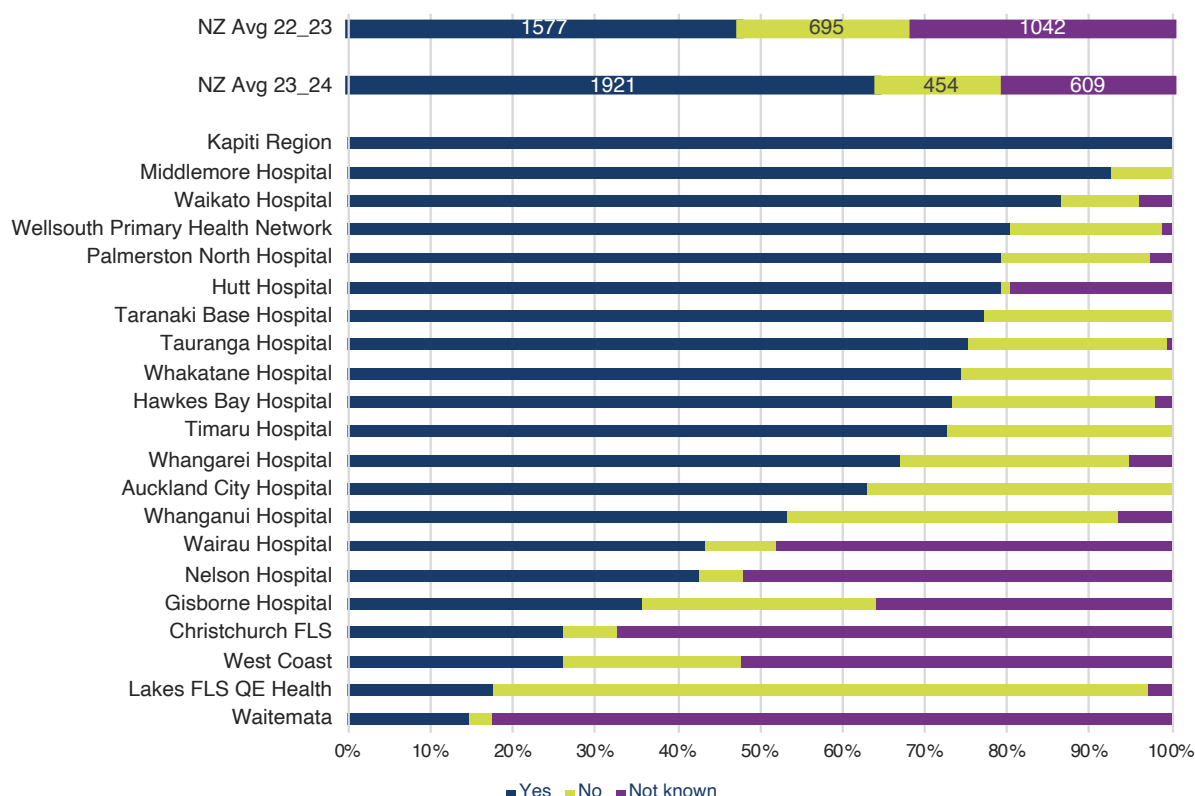


FIGURE 24 - //KPI 11: STRENGTH AND BALANCE STARTED

59% (7,128) of records indicating further treatment was required had no value for this. 6% were No or Not yet started and 30% were Yes, Yes – same as referred or Yes – not same as referred.



As mentioned before, there are wide variations in service availability between regions.

MOVE IT OR LOSE IT: SPORT AND HEALTH WORKING TOGETHER

Many thanks to the Move It or Lose It – Rangiora, a popular strength & balance class based in Waimakariri, Waitaha Canterbury.

Sport Canterbury supports approved ACC community strength & balance classes across Waitaha Canterbury, Te Tai Poutini West Coast and South Canterbury. Having nearly 400 weekly classes across the regions, Sport Canterbury works with local providers to ensure they are providing high quality, enjoyable and safe classes to kaumātua in their communities.

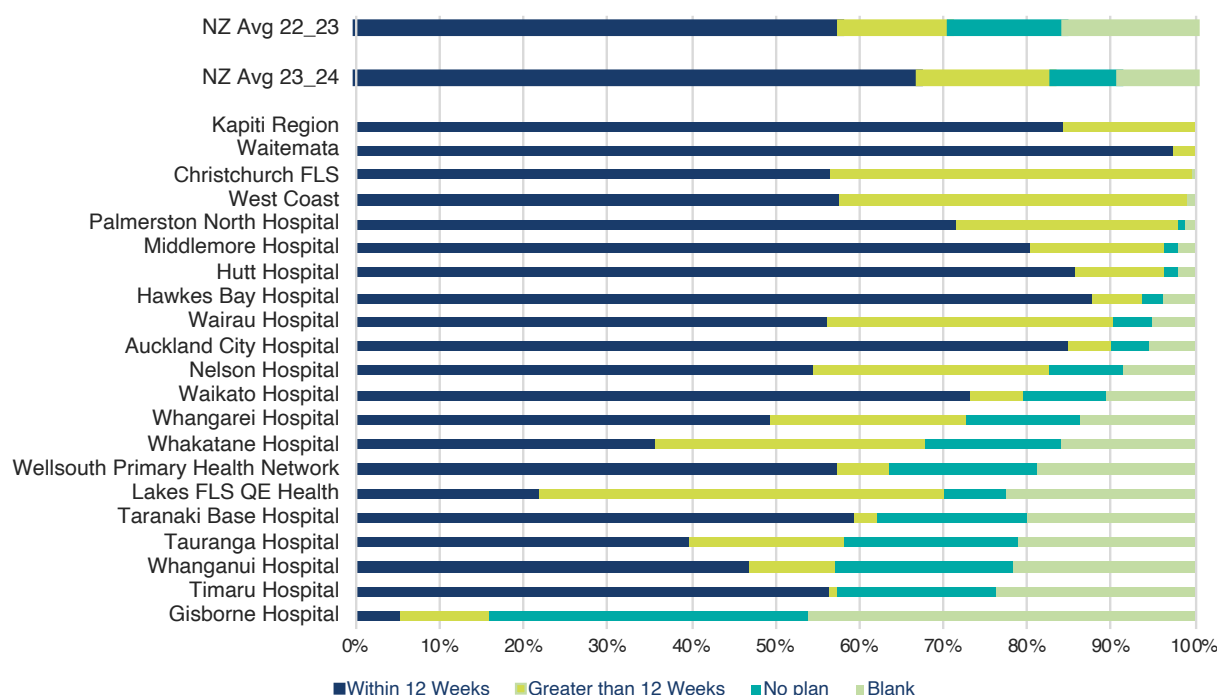


INTERVENTION WITH OSTEOPOROSIS-SPECIFIC TREATMENT AND PREVENTION

STANDARD 5: INTEGRATION

The FLS, in partnership with the person with the fracture and their general practitioner, develops a long-term care plan to reduce risk of falls and fractures, and promote long-term management.

FIGURE 25 – //KPI 12: LONG-TERM CARE PLAN AS A PERCENTAGE OF ALL FRACTURES



REGISTRY FUNCTIONS SUPPORTING FACILITY OPERATIONS AND WRAP AROUND CARE: WELLSOUTH FLS

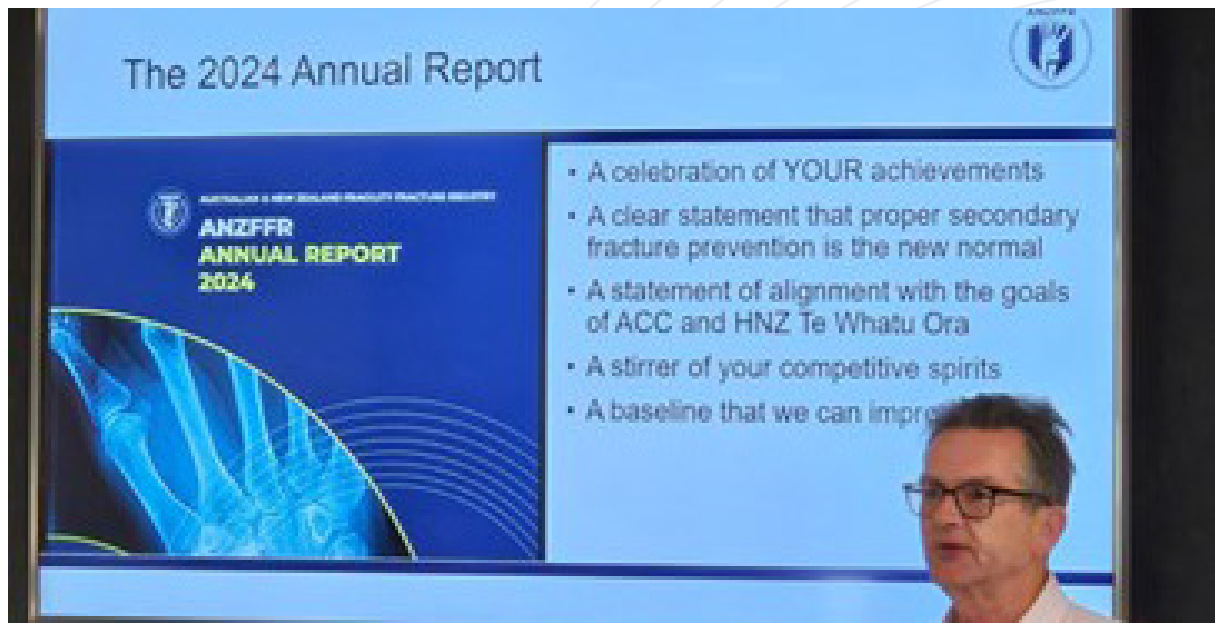
We are very excited about the Long-Term Care Plan generated from the ANZFFR. We see this as a hugely positive step in communicating the work of the FLS to all, directly to the patient and their primary care providers and indeed, more widely, across all health sectors. As a primary care based FLS, we see supporting the long-term care and management of fragility fracture patients in the community as our core role. Communicating directly with the trusted primary care providers is the key to this. Whilst we cannot prescribe treatment, we see full and open information-sharing as the best way to enable appropriate intervention, prescribing and long-term support. The use of the Long-Term Care Plan, copied to the patient, in addition to the direct messaging of primary care providers that we already use after the 12, 16 and 52 week patient contacts, will, we believe, lead the way in “wrap around” Osteoporosis and Fragility Fracture care.” Dr Richard Macharg, GP and Clinical Lead for Wellsouth FLS.

L to R: Olivia Munro, FLS admin, Tracey Barnett, FLS Coordinator, Nicole Hogg, FLS Coordinator and Dr Richard Macharg, Clinical Lead.

STANDARD 6: QUALITY

The FLS will undertake ongoing performance review enabled by participation in the NZ arm of the Australian and New Zealand Fragility Fracture Registry and ensure appropriate Continuing Professional Development (CPD) for FLS staff.

//KPI 14: CONTINUING PROFESSIONAL DEVELOPMENT FOR FLS STAFF



Dr Frazer Anderson, Clinical Lead for FFR NZ, sharing the 1st Annual Registry Report.

FRACTURE FEST 2024

In May 2024, the third Fracture Fest was held in Christchurch, with 60 participants enjoying lectures and discussion on the theme of “Fracture Liaison and the older adult”. FLS teams from across the motu attended, alongside ACC and Osteoporosis NZ stakeholders and Health NZ-Te Whatu Ora quality improvement leaders. Fracture Fest offers the only time when FLS members can gather, learn and discuss their services and outcomes. Participants were treated to presentations on Day 1 covering Frailty & Dementia, Polypharmacy and Falls, case studies and learning about their FLS data and importantly, hearing from a patient, Joan, age 94, who was recovering from a broken hip. Consumer stories emphasise the importance of keeping the consumer voice at the centre of all our practice and care. Day 2 focused on supporting each profession within the FLS team with clinical leads, FLS coordinators and administration staff participating in workshops on topics chosen by the members.

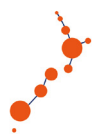
“Attending the Fracture Fest conference was a great experience meeting all the other FLS from around the country. We are all enjoying being part of such a positive, team orientated, supported service. It has been great to start to get to know everyone from the FLS services around the country. We really benefit from the regular meetings and professional education,” Rachel Gregory FLS Coordinator, QE Health/Lakes FLS.

“I enjoyed the two days getting to see the fantastic work being undertaken by all parties (ACC, ONZ, other FLS) and the incredible progress they have made in a short period of time. Being a face-to-face event allowed the participants to network in ways that are lost when the events are held online, hearing the volume of the conversations during the breaks was an indication of the success of bringing everyone together.

In terms of the content of the days – it was amazing to see that the intention of the data is to inspire improvement (the language and mindset shown was definitely one of improvement) rather than being used as a stick to punish. Also of note was the inclusion of a patient story, hearing the experience of a patient in their own words is an extremely powerful example of the impact of work”. Ian Hutchby, Improvement and Innovation Training Manager, Te Whatu Ora Improve.



**QUALITY ENSURED BY REGISTRY PARTICIPATION
AND EDUCATION FOR FLS STAFF**



Fracture Liaison Network New Zealand

Alongside Fracture Fest, FLS teams have monthly education provided through the Fracture Liaison Network New Zealand (FLNNZ) and the ONZ support model.

A total of 21 virtual sessions were delivered in the 2023/2024 period, structured under the 5IQ model of NZ Clinical Standards. These virtual sessions were delivered by a range of guest speakers, experts in their field. The sessions are recorded and added to our reference library which now totals 44 recorded sessions. The sessions provide a unique opportunity for those working in this area of practice to meet and link with colleagues, gain updates in clinical best practice from experts in their field, and share knowledge and learnings in the New Zealand context, including successes and challenges. Content includes clinical topic updates, case discussion, and quality improvement focus. The audience has included medical clinicians, nursing and allied health professionals, and FLS administration staff. "We would like to thank all the speakers who generously donated their time to prepare and deliver the sessions to us." Kim Fergusson, FLS Professional Development Facilitator and Coordinator

Dr David Kim and Dr Sunita Paul co-chair the FLS Clinical Leads group, David shares: "this group has had monthly virtual CME sessions since 2022. Sessions generally alternate between clinical/FLS-

specific topic presentations and clinical case discussions. Topic presentation sessions, presented either by an internal presenter(s) or by an external guest speaker, are also open to FLS coordinators to attend and have been very well attended and received. Case discussion sessions, presented by a couple of rostered FLS clinical leads, serve as an internal peer-review, and always generate enthusiastic discussions that are very helpful in fulfilling these lead clinician roles."



FLNNZ education session via Zoom.

ANZ HIP FRACTURE REGISTRY MOST IMPROVED HOSPITAL 2024

Taranaki FLS team won the ANZ Hip Fracture Registry "NZ Most Improved Hospital" Golden Hip award in Sept 2024 and secured a third place in the best overall performance for all their hard work and care to their patients with fractured hips in 2023. The FLS team took over the HFR data collection when they started in 2022. Jack Saju, FLS Nurse says: "this prestigious award acknowledges the hospital's commitment to delivering high-quality patient care and our team's tireless efforts to deliver exceptional patient care. Our diligent efforts have contributed to improved patient outcomes and enhanced quality of life for those affected by fractures in our community. We couldn't have achieved this recognition without the exceptional efforts of our ED doctors, ortho consultants, ortho registrars, medical officers, allied health professionals and registered nurses as well as our geriatricians, who play a vital role in patient rehabilitation and discharge."



3rd from L, Jack Saju, FLS Nurse; Katy Martin-Skurr, CNM Orthopaedic; Amy Marsh, Admin; Dr Jennifer James, with members of the orthopaedic team.

FLS FACILITY LEVEL AUDIT

In July and August 2024, the Registry asked FLS's to carry out their annual Facility Level Audit, with all 20 services completing this. Results and answers show a good regular contact with Clinical Leads and linking with wider relevant services and agencies.

When asked about frequency of meetings between FLS Co-ordinators and local Clinical Leads to discuss FLS patients and processes, more than 60% met weekly.

50% of FLS are meeting with other service providers with responsibility for provision of services engaging and/or overlapping with FLS activity at least quarterly.

When asked to comment on the Registry and the report for improvements, good engagement was shown with great ideas on improvement both in functionality and data variable outcomes.

Feedback on most valued report component showed 75% used the graphs with site comparison and national percentage lines for professional development, with comments on the benefits of being able to benchmark service against other FLSs.

14 sites offered improvements about the Registry database to help improve the usefulness in their day-to-day work.

Our Facility Level Audit showed that all teams took part in CPD activity this year, including speciality education sessions within NZ and attendance at overseas conferences. CPD is proven to drive service improvement but is often under pressure when budgets are tight. Because CPD participation is a Registry KPI, our FLS teams are relatively protected against cutbacks.



**QUALITY ENSURED BY REGISTRY PARTICIPATION
AND EDUCATION FOR FLS STAFF**

FIGURE 26 – //KPI 15: COMPLETENESS

This is ranked by completeness of documentation for Key Performance Indicators (KPI) 1 to 12.

Facility Name	KPI 1	KPI 2	KPI 3	KPI 4	KPI 5	KPI 6	KPI 7	KPI 8	KPI 9	KPI 10	KPI 11	KPI 12	KPI 15
NZ Avg 23_24	67	101	83	57	83	72	69	55	100	44	23	68	69
West Coast	85	335	80	80	80	72	72	58	100	31	17	73	90
Taranaki Base Hospital	77	161	97	65	97	94	93	81	100	56	39	72	86
Middlemore Hospital	91	188	88	87	88	86	85	61	100	40	21	85	85
Waitemata	63	180	93	44	94	93	93	69	100	60	12	93	83
Whakatane Hospital	73	161	89	75	89	79	78	60	100	35	29	72	78
Hawkes Bay Hospital	54	89	92	65	92	89	89	72	100	53	44	87	77
Hutt Hospital	81	70	95	55	95	76	75	58	100	70	21	91	74
Whangarei Hospital	103	90	85	46	85	78	78	66	100	35	23	70	72
Timaru Hospital	76	67	87	39	87	78	78	60	100	100	23	51	70
Christchurch FLS	63	183	72	68	73	55	55	49	100	29	11	66	69
Wairau Hospital	54	76	90	68	90	65	54	63	100	55	27	82	69
Whanganui Hospital	77	98	85	72	85	70	70	46	99	46	11	54	68
Nelson Hospital	65	72	93	58	93	56	49	65	100	43	25	80	67
Tauranga Hospital	69	107	82	54	82	53	53	51	100	37	23	60	64
Waikato Hospital	71	36	86	40	86	70	67	50	100	44	44	71	64
Gisborne Hospital	92	39	84	67	84	81	80	57	100	15	10	21	61
Kapiti Region	22	14	92	42	93	90	90	59	100	21	11	91	60
Palmerston North Hospital	51	24	62	56	62	61	60	51	100	44	37	60	56
Wellsouth Primary Health Network	52	16	58	51	58	57	57	35	100	57	42	43	52
Auckland City Hospital	56	40	69	43	69	60	39	29	100	47	5	64	52
Lakes FLS QE Health	73	49	62	13	62	53	44	24	99	15	5	45	45

“Completeness” depends on the accuracy of the denominator: how many events in each category would be 100%? When we are not even certain how many fragility fractures occur each year – the foundation datum on which everything else rests – uncertainty breeds discontent, with every centre believing that “their” numbers are wrong.

To address this, our friend and colleague Adjunct Prof. Paul Mitchell working with database manager Stewart Fleming undertook a comprehensive sensitivity analysis. This looked for ways to distinguish between real differences in fracture rates between districts and apparent differences due to the way each team finds patients. The methodology is very complex (review document available on request) but in summary, we found a genuine two-fold variation in fracture rates across the country. However, recruitment of people with different fracture types varied between centres by up to sevenfold, strongly suggesting that each centre finds some fracture types more easily than others. We re-ran the Completeness analysis adjusting for this to give the results above.

NEW ONZ WEBSITE LAUNCH: EMPOWERING, EDUCATING, AND INFORMING ON BONE HEALTH

Osteoporosis New Zealand is excited to unveil our brand-new website, designed as a comprehensive resource to support individuals, healthcare professionals, and policymakers in promoting bone health. This platform aims to empower and inform, offering valuable tools and insights tailored to each of these groups.

For individuals and families, the website provides easy-to-understand information on how to protect bone health, recognise osteoporosis risk factors, and access effective treatment options. With a focus on simplicity and practicality, it enables individuals to take control of their bone health with confidence.

Healthcare professionals will find a wealth of clinical resources, including guidelines, best practices, and the latest research to enhance patient care. Our site helps healthcare providers implement effective prevention and treatment strategies to improve outcomes for those at risk of or living with osteoporosis.

For policymakers, the website offers valuable data and insights into the impact of osteoporosis on both individuals and the healthcare system, empowering decision-makers to create informed, evidence-based policies that benefit the entire nation.

The website also includes educational content on prevention, diagnosis, and treatment, clinical tools, and resources to improve both patient care and public health outcomes. Stay updated with the latest news and research in the osteoporosis field.

We invite you to explore the website now at www.osteoporosis.org.nz and take advantage of all the resources it has to offer!



LIMITATIONS & WEAKNESSES

Many of the difficulties reported in the first Annual Report have been resolved, leaving (of course) new ones in their wake!

In Australia, the Registry is still striving to reach “critical mass” and until there are agreed Clinical Standards the barriers will remain high. Fortunately – more accurately due to a lot of hard work by advocates – progress on new Clinical Standards now seems to be on the horizon.

Data security is an important issue for any project collecting people’s healthcare information and we take this very seriously. Our IT expert has decades of experience managing secure databases and he has worked with our Data Management Committee (DMC) to plan a programme of security enhancements. The database is very large and growing rapidly so we have also drastically cut back on making changes to what information we collect. All suggested changes are screened by the Executive Team and a small number put forward to the DMC for approval in the annual revision of the Data Dictionary.

The biggest weakness is the sheer richness of the data we are collecting and how much more we could potentially do with it than we currently are given current resourcing limits. There are complex, interlocking patterns of ethnicity, rurality, fracture type, economic status and other factors which can be glimpsed in the raw data. Some of these may have important things to tell us about healthcare and society in New Zealand – and in future in Australia too. However, the Registry project is a tightly run ship; the generous support received from ACC in NZ provides the funding needed to deliver on our Key Performance Indicators but not to “go fishing” beyond that. In the year ahead, we hope to work with some of the highly accomplished social sciences researchers in academic departments across the two countries to make better use of our data.

Finally, the Registry is not an end in itself, it is a tool to enable our FLS teams to do their job to the highest possible standards. In return, the Registry is worthless without the people in those FLS collecting data for us, so it is critical to keep their enthusiasm and motivation high. This can be challenging when many of the Registry’s visible outputs are ranked tables like the figures in this report – nobody likes to be “last” but someone has to be. This means that we in the core Registry team must constantly communicate a consistent message that Quality Improvement projects such as ours exist to help every team achieve better outcomes for their patients.

ESSENTIAL READING

<https://osteoporosis.org.nz>

<https://anzhfr.org/registry-reports/>

<https://www.nzdoctor.co.nz/educate/osteop>

<https://www.capturethefracture.org/fracture-focus>

<https://www.capturethefracture.org/news/first-landmark-report-published-australia-and-new-zealand-fragility-fracture-registry-20240726>

<https://www.worldosteoporosisday.org/resources>



ADVOCACY AND PROJECT MANAGEMENT

Christine Gill – Executive Director, ONZ until February 2024, and subsequently Clinical Programme Director, ONZ



I am incredibly proud to be part of the team leading New Zealand's national quality improvement programme focused on delivering best-practice care and prevention for fragility fractures. Our collaboration with ACC and other partners in the Live Stronger for Longer programme has gone from strength to strength. Key highlights from the year include achieving near-universal coverage of Fracture Liaison Services across the country, with multiple services earning Capture the Fracture accreditation from the International Osteoporosis Foundation. Our efforts have also gained national and international recognition. Above all, for the patients who have experienced a fragility fracture this year, we hope that the care and outcomes you receive through New Zealand's world-class Fracture Liaison Services have made a meaningful difference in your recovery and well-being.



ONZ SUPPORT & MENTORING FOR FLS

Denise MacKenzie – Clinical Nurse Specialist

My recent focus has been supporting FLS with quality improvement initiatives to ensure consistent standards in efficiency, effectiveness and equity nationwide. This year has seen the teams show significant improvements in IOF accreditation achievements, quarterly collaborative reporting and the ongoing development of resources for the ONZ FLS toolbox. Once again, it has been pleasure working with all the FLS and seeing patient care improve.



FFR NZ COORDINATOR

Nicola Ward – Clinical Nurse Specialist



Year 2 of the Registry has been about cementing the Registry in the FLS teams daily work and it has been reassuring to see this happen and rewarding to see the committed passion in FLS members across the country. The IOF World Congress, held in London in April 2024, highlighted the progress New Zealand is making in the clinical quality registry field.



FLS CPD FACILITATOR AND COORDINATOR

Kim Fergusson – Occupational Therapist



This new role for Year 2 encompasses linking with the FLNNZ members, as well as the ONZ and FFR teams, to provide seamless CPD sessions through the year. Linking with the wider teams supports a cohesive and coordinated approach to the session topics. In addition to providing learning opportunities, the role supports building networks and connections within the group. Facilitating is about maximising learning throughout the sessions, building their confidence to engage in a national group conversation and networking. It has been wonderful to see the FLNNZ grow in strength and confidence to support national and local issues.

ANZFFR STRUCTURE:

COMMITTEES AND MEMBERSHIP

The ANZFFR Executive Team thanks all committee members for their time and commitment this year to ensure the ongoing development and work of the ANZFFR; across the ANZFFR Steering Group, Australian Management Committee and NZ Implementation Management Committee. We have had a growth in representation to include a wide variety of stakeholders and we share a special thank you to all our consumer representatives who provide fantastic insight to their needs and help improve care and outcomes. For any questions or queries regarding this report or the ANZFFR please contact:

For any questions or queries regarding this report or ANZFFR, please contact:

Australian Clinical Lead: Dr Kirtan Gander kirtan.gander@sydney.edu.au

New Zealand Clinical Lead: Dr Frazer Anderson Frazer.Anderson@northlanddhhb.org.nz

New Zealand National Coordinator: Nicola Ward nicola@nzoa.org.nz

ABBREVIATIONS

ACC	Accident Compensation Corporation	FLS	Fracture Liaison Service(s)
ACSQHC	Australian Commission on Safety and Quality in Health Care	GP	General Practitioner
AFFF	Australian Fragility Fracture Foundation	IOF	International Osteoporosis Foundation
ANZBMS	Australian and New Zealand Bone and Mineral Society	IT	Information Technology
ANZFFR	Australian & New Zealand Fragility Fracture Registry	IV	Intravenous
ANZHFR	Australian & New Zealand Hip Fracture Registry	KPI	Key Performance Indicators
ARCF	Aged Residential Care Facility	NSW	New South Wales
BPF	Best Practice Framework	NT	Northern Territories
CNS	Clinical Nurse Specialist	NZ	New Zealand
CPD	Continuing Professional Development	PHARMAC	Pharmaceutical Management Agency
DMC	Data Management Committee	PHN	Primary Health Network
DXA	Dual Energy X-ray Absorptiometry	POAC	Primary Options for Acute Care
ED	Emergency Department	ONZ	Osteoporosis New Zealand
ENSA	Endocrine Nurses' Society of Australasia	SA	South Australia
FFN	Fragility Fracture Network	SOSFA	The Australian National Stop Osteoporotic Secondary Fracture Alliance
FLA	Facility Level Audit	TAS	Tasmania
FLNNZ	Fracture Liaison Network New Zealand	QLD	Queensland
		VIC	Victoria
		WA	Western Australia
		Zol	Zoledronic Acid

The chart displays the percentage of patients by ethnicity for various hospitals and health networks in New Zealand. The data is presented as horizontal stacked bars, with the x-axis representing the percentage from 0% to 100%. The legend identifies the following ethnicities: Māori (dark blue), Cook Island Māori (yellow), Samoan (teal), Tongan (light green), Niuean (blue), Chinese (purple), Indian (dark grey), New Zealand European (light grey), and Other (pink).

The chart compares the percentage of patients by ethnicity for various hospitals and health networks in New Zealand, categorized by NZ Avg 2022_23 and NZ Avg 2023_24. The data is presented as horizontal stacked bars, with the x-axis representing the percentage from 0% to 100%.

The legend identifies the following ethnicities: Māori, Cook Island Māori, Samoan, Tongan, Niuean, Chinese, Indian, New Zealand European, and Other.

FIGURE 3 – AGE AT PRESENTATION

National Median Age = 78; National Average Age = 77

Grouped by % patients 80+

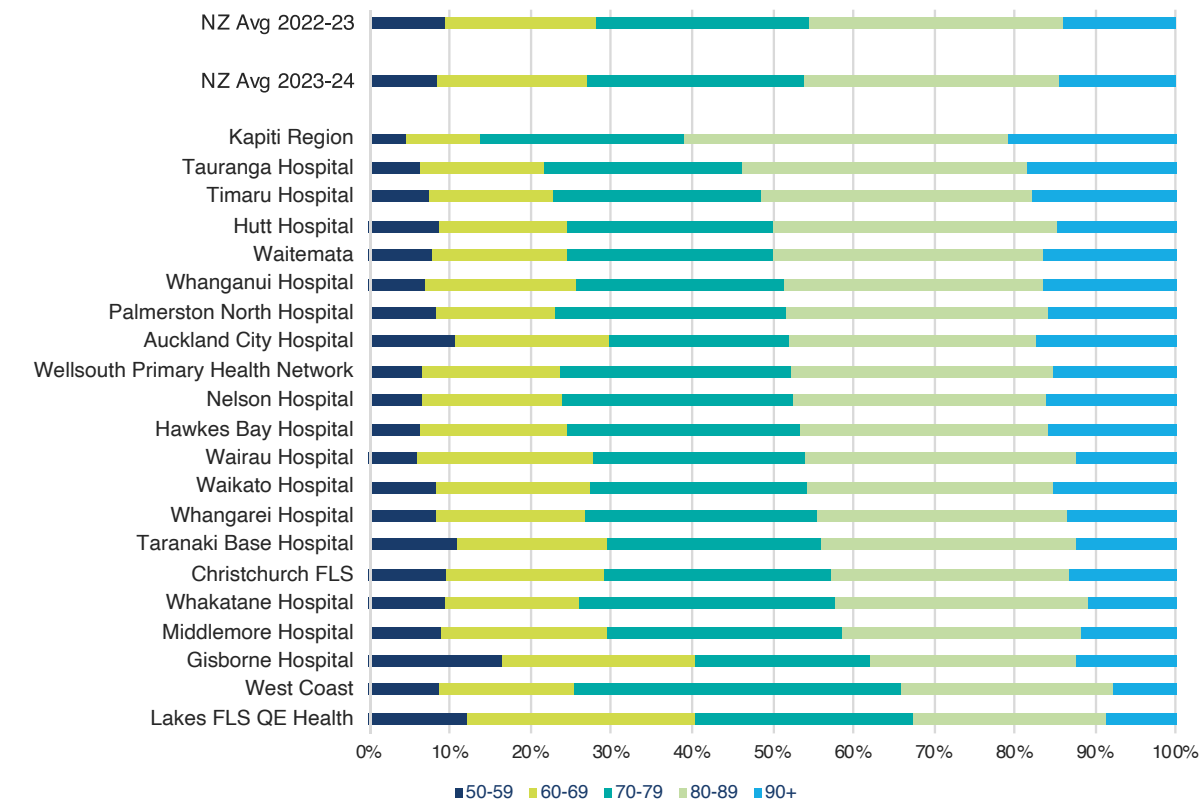


FIGURE 4 – PRE-FRACTURE RESIDENCE

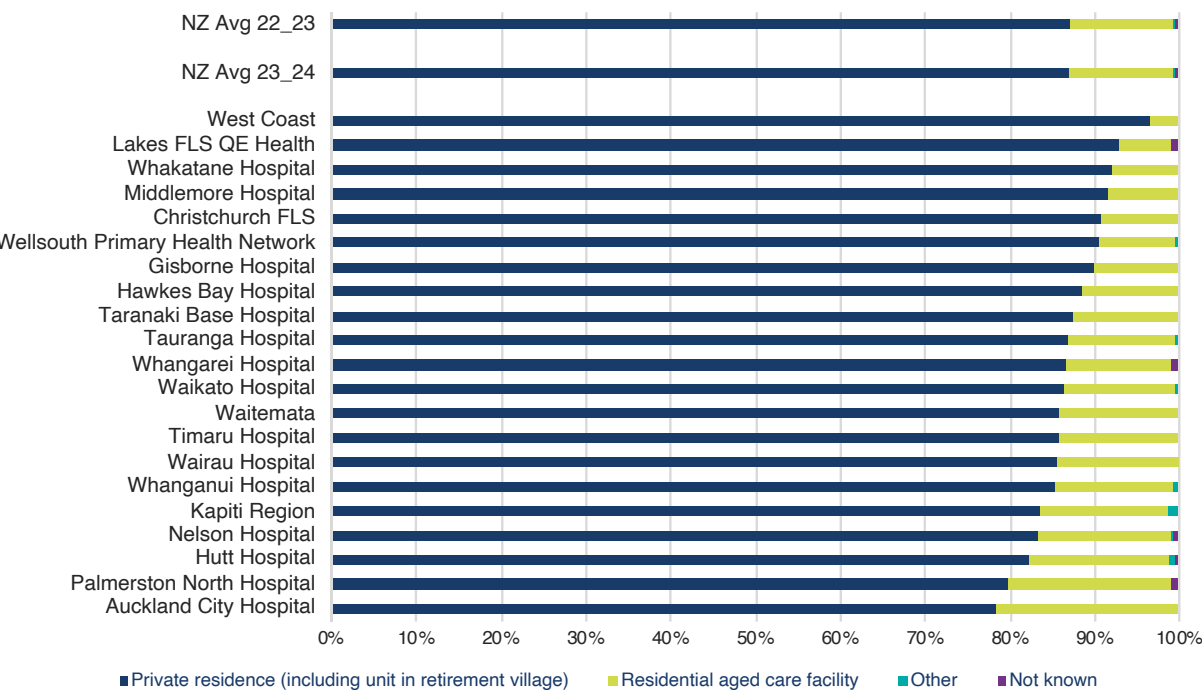
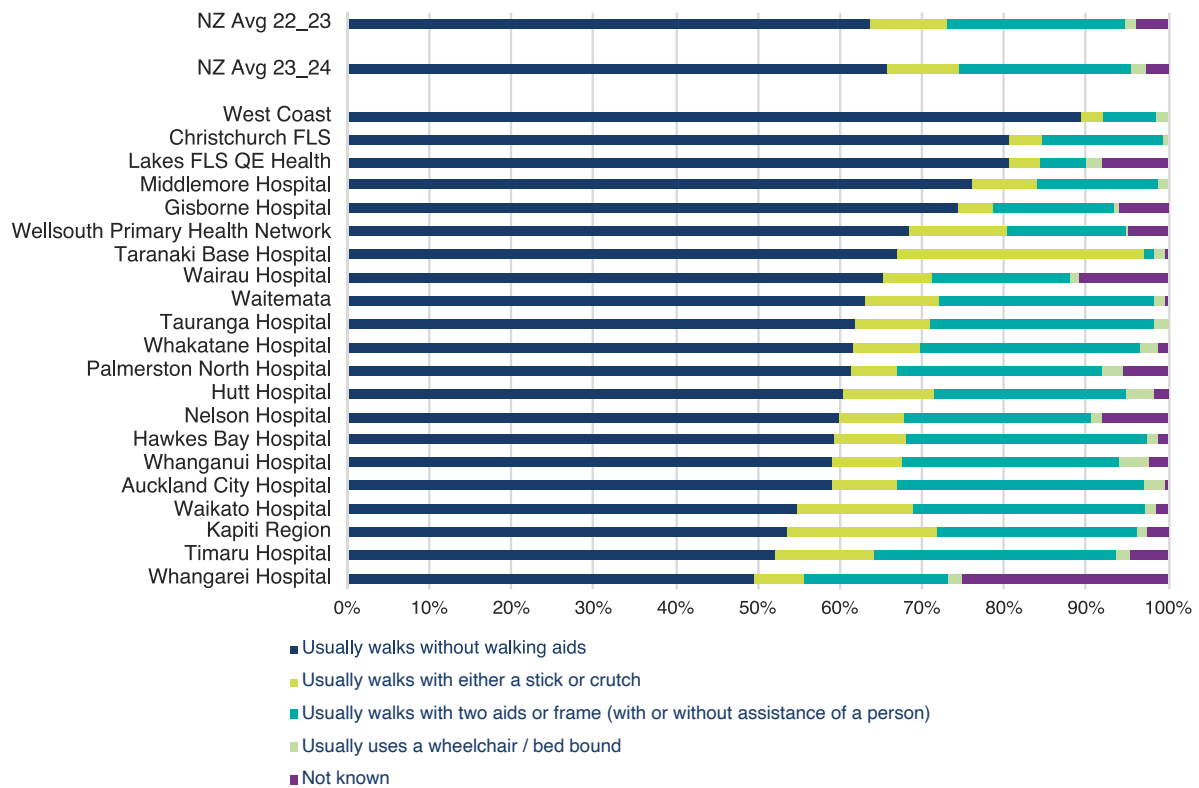
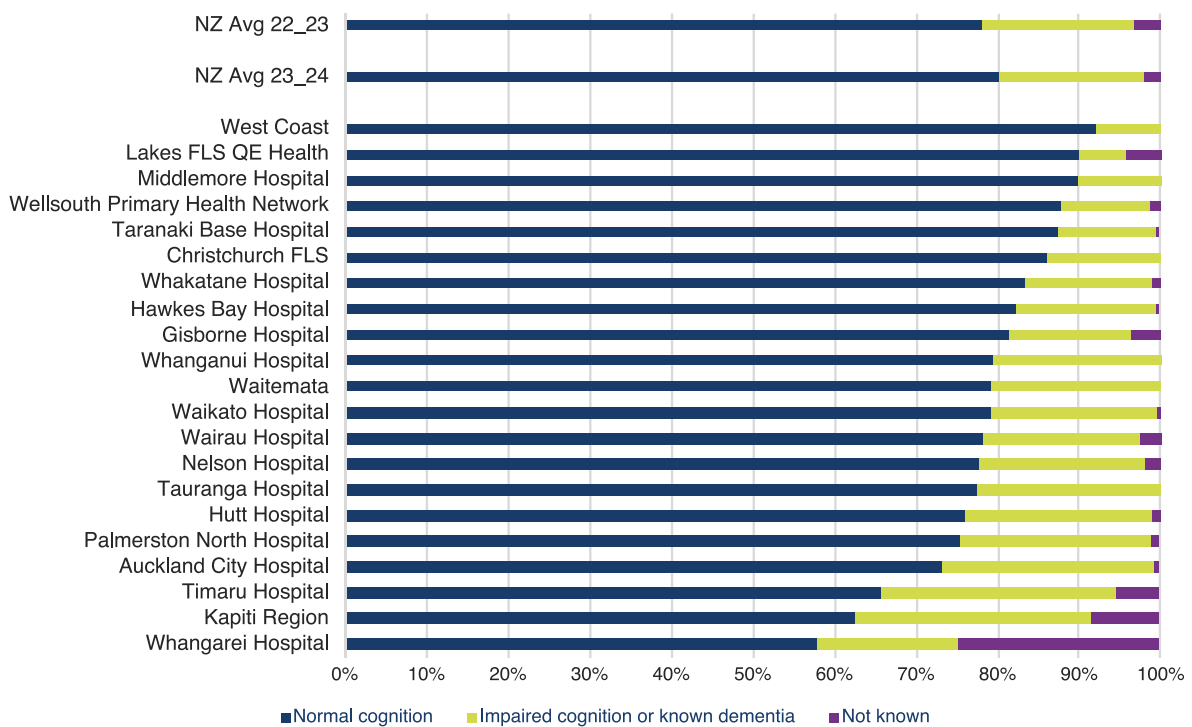


FIGURE 5 - PRE-FRACTURE MOBILITY**FIGURE 6 - PRE-FRACTURE COGNITIVE STATUS**

STANDARD 1: IDENTIFICATION

All people aged 50 years or over who sustain a fragility fracture will be systematically and proactively identified by the FLS.

FIGURE 7 - FURTHER ASSESSMENT

81% of patient records are marked for Further Assessment.

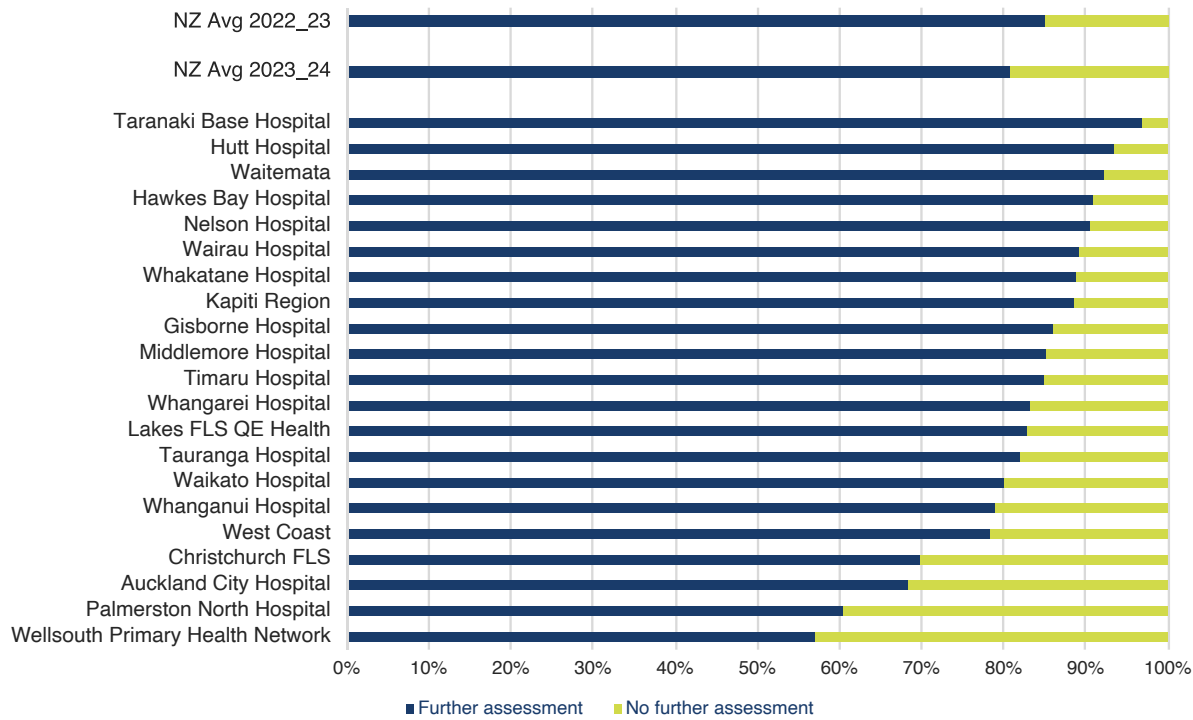


FIGURE 8 - NO FURTHER ASSESSMENT REASON

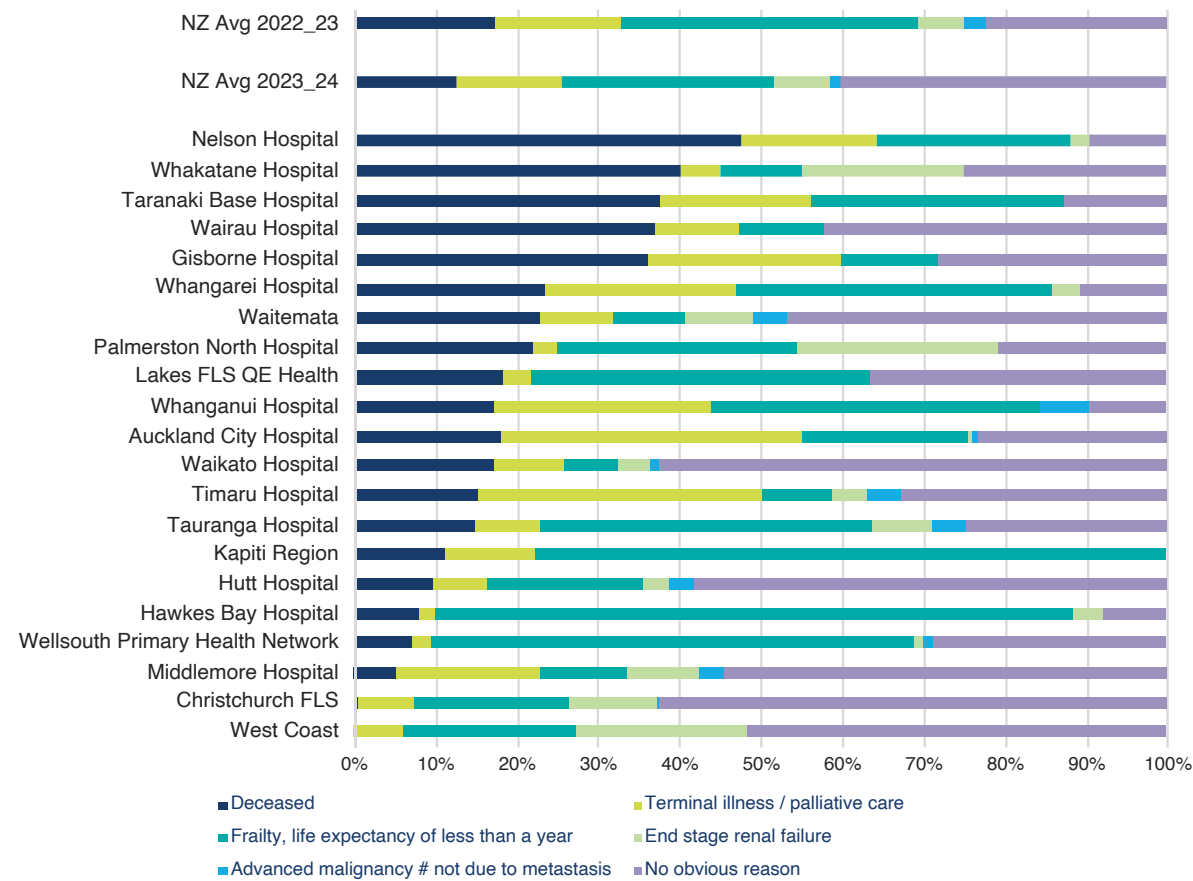
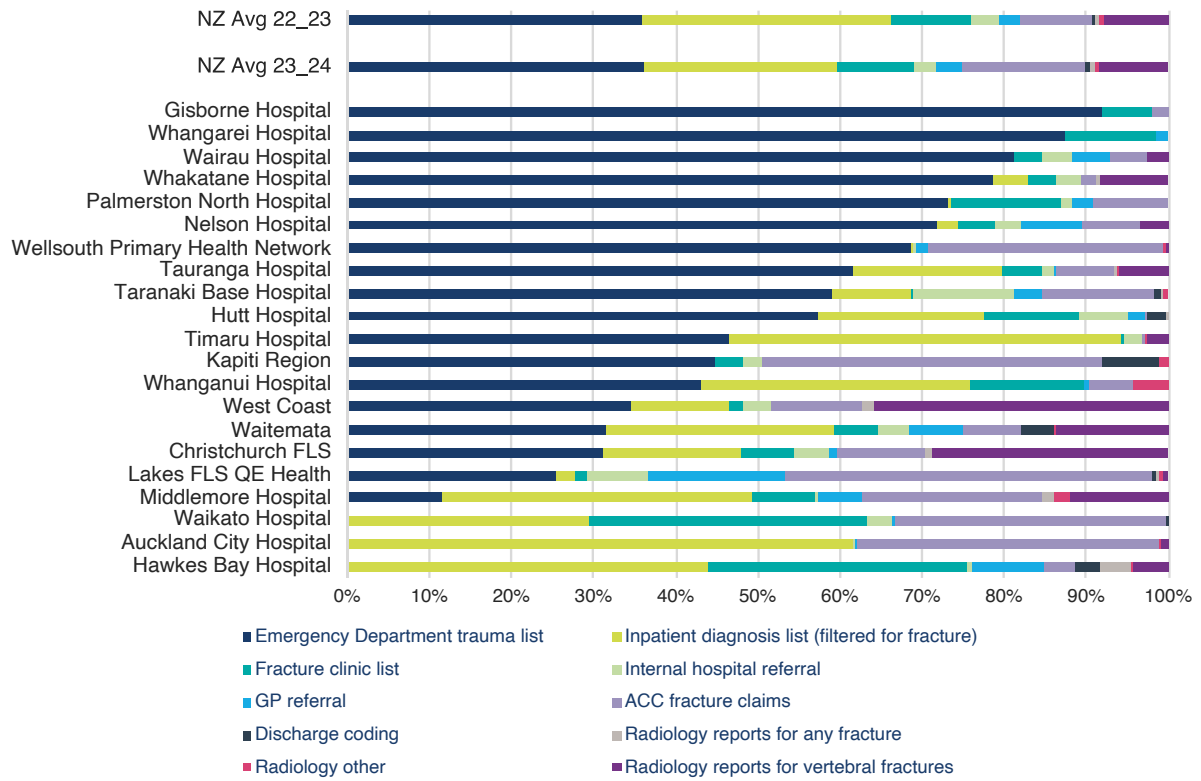


FIGURE 9 – IDENTIFICATION METHOD



STANDARD 2: INVESTIGATION

People with a fragility fracture will undergo timely assessment for future fracture risk including bone health (i.e. osteoporosis) and falls risk.

BONE HEALTH ASSESSMENT

FIGURE 10 – REPORTED PREVIOUS FRAGILITY FRACTURES

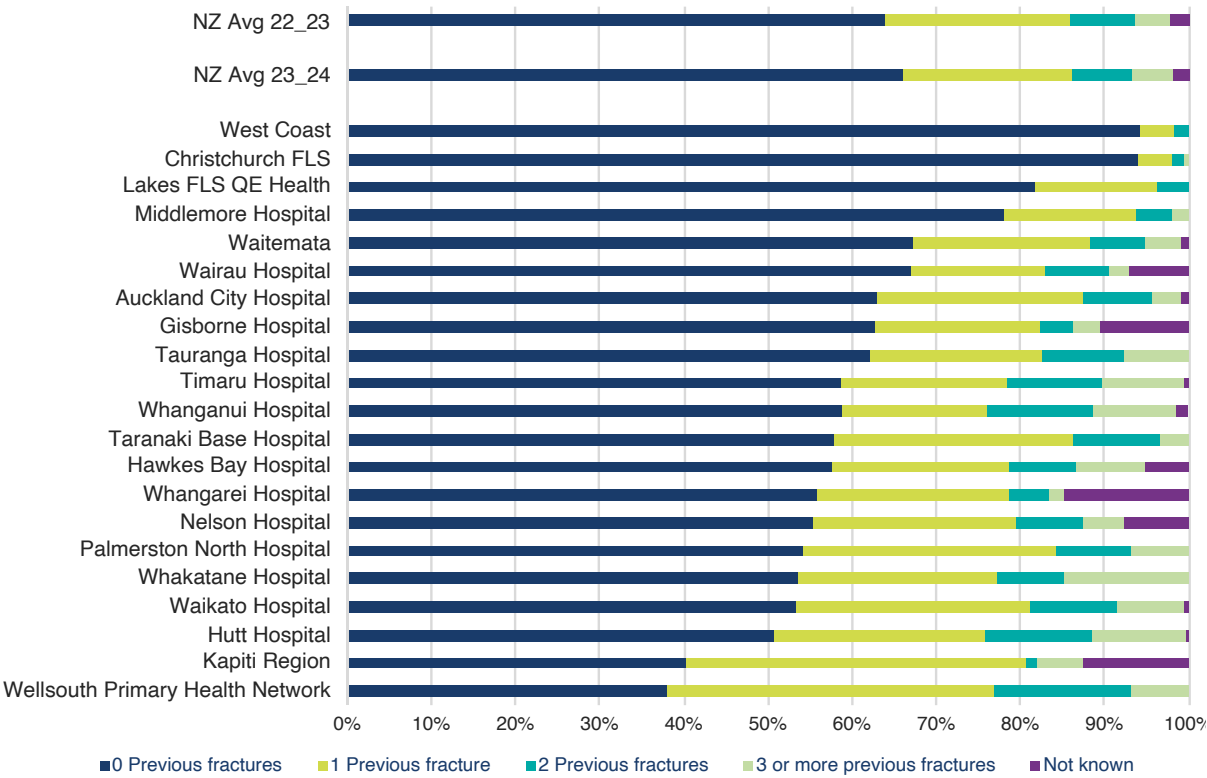


FIGURE 11 – CURRENT OSTEOPOROSIS MEDICATION

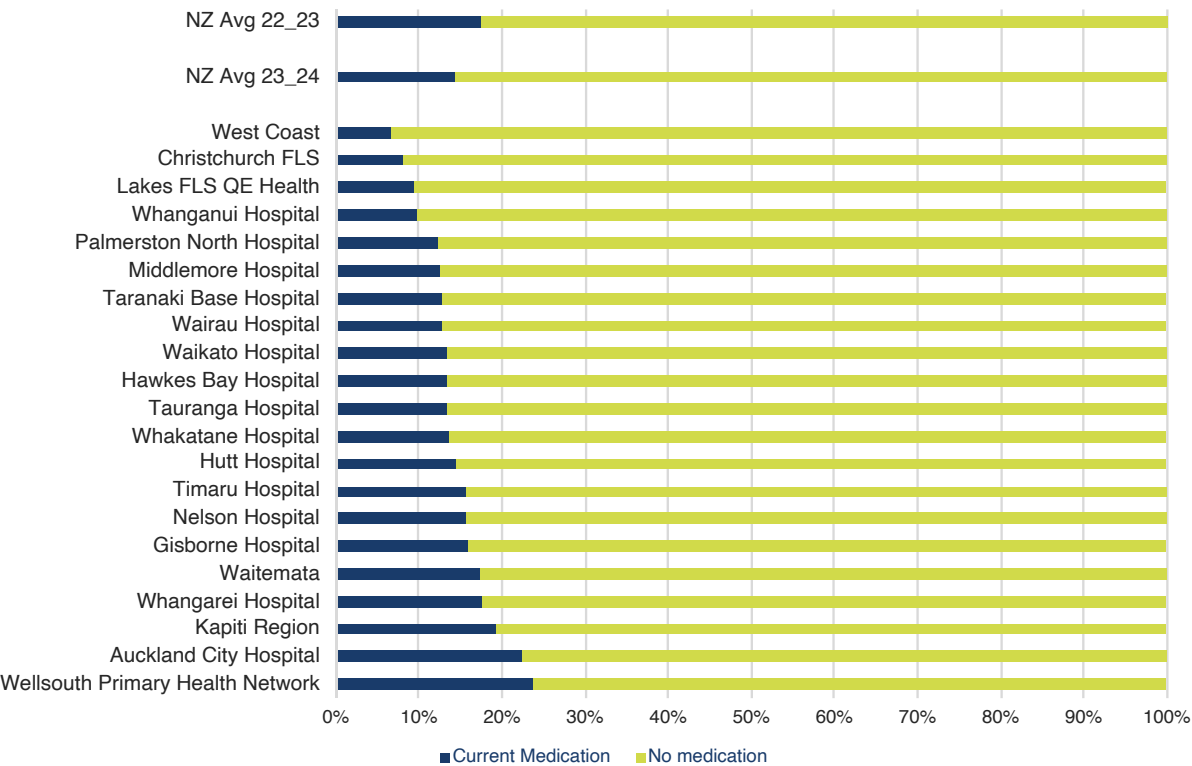


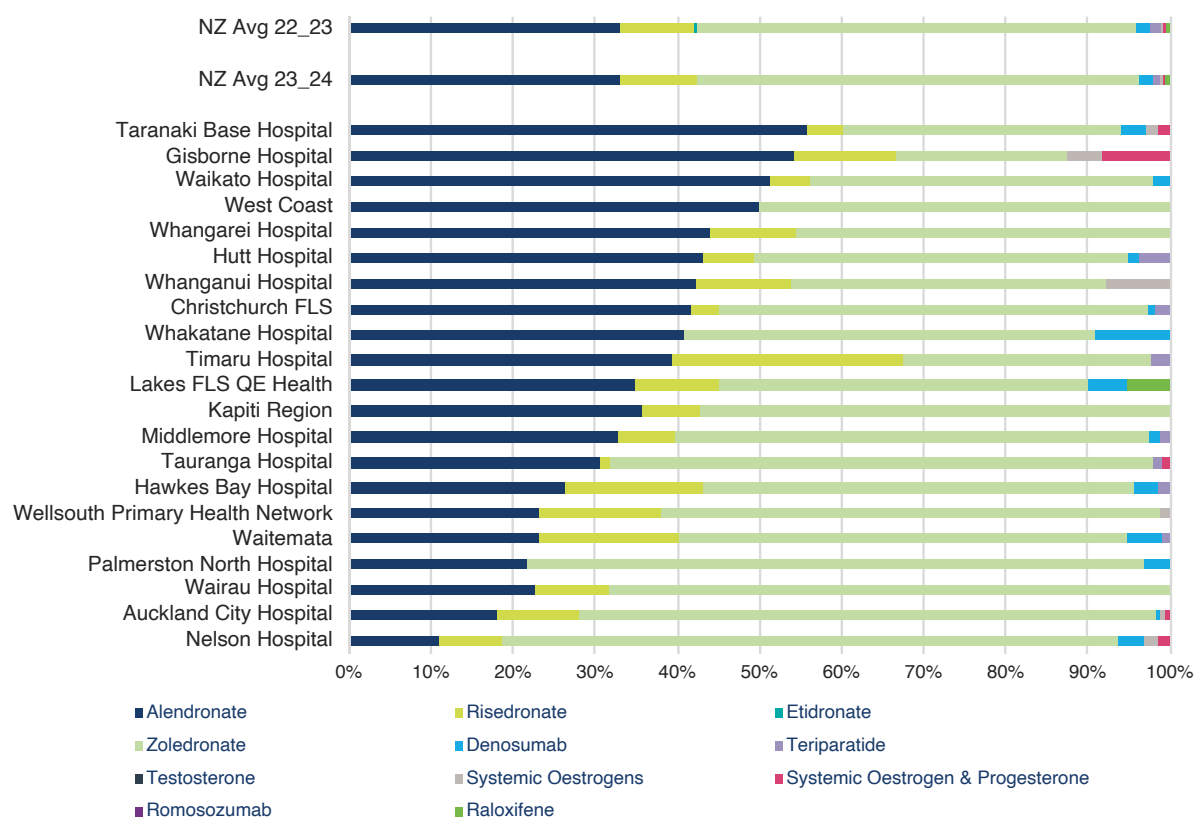
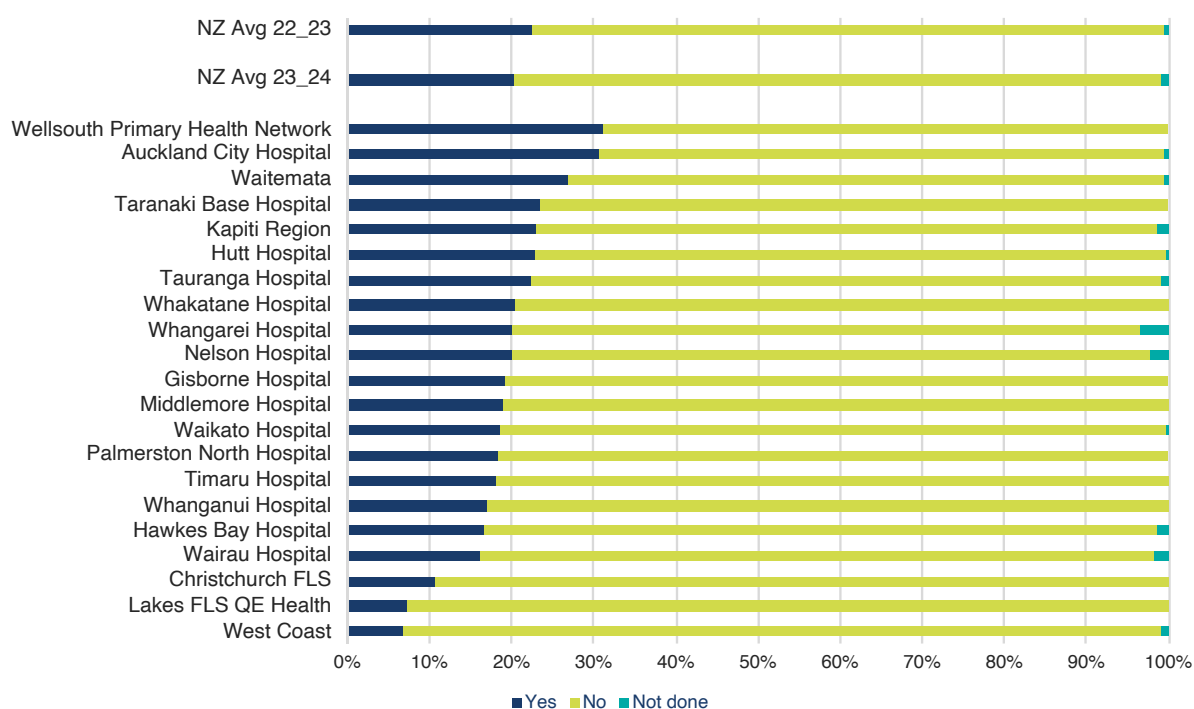
FIGURE 12 – CURRENT OSTEOPOROSIS SPECIFIC TREATMENT**FIGURE 13 – PREVIOUS SIGNIFICANT OSTEOPOROSIS-SPECIFIC TREATMENT**

FIGURE 14 – SECONDARY CAUSE REVIEW

Secondary Cause Review count: 11,431 (94%), 3,081 not recorded

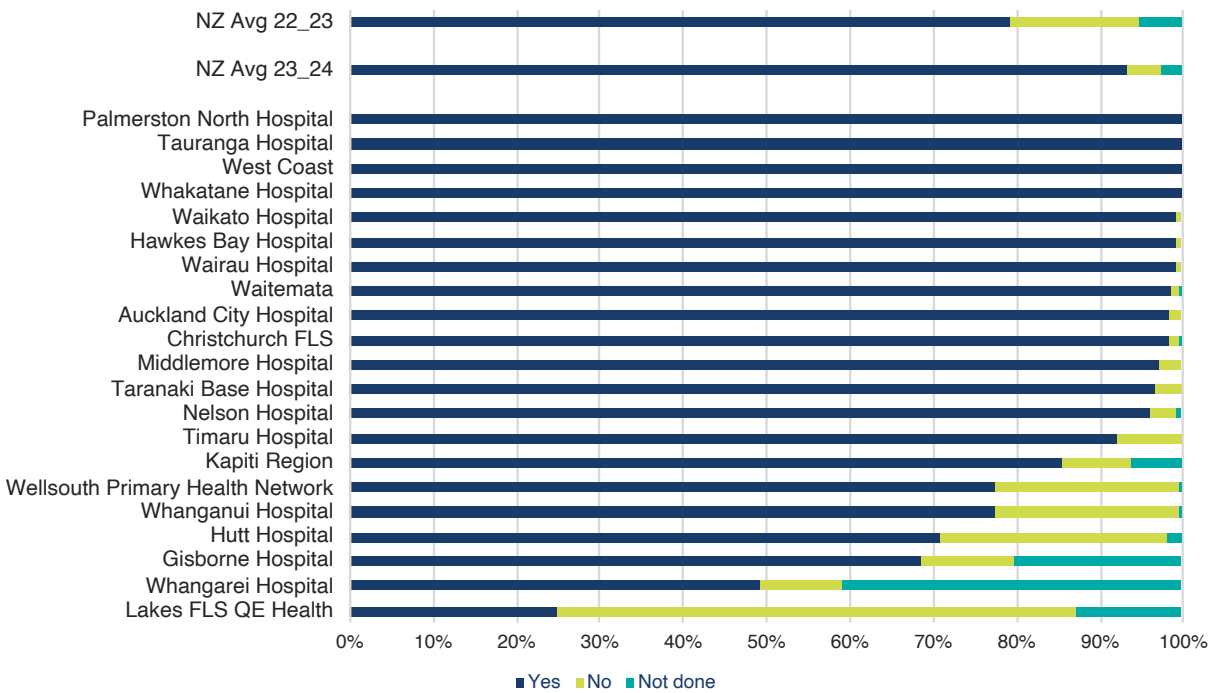
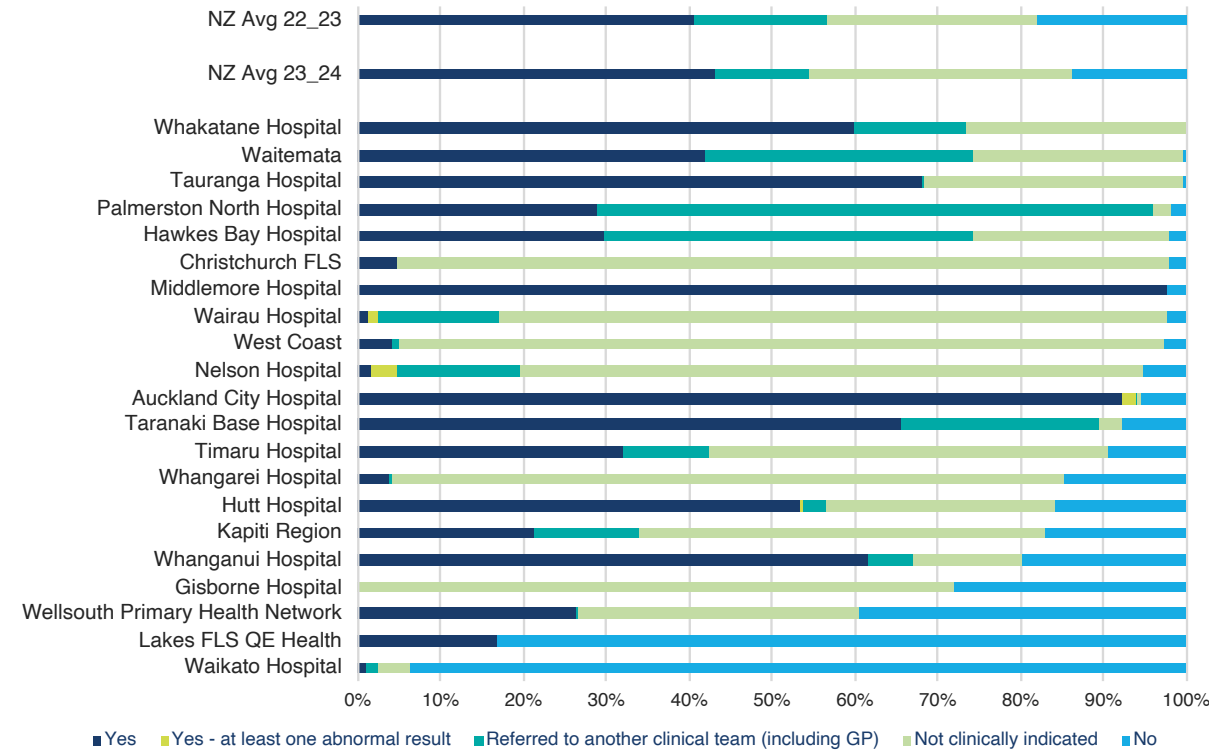


FIGURE 15 – SECONDARY CAUSE BLOOD TESTS

Secondary Cause Blood Tests count: 10,873 (89%), 4,153 not recorded



STANDARD 3: INFORMATION

Need no extra graphs in this supplementary report

STANDARD 4: INTERVENTION

People with a fragility fracture determined to be at high risk of sustaining future falls and/or fractures will be offered appropriate osteoporosis treatment with PHARMAC subsidised medicines and be referred for interventions to reduce falls risk.

FIGURE 16 - OSTEOPOROSIS TREATMENT RECOMMENDATION VS NO RECOMMENDATION

7,602 recommended for treatment, 3,886 not recommended or unknown and 473 patients declined. 189 records have NULL for this value.

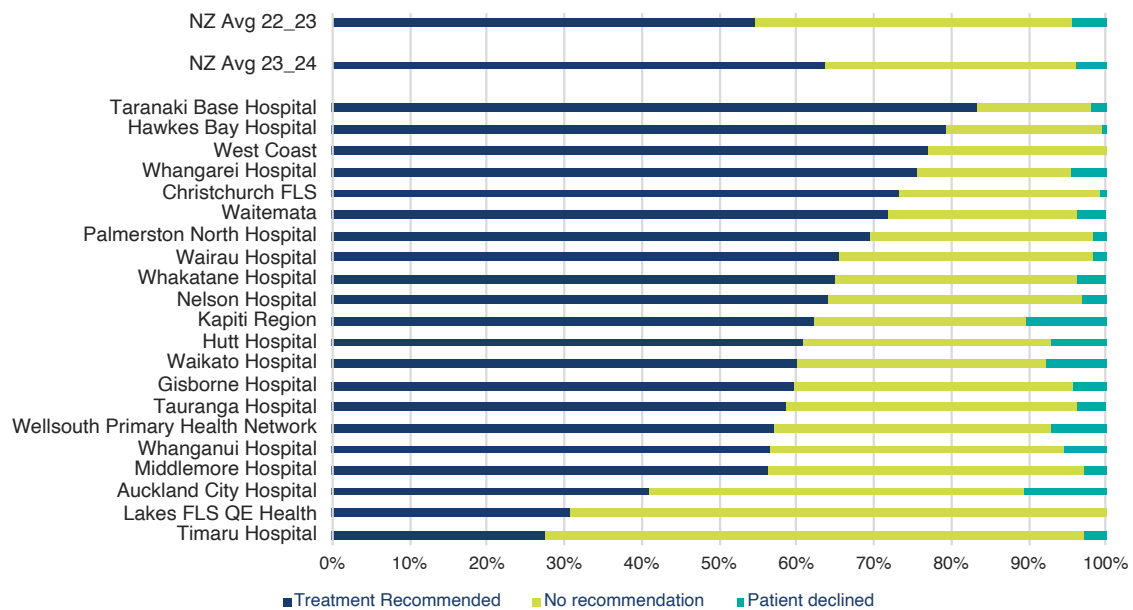


FIGURE 17 - OSTEOPOROSIS SPECIFIC TREATMENT RECOMMENDATION

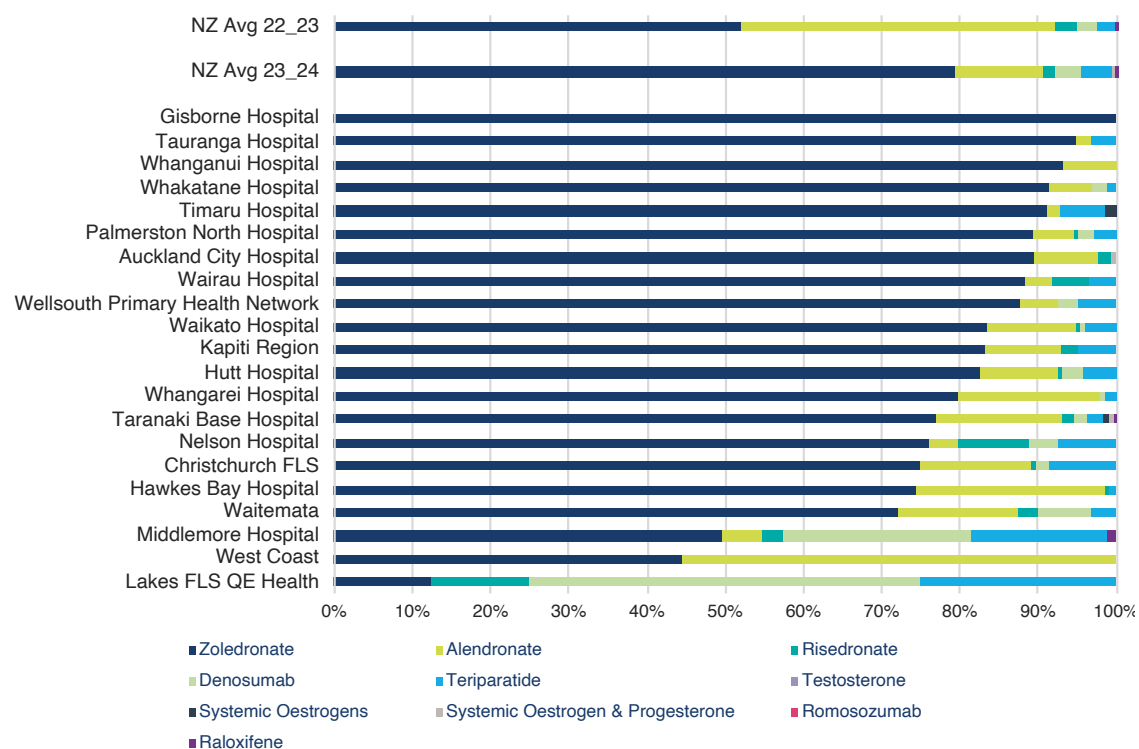


FIGURE 18 – REASON TREATMENT NOT RECOMMENDED

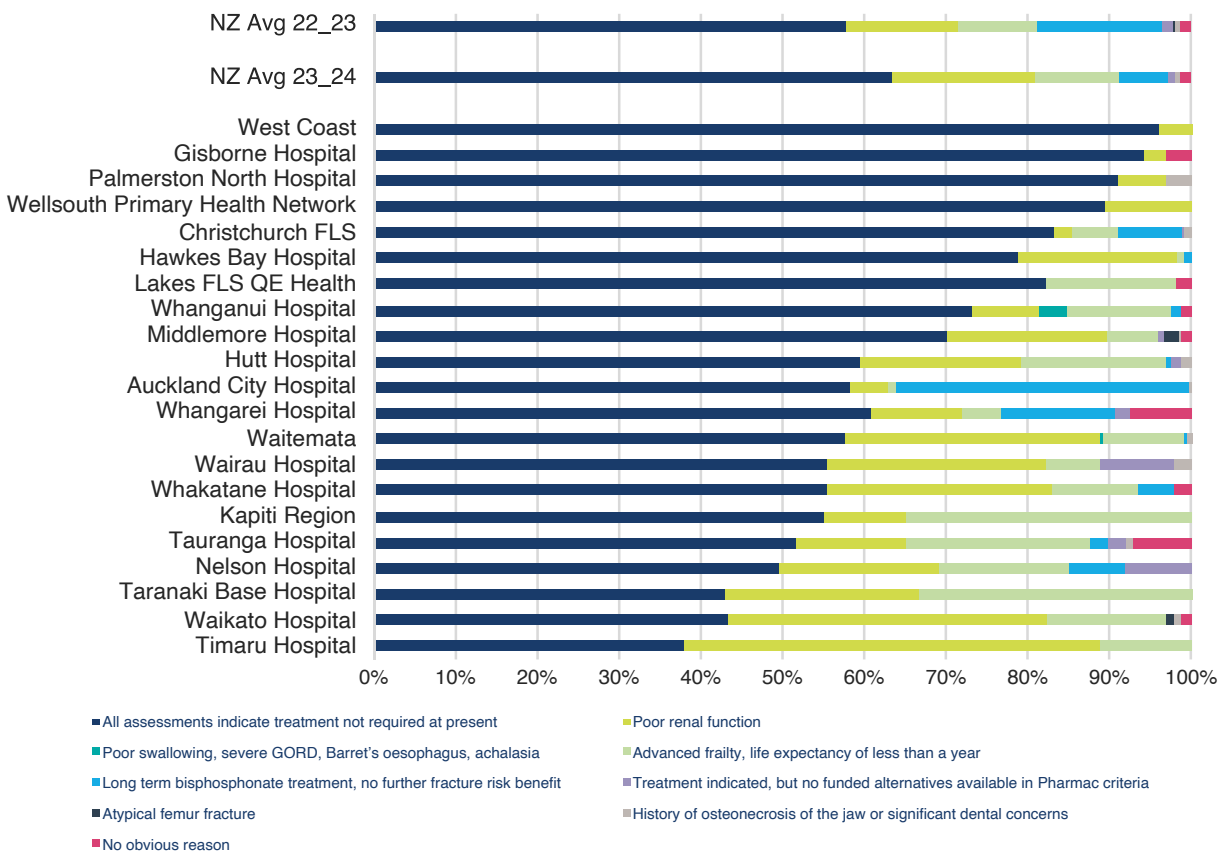


FIGURE 19 – 16 WEEK MEDICATION TYPE

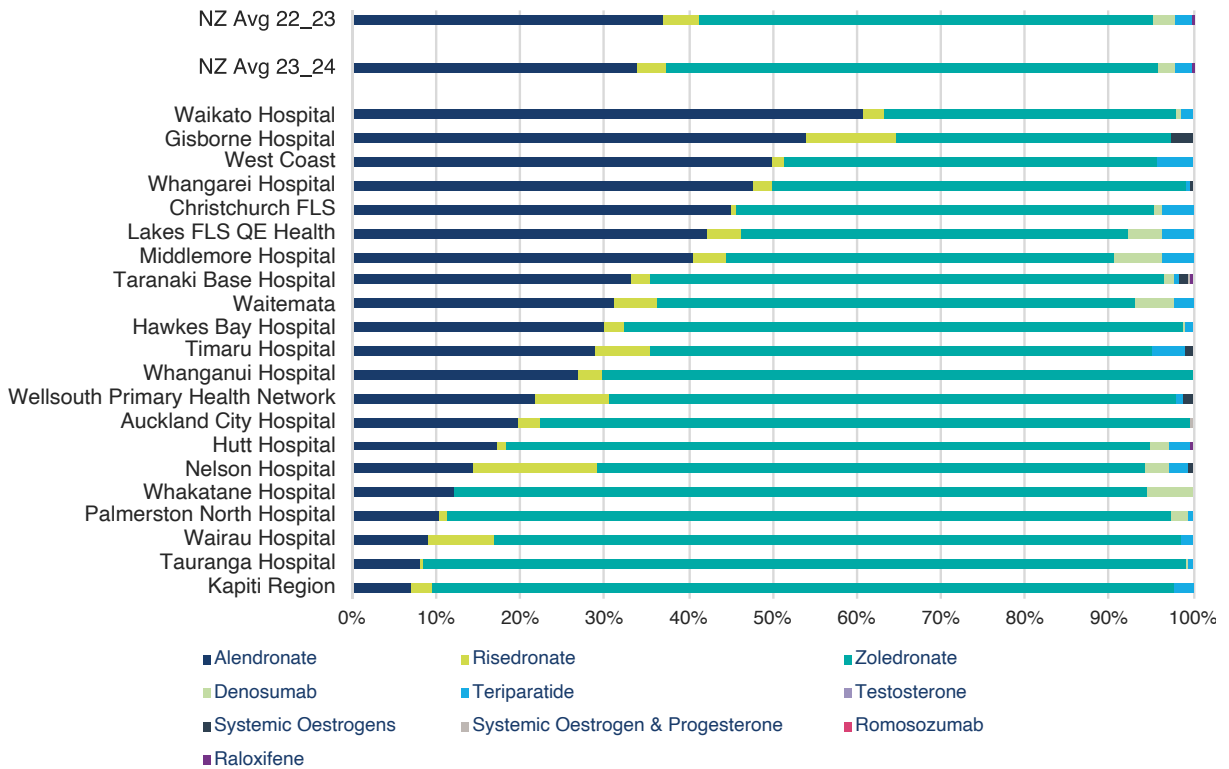
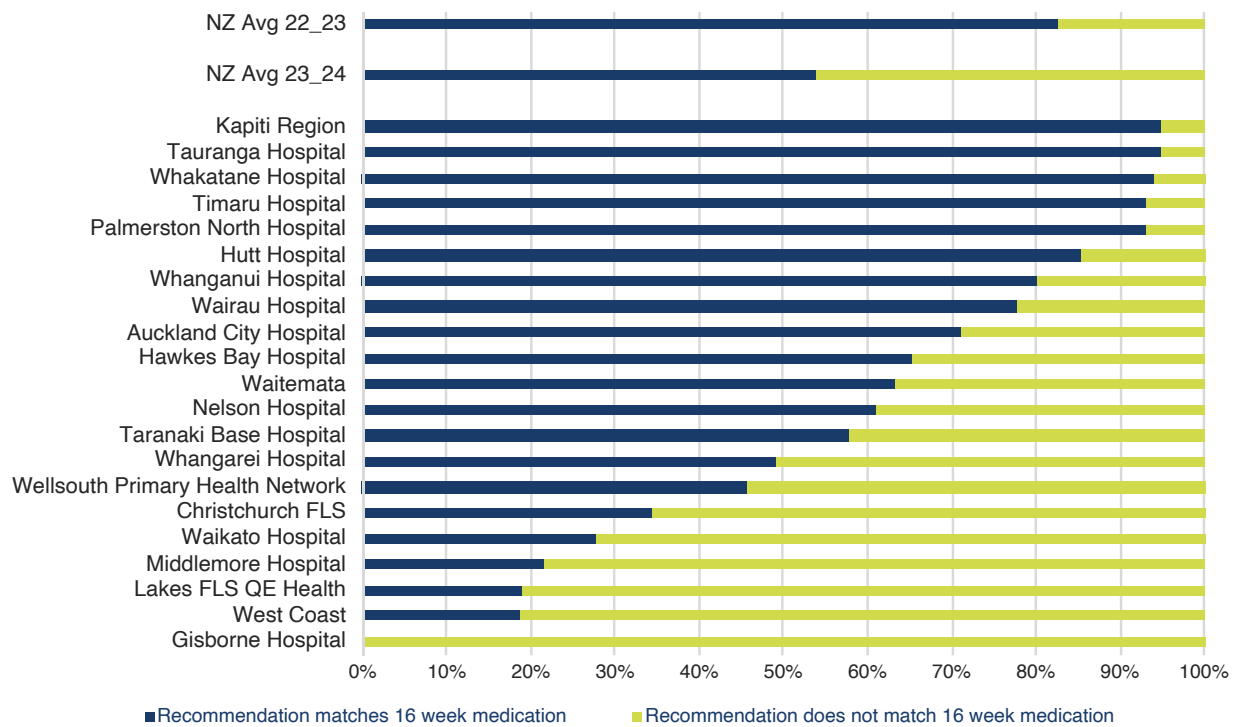


FIGURE 20 – RECOMMENDED MEDICATION MATCHES 16 WEEK MEDICATION

APPENDIX 1

NZ Fragility Fracture Registry - Patient Level Audit Form

Highlighted yellow areas show the changes made in both data dictionary and data variables for Year 2.

NZ FRAGILITY FRACTURE REGISTRY - PATIENT LEVEL AUDIT

Facility Name: _____



Headings in italics

//

*Heading**

These boxes relate to KPIs of the FLS Clinical Standards * These boxes are required to save a record

PATIENT DEMOGRAPHICS		
First Name	Last Name	National Health Index*
Date of birth (dd/mm/yyyy)	Sex	NZ Ethnic Status
__/__/____	<input type="checkbox"/> Male <input type="checkbox"/> Intersex or indeterminate <input type="checkbox"/> Female <input type="checkbox"/> Not stated/inadequately described	<input type="checkbox"/> New Zealand European <input type="checkbox"/> Māori <input type="checkbox"/> Cook Island Māori <input type="checkbox"/> Samoan <input type="checkbox"/> Tongan <input type="checkbox"/> Niuean <input type="checkbox"/> Chinese <input type="checkbox"/> Indian <input type="checkbox"/> Not elsewhere included <input type="checkbox"/> Other
Contact Phone Number	Post Code	
Email		

IDENTIFICATION		
Index Fracture Date*	Index Type of Fracture	Admission to Hospital
__/__/____	<input type="checkbox"/> Fragility <input type="checkbox"/> Atypical	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Already an inpatient <input type="checkbox"/> Not known
Fracture Sites (1 = index fracture. Mark as numbers, up to 3 fractures) //		
<input type="checkbox"/> Wrist <input type="checkbox"/> Proximal humerus <input type="checkbox"/> Hip <input type="checkbox"/> Thoraco-lumbar spine	<input type="checkbox"/> Sacrum and pelvis <input type="checkbox"/> Other humerus <input type="checkbox"/> Elbow <input type="checkbox"/> Forearm other than wrist	<input type="checkbox"/> Sternum, ribs, clavicle, and scapula <input type="checkbox"/> Other femur including supracondylar knee <input type="checkbox"/> Tibial plateau and patella <input type="checkbox"/> Other lower leg and ankle
Pre-fracture Residence	Pre-fracture Mobility	Pre-fracture Cognitive Status
<input type="checkbox"/> Private residence (including unit in retirement village) <input type="checkbox"/> Residential aged care facility <input type="checkbox"/> Other <input type="checkbox"/> Not known	<input type="checkbox"/> Usually walks without walking aids <input type="checkbox"/> Usually walks with either a stick or crutch <input type="checkbox"/> Usually walks with two aids or frame (with or without assistance of a person) <input type="checkbox"/> Usually uses a wheelchair / bed bound <input type="checkbox"/> Not known	<input type="checkbox"/> Normal cognition <input type="checkbox"/> Impaired cognition or known dementia <input type="checkbox"/> Not known
Method of Identification		Appropriate for Further Assessment
<input type="checkbox"/> Emergency Department trauma list <input type="checkbox"/> Inpatient diagnosis list (filtered for fracture) <input type="checkbox"/> Fracture clinic list <input type="checkbox"/> Internal hospital referral <input type="checkbox"/> GP referral		<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> ACC fracture claims <input type="checkbox"/> Discharge coding <input type="checkbox"/> Radiology reports for any fracture <input type="checkbox"/> Radiology other <input type="checkbox"/> Radiology reports for vertebral fractures ("wedge, compression etc")		Reason Not Appropriate for Further Assessment
		<input type="checkbox"/> Deceased <input type="checkbox"/> Terminal illness / palliative care <input type="checkbox"/> Frail - life expectancy of less than a year <input type="checkbox"/> End stage renal failure <input type="checkbox"/> Advanced malignancy # not due to metastasis <input type="checkbox"/> Usual residence not in New Zealand or Australia <input type="checkbox"/> Other
		Date of decision __/__/____

NOTES

First Name	Last Name	National Health Index*

INVESTIGATION - BONE HEALTH ASSESSMENT		
Bone Health Assessment Date //	Reported Previous Fragility Fractures	Parental history of hip fracture
__ / __ / ____	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 or more <input type="checkbox"/> Not known	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not done
Early Menopause	Current Smoker	Glucocorticoids
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not done	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not done	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not done
Rheumatoid Arthritis	Alcohol Use	Previous Significant Osteoporosis Specific Treatment
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not done	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not done	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not done
Current Osteoporosis Specific Treatment		Secondary Cause Review
<input type="checkbox"/> None at time of index fracture <input type="checkbox"/> None: planned "drug holiday" <input type="checkbox"/> Alendronate <input type="checkbox"/> Risedronate <input type="checkbox"/> Etidronate <input type="checkbox"/> Zoledronate <input type="checkbox"/> Denosumab		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not done Secondary Cause Blood Tests <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not clinically indicated <input type="checkbox"/> Referred to another clinical team (including GP)
Thoraco-Lumbar Imaging <input type="checkbox"/> Fracture identified <input type="checkbox"/> No fracture identified <input type="checkbox"/> No imaging of thoraco-lumbar spine performed or report not available <input type="checkbox"/> Not known		Thoraco-Lumbar Imaging date __ / __ / ____
Thoraco-Lumbar Imaging date __ / __ / ____		Creatinine Clearance (Cockcroft Gault) __ __ ml/min
Patient Weight	Patient Height	Body Mass Index
__ __ kg	__ __ cm	__ . __
FRAX Score	Garvan Score	
__ %	__ %	

INVESTIGATION - FALLS RISK ASSESSMENT AND REFERRALS		
Falls Risk Assessment Date //	What happened?	
__ / __ / ____		
2+ Slips, Trips, Falls in Previous 12 months	Potential Cardiac Cause	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not known	<input type="checkbox"/> Can't remember landing on floor / woke up on floor <input type="checkbox"/> Loss of consciousness / fainted <input type="checkbox"/> Prodromal symptoms associated with postural change (dizziness, light headedness, nausea, diaphoresis, palpitations, chest pain)	
Fear of Falling	<input type="checkbox"/> No symptoms <input type="checkbox"/> Not known <input type="checkbox"/> Not assessed	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not known		
Pre-fracture Strength	Strength and Balance Referrals	
Standing from chair without using hands	<input type="checkbox"/> Already attending a recognised strength and balance programme <input type="checkbox"/> Already engaged in a self-directed exercise programme <input type="checkbox"/> Referred to a community strength and balance programme <input type="checkbox"/> Referred to an in-home strength and balance programme	
Strength and Balance Referral Date	<input type="checkbox"/> Referred to the "Training for Independence" programme <input type="checkbox"/> No referral made to a strength and balance training programme <input type="checkbox"/> Patient declined <input type="checkbox"/> Nymbl information provided <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not known	
__ / __ / ____		
Falls Related, Referral for Assessment (Tick all that apply)		
<input type="checkbox"/> No referral made <input type="checkbox"/> Physiotherapy <input type="checkbox"/> Geriatric Medicine <input type="checkbox"/> Community Occupational Therapist for an in-home safety review <input type="checkbox"/> Falls Clinic / Service		
<input type="checkbox"/> General Practitioner <input type="checkbox"/> Pharmacist review <input type="checkbox"/> Dietician <input type="checkbox"/> Podiatry <input type="checkbox"/> General Medicine		
<input type="checkbox"/> Orthopaedics <input type="checkbox"/> Continence Service or Urology <input type="checkbox"/> Smoking Cessation <input type="checkbox"/> Other <input type="checkbox"/> Not known		



First Name	Last Name	National Health Index*

DXA				
DXA Ordered or Not				
<input type="checkbox"/> Ordered <input type="checkbox"/> Declined <input type="checkbox"/> Done in last 24 months and not being repeated at this time <input type="checkbox"/> Not appropriate <input type="checkbox"/> Not available				
Previous DXA Date	Previous DXA Spine T-score	Previous DXA Hip T-score	Previous DXA Wrist T-Score	
___/___/___	+/- . __	+/- . __	+/- . __	
Date DXA Ordered	DXA Date	DXA Spine T-score	DXA Hip T-score	DXA Wrist T-score
___/___/___	___/___/___	+/- . __	+/- . __	+/- . __

INTERVENTION			
Osteoporosis Specific Treatment Recommendation //		Reason Treatment Not Recommended	
<input type="checkbox"/> Not clinically indicated <input type="checkbox"/> Recommended but declined <input type="checkbox"/> Referred to specialist <input type="checkbox"/> Continue current treatment <input type="checkbox"/> Continue current planned drug holiday <input type="checkbox"/> Bisphosphonate therapy (prescribers choice) <input type="checkbox"/> Alendronate <input type="checkbox"/> Risedronate <input type="checkbox"/> Zoledronate		<input type="checkbox"/> Denosumab <input type="checkbox"/> Teriparatide <input type="checkbox"/> Testosterone <input type="checkbox"/> Systemic Oestrogens <input type="checkbox"/> Systemic Oestrogen & Progesterone <input type="checkbox"/> Romosozumab <input type="checkbox"/> Raloxifene <input type="checkbox"/> Not known	
		<input type="checkbox"/> All assessments indicate treatment not required at present <input type="checkbox"/> Poor renal function <input type="checkbox"/> Poor swallowing, severe GORD, Barrett's oesophagus, achalasia <input type="checkbox"/> Advanced frailty, life expectancy of less than a year <input type="checkbox"/> Long term bisphosphonate treatment, so no further fracture risk benefit. <input type="checkbox"/> Treatment indicated, but no funded alternatives available within Pharmac (NZ) or PBS (Aust) criteria <input type="checkbox"/> Atypical femur fracture <input type="checkbox"/> History of Osteonecrosis of the Jaw or significant active dental disease or planned dental treatment <input type="checkbox"/> No obvious reason	
Date of Osteoporosis Treatment Recommendation //		Vitamin D (ARCF) Long Term Plan //	
_ _ / _ _ / _ _ _ _		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not known	
Long Term Plan Date //		Information Package (Tick all that apply) //	
_ _ / _ _ / _ _ _ _		<input type="checkbox"/> Yes – Standard package <input type="checkbox"/> Yes – Know Your Bones <input type="checkbox"/> No <input type="checkbox"/> Not known	
		Date sent _ _ / _ _ / _ _ _ _	

[illegible]

First Name	Last Name	National Health Index*

16 WEEK FOLLOW UP		
Follow up // <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Uncontactable <input type="checkbox"/> Declined <input type="checkbox"/> Patient died	Residence <input type="checkbox"/> Private residence (including unit in retirement village) <input type="checkbox"/> Residential aged care facility <input type="checkbox"/> Rehabilitation unit public <input type="checkbox"/> Rehabilitation unit private <input type="checkbox"/> Other hospital / ward / specialty <input type="checkbox"/> Deceased <input type="checkbox"/> Short term care in residential care facility (New Zealand only) <input type="checkbox"/> Other <input type="checkbox"/> Not known	Mobility <input type="checkbox"/> Usually walks without walking aids <input type="checkbox"/> Usually walks with either a stick or crutch <input type="checkbox"/> Usually walks with two aids or frame (with or without assistance of a person) <input type="checkbox"/> Usually uses a wheelchair / bed bound <input type="checkbox"/> Not relevant <input type="checkbox"/> Not known
Follow up Date // _ _ / _ _ / _ _ _ _		
Medication Commenced // <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not known	Medication // <input type="checkbox"/> Recommended but declined <input type="checkbox"/> Awaiting specialist opinion <input type="checkbox"/> Clinical assessment not yet completed <input type="checkbox"/> Alendronate <input type="checkbox"/> Risedronate <input type="checkbox"/> Zoledronate <input type="checkbox"/> Denosumab <input type="checkbox"/> Teriparatide <input type="checkbox"/> Testosterone <input type="checkbox"/> Systemic Oestrogens <input type="checkbox"/> Systemic Oestrogen & Progesterone <input type="checkbox"/> Romosozumab <input type="checkbox"/> Raloxifene <input type="checkbox"/> Not known	
Strength and Balance Started // <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not known		

52 WEEK FOLLOW UP		
Follow up // <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Uncontactable <input type="checkbox"/> Declined <input type="checkbox"/> Patient died	Residence <input type="checkbox"/> Private residence (including unit in retirement village) <input type="checkbox"/> Residential aged care facility <input type="checkbox"/> Other <input type="checkbox"/> Not done <input type="checkbox"/> Not known	Mobility <input type="checkbox"/> Usually walks without walking aids <input type="checkbox"/> Usually walks with either a stick or crutch <input type="checkbox"/> Usually walks with two aids or frame (with or without assistance of a person) <input type="checkbox"/> Usually uses a wheelchair / bed bound <input type="checkbox"/> Not done <input type="checkbox"/> Not known
Follow up Date // _ _ / _ _ / _ _ _ _		
Further Fragility Fractures <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not asked <input type="checkbox"/> Not known	Further Falls <input type="checkbox"/> None <input type="checkbox"/> One <input type="checkbox"/> Two <input type="checkbox"/> Three or more <input type="checkbox"/> Not asked <input type="checkbox"/> Not known	Medication // <input type="checkbox"/> Never started osteoporosis specific treatment <input type="checkbox"/> No longer taking osteoporosis specific treatment <input type="checkbox"/> Alendronate <input type="checkbox"/> Risedronate <input type="checkbox"/> Zoledronate <input type="checkbox"/> Denosumab <input type="checkbox"/> Teriparatide <input type="checkbox"/> Testosterone <input type="checkbox"/> Systemic Oestrogens <input type="checkbox"/> Systemic Oestrogen & Progesterone <input type="checkbox"/> Romosozumab <input type="checkbox"/> Raloxifene
Strength and Balance <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not asked <input type="checkbox"/> Not known		Reason for no medication <input type="checkbox"/> No longer appropriate (clinician) <input type="checkbox"/> Informed decline (patient) <input type="checkbox"/> Side effects <input type="checkbox"/> Cost to patient <input type="checkbox"/> Nil obvious <input type="checkbox"/> Other <input type="checkbox"/> Not asked <input type="checkbox"/> Not known

PATIENT NOTES



WE ARE PROUD TO CONTINUE BEING PART OF A WORLD LEADING BEST PRACTICE FRAGILITY FRACTURE CARE AND PREVENTION PROGRAM. WE GIVE OUR GREATEST THANKS TO ALL OUR FRACTURE LIAISON SERVICE TEAMS AND FUNDERS WHO CONTINUE TO SUPPORT AND WORK WITH PASSION AND COMMITMENT TO IMPROVE CARE FOR OUR PATIENTS.