Australia and New Zealand Fragility Fracture Registry (ANZFFR) Data Dictionary 2024

Background

The Minimum Data Set (MDS) has been developed for the ANZ Fragility Fracture Registry Steering Committee. The MDS will capture information relevant to New Zealand and International Standards for Fracture Liaison Services. The purpose of the MDS and ANZ Fragility Fracture Registry (ANZFFR) is to support consistent, local collection of data across Australia and New Zealand to enable facilities to compare practice and outcomes for fragility fracture care against national clinical guidelines and standards of care. It is comparable to the United Kingdom (UK) national fracture liaison service database and other registries emerging across the world.

Purpose

The goal of the ANZ Fragility Fracture Registry is to use data to drive excellence in the provision and equity of care of fragility fracture patients by Fracture Liaison Services (FLS) measured against the Clinical Standards for Fracture Liaison Services in Australia and New Zealand.

The Registry will enable:

- Monitoring of FLS performance over time against the Clinical Standards for Fracture Liaison Services in Australia and New Zealand. This will drive effective service delivery improvement by FLS and ensure that patients throughout Australia and New Zealand receive the optimal standards of care following a fragility fracture and to reduce the incidence of future fracture, especially hip fractures.
- Identification of unwarranted clinical variation in FLS service delivery and patient care across healthcare systems and allow respective FLS services to use the data to drive system level improvement.
- Provision of publicly available information so that patients can be reassured they receive the standard of care they need after a fragility fracture.
- Improvement in patient focus as over time we aim to have automatic uploading of patient data and direct reporting to reduce FLS administrative time.
- Provide data for research questions or projects, nationally and internationally, as required.

MDS development

The MDS has been reviewed by the ANZ Fragility Fracture Registry Steering Committee, which consists of representatives of key professional and consumer bodies from Australia and New Zealand. This version of the ANZFFR Data Dictionary includes data variables for both the Patient Level Audit (the Registry) and the Facility Level Audit (annual snapshot of site level processes and protocols).

The data variables collected in the MDS (Patient Level) are from six (6) key components of care and include: (1) Patient information; (2) Fracture identification; (3) Assessment of bone health including DXA; (4) Falls screening assessment and referrals; (5) Treatment initiatives and referrals; and (6) Follow up information at 16 weeks and 52 weeks after index fracture.

The data variables collected in the MDS (Facility Level) cover: (1) Site Information; (2) Personnel; (3) Procedures; (4) Resources; and (5) Development.

Review

The MDS will be reviewed annually by the ANZFFR Steering Committee. It is anticipated that any new item to be added must be presented with a clear case for the benefits of adding it. Equally the Committee will be charged with removing redundant items which are felt not to add value either at a facility or central level.

Patient Inclusion

A person aged 50 years or older, who has been identified by a participating site with a fragility fracture which is defined as a fracture sustained after an impact equivalent to a fall from a standing height or lesser impact.

Fracture Site Inclusion and Exclusion

Excluded fracture mechanisms:

- Periprosthetic fractures
- Fractures due to metastatic cancer or other intrinsic bone pathology
- High trauma fractures

Excluded fracture sites.

- Skull, facial bones, and jaw
- Cervical spine
- Carpals, metacarpals, and fingers
- Tarsals, metatarsals, and toes

Included fracture sites.

- All other sites as listed in data dictionary.

Follow Up

Only patients who have been recommended to have osteoporosis specific treatment will be followed at 16 weeks and at 52 weeks after the index fragility fracture.

Repeat Fractures

Repeat fractures (both before and after 52 weeks have elapsed since the index fracture) will initiate an additional episode of fracture care in the registry for that patient. A patient may therefore have several episodes of fracture care.

Design

The MDS has been designed so that FLS staff can collect data and manage patients by telephone. This does not preclude managing patients in a face-to-face manner such as in a clinic environment or by written correspondence.

List of Data Variables ANZFFR Patient Level Audit

1. Patient Information

1.01 FFR Identifier
1.02 Facility ID
1.03 Patient first name
1.04 Patient last name
1.05 Medicare Number / NHI
1.06 Sex
1.07 Date of birth
1.08 Contact phone number
1.09 Patient email
1.10 Patient's post code
1.11 New Zealand ethnic status
1.12 Australian Indigenous status
1.13 Age derived.
1.14 Australian hospital medical record number

2. Identification

2.01 Index Fracture date
2.02 Primary index fracture site
2.03 Second index fracture site
2.04 Third index fracture site
2.05 Appropriate for further assessment
2.06 Reason not appropriate for further assessment.
2.07 Date Not Appropriate for Further Assessment
2.08 Type of fracture
2.09 Admission to hospital
2.10 Method of identification
2.11 Pre-fracture residence
2.12 Pre-fracture mobility
2.13 Pre-fracture cognitive status

3. Investigation - Bone Health Assessment

3.01 Date of assessment
3.02 Reported previous fragility fractures.
3.03 Parental history of hip fracture
3.04 Early menopause
3.05 Current smoker
3.06 Glucocorticoids
3.07 Rheumatoid arthritis
3.08 Alcohol use
3.09 Current osteoporosis specific treatment
3.10 Previous significant osteoporosis specific treatment
3.11 Thoraco-lumbar imaging
3.12 Thoraco-lumbar imaging date
3.13 Secondary cause review
3.14 Secondary cause blood tests
3.15 Creatinine clearance (Cockcroft Gault)
3.16 Patient weight
3.17 Patient height
3.18 Body mass index
3.19 FRAX score
3.20 Garvan score

4. Investigation - Falls Risk Assessment and Referrals

4.01 Falls risk assessment date
4.02 What happened.
4.03 Potential cardiac cause
4.04 Two or more slips, trips, and falls in previous 12 months.
4.05 Fear of falling
4.06 Pre-fracture strength
4.07 Strength and balance referrals
4.08 Strength and balance referral date
4.09 Information about Nymbl Provided
4.10 Referral for Specialist Falls Intervention.

5. Investigation - DXA

5.01 DXA ordered or not.
5.02 Date DXA ordered.
5.03 DXA date
5.04 DXA spine T-score
5.05 DXA hip T-score

6. Intervention

6.01 Osteoporosis specific treatment recommendation
6.02 Reason treatment not recommended.
6.03 Date of osteoporosis treatment recommendation
6.04 Vitamin D (Residential Aged Care Facility, RACF)
6.05 Long term plan
6.06 Long term plan date
6.07 Information package
6.08 Standard Information Package Date

7. Follow up at 16 weeks

7.01 Follow up at 16 weeks.
7.02 16-week follow up date.
7.03 16-week residence
7.04 16-week mobility
7.05 Medication commenced.
7.06 16-week medication
7.07 Strength and balance started.

8. Follow up at 52 weeks (50-54 weeks)

8.01 Follow up at 52 weeks.
8.02 52-week follow up date.
8.03 52-week residence
8.04 52-week mobility
8.05 52-week medication
8.06 Reason for no medication at 52 weeks
8.07 Further falls

8.08 Strength and balance

8.09 Further fracture

9. Additional Outcomes

9.01 Date of death

List of Data Variables for ANZFFR Facility Level Audit

1. Facility Level Audit

6.01 FLS team meeting frequency

6.02 FLS external liaison meeting frequency

6.03 ANZFFR Annual Report Value 1

6.04 ANZFFR Annual Report Value 2

6.05 ANZFFR Annual Report Value 3

6.06 Database improvement feedback

6.07 Continuing professional development

List of Data Variables ANZFFR Patient Level Audit

1. Patient Information

Variable #	1.01	**Variable**	FFR identifier
Variable Name	FFRID	**Format**	Numeric
Definition	A consecutive number allocated to each patient record.		
Justification	To allow for the identification of unique records		
Comments	Required (system generated). This is the unique record number used to identify each record		

Variable #	1.02	**Variable**	Facility ID
Variable Name	facilityid	**Format**	Numeric
Definition	The system generated ID for the facility.		
Justification	To be able to allocate patient records to a facility.		
Comments	Required (system generated based on login)		

Variable #	1.03	**Variable**	Patient First Name
Variable Name	firstname	**Format**	String
Definition	First name of the patient		
Justification	To allow for checking of duplicate entries for the one person and to contact the patient for the follow-up.		
Comments	The format should be the same as that indicated by the person (for example written on a form) or in the same format as that printed on an identification card, such as Medicare card, or driver's license to ensure consistent collection of name data		

Variable #	1.04	**Variable**	Patient Last Name
Variable Name	lastname	**Format**	String
Definition	Last name of the patient		
Justification	To allow for checking of duplicate entries for the one person and to contact the patient for the follow-up.		
Comments	The format should be the same as that indicated by the person (for example written on a form) or in the same format as that printed on an identification card, such as Medicare card or driver's license, to ensure consistent collection of name data		

Variable #	1.05	**Variable**	Medicare Number / NHI
Variable Name	medicare	**Format**	String
Definition	Patient's Medicare or NHI number		
Justification	To allow for checking of duplicate entries for the one person and for multiple admissions		
Comments	**Required for Clinical Standards for FLS in New Zealand, required to save a record.** Australia: Enter the full Medicare number for an individual (i.e., family number plus person individual reference number). New Zealand: Enter the National Health Index (NHI) which is a unique number assigned to every person who uses health and disability services in New Zealand. This is 3 letters followed by 4 numbers. The software uses an algorithm to check for illogical entries.		

Variable #	1.06	**Variable**	Sex
Variable Name	sex	**Format**	Numeric
Definition	Sex of patient		
Justification	Basic demographic detail		
Coding Source	National Health Data Dictionary, Version 15		
Coding Frame	1 Male 2 Female 3 Intersex or indeterminate 4 Not stated / inadequately described		
Comments	Other includes Intersex or indeterminate, not stated or inadequately described		

Variable #	1.07	**Variable**	Date of Birth
Variable Name	dob	**Format**	Date
Definition	Date of birth of the patient		
Justification	Basic demographic details. Required for probabilistic data linkage in Australia.		
Coding Source	National Health Data Dictionary, Version 15 (METeOR identifier 287007)		
Coding Frame	dd/mm/yyyy		
Comments	Only include people who are 50 years or older at the time of their fracture.		

Variable #	1.08	**Variable**	Contact Phone Number
Variable Name	phone	**Format**	String
Definition	Contact phone number of the patient (including area code) or significant other (e.g., Enduring Power of Attorney, or family member),		
Justification	To contact the patient for follow up		
Coding Source			
Coding Frame	- - - - - - - - - - - - - - - (? Number of spaces needed?) 00000000 = No phone number		
Comments			

Variable #	1.09	**Variable**	Patient Email
Variable Name	email	**Format**	String
Definition	Email of patient or significant other (e.g., Enduring Power of Attorney, or family member).		
Justification	To contact the patient for follow up and to send letters and other information.		
Coding Source			
Coding Frame	_ 0000 = not available		
Comments			

Variable #	1.10	**Variable**	Patient's Post Code
Variable Name	APcode	**Format**	String
Definition	What was the postcode of the suburb of the usual residence of the patient?		
Justification	Basic demographic details		
Coding Source	Australia Post or New Zealand Post websites (www.auspost.com.au or www.nzpost.co.nz) provide up-to-date postcodes and localities		
Coding Frame	1000 No fixed abode 9998 Overseas 9999 Postcode not known.		
Comments	Use a valid Australian or New Zealand postcode		

Variable #	1.11	**Variable**	New Zealand Ethnic Status
Variable Name	nzethnic	**Format**	Numeric
Definition	The ethnic group which the patient self identifies as belonging to.		
Justification	Basic demographic details		
Coding Source	Statistics New Zealand 2018 Census ethnicity question HISO 10001:2017 Ethnicity Data Protocols.		
Coding Frame	1. New Zealand European 2. Māori 3. Samoan 4. Cook Island Māori 5. Tongan 6. Niuean 7. Chinese 8. Indian 9. Not elsewhere included 10. Other such as Dutch, Japanese, Tokelauan – 3 TEXT BOXES OF 12 SPACES All ethnicities are recorded as defined in 10001:2017 Ethnicity Data Protocols, and in http://aria.stats.govt.nz/aria/#ClassificationView:uri=http://stats.govt.nz/cms/ClassificationVersion/YVqOcFHSlguKkT17		

Comments	New Zealand only. When completing this data item by interview, identify a standard place in the interview where the ethnicity question is to be asked. This place is most likely to be at the beginning or end of the interview, when other demographic information such as name, address, gender and age is collected. At the start of the conversation, you should explain why you are phoning/collecting this data. When asking the ethnicity question, the interviewer should state: "I am going to read out a list of ethnic groups. Can you tell me which ethnic group or groups you belong to?" The interviewer should read out each of the categories and wait for a yes/no answer to each. When an answer is given, the interviewer continues asking the rest of the list until it is completed. Asking the question in this way allows for more than one ethnicity to be selected. It also allows reporting of all other ethnic groups chosen by the person in the 'Another ethnic group' category. It facilitates self-identification and allows the person to pick one or a number of categories that they identify with. This method reduces interviewer bias. The final step is to confirm their ethnicity data. This means reading out all recorded variables, stating that this is the ethnicity information recorded currently for a respondent, and asking the respondent to confirm their ethnicity data. Statistics NZ has an algorithm that is used to determine primary ethnic status. The double identification is handled by inviting individuals to record up to 3 ethnicities that they identify with. The algorithm is then used to identify a primary ethnicity.

Variable #	1.12	**Variable**	Australian Indigenous Status
Variable Name	ausindig	**Format**	Numeric
Definition	Is the patient of Aboriginal or Torres Straits Islander origin?		
Justification	Basic demographic details		
Coding Source	National Health Data Dictionary, Version 15 (METeOR identifier 291036)		
Coding Frame	1 Aboriginal but not Torres Strait Islander origin 2 Torres Strait Islander but not Aboriginal origin 3 Both Aboriginal and Torres Strait Islander origin 4 Neither Aboriginal nor Torres Strait Islander origin 9 Not stated / inadequately described		
Comments	An Aboriginal or Torres Strait Islander is a person of Aboriginal or Torres Strait Islander descent who identifies as an Aboriginal or Torres Strait Islander and is accepted as such by the community in which he or she lives. Collected Australia only		

Variable #	1.13	**Variable**	Age derived
Variable Name	Agederiv	**Format**	Numeric
Definition	Age of the patient in (completed) years at time of index fracture		
Justification	Basic demographic details		
Coding Source	National Health Data Dictionary, Version 15 (METeOR identifier 291036)		
Coding Frame	3 digits for age 999 Unknown / Not stated		
Comments	This variable can be used when providing de-identified data instead of potentially identifiable date of birth. It is calculated automatically from date of birth and date of index fracture. If age (or date of birth) is unknown and cannot be estimated Code 999.		

Variable #	1.14	**Variable**	Australian Hospital MRN / URN
Variable Name	AusMRN	**Format**	String (14)
Definition	Australian hospital medical record number		
Justification	Unique person-identifier for each patient in each hospital and contributes to collection of information on follow up e.g., re-operation		
Coding Source			
Coding Frame			
Comments	Key field: must be entered to create a patient record. Individual hospitals use their own alphabetic, numeric, or alphanumeric coding systems. With the eventual move to E-Health in Australia, each patient will have a unique id nation-wide. Note: Western Australia uses URN. This variable will not be used in New Zealand.		

2. Identification

Variable #	2.01	**Variable**	Index Fracture Date
Variable Name	fracturedate	**Format**	Date
Definition	Date the index fracture was diagnosed on medical imaging		
Justification	To enable time calculations for service levels and assessing Clinical Care Standards		
Coding Source	Radiology report		
Coding Frame	dd/mm/yyyy		
Comments	**Required for Clinical Standards for FLS in New Zealand, and to save record.** The date of the medical imaging that confirmed the diagnosis is preferred because it is an objective measure.		

Variable #	2.02	**Variable**	Primary Index Fracture Site
Variable Name	Fracturesite1	**Format**	Numeric
Definition	Where was the index fracture?		
Justification	Ability to assess patient outcome by type of fracture and to monitor the frequency of the various fracture types.		
Coding Source	Adapted from FLS Coding Guide, March 2020, National Osteoporosis Foundation		
Coding Frame	1. Wrist 2. Proximal humerus. 3. Hip 4. Thoraco-lumbar spine 5. Sacrum and pelvis 6. Other humerus 7. Elbow 8. Forearm other than wrist. 9. Sternum, ribs, clavicle, and scapula 10. Other femur including supracondylar knee. 11. Tibial Plateau and patella 12. Other lower leg and ankle		
Comments	**Required for Clinical Standards for FLS in New Zealand** There are 3 fracture site options to enable the recording of multiple fractures. The order of the entries should be prioritised Hip before Spinal before Non-hip / non-spine		

Variable #	2.03	**Variable**	Second Index Fracture Site
Variable Name	Fracturesite2	**Format**	Numeric
Definition	Where was the second fracture?		
Justification	Ability to assess patient outcome by type of fracture and to monitor the frequency of the various fracture types.		
Coding Source	Adapted from FLS Coding Guide, March 2020, National Osteoporosis Foundation		
Coding Frame	99. No second index fracture 1. Wrist 2. Proximal humerus. 3. Hip 4. Thoraco-lumbar spine 5. Sacrum and pelvis 6. Other humerus 7. Elbow 8. Forearm other than wrist. 9. Sternum, ribs, clavicle, and scapula 10. Other femur including supracondylar knee. 11. Tibial Plateau and patella 12. Other lower leg and ankle		
Comments	**Required for Clinical Standards for FLS in New Zealand** There are 3 fracture site options to enable the recording of multiple fractures that occurred at the time of the index fracture. The order of the entries should be prioritised Hip before Spinal before Non-hip / non-spine		

Variable #	2.04	**Variable**	Third Index Fracture Site
Variable Name	Fracturesite3	**Format**	Numeric
Definition	Where was the primary fracture?		
Justification	Ability to assess patient outcome by type of fracture and to monitor the frequency of the various fracture types.		
Coding Source	Adapted from FLS Coding Guide, March 2020, National Osteoporosis Foundation		
Coding Frame	99. No third index fracture 1. Wrist 2. Proximal humerus. 3. Hip 4. Thoraco-lumbar spine 5. Sacrum and pelvis 6. Other humerus 7. Elbow 8. Forearm other than wrist. 9. Sternum, ribs, clavicle, and scapula 10. Other femur including supracondylar knee. 11. Tibial Plateau and patella 12. Other lower leg and ankle		
Comments	**Required for Clinical Standards for FLS in New Zealand** There are 3 fracture site options to enable the recording of multiple fractures that occurred at the time of the index fracture. The order of the entries should be prioritised Hip before Spinal before Non-hip / non-spine.		

Variable #	2.05	**Variable**	Appropriate for Further Assessment
Variable Name	apprassess	**Format**	Numeric
Definition	Has a clinical decision been made that the clinical context of this patient means that any treatment for falls, or fracture prevention **IS** appropriate?		
Justification	To understand whether the nature of the clinical context of the patient means that any treatment is not appropriate and so further assessment is also not appropriate.		
Coding Frame	1. Yes 2. No		
Comments	There are likely to be a small proportion of patients for whom any treatment for falls or fracture prevention will be inappropriate given the nature of the clinical context. This would also mean that further assessment is also inappropriate. Examples include terminal illness / palliative care; end stage renal failure on renal replacement therapy; advanced malignancy with fragility fracture not due to metastasis. Answering **NO** will complete the ANZFFR entry after answering the next question and attributing a date to this decision.		

Variable #	2.06	**Variable**	Reason Not Appropriate for Further Assessment
Variable Name	reasnotappr	**Format**	Numeric
Definition	What is the reason that a clinical decision has been made that the clinical context of this patient means that any treatment for falls, or fracture prevention is not appropriate?		
Justification	To understand the reason that the clinical decision has been made that any further assessment is not appropriate, because treatment would not be appropriate.		
Coding Source			
Coding Frame	1. Deceased 2. Terminal illness / palliative care 3. Frailty, life expectancy of less than a year / Advanced dementia 4. End stage renal failure 5. Advanced malignancy, # not due to metastasis. 6. Usual residence not in New Zealand or Australia 7. Other 8. Under care of other specialist service		
Comments	This will complete the ANZFFR entry for this patient after attributing a date to this decision.		

Variable #	2.07	**Variable**	Date Not Appropriate for Further Assessment
Variable Name	datenotappr	**Format**	Date
Definition	What is the date that a clinical decision has been made that the clinical context of this patient means that any treatment for falls, or fracture prevention is not appropriate?		
Justification	To know the date that this decision was made to enable comparison with the Clinical Standards for FLS in New Zealand.		
Coding Source			
Coding Frame	DD/MM/YY		
Comments	**Required for Clinical Standards for FLS in New Zealand**		

Variable #	2.08	**Variable**	Index Type of Fracture
Variable Name	fractype	**Format**	Numeric
Definition	Is the index fracture a primary fragility fracture or is it an atypical subtrochanteric femur fracture?		
Justification	To distinguish between a primary fragility fracture and a fracture secondary to bisphosphonate medication. Optional		
Coding Source	Adapted from UK FLS Registry Data Definitions V2.0		
Coding Frame	1. Fragility 2. Atypical		
Comments	• Atypical refers to the subtrochanteric femoral fracture that is recognised to be bisphosphonate related. • According to the ASBMR 2013 Taskforce, an atypical femur fracture (AFF) must be located along the femoral diaphysis from just distal to the lesser trochanter to just distal to the supracondylar flare. In addition, 4 of 5 major features much be present. • Major features of AFF: fracture is associated with minimal or no trauma; the fracture line originates at the lateral cortex and is substantially transverse in its orientation, although it may become oblique as it progresses medial across the femur; complete fractures extend through both cortices and may be associated with a medial spike; the fracture is non-comminuted or minimally comminuted; Localized periosteal or endosteal thickening of the lateral cortex is present at the fracture site ("beaking" or "flaring") • This diagnosis should be discussed with the Orthopaedic / other medical team to ensure appropriate radiological screening of contralateral femur has been done and reviewed. • The case should be discussed with the Clinical lead and appropriate follow up arranged.		

Variable #	2.09	**Variable**	Admission to Hospital
Variable Name	hospadm	**Format**	Numeric
Definition	Has the person been admitted to an inpatient bed as a direct result of the index fragility fracture?		
Justification	To ascertain if the index fracture has resulted in an episode of inpatient care. This is an outcome measure and a proxy measure for resource consumption. Optional		
Coding Source	Adapted from UK FLS Registry Data Definitions V2.0		
Coding Frame	1. Yes 2. No 3. Already an inpatient 9. Not known		
Comments	This includes both an admission to hospital at the time of the fracture and / or a later elective admission. Includes admissions to a medical assessment unit and day case surgery. In New Zealand an admission is defined as a stay in hospital of longer than six hours.		

Variable #	2.10	**Variable**	Method of Identification
Variable Name	idmethod	**Format**	Numeric
Definition	What was the first method used to identify that this person had a fragility fracture?		
Justification	To ascertain the method used by the Fracture Liaison Staff to identify the fragility fracture. Optional		
Coding Source			
Coding Frame	1. Emergency Department trauma list 2. Inpatient diagnosis list (filtered for fracture) 3. Fracture clinic list 4. Internal hospital referral 5. GP referral 6. ACC fracture claims 7. Discharge coding 8. Radiology reports for any fracture 9. Radiology other 10. Radiology reports for vertebral fractures ("wedge, compression etc") 11. Out of area referral 12. External – FLS to FLS		
Comments	Record the first method by which the patient was identified. Collecting this information will help determine the most efficient method for identifying fragility fractures in order to meet the Key Performance Indicators (KPI's) for the Clinical Standards for FLS in New Zealand.		

Variable #	2.11	**Variable**	Pre-fracture Residence
Variable Name	fractureresidence	**Format**	Numeric
Definition	What is the usual place of residence of the patient prior to having the fragility fracture?		
Justification	This enables comparison of the type of accommodation of the person before suffering a fragility fracture with that at follow up assessments. This is an indicator of patient outcome.		
Coding Source	Adapted from the Australasian Rehabilitation Outcomes Centre Inpatient Dataset, Version 3.0; NSW SNAP Data Collection, Version 4.0		
Coding Frame	1. Private residence (including unit in retirement village) 2. Residential aged care facility 3. Other 9. Not known		
Comments	● Record the patient's usual accommodation type at admission. ● Residential aged care refers to a supported facility that provides accommodation and care for a person on a long-term basis. This may include multi-purpose services in Australia and private hospitals or rest homes in New Zealand. ● If the patient lives with a relative or in a community group home or boarding house code 'private residence'. ● If the patient was admitted from respite care, record their usual place of residence when not in respite care.		

Variable #	2.12	**Variable**	Pre-fracture Mobility
Variable Name	walkpf	**Format**	Numeric
Definition	The patient's mobility status prior to the index fragility fracture		
Justification	To document the patient's pre-fracture mobility. This helps to assess the risk of falls and consequently the risk of further fragility fractures.		
Coding Source	Adapted from ANZHFR Data Dictionary V13		
Coding Frame	1. Usually walks without walking aids. 2. Usually walks with either a stick or crutch. 3. Usually walks with two aids or frame (with or without assistance of a person) 4. Usually uses a wheelchair / bed bound. 9. Not known		
Comments	If a person has different levels of mobility on different surfaces, then record the level of most assistance. For example, inside their residence a person usually walks without a walking aid but when outside the residence the person usually walks with a frame, then the level of mobility recorded is option 3.		

Variable #	2.13	**Variable**	Pre-fracture Cognitive Status
Variable Name	cogstat	**Format**	Numeric
Definition	What was the cognitive status of the patient prior to the index fracture?		
Justification	To enable the identification of the cognitive status of the patient prior to the index fracture which is risk factor for future falls and fractures.		
Coding Source	Adapted from ANZHFR Data Dictionary V13		
Coding Frame	1 Normal cognition 2 Impaired cognition or known dementia. 9 Not known.		
Comments	Normal cognition refers to 'no history of cognitive impairment or dementia'. Impaired cognition or known dementia refers to a 'loss of cognitive ability and/or a decline in memory or other thinking skills severe enough to reduce a person's ability to perform everyday activities' (Alzheimer's Association). This information can be obtained from medical letters, inpatient notes, GP referrals or from information shared by family members. People with impaired cognition are at high risk of falls. Clinical judgement should be used to decide whether a referral to a Geriatrician or community Gerontology Nurse Specialist would be helpful.		

3. Investigation - Bone Health Assessment

Variable #	3.01	**Variable**	Bone Health Assessment Date
Variable Name	dateassessb	**Format**	Date and Numeric
Definition	This is the date the patient was assessed for bone health and future fracture risk after sustaining the index fracture.		
Justification	To record details of the patient's bone health to assess the risk of future fragility fractures and to assess fracture management against Clinical Care Standards.		
Coding Source	Adapted from UK FLS-DB Proforma v2.0		
Coding Frame	_ _ / _ _ / _ _ _ _ OR 1. Patient did not attend / declined = 11/11/1111 2. Patient died before assessment = 99/99/9999		
Comments	**Required for Clinical Standards for FLS in New Zealand** This is the date that the assessment took place. The assessment can be in person or by telephone interview. NZ Standard FLS Clinical Care Standard requires this to be completed within 12 weeks of index fracture.		

Variable #	3.02	**Variable**	Reported Previous Fragility Fractures
Variable Name	prevff	**Format**	Numeric
Definition	The number of fragility fractures the patient has suffered after 50 years of age, prior to the index fracture.		
Justification	To assess bone health and the risk of future fragility fractures		
Coding Source			
Coding Frame	0. 0 1. 1 2. 2 3. 3 or more 9. Not known		
Comments	This is the number of low impact fractures (equivalent to a fall from a standing height) that the patient has suffered since they turned 50 years old, and prior to the index fracture. Note: please note the fracture sites that are an exclusion for this registry.		

Variable #	3.03	**Variable**	Parental History of Hip Fracture
Variable Name	fhxhipfrax	**Format**	Numeric
Definition	Has either biological parent suffered a fragility fracture of the proximal femur / hip?		
Justification	To assess bone health and the risk of future fragility fractures.		
Coding Source	Adapted from the UK FLS DB V2.00 and FRAX		
Coding Frame	1. Yes 2. No 3. Not done		
Comments	Please select 'No' if the patient cannot answer this question, e.g., adopted or don't know. Take care not to enter family members having hip replacements for osteo-arthritis.		

Variable #	3.04	**Variable**	Early Menopause
Variable Name	earlymen	**Format**	Numeric
Definition	Female patient has experienced menopause before age 45 years		
Justification	To assess bone health and the risk of future fragility fractures.		
Coding Source	FRAX		
Coding Frame	1 Yes 2 No 3 Not done		
Comments	Note: need to have a skip function for males		

Variable #	3.05	**Variable**	Current Smoker
Variable Name	smoke	**Format**	Numeric
Definition	Has the patient inhaled any tobacco in the last week?		
Justification	To assess bone health and the risk of future fragility fractures.		
Coding Source	Adapted from the UK FLS DB V2.00		
Coding Frame	1 Yes 2 No 3 Not done.		
Comments	This risk factor appears to have a dose-dependent effect, i.e., the higher the exposure, the greater the risk. This is not taken into account and the computations assume average exposure. Clinical judgment should be used for low or high exposures.		

Variable #	3.06	**Variable**	Glucocorticoids
Variable Name	gcort	**Format**	Numeric
Definition	Has the patient had significant exposure to oral glucocorticoids?		
Justification	To assess bone health and the risk of future fragility fractures.		
Coding Source	Adapted from FRAX		
Coding Frame	1 Yes 2 No 3 Not done		
Comments	Answer yes if the patient is currently taking oral glucocorticoids or has had has been exposed to oral glucocorticoids for more than 3 months at a dose of prednisolone of 5mg daily or more (or equivalent doses of other glucocorticoids) This risk factor appears to have a dose-dependent effect, i.e., the higher the exposure, the greater the risk. This is not taken into account and the computations assume average exposure. Clinical judgment should be used for low or high exposures.		

Variable #	3.07	**Variable**	Rheumatoid Arthritis
Variable Name	rheumatoid	**Format**	Numeric
Definition	Does the patient have a confirmed diagnosis of rheumatoid arthritis?		
Justification	To assess bone health and the risk of future fragility fractures.		
Coding Source	Adapted from FRAX		
Coding Frame	1 Yes 2 No 3 Not done		
Comments	Rheumatoid Arthritis is a risk factor for fracture. However, osteoarthritis is, if anything, protective. For this reason, reliance should not be placed on a patient's report of 'arthritis' unless there is clinical or laboratory evidence to support the diagnosis.		

Variable #	3.08	**Variable**	Alcohol Use
Variable Name	Alcohol	**Format**	Numeric
Definition	Does the patient consume 3 or more standard drinks per day on average		
Justification	To assess bone health and the risk of future fragility fractures.		
Coding Source	FRAX		
Coding Frame	1 Yes 2 No 3 Not done		
Comments	Enter yes if the patient takes 3 or more units of alcohol daily. A unit of alcohol varies slightly in different countries from 8-10g of alcohol. This is equivalent to a standard glass of beer (285ml), a single measure of spirits (30ml), a medium-sized glass of wine. (120ml), or 1 measure of an aperitif (60ml). This risk factor appears to have a dose-dependent effect, i.e., the higher the exposure, the greater the risk. This is not considered, and the computations assume average exposure. Clinical judgment should be used for low or high exposures.		

Variable #	3.09	**Variable**	Current Osteoporosis Specific Treatment
Variable Name	currentoptreat	**Format**	Numeric
Definition	What osteoporosis specific treatment was prescribed at the time of the index fracture?		
Justification	Ability to monitor use of osteoporosis specific treatment at the time index fracture		
Coding Source	Adapted from the UK National Hip Fracture Database & ANZ Hip Fracture Registry and UK FLS-DB Proforma V2.00		
Coding Frame	1. No osteoporosis specific treatment at time of index fracture 2. Not taking medication because of a planned "drug holiday" 3. Alendronate 4. Risedronate 5. Etidronate 6. Zoledronate 7. Denosumab 8. Teriparatide 9. Testosterone 10. Systemic Oestrogens 11. Systemic Oestrogen & Progesterone 12. Romosozumab 13. Raloxifene 99. Not known		

Comments	A patient is to be considered as 'on/taking' osteoporosis specific treatment if: ● For oral bisphosphonates, prescribed in the last 12 weeks. ● For Zoledronate, administered in the last 24 months. ● For Denosumab, administered the last 6 months. ● For Teriparatide, administered in the last 7 days. ● For Romosozumab, administered in the last month. These medications may be prescribed with or without calcium and / or vitamin D. If unsure as to the type of Hormone replacement therapy (HRT) please select Systemic Oestrogen & Progesterone. In Australia, information will be only from patient interview. In NZ information is from a combination of patient interview and electronic linkage.

Variable #	3.10	**Variable**	Previous Significant Osteoporosis Specific Treatment
Variable Name	prevoptreat	**Format**	Numeric
Definition	Has the patient had significant osteoporosis specific treatment prior to this index fracture, but is not taking osteoporosis specific treatment at the time of the index fracture?		
Justification	Ability to monitor previous significant osteoporosis specific treatment.		
Coding Source	Adapted from the UK National Hip Fracture Database & ANZ Hip Fracture Registry and UK FLS-DB Proforma V2.00		
Coding Frame	1. Yes 2. No 3. Not done		
Comments	**Note:** Previous significant osteoporosis pharmacotherapy is one of the medications listed below for duration of at least one year. ● oral bisphosphonates ● Zoledronate infusion ● Denosumab ● Teriparatide ● Romosozumab ● Raloxifene ● Systemic Oestrogens ● Systemic Oestrogen & Progesterone ● Testosterone These medications may be prescribed with or without calcium and / or vitamin D.		

Variable #	3.11	**Variable**	Thoraco-Lumbar Spine Imaging
Variable Name	tlimage	**Format**	Numeric
Definition	Has a vertebral fracture been identified on thoraco-lumbar spine imaging in the 5 years before the index fracture for this record?		
Justification	To assess the risk of future fragility fractures and the requirement for treatment.		
Coding Source			
Coding Frame	1. Fracture identified. 2. No fracture identified. 3. No imaging of thoraco-lumbar spine performed or report not available. 9. Not known		
Comments	Answer *"Fracture identified"* if the patient had a vertebral fracture identified on thoraco-lumbar imaging in the 5 years before the fracture leading to the creation of this database record. A vertebral fracture is defined by the Pharmaceutical Benefits Scheme in Australia, as a 20% or greater reduction in height of the anterior or mid-portion of a vertebral body relative to the posterior height of that body, or a 20% or greater reduction in any of these heights compared to the vertebral body above or below the affected vertebral body. The imaging may be in the form of a thoraco-lumbar spine x-ray, lateral chest x-ray, bone scan, CT scan, MRI or vertebral fracture assessment using a DXA scan. Answer *"No fracture identified"* if imaging has been done and there were no vertebral fractures identified.		

Variable #	3.12	**Variable**	Thoraco-lumbar Imaging Date
Variable Name	tldate	**Format**	Date
Definition	If vertebral fracture identified, date of thoraco-lumbar imaging		
Justification	To ascertain the date that the thoraco-lumbar imaging was performed.		
Coding Source			
Coding Frame	dd/mm/yyyy 00/00/0000 = not done		
Comments	Note: If more than one, give the date of the most recent image showing a vertebral fracture *before* the current (index) fracture.		

Variable #	3.13	**Variable**	Secondary Cause Review
Variable Name	secondarycause	**Format**	Numeric
Definition	Have the past medical history, problem lists in clinical letters, other relevant clinical documents and recent blood tests been reviewed by the clinical team to identify and consult about possible secondary causes of osteoporosis due to disease and medication?		
Justification	To assess bone health and the risk of future fragility fractures.		
Coding Source			
Coding Frame	1. Yes 2. No 3. Not done		
Comments	Note that while it is important to identify secondary causes, most cases will still require osteoporosis pharmacotherapy. Treatment of the secondary cause may reduce risk of future fragility fracture. See the separate information sheet.		

Variable #	3.14	**Variable**	Secondary Cause Blood Tests
Variable Name	secbloods	**Format**	Numeric (more than one possible choice)
Definition	A basic panel of blood tests (see list below) to check for secondary causes of osteoporosis and fragility fractures has been performed if indicated.		
Justification	To assess bone health and the risk of future fragility fractures.		
Coding Source	Guidance on Diagnosis and Management of Osteoporosis in New Zealand, 2017 Position Statement on the Management of Osteoporosis, February 2021, Healthy Bones Australia.		
Coding Frame	1. Yes – all normal 2. No 3. Not clinically indicated. 4. Referred to another clinical team (including GP) 5. Yes – at least one result reported as abnormal		
Comments	**The recommended list of initial blood tests is:** Renal function tests (creatinine and electrolytes), Liver function tests including alkaline phosphatase, Ca, PO4 and TSH. [25(OH) vitamin D is not available to GPs in New Zealand, so not included on this list] 25(OH) vitamin D remains on the list for Australia. **Further investigations as required include:** PTH, ESR/CRP, 25(OH) vitamin D, serum protein electrophoresis / immunoelectrophoresis, serum free light chains/urine Bence Jones protein, Coeliac screen, hypercortisolism screen, 24-hour urine calcium and creatinine excretion. Testosterone (in males only), E2, LH and FSH in women if premature menopause is suspected. **Note:** Blood test results from the previous 3 months are eligible provided the patient's medical condition has been stable. All abnormal results require discussion with the Clinical Lead.		

	"Relevant blood and urine studies should be obtained prior to initiating therapy if the medical history and / or clinical examination is compatible with secondary osteoporosis, or the Z-score is </= -2.0 " (Royal Australian College of General Practitioners: Osteoporosis prevention, diagnosis and management in postmenopausal women and men over 50 years of age, 2nd edition, 2017)

Variable #	3.15	**Variable**	Creatinine Clearance (Cockcroft Gault)
Variable Name	CrCl	**Format**	Numeric: ml/min
Definition	The estimated Creatinine Clearance using the Cockcroft Gault formula		
Justification	To assess bone health and the risk of future fragility fractures and to ensure safe use of bone protection medication as the dose may need to be adjusted based on renal function.		
Coding Source	Cockcroft DW, Gault MH. Prediction of creatinine clearance from serum creatinine. Nephron.1976;16(1):31-41. PubMed PMID: 1244564		
Coding Frame	_ _ _ ml/min. Not calculated = 000		
Comments	All formulae estimating creatinine clearance are just that – estimates. The Cockcroft Gault equation is widely used by pharmaceutical companies for estimating creatinine clearance. Inaccuracies arise due to variations in body composition among patients. The original formula used lean body weight. If the patient is overweight clinical judgement is required to adjust the value of the weight in the formula.		

Variable #	3.16	**Variable**	Patient Weight
Variable Name	pweight	**Format**	Numeric
Definition	Patient weight in kilograms at time of assessment		
Justification	To assess bone health and the risk of future fragility fractures		
Coding Source			
Coding Frame	Numeric _ _ _ Kg Not done = 000		
Comments	While it may only be possible to ask the patient and record their answer in a telephone interview, objective information is preferred. Examples: recently recorded weight at General Practice; weight recorded while an inpatient or at an outpatient attendance.		

Variable #	3.17	**Variable**	Patient Height
Variable Name	pheight	**Format**	Numeric
Definition	Height of patient in metres		
Justification	To assess bone health and the risk of future fragility fractures		
Coding Source			
Coding Frame	_ _ _ cm Not done = 000		
Comments	While it may only be possible to ask the patient and record their answer in a telephone interview, objective information is preferred. Examples: recently recorded height at General Practice; height recorded while and inpatient or at an outpatient attendance or from DXA scan.		

Variable #	3.18	**Variable**	Body Mass Index
Variable Name	bmi	**Format**	Numeric
Definition	Body Mass Index derived from height and weight in Kg/m^2		
Justification	To assess bone health and the risk of future fragility fractures		
Coding Source	Adophe Quetelet equation. Gadzik J "How much should I weight? Quetelet's equation, upper weigth limits and BMI prime". Connecticut Medicine (2006). 70 (2): 81-8. PMID 1676 8059.		
Coding Frame	_ _ . _ [This will be automatically filled based on previous information?] Not calculated = 00.0		
Comments	Interpretation: <18.5 Underweight; 18.5-24.9 Normal weight; 25.0-29-9 Overweight; > 30.0 Obese. Note: low body weight is a risk factor for developing osteoporosis.		

Variable #	3.19	**Variable**	FRAX Score
Variable Name	frax	**Format**	Numeric
Definition	The 10-year risk of hip fracture using the FRAX fracture risk calculator		
Justification	To assess the risk of future fragility fractures and hip fracture in particular		
Coding source	FRAX online fragility fracture risk assessment tool		
Coding Frame	_ _ % 00 not done. 99 not appropriate		
Comments	This is one factor to contribute to the decision about whether treatment is appropriate for this patient. This assessment is not appropriate for patients aged 90 years and older.		

Variable #	3.20	**Variable**	Garvan Score
Variable Name	garvan	**Format**	Numeric
Definition	The 10-year risk of hip fracture using the Garvan fracture risk calculator		
Justification	To assess the risk of future fragility fractures and hip fracture in particular		
Coding source	Garvan online fragility fracture risk assessment tool		
Coding Frame	_ _ % 00 not done. 99 not appropriate		
Comments	This is one factor to contribute to the decision about whether treatment is appropriate for this patient.		

4. Investigation - Falls Risk Assessment and Referrals

Variable #	4.01	**Variable**	Falls Risk Assessment Date
Variable Name	fallsassessdate	**Format**	date
Definition	The date that FLS compiled the data required in the Falls Screen		
Justification	To understand the risk factors for future falls and fractures		
Coding Source			
Coding Frame	dd/mm/yyyy 99/99/9999 not done.		
Comments	**Required for Clinical Standards for FLS in New Zealand** The falls risk assessment is the collection of information either by patient interview or from other sources such as hospital inpatient or outpatient notes / letters or General Practitioner information. This information is compiled as part of the FLS assessment process.		

Variable #	4.02	**Variable**	What Happened
Variable Name	whathap	**Format**	Free Text
Definition	Description of incident that led to the fracture		
Justification	To ensure that a history of the incident (fall, trip, slip) that led to the fracture is recorded and then used to inform appropriate further referrals.		
Coding Source			
Coding Frame	Text		
Comments	Please clarify with the patient / informant that this fracture was a result of minimal level trauma (equivalent to a fall from a standing height). Please remember that the fall may be associated with acute illness, and this may be the main precipitating cause. After the patient has explained what happened, further questioning should attempt to elicit the underlying mechanism of the fall. ● Is there a clear history of an external factor being involved in the trip / slip? ● Did they lose their balance? ● Were there prodromal symptoms? ● Was the fall and / or the prodromal symptoms related to change in posture? ● Do they remember hitting the ground or did they just wake up on the floor? ● Could they get up unassisted after their fall? See separate document regarding falls risk assessment and referrals.		

Variable #	4.03	**Variable**	Potential Cardiac Cause
Variable Name	Heartcause	**Format**	Numeric / multichoice
Definition	Were there any symptoms at the time of the fall, that may suggest a cardiac cause?		
Justification	To ascertain if there were symptoms that might suggest a cardiac cause of the fall and to inform appropriate further referrals.		
Coding Source			
Coding Frame	1. Can't remember landing on floor / woke up on floor. 2. Loss of consciousness / fainted. 3. Prodromal symptoms associated with postural change (dizziness, light headedness, nausea, diaphoresis, palpitations, chest pain) 4. No symptoms 5. Not assessed 9. Not known		
Comments	The aim of these questions is to help a decision about referrals for further evaluation. It is important to consider the clinical context of the person e.g., do they have significant cardiac history and are they are on medications that can possibly cause these symptoms. Suggested referrals if question answer is positive: 1. Discussion with FLS Clinical Lead and consider referral to physician / geriatrician. 2 and 3. Referral to GP or other medical person for review of medication and lying and standing BP and possibly an ECG. See separate document regarding falls risk assessment and referrals.		

Variable #	4.04	**Variable**	Two or More Slips, Trips and Falls in Previous 12 months
Variable Name	falls12	**Format**	Numeric
Definition	Has the patient had two or more slips, trips, or falls in the 12 months prior to the index fracture?		
Justification	To assess the risk of falls and consequently the risk of further fragility fractures.		
Coding Source	https://www.hqsc.govt.nz/our-programmes/reducing-harm-from-falls/publications-and-resources/publication/1458/		
Coding Frame	1. Yes 2. No 9. Not known		
Comments	Two or more slips, trips, or falls in the previous 12 months puts the patient at high risk of further falls and referral to a falls prevention service / strength and balance programme should be considered. There is evidence that even after one fall in the previous year a referral to a strength and balance programme may be appropriate, depending on the clinical situation.		

Variable #	4.05	**Variable**	Fear of Falling
Variable Name	fallsfear	**Format**	Numeric
Definition	Does the patient have "fear of falling" or anxiety about falls?		
Justification	To assess the risk of falls and consequently the risk of further fragility fractures.		
Coding Source	https://www.hqsc.govt.nz/our-programmes/reducing-harm-from-falls/publications-and-resources/publication/1458/		
Coding Frame	1. Yes 2. No 9. Not known		
Comments	Please ask the patient the following two questions - "Have you avoided some activities because you might lose your balance? Do you worry about falling?" If there is a positive answer to either question a referral to a strength and balance programme should be considered.		

Variable #	4.06	**Variable**	Pre-fracture Strength
Variable Name	pfstrength	**Format**	Numeric
Definition	Was the patient able to stand up from a chair without using their hands prior to the index fracture?		
Justification	To assess the risk of falls and consequently the risk of further fragility fractures.		
Coding Source	https://www.hqsc.govt.nz/our-programmes/reducing-harm-from-falls/publications-and-resources/publication/1458/		
Coding Frame	1. Yes 2. No 9. Not known		
Comments	Please record the answer to the question "Could you get out of a chair without using your hands before your fracture?" If unable to do this, a referral to a strength and balance programme should be considered.		

Variable #	4.07	**Variable**	Strength and Balance Referrals
Variable Name	sbref	**Format**	Numeric
Definition	Was a referral made to a strength and balance training programme?		
Justification	To document whether the patient has been referred to a strength and balance training programme.		
Coding Source			
Coding Frame	1. Already attending a recognised group strength and balance programme 2. Already engaged in a self-directed exercise programme 3. Referred to a community group strength and balance programme. 4. Referred to an in-home strength and balance programme. 5. Referred to the "Training for Independence" programme. 6. No referral made to / not appropriate for a strength and balance training programme. 7. Patient declined. 9. Not known		
Comments	In New Zealand, referral pathways are variable depending on local programme availability (e.g., in home strength and balance programme). The FLS should record " Referred to a community strength and balance programme" when: ● The referrers have the sole option of referring to a community programme (no in-home programme available) ● The referrer is required to refer to a community programme which itself assesses suitability for an in-home programme. ● Referred to the "Training for Independence" programme (this is an ACC funded programme in New Zealand only). In New Zealand, community group strength and balance programmes are provided by an accredited provider. In Australia, options 1 and 3 refer to any ongoing exercise programme, supervised by a trained provider (volunteer, fitness leader, health, or exercise professional). For options 1, 2, 6, 7 and 9, no date is required for variable 4.08 Strength and Balance Referral Date.		

Variable #	4.08	**Variable**	Strength and Balance Referral Date
Variable Name	sbrefdate	**Format**	date
Definition	What was the date a referral was made to a strength and balance training programme?		
Justification	To document the date that the patient was referred to a strength and balance training programme.		
Coding Source			
Coding Frame	dd/mm/yyyy 00/00/0000 = not done		
Comments	If the patient has been an inpatient, this would be the discharge date.		

Variable #	4.09	**Variable**	Information about Nymbl Provided
Variable Name	Nymbl	**Format**	Numeric
Definition	Was information about the Nymbl smart phone application provided to the patient?		
Justification	To document whether information about the Nymbl smart phone application was provided to the patient.		
Coding Source			
Coding Frame	1. Yes. 2. No.		
Comments	**New Zealand ONLY** This question will only be answered if there is no referral to Strength and Balance classes or the patient declined referral to Strength and Balance classes.		

Variable #	4.10	**Variable**	Referral for Specialist Falls Intervention
Variable Name	fallref	**Format**	Numeric / Multichoice
Definition	Was a referral made to another service (other than a strength and balance programme) for a falls related assessment or action plan		
Justification	To document whether the patient has been referred to another service (other than a strength and balance programme) for a falls related assessment or action plan.		
Coding Source			
Coding Frame	1. No referral made. 2. Physiotherapy 3. Geriatric Medicine 4. Community Occupational Therapist for an in-home safety review 5. Falls Clinic / Service 6. General Practitioner 7. Pharmacist review 8. Dietician 9. 10. General Medicine/Surgery 11. Orthopaedics 12. 13. 14. Other 15. Rehabilitation in short-term Residential Care 16. ED / Out of Hours services 99.		
Comments	See separate document regarding falls risk assessment and referrals.		

5. Investigation - DXA

Variable #	5.01	**Variable**	DXA Ordered or Not
Variable Name	dxaordnot	**Format**	Numeric
Definition	Was a DXA scan ordered and if not, what is the reason?		
Justification	Ability to monitor DXA scanning frequency and patient management against Clinical Care Standards.		
Coding Source	Adapted from the UK FLS-DB Proforma V2.00		
Coding Frame	1. Ordered 2. Declined 3. Done in last 24 months and not being repeated at this time. 4. Not appropriate 5. Not available 6. Ordered – did not attend		
Comments	**Required for Clinical Standards for FLS in New Zealand** **Ordered** means ordered to be done, this includes where someone else has ordered a DXA. **Not appropriate** –includes the following reasons: DXA scan not indicated; DXA scan contraindicated. **Not available** – i.e., DXA machine is not available. If DXA done in last 24 months, you have the option to include the results here including the date		

Variable #	5.02	**Variable**	Date DXA Ordered
Variable Name	dxaorddate	**Format**	Date
Definition	What date was a DXA scan ordered?		
Justification	Ability to monitor DXA scanning frequency and availability.		
Coding Frame	dd/mm/yyyy 00/00/0000 not ordered.		

Variable #	5.03	**Variable**	DXA Date
Variable Name	dxadate	**Format**	Date
Definition	What date was a DXA scan performed?		
Justification	Ability to monitor DXA scanning frequency and patient management against Clinical Care Standards.		
Coding Frame	dd/mm/yyyy 00/00/0000 not ordered or did not attend		
Comments	**Required for Clinical Standards for FLS in New Zealand** New Zealand Clinical Care Standards require the DXA to be completed within 12 weeks of the index fracture if DXA is recommended.		

Variable #	5.04	**Variable**	DXA Spine T-score
Variable Name	dxaspine	**Format**	Numeric
Definition	What was the lowest DXA T-score in the L1-L4 region or the L2-L4 region?		
Justification	Ability to monitor DXA results and assess future fragility fracture risk.		
Coding Frame	_.__ 0.00 = Code for significant artefact / technical difficulty causing unreportable result		
Comments	Error controls of +6 to -6.		

Variable #	5.05	**Variable**	DXA Hip T-score
Variable Name	dxahip	**Format**	Numeric
Definition	What was the lowest DXA hip T-score?		
Justification	Ability to monitor DXA results and assess future fragility fracture risk.		
Coding Frame	_.__		
Status	Optional		
Comments	This is the T-score for either the total hip or the femoral neck. Error controls of +6 to -6.		

Variable #	5.06	**Variable**	DXA wrist T-score
Variable Name	dxawrist	**Format**	Numeric
Definition	What was the DXA T-score at the distal one third radius of the non-dominant forearm.		
Justification	Ability to monitor DXA results and assess future fragility fracture risk.		
Coding Frame	_.__		
Comments	Error controls of +6 to -6. Baim S, Binkley N, Bilezikian JP, et al. Official position of the International Society for Clinical Densitometry and executive summary of the 2007 ISCD position development conference. J Clin Densitom 2008; 11:75–91		

7. Intervention

Variable #	6.01	**Variable**	Osteoporosis Specific Treatment Recommendation
Variable Name	treatrec	**Format**	Numeric
Definition	Was osteoporosis specific treatment recommended?		
Justification	Ability to measure service performance against Clinical Care Standards		
Coding Source	Adapted from UK FLS-DB V2.00		
Coding Frame	1. Not clinically indicated. 2. Recommended but declined. 3. Referred to specialist. 4. Continue current treatment. 5. Continue current planned drug holiday. 6. Bisphosphonate therapy (prescriber's choice) 7. Alendronate 8. Risedronate 9. Zoledronate 10. Denosumab 11. Teriparatide 12. Testosterone 13. Systemic Oestrogens 14. Systemic Oestrogen & Progesterone 15. Romosozumab 16. Raloxifene 99. Not known		

Variable #	6.02	**Variable**	Reason Treatment Not Recommended
Variable Name	notrecreason	**Format**	Numeric
Definition	What is the reason that osteoporosis specific treatment is not recommended?		
Justification	To understand the reasons that lead to treatment not being recommended.		
Coding Source			
Coding Frame	1. All assessments indicate treatment not required at present. 2. Poor renal function 3. Poor swallowing, severe GORD, Barrett's oesophagus, achalasia 4. Advanced frailty, life expectancy of less than a year 5. Long term bisphosphonate treatment, so no further fracture risk benefit. 6. Treatment indicated, but no funded alternatives available within Pharmac (NZ) or PBS (Aust) criteria. 7. Atypical femur fracture 8. History of Osteonecrosis of the Jaw or significant active dental disease or planned dental treatment. 9. No obvious reason 10. Did not attend DXA and no further FLS engagement		
Comments	Note: long term bisphosphonate treatment means the patient has received many years of bisphosphonates (e.g., more than 5 years) and continuing bisphosphonate therapy will not reduce fracture risk further.		

Variable #	6.03	**Variable**	Date of Osteoporosis Treatment Recommendation
Variable Name	treatrecdate	**Format**	date
Definition	The date that a recommendation regarding osteoporosis specific treatment was made by the FLS.		
Justification	To measure the time for FLS to make a recommendation for osteoporosis specific treatment from the date of the index fracture(s) in accordance with the Clinical Standards for FLS in New Zealand.		
Coding Source			
Coding Frame	dd/mm/yyyy 99/99/9999 not done.		
Status	**Required for Clinical Standards for FLS in New Zealand**		
Comments			

Variable #	6.04	**Variable**	Vitamin D (ARCF)
Variable Name	vitdarc	**Format**	Numeric
Definition	If the person is living in an aged residential care facility, are they taking Vitamin D?		
Justification	To document whether people living in an aged residential care facility, are taking Vitamin D? This is recommended in RACGP Guideline for osteoporosis prevention, diagnosis and management in postmenopausal women and men over 50 years of age, 2nd edition, 2017.		
Coding Source			
Coding Frame	1 Yes 2 No 9 Not known		
Comments			

Variable #	6.05	**Variable**	Long Term Plan
Variable Name	ltplan	**Format**	Numeric
Definition	Was there a long-term care plan written for the patient?		
Justification	To know if a long-term care plan was developed		
Coding Source			
Coding Frame	1 Yes 2 No 9 Not known		
Comments	**Required for Clinical Standards for FLS in New Zealand** The FLS develops a long-term care plan with patients and their general practitioner to reduce the risk of falls and fracture. Patients should receive the care plan which has been agreed between the FLS and general practitioner. This is required to meet the NZ Clinical Care Standards		

Variable #	6.06	**Variable**	Long Term Plan Date
Variable Name	ltplandate	**Format**	date
Definition	The date that the long-term plan for fracture prevention management was made		
Justification	Ability to measure whether the long-term plan is developed in time to meet the Clinical Care Standards		
Coding Source			
Coding Frame	dd/mm/yyyy Code for not done		
Comments	**Required for Clinical Standards for FLS in New Zealand** To meet the NZ Clinical Care Standards a long-term plan should be developed within 12 weeks of the index fracture.		

Variable #	6.07	**Variable**	Information Package
Variable Name	infopack	**Format**	Multiple choice – numeric
Definition	Was a bone health information package provided?		
Justification	Ability to know if patients receive appropriate information about prevention of fragility fractures		
Coding Source			
Coding Frame	1. Yes – Standard package. 2. Yes – Know Your Bones 3. No 9. Not known		
Comments	**Required for Clinical Standards for FLS in New Zealand** Provision of information refers to whether patients and family or carers are given written information in their own 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. Yes, to Know Your Bones if patient was given information to access the Know Your Bones website. This measure is part of the Clinical Care Standards for FLS.		

Variable #	6.08	**Variable**	Standard Information Package Date
Variable Name	stdinfodate	**Format**	date
Definition	The date that the standard information package was provided.		
Justification	Ability to measure whether the standard information package was provided within 12 weeks as in the Clinical Care Standards for FLS in New Zealand.		
Coding Source			
Coding Frame	dd/mm/yyyy Code for not done 99/99/9999		
Comments	**Required for Clinical Standards for FLS in New Zealand** To meet the NZ Clinical Care Standards an information package should be provided within 12 weeks of index fracture date.		

7. Follow up at 16 Weeks

Note: Follow up is for patients for whom the FLS has recommended bone therapy.

Variable #	7.01	**Variable**	Follow Up At 16 Weeks
Variable Name	fup16	**Format**	Numeric
Definition	Was the patient followed up at 16 weeks after the index fracture		
Justification	To measure performance against Clinical Care Standard		
Coding Source	Adapted from UK FLS-DB V2.00		
Coding Frame	1. Yes 2. No 3. Uncontactable 4. Declined 5. Patient died		
Comments	**Required for Clinical Standards for FLS in New Zealand** This section is only for patients who are recommended bone therapy because of the FLS intervention or for patients who are still awaiting a DXA scan for a definitive recommendation to be made. Where reasonably possible follow up should include contact with the patient via telephone. Follow up should be 16 weeks post index fracture (not 16 weeks post assessment). Late follow up – If follow up has been completed, but took place after 16 weeks, please answer 'yes'. Example: Follow up may be delayed because awaiting DXA result before making treatment recommendation. 'No' should only be selected if no follow up is planned.		

Variable #	7.02	**Variable**	16 Week Follow Up Date
Variable Name	fup16date	**Format**	date
Definition	The date that the "16 week follow up" happened		
Justification	To measure performance against Clinical Care Standard		
Coding Source	Adapted from UK FLS-DB V2.00		
Coding Frame	dd/mm/yyyy		
Comments	**Required for Clinical Standards for FLS in New Zealand** This section is only for patients who are recommended bone therapy because of the FLS intervention or for patients who are still awaiting a DXA scan for a definitive recommendation to be made.		

Variable #	7.03	**Variable**	16 Week Residence
Variable Name	fu16residence	**Format**	Numeric
Definition	What is the usual place of residence of the patient at the time of the 16 week follow up?		
Justification	This enables comparison of the type of accommodation of the person before suffering a fragility fracture with that at follow up assessments. This is an indicator of patient outcome.		
Coding Source	Adapted from the Australasian Rehabilitation Outcomes Centre Inpatient Dataset, Version 3.0; NSW SNAP Data Collection, Version 4.0		
Coding Frame	1. Private residence (including unit in retirement village) 2. Residential aged care facility 3. Rehabilitation unit public 4. Rehabilitation unit private 5. Other hospital / ward / specialty 6. Deceased 7. Short term care in residential care facility (New Zealand only) 97. Other 99 Not known.		
Comments	● Record the patient's usual accommodation type the time of the 16 week follow up. ● Residential aged care refers to a supported facility that provides accommodation and care for a person on a long-term basis. This may include multi-purpose services in Australia and private hospitals or rest homes in New Zealand. ● If the patient lives with a relative or in a community group home or boarding house code 'private residence'. ● If the patient is in respite care, record their usual place of residence when not in respite care.		

Variable #	7.04	**Variable**	16 Week Mobility
Variable Name	Walk16fu	**Format**	Numeric
Definition	The patient's mobility status at the 16-week follow-up		
Justification	To document the patient's mobility at the time of the 16 week follow up.		
Coding Source	Adapted from ANZHFR Data Dictionary V13		
Coding Frame	1. Usually walks without walking aids 2. Usually walks with either a stick or crutch 3. Usually walks with two aids or frame (with or without assistance of a person) 4. Usually uses a wheelchair / bed bound 8. Not relevant 9. Not known		
Comments	If a person has different levels of mobility on different surfaces, then record the level of most assistance. For example, inside their residence a person usually walks without a walking aid but when outside the residence the person usually walks with a frame, then the level of mobility recorded is option 3.		

Variable #	7.05	**Variable**	Medication Commenced
Variable Name	Medstart	**Format**	Numeric
Definition	Has the patient commenced taking osteoporosis specific treatment?		
Justification	To document that the patient commenced prescribed osteoporosis specific treatment by the 16 week follow up.		
Coding Source			
Coding Frame	1. 2. 3. Yes – same as recommended 4. Yes – not same as recommended 5. No – not liaised with Primary Care at this time 6. No – now declining treatment 9. Not known		
Comments	**Required for Clinical Standards for FLS in New Zealand** The NZ Clinical Care Standard requires that the person begins an osteoporosis specific treatment within 16 weeks of the index fracture.		

Variable #	7.06	**Variable**	16 Week Medication
Variable Name	Meds16fu	**Format**	Numeric
Definition	Which osteoporosis specific treatment has the patient commenced taking?		
Justification	To document the osteoporosis specific treatment the patient has commenced.		
Coding Source			
Coding Frame	1. Recommended but declined. 2. Awaiting specialist opinion 3. Clinical assessment not yet completed. 4. Alendronate 5. Risedronate 6. Zoledronate 7. Denosumab 8. Teriparatide 9. Testosterone 10. Systemic Oestrogens 11. Systemic Oestrogen & Progesterone 12. Romosozumab 13. Raloxifene 99. Not known		
Comments	**Required for Clinical Standards for FLS in New Zealand** The NZ Clinical Care Standard requires that the person begins an osteoporosis specific treatment within 16 weeks of the index fracture. Answer 3., if the treatment decision is delayed due to incomplete fracture risk assessment, e.g., awaiting DXA result.		

Variable #	7.07	**Variable**	Strength and Balance Started
Variable Name	sbstartdate	**Format**	Numeric
Definition	Has the patient started participating in a strength and balance training programme?		
Justification	To document that the patient has started participating in the strength and balance training programme.		
Coding Source			
Coding Frame	1. 2. 3. Yes - same as referred 4. Yes - not same as referred 5. No - not started yet 6. No - now declined 9. Not known		
Comments	**Required for Clinical Standards for FLS in New Zealand** The NZ Clinical Care Standard requires that the person begins a strength and balance training programme within 16 weeks of the index fracture. If the answers to variable 4.07 Strength and Balance Referrals are options 1, 2, 6, 7, 9, this variable does not require an additional response.		

8. Follow up at 52 Weeks (50-54 weeks)

Variable #	8.01	**Variable**	Follow Up At 52 Weeks
Variable Name	Fup52	**Format**	Numeric
Definition	Was the patient followed up at 52 weeks after the index fracture?		
Justification	To measure performance against Clinical Care Standard		
Coding Source	Adapted from UK FLS-DB V2.00		
Coding Frame	1. Yes 2. No 3. Uncontactable 4. Declined 5. Patient died		
Comments	**Required for Clinical Standards for FLS in New Zealand** ● This section is only for patients who are recommended osteoporosis specific treatment because of the FLS intervention. ● Where reasonably possible follow up should include contact with the patient via telephone ● Follow up should be at between 48 and 54 weeks after the index fracture (not 52 weeks post assessment). ● Late follow up - If follow up has been completed, but took place after 54 weeks, please answer 'yes'. ● 'No' should only be selected if no follow up is planned.		

Variable #	8.02	**Variable**	52 Week Follow Up Date
Variable Name	Fup52date	**Format**	date
Definition	The date that the "52 week follow up" happened		
Justification	To measure performance against Clinical Care Standard		
Coding Source	Adapted from UK FLS-DB V2.00		
Coding Frame	dd/mm/yyyy 00/00/0000 = not followed up		
Comments	**Required for Clinical Standards for FLS in New Zealand** This section is only for patients who are recommended osteoporosis specific treatment because of the FLS intervention.		

Variable #	8.03	**Variable**	52 Week Residence
Variable Name	Fu52residence	**Format**	Numeric
Definition	What is the usual place of residence of the patient at the time of the 52 week follow up?		
Justification	This enables comparison of the type of accommodation of the person before suffering a fragility fracture with that at follow up assessments. This is an indicator of patient outcome.		
Coding Source	Adapted from the Australasian Rehabilitation Outcomes Centre Inpatient Dataset, Version 3.0; NSW SNAP Data Collection, Version 4.0		
Coding Frame	1. Private residence (including unit in retirement village) 2. Residential aged care facility 3. Other 4. Not done 9. Not known		
Comments	• Record the patient's usual accommodation type the time of the 16 week follow up. • Residential aged care refers to a supported facility that provides accommodation and care for a person on a long-term basis. This may include multi-purpose services in Australia and private hospitals or rest homes in New Zealand. • If the patient lives with a relative or in a community group home or boarding house code 'private residence'. • If the patient is in respite care, record their usual place of residence when not in respite care.		

Variable #	8.04	**Variable**	52 Week Mobility
Variable Name	Walk52fu	**Format**	Numeric
Definition	The patient's mobility status at the 52-week follow-up		
Justification	To document the patient's mobility at the time of the 52 week follow up.		
Coding Source	Adapted from ANZHFR Data Dictionary V13		
Coding Frame	1. Usually walks without walking aids. 2. Usually walks with either a stick or crutch. 3. Usually walks with two aids or frame (with or without assistance of a person) 4. Usually uses a wheelchair / bed bound. 5. Not done 9. Not known		
Comments	If a person has different levels of mobility on different surfaces, then record the level of most assistance. For example, inside their residence a person usually walks without a walking aid but when outside the residence the person usually walks with a frame, then the level of mobility recorded is option 3.		

Variable #	8.05	**Variable**	52 Week Medication
Variable Name	Med52	**Format**	Numeric
Definition	Did the patient confirm adherence to osteoporosis specific treatment		
Justification	To document whether the patient was still taking osteoporosis specific treatment		
Coding Source	Adapted from UK FLS-DB V2.00		
Coding Frame	0. Never started taking osteoporosis specific treatment 1. No longer taking osteoporosis specific treatment. 2. Alendronate 3. Risedronate 4. Zoledronate 5. Denosumab 6. Teriparatide 7. Testosterone 8. Systemic Oestrogens 9. Systemic Oestrogen & Progesterone 10. Romosozumab 11. Raloxifene		
Comments	**Required for Clinical Standards for FLS in New Zealand** A patient is to be considered as 'on/taking bone protection medication' if: ● For oral-osteoporosis agents, patient prescribed in the last 12 weeks. ● For Zoledronate, administered in the last 24 months. ● For Denosumab, administered the last 6 months. ● For Teriparatide, administered in the last 7 days. ● For Romosozumab, administered in the last month. Online review of prescriptions may indicate that the patient is taking osteoporosis medication regularly – this is satisfactory. If there is no evidence of this online – patient and / or GP interview will be required. In Australia information will be only from patient interview. In NZ information is from a combination of patient interview and electronic linkage		

Variable #	8.06	**Variable**	Reason for No Medication at 52 Weeks
Variable Name	NoMed52	**Format**	Numeric
Definition	What was the reason for the patient not taking recommended osteoporosis specific treatment at 52 week follow up?		
Justification	To document the reason the patient was no longer taking osteoporosis specific treatment.		
Coding Source	Adapted from UK FLS-DB V2.00		
Coding Frame	1. No longer appropriate (clinician) 2. Informed decline (patient) 3. Side effects 4. Cost to patient 5. Nil obvious 6. Other 7. Not asked 8. No medication prescribed by Primary Care 9. Not known		
Comments	If the patient's GP or other healthcare professional stops the specific osteoporosis medication for whatever reason (including side effects), please select 'No longer appropriate (clinician). If the patient stops the medication by the time of the follow up, please select 'Informed decline (patient)'.		

Variable #	8.07	**Variable**	Further Falls
Variable Name	furtherfall	**Format**	Numeric
Definition	The number of further falls the patient has suffered since the index fracture		
Justification	To document the number of further falls since the index fragility fracture suffered by the patient as a measure of patient outcome.		
Coding Source			
Coding Frame	1. None 2. One 3. Two 4. Three or more 5. Not asked 9. Not known		
Comments	This is a measure of patient outcome. This is the answer to the question "since the index fracture, have you had any further falls in the last 12 months" or similar.		

Variable #	8.08	**Variable**	Strength and Balance
Variable Name	SBpartic	**Format**	Numeric
Definition	Is the patient still participating in a strength and balance programme?		
Justification	To document whether the patient is still participating in strength and balance training.		
Coding Source			
Coding Frame	1. 2. 3. Yes - same as referred 4. Yes - not same as referred 5. No - not started yet 6. No - now declined 9. Not known		
Comments	In the context of this question, a strength and balance programme means that the patient is still carrying out some form of regular activity that aims to improve / maintain their strength and balance. This could be the continuation of an in-home programme that has previously been set or regular attendance at an appropriate community programme. A self-directed programme of regular exercise is also satisfactory e.g., Nymbl in New Zealand.		

Variable #	8.09	**Variable**	Further Fractures
Variable Name	furtherfract	**Format**	Numeric
Definition	Has the patient had a further fragility fracture since the index fracture 52 weeks ago?		
Justification	To document whether the patient has had a further fragility fracture since the index fracture 52 weeks ago.		
Coding Source			
Coding Frame	1. Yes 2. No 3. Not asked 9. Not known		
Comments	This is to ensure that a further fragility fracture has not occurred since the index fracture, and not been identified by the usual identification procedures.		

9. Additional Outcomes

Variable #	9.01	**Variable**	Date of Death
Variable Name	datedeath	**Format**	date
Definition	What is the date of death of the patient?		
Justification	To enable measurement of mortality related to fragility fractures		
Coding Source			
Coding Frame	DD/MM /YYYY		
Comments	This will be completed by data linkage with Ministry of Health Mortality Collection		

List of Data Variables for ANZFFR Facility Level Audit

Variable #	6.01	**Variable**	FLS Team Meeting Frequency
Variable Name	MeetFreqLCL	**Format**	Numeric
Definition	Frequency of meetings between FLS Co-ordinators and local Clinical Lead to discuss FLS patients and process		
Justification	To ensure suitable oversight of team clinical decision-making by a vocationally registered senior doctor		
Coding Source			
Coding Frame	1. Weekly 2. Fortnightly 3. Monthly 4. Quarterly 5. Less frequent or only as required		
Comments	Planned regular meetings (including by Zoom or Teams) where Registry patients are presented for collective decisions on further action. Add other timetabled whole-team meetings discussing service development. Do not include one-to-one conversations about individual patients. Where your result lies between two options, round **up** to the higher/longer option.		

Variable #	6.02	**Variable**	FLS External Liaison
Variable Name	MeetFreqExt	**Format**	Numeric
Definition	Frequency of meetings with other service providers with responsibility for provision of services engaging and/or overlapping with FLS activity		
Justification	To monitor integration of FLS with the broader health and social care network in the locality		
Coding Source			
Coding Frame	1. Weekly 2. One or two per month 3. One or two per quarter 4. One to three a year 5. None in last year		
Comments	Examples include hospital or community Falls Prevention Working Groups, community-based falls prevention teams, Geriatric and Ortho-geriatric service team meetings. At least two of your team including the Clinical Lead must be notified of meetings and at least one of you must have attended.		

Variable #	6.03	**Variable**	Annual Report Value 1
Variable Name	AnnReportVal1	**Format**	Numeric
Definition	Which component of the FFR Annual Report did your team think was of most value for your professional development? (Select your FIRST choice)		
Justification	To understand how to improve the utility of the FFR Annual Report as a tool for internal service development.		
Coding Source			
Coding Frame	1. Graphs with site comparison 2. Graphs National Line percentage 3. Stakeholder information 4. Patient & Team Stories 5. Other		
Comments			

Variable #	6.04	**Variable**	Annual Report Value 2
Variable Name	AnnReportVal2	**Format**	Numeric
Definition	Which component of the FFR Annual Report did your team think was of most value for your professional development? (Select your SECOND choice)		
Justification	To understand how to improve the utility of the FFR Annual Report as a tool for internal service development.		
Coding Source			
Coding Frame	1. Graphs with site comparison 2. Graphs National Line percentage 3. Stakeholder information 4. Patient & Team Stories 5. Other		
Comments			

Variable #	6.05	**Variable**	Annual Report Value 3
Variable Name	AnnReportVal3	**Format**	Text
Definition	If you answered "Other" to either of the above two questions or if you wish to give further feedback on the Annual Report, please enter it here.		
Justification	To understand how to improve the utility of the FFR Annual Report as a tool for internal service development.		
Coding Source			
Coding Frame	Text		
Comments			

Variable #	6.06	**Variable**	Database improvement
Variable Name	DBimprov	**Format**	Text
Definition	Describe any way in which we could improve the usefulness of the FFR Database for your team in their day-to-day work.		
Justification	To feed into the Registry database development workstream		
Coding Source			
Coding Frame	Text		
Comments			

Variable #	6.07	**Variable**	Continuing Professional Development
Variable Name	cpd	**Format**	Text
Definition	Description of continuing professional development undertaken by ALL of the FLS team in the last year.		
Justification	To document evidence that members of each FLS undertake continuing professional development activity every year		
Coding Source			
Coding Frame	Text		
Comments	List each team member (including Clinical Lead) separately with a brief description of any relevant courses/study they have undertaken, how long they spent on it and what they gained from it. Attendance at Fracture Fest is eligible.		