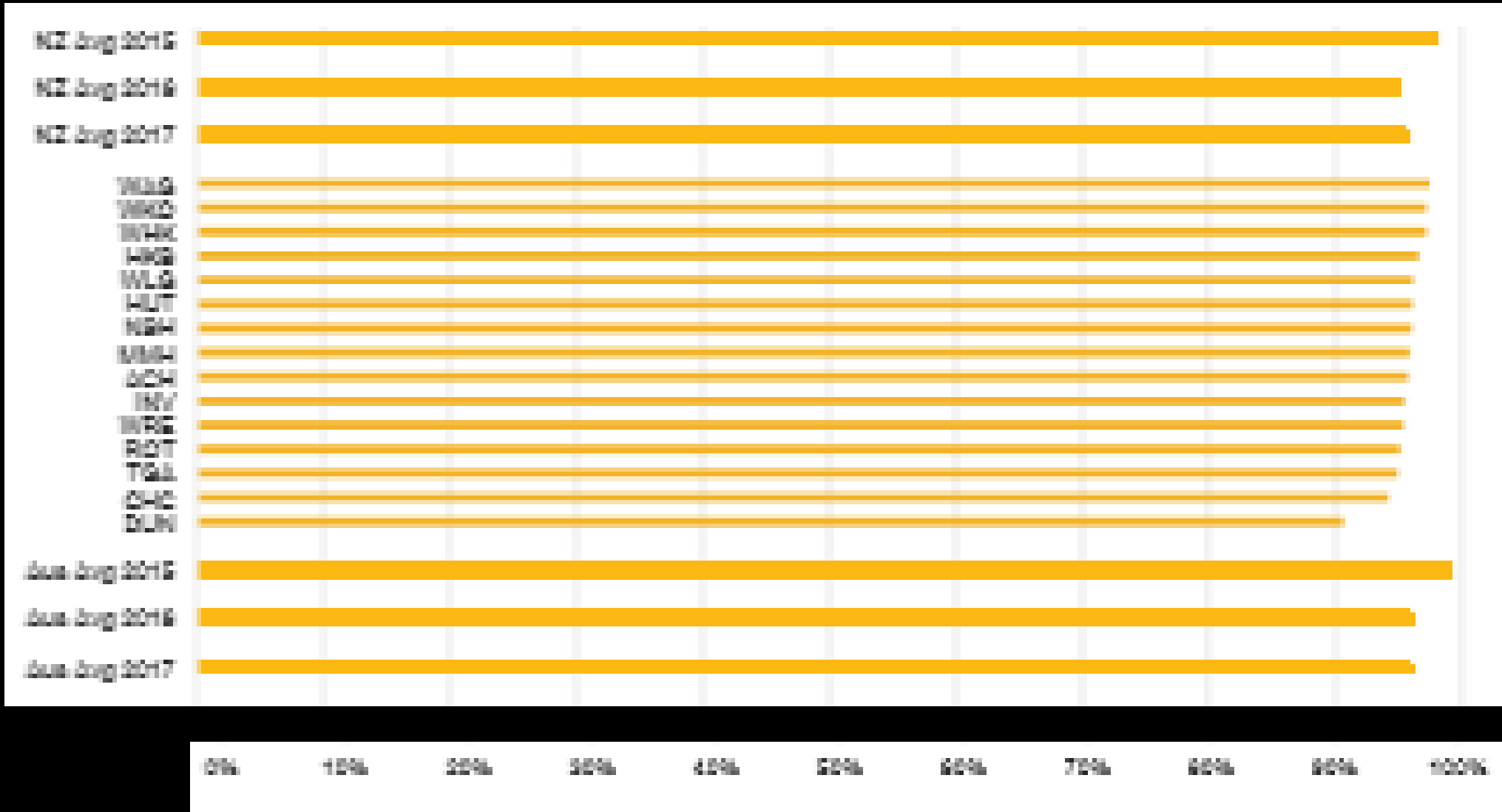


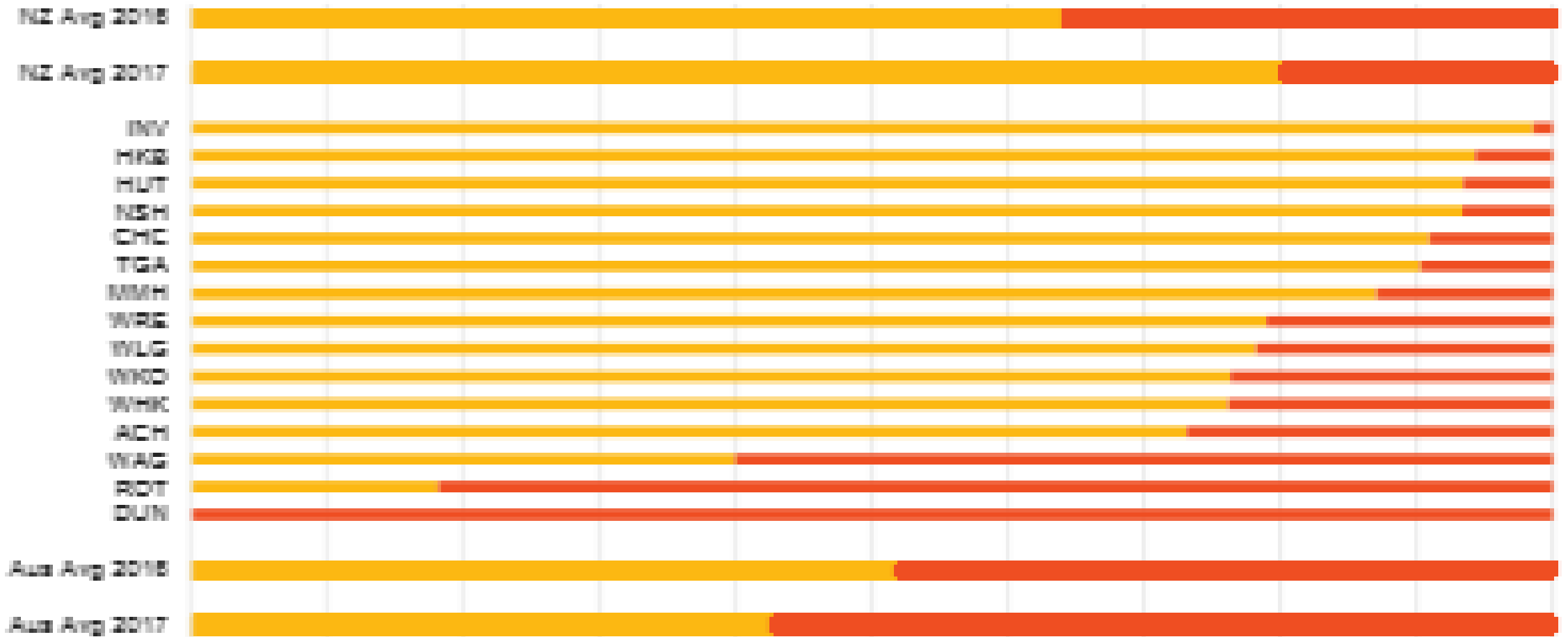
# What is Data Quality ?

- Case ascertainment
  - Do we have all hip fractures ? (2018 = c. 70% for NZ)
  - Missing cases can distort the truth
- Completeness
  - If data is missing – this can also cause misleading results
  - See next 2 slides
- Accuracy
  - This one is obvious

## FIGURE I DATA COMPLETENESS



## FIGURE 47 FOLLOW UP AT 120-DAYS



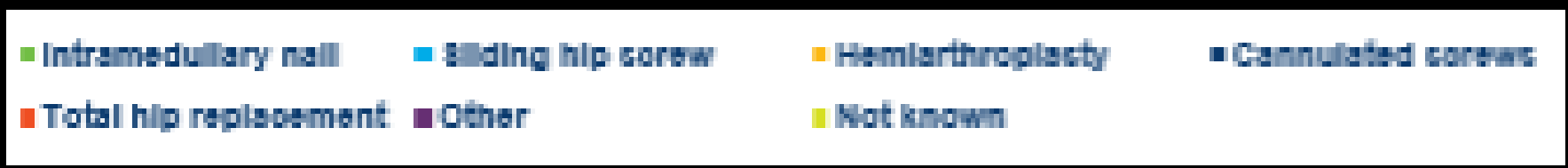
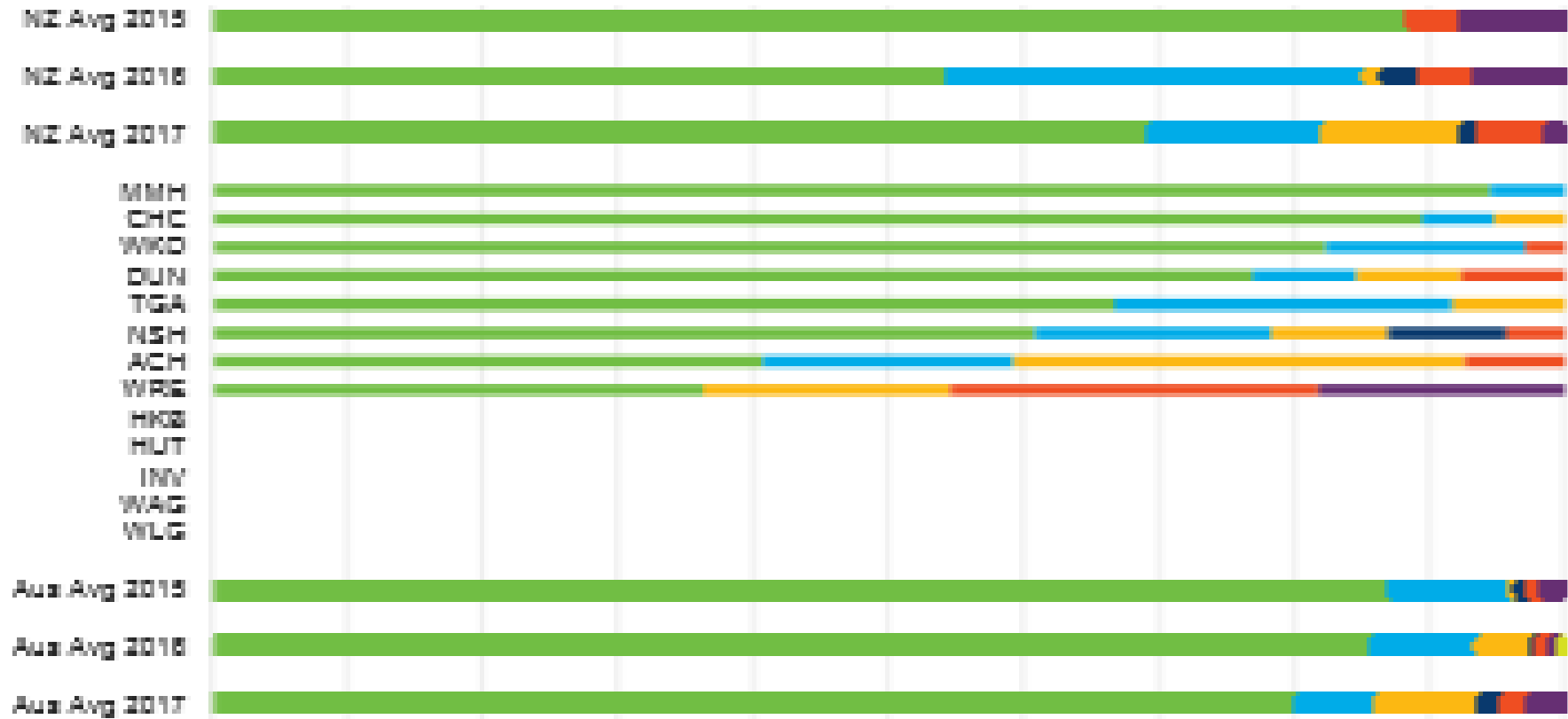
# Data Accuracy Audit

- Pilot audit of 163 patients from 3 hospitals
  - 53 data variables in each data sheet
- Completeness 96%
- Agreement 82%
- Discrepancies
  - 50% information (see next slide)
  - 25% missing (e.g. nerve block not documented)
  - 25% date / time
  - Only 2% transcription
- **Comment – NO GOLD STANDARD**

# Data Accuracy Audit

- Highlights the importance of:
  - Clear definitions
  - Appropriate training to avoid incorrect interpretation
  - Documentation - hard to find information in clinical record
- Remedies – by ANZHFR and locally
  - Reminders on data collection sheet
  - Checks built into website
  - Structures for recording information in clinical record
  - Training of data collectors

**FIGURE 31 PROCEDURE TYPE FOR SUBTROCHANTERIC FRACTURE**



# How Does Each Hospital Check Accuracy ?

- Possibilities
  - Check of 10 – 20 (or more) complete entries by another person
  - Check of targeted “problem” variables
  - Formal study – Trainee project ?
- Aim to LEARN and improve whole system accuracy
- Volunteers to help please
- Should each “Hip Fest” have a session on data definitions ?

# Common Queries / Debates / Overlooked

- Acute phase
- Falls assessment
- Surgery start time
- Preadmission Cognition
- Cognition assessment
- Delirium assessment
- Malnutrition assessment
- Cognition, delirium, malnutrition all have a negative effect on outcome
- Identifying these should lead to a “customised” care plan



**[1] ALERTNESS**

*This includes patients who may be markedly drowsy (eg. difficult to rouse and/or obviously sleepy during assessment) or agitated/hyperactive. Observe the patient. If asleep, attempt to wake with speech or gentle touch on shoulder. Ask the patient to state their name and address to assist rating.*

Normal (fully alert, but not agitated, throughout assessment)	0
Mild sleepiness for <10 seconds after waking, then normal	0
Clearly abnormal	4

**[2] AMT4**

*Age, date of birth, place (name of the hospital or building), current year.*

No mistakes	0
1 mistake	1
2 or more mistakes/untestable	2

**[3] ATTENTION**

*Ask the patient: "Please tell me the months of the year in backwards order, starting at December."  
To assist initial understanding one prompt of "what is the month before December?" is permitted.*

Months of the year backwards	Achieves 7 months or more correctly	0
	Starts but scores < 7 months / refuses to start	1
	Untestable (cannot start because unwell, drowsy, inattentive)	2

**[4] ACUTE CHANGE OR FLUCTUATING COURSE**

*Evidence of significant change or fluctuation in: alertness, cognition, other mental function (eg. paranoia, hallucinations) arising over the last 2 weeks and still evident in last 24hrs*

No	0
Yes	4

**4 or above:** possible delirium +/- cognitive impairment  
**1-3:** possible cognitive impairment  
**0:** delirium or cognitive impairment unlikely (but delirium still possible if [4] information incomplete)

**4AT SCORE**

# AMT-4: Validation – Cognition

- Age, Date of birth, Year, Place
- Significant cognitive impairment
- 600 ED patients screened (J Euro Emerg Med 2010)
  - Compared to MMSE (cut off of 23 or less)
    - AMT-10 (cut off 7 or less): Sensitivity 86% ; Specificity 93%
    - AMT- 4: (cut off 3 or less): Sensitivity 80% ; Specificity 76%
- AMT-4: 200 consecutive patients in variety of settings (Clin Rehabil 1997)
  - Predictive efficiency 90% when compared with AMT-10

# 4AT: Validation - Delirium

- Screening in ED (age 70+ yrs)
  - PPV 0.68
  - NPV 0.99
  - Algorithm if no informant (question 4)
    - If 1-3 = 0, score 0
    - If 2-3 = 1+, score 4
- Consecutive hospital admissions (age 70+ yrs)
  - Sensitivity 90%
  - Specificity 84%
- 3D-CAM
  - Sensitivity 93%
  - Specificity 96%

# Malnutrition

- A state of nutrition in which a deficiency of energy, protein and/or other nutrients cause measurable adverse effects on tissue/body form, composition, function or clinical outcome
- NICE
  - BMI < 18.5
  - Unintentional weight loss of > 10% in the last 3-6 months
    - (NB patient may still be obese)
  - BMI < 20 and unintentional weight loss > 5% in last 3-6 months
  - Mild / moderate / severe
- ASPEN

# Malnutrition and Hip Fracture

- Can't weigh a person with a hip fracture !
- May need to use demi-span as substitute for height
- May not be able to obtain history
  - Cognitive impairment
  - No collateral history
- Prevalence about 50% using ICD-10 criteria !!
- Outcomes poorer if malnutrition present

# Malnutrition and Hip Fracture

- Commonly used screening tools perform poorly in Hip Fracture
  - MUST, MST-N, MST-NA, MNA-SF, NRS, Albumin
- ICD-10-AM criteria or the MNA-SF – perhaps best
  - Associated with patient outcomes of discharge destination and 4-month mortality
- **“Clinical Assessment” is required – something systematic**
  - Dietician is gold standard – not practical ?
  - Combination of screening tool and clinical assessment ?
  - Geriatrician assessment over diagnoses malnutrition !! – not a bad thing ??



# The MNA<sup>®</sup>-SF (Short-Form)

<b>A: Appetite loss</b>	<b>0-2pts.</b>
<b>B: Weight loss</b>	<b>0-3pts.</b>
<b>C: Mobility</b>	<b>0-2pts.</b>
<b>D: Acute disease</b>	<b>0-2pts.</b>
<b>E: Depression/Dementia</b>	<b>0-2pts.</b>

BMI available

CC available

**F: BMI 0-3pts.**

**R: CC 0 - 3 pts.**

**12-14 pts. Well Nourished**

**7 -11 pts. At Risk**

**0 - 7 pts. Malnourished**

# Improvement Methodology

- Complex care journey
- Team sport
- Suggest establishment of multi-disciplinary group in each hospital
  - To review 3 monthly data and annual report
  - Choose improvement projects
  - Use ANZHFR data to track change
- Requests for additional fields / topics for “sprint audits” ?





**ANZHF**

Australian & New Zealand Hip Fracture Registry

Thankyou to everybody  
for your interest and support