interRAI Data Quality Report 2018-19

Executive summary

The quality of interRAI data collected in New Zealand remains high. This report updates the quality checks to validate 2018-19 interRAI data.

interRAI Services continue to work collaboratively to ensure high data quality is achieved and maintained.

The high data quality at the analysis and reporting phase of the interRAI data cycle is made possible by measures put in place at other parts of the data lifecycle. In New Zealand, one national software system is used, ensuring consistency in data capture and processing. There are a series of steps in place for educators and assessors to ensure a high and consistent standard of assessment and data coding. These include comprehensive training, competency requirements, skills boosters and availability of resources such as user manuals and national standards. The assessments themselves are clinically validated and tested internationally.

High quality data means our stakeholders can make well informed and evidence-based decisions for service quality improvement, research, planning and service delivery.

Key points to note

Two quality measures (invalid NHI and missing height & weight) have shown considerable improvement over time. There were only 10 invalid NHIs across the three assessments types Contact Assessment (CA), Home Care (HC) and Long Term Care Facility (LTCF) in 2018-19 compared to almost 50 for LTCF and 75 in total for 2015-16.

Trends in population characteristics remain steady over the four years as do the examined clinical characteristics.

For the first time, trends in service intensity were examined by looking at the 7 clinical categories into which Resource Utilisation Groups (RUGs) are categorised. The trends in service intensity are largely consistent over the four years for HC with the exception of rehabilitation which has been decreasing. For LTCF trends are consistent for the three years from 2016-17 to 2018-19. The distribution between the clinical categories of cognitive impairment and behaviour problems were slightly different in 2015-16.

Trends in convergent validity (Pearson's r correlation coefficient) between interRAI outcome measures over time were consistent (ADLH and CPS; Pain and DRS; Pain and CHESS; Pain and CPS; MAPLe and CPS).

These largely stable trends for population and clinical characteristics, service utilisation and intensity, and convergent validity between outcome variables demonstrate the consistent data quality.

Alert

There is a drop in the proportion of physical and occupational therapy utilisation across the years for HC clients. The trends in other service utilisation measures are consistent over the four years.

Glossary

ADLH   Activities of Daily Living Hierarchy

ARRC   Age-related Residential Care

CA   Contact Assessment

CAPs   Clinical Assessment Protocols

CHESS Change in Health, End-stage Disease, Signs and Symptoms

CPS   Cognitive Performance Scale

DHB   District Health Board

DRS   Depression Rating Scale

HC   Home Care

IADL   Instrumental Activities of Daily Living

LTCF   Long Term Care Facility

MAPLe Method for Assigning Priority Levels

NHI   National Health Index

RUGs   Resource Utilisation Groups

Purpose

This report provides an annual update to the quality of interRAI assessment data collected in New Zealand. The previous data quality report concluded that interRAI assessment data is of an overall quality that can be trusted. The previous report also featured examples of interRAI data quality issues which highlight the importance of continuous monitoring of data quality.

interRAI data quality overview

Invalid NHIs

The previous report detailed how invalid NHIs were introduced and how the interRAI services team worked together to monitor and improve business processes to minimise these errors. **Figure 1** illustrates the diminishing number of invalid NHIs introduced to interRAI assessments by assessment type over time.

**Figure 1: Counts of invalid NHIs by assessment type over time**
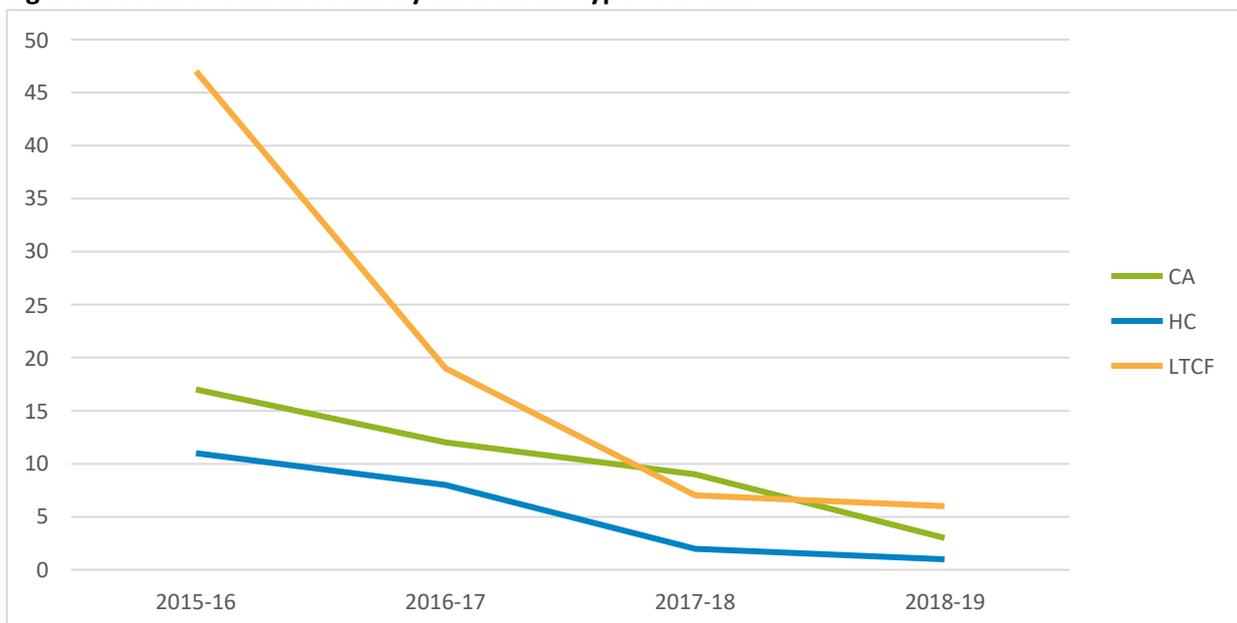
Missing height and weight information

The previous report highlighted the importance of height and weight information and suggested opportunity areas for improvement. **Figure 2** illustrates that there has been further improvement for Long Term Care Facility (LTCF) assessments in the most recent year.

Assessments for people with high health instability (for example, a CHESS score of 4 or 5), who are bed bound; unable to move self to a standing position, have end-stage disease or receive palliative care are excluded from this height and weight analysis.

Figure 2: Percentage of missing height and weight information by assessment type over time
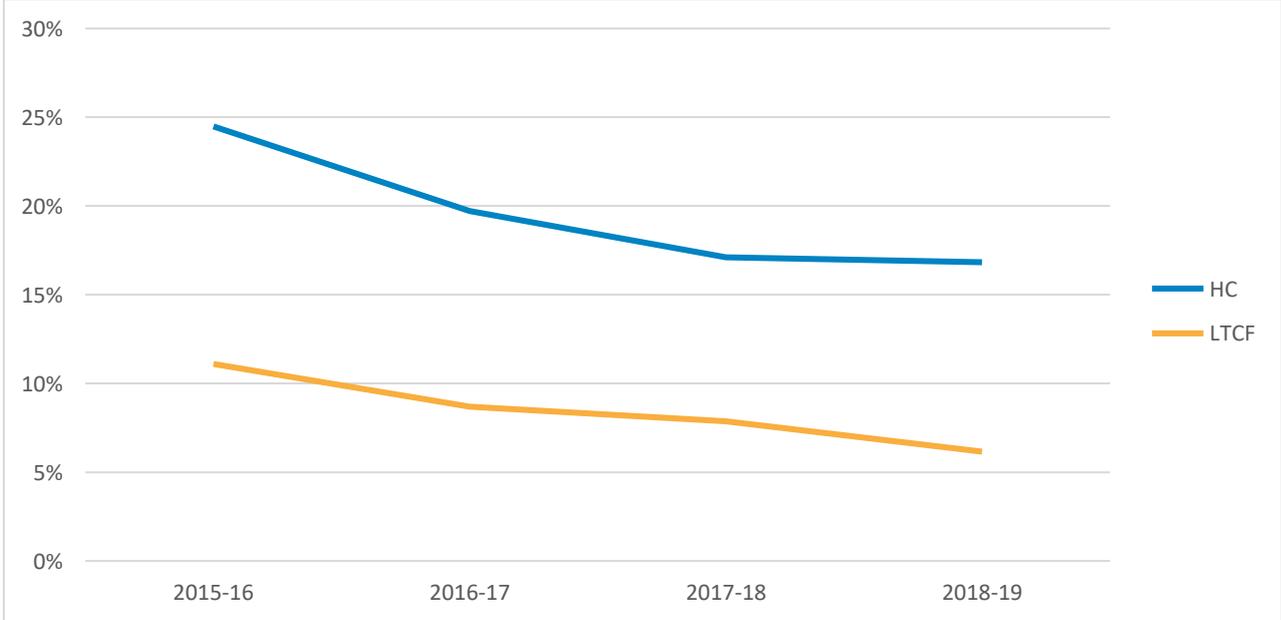
Trends in population and clinical characteristics

Table 1 shows that trends are consistent for both HC and LTCF assessment types across selected demographic characteristics over the last four years.

Table 1: Trends in demographic characteristics

Assessment type	Year	Female %	Married %	Under 65 %	Over 85 %	Dementia %[1]	Heart failure %
HC	2015-16	60%	38%	5%	42%	24%	17%
HC	2016-17	60%	39%	5%	42%	25%	16%
HC	2017-18	59%	39%	5%	42%	25%	16%
HC	2018-19	59%	39%	6%	41%	26%	16%
LTCF	2015-16	66%	25%	4%	54%	49%	17%
LTCF	2016-17	66%	24%	4%	54%	48%	16%
LTCF	2017-18	65%	25%	4%	54%	48%	16%
LTCF	2018-19	65%	24%	4%	54%	49%	16%

[1] Please note the proportion of dementia reported here are higher than the previous report, because this is the proportion for both "Alzheimer's Disease" and "Dementia other than Alzheimer's Disease" combined.

Table 2: Trends in clinical characteristics shows the trends in selected clinical characteristics for HC and LTCF assessments. Overall, the clinical characteristics point to an increasing client complexity in long term aged care as expected. The trend remains stable over time. IADL (Capacity) and IADL (Performance) scales are not shown for HC in 2018-19 as they are not calculated post the May 2019 software upgrade.

Table 2: Trends in clinical characteristics

Assessment type	Year	CPS 3+ %	DRS 3+ %	ADLH 3+ %	MAPLE 3+ %	IADLCap 15+ %	IADLPerf 15+ %
HC	2015-16	21%	17%	20%	78%	81%	81%
HC	2016-17	22%	18%	21%	80%	82%	82%
HC	2017-18	22%	18%	21%	80%	82%	83%
HC	2018-19	23%	19%	20%	81%		
LTCF	2015-16	45%	20%	44%			
LTCF	2016-17	44%	21%	44%			
LTCF	2017-18	44%	21%	43%			
LTCF	2018-19	44%	22%	44%			

Trends in service utilisation

Table 3 shows trends in service utilisation measures including the receipt of any physical therapy time or occupational therapy time for both HC and LTCF assessments.

HC assessment specific measures are:
- any home support services (this includes physical therapy, occupational therapy, home health aide, home nurse and homemaking services)
- any informal care
- median hours of informal care in the past 3 days
- median hours of home support services for HC clients in the past 7 days.

Of people who received a HC assessment in 2018-19 the median hours of formal home support services in the last 7 days was 1.5 hours. This means that half received 1.5 or more hours, and half received less than 1.5 hours.

Table 3: Trends in service utilisation

Assessment type	Year	Any physical therapy %	Any occupational therapy %	Any home support services %	Any informal care %	Median hours of informal care in the past 3 days	Median hours of formal home support services in the past 7 days
HC	2015-16	13%	10%	50%	70%	3	1.75
HC	2016-17	13%	9%	50%	71%	3	1.5
HC	2017-18	11%	8%	51%	71%	3	1.5
HC	2018-19	9%	6%	51%	72%	4	1.5
LTCF	2015-16	9%	1%				
LTCF	2016-17	9%	1%				
LTCF	2017-18	8%	1%				
LTCF	2018-19	8%	1%				

Trends in service intensity

There has been increasing interest in the use of interRAI Resource Utilisation Groups (RUGs) to derive case-mix funding. **Table 4** shows trends in the clinical categories into which RUGs are grouped. The clinical categories are ordered from lowest clinical complexity (physical function) to highest clinical complexity (rehabilitation). The trends in service intensity are largely consistent over the four years for HC with the exception of rehabilitation which has been decreasing. For LTCF trends are consistent for the three years from 2016-17 to 2018-19. The distribution between the clinical categories of cognitive impairment and behaviour problems were slightly different in 2015-16.

Table 4: Trends in service intensity

Assess-ment type	Year	Increasing clinical complexity →						
		Physical function	Cognitive impair-ment	Behaviour problems	Clinically complex	Special care	Extensive services	Rehab-ilitation
HC	2015-16	44%	10%	3%	32%	3%	1%	7%
HC	2016-17	43%	11%	3%	32%	3%	1%	6%
HC	2017-18	45%	11%	3%	32%	3%	1%	5%
HC	2018-19	44%	12%	3%	32%	3%	1%	4%
LTCF	2015-16	45%	10%	6%	30%	6%	1%	2%
LTCF	2016-17	43%	15%	3%	31%	5%	1%	2%
LTCF	2017-18	43%	16%	3%	30%	5%	1%	2%
LTCF	2018-19	43%	16%	3%	30%	5%	0%	2%

Trends in convergent validity

Table 5 reports on trends in indicators of convergent validity over time by examining the correlations between the following variables: ADLH and CPS; Pain and DRS; Pain and CHESS; Pain and CPS; MAPLe and CPS.

The correlations between these variables are calculated using Pearson's R correlation coefficient. Pearson's R correlation coefficient is a numeric value which tells the magnitude and direction of the correlations. Trends are examined to determine whether the correlations are stable over time. For example, an R coefficient of 0 means there is no correlation between the two variables, and an R coefficient of 1 means there is a perfect correlation between the two variables. We expect this correlation to be consistent over time.

The measures examined were mostly consistent over time, although the correlation coefficient for ADLH and CPS has decreased very slightly over the four years for both HC and LTCF.

MAPLe and CPS have the highest correlation (0.68 across all years), while the following have the weakest correlation; pain and DRS, pain and CHESS, pain and CPS. The negative value for the latter reflects a relationship between the two variables whereby they move in opposite directions. The correlation for ADLH and CPS is moderate for LTCF and weaker for HC.

Table 5: Trends in convergent validity (Pearson's r correlation coefficient) between interRAI outcome measures over time

Assessment type	Year	ADLH & CPS	Pain & DRS	Pain & CHESS	Pain & CPS	MPALe & CPS
HC	2015-16	0.36	0.11	0.13	-0.21	0.68
HC	2016-17	0.35	0.10	0.13	-0.20	0.68
HC	2017-18	0.35	0.10	0.14	-0.21	0.68
HC	2018-19	0.33	0.10	0.13	-0.22	0.68
LTCF	2015-16	0.55	0.16	0.18	-0.14	
LTCF	2016-17	0.55	0.16	0.17	-0.15	
LTCF	2017-18	0.54	0.16	0.18	-0.15	
LTCF	2018-19	0.52	0.16	0.18	-0.16	

interRAI data quality throughout the data lifecycle

This high data quality at the analysis and reporting phase of the interRAI data cycle is made possible by measures put in place at other parts of the data lifecycle.

One national software system

In New Zealand, one national software system is used, ensuring consistency in data capture and processing. The system has some inbuilt checks to ensure data quality. These include alerting assessors to unanswered items and safeguards against dates in the future. Having one system ensures that all CAPs, Outcome Scales and RUGs are calculated consistently across the country. Assessment training (see below) also includes software navigation tips and explanations.

Quality of assessment and coding

There are a series of steps in place for educators and assessors to ensure a high and consistent standard of assessment and data coding. These include comprehensive training, competency requirements, skills boosters and availability of resources such as user manuals and national standards.

Initial training (over an 8-week period)
- Trainee assessors receive 1 – 3 day's classroom training (depending on previous training and assessment type), in which they are introduced to the definition and intent of each coded question in the assessment tool. This is referred to as Methodology. They learn how these coded items impact on the algorithms that produce CAPs and Outcome Scales on completion of the assessment.
- The Trainee submits a minimum of 5 assessments of real persons, to demonstrate their competency in applying this methodology alongside the national standards for completion of the assessment.

Available manuals and national standards
- The interRAI Education and Support Service utilises the international coding manuals that have been developed for each assessment type. The trainee is also supplied with a workbook that includes software navigation tips and explanations. National standards are included in the workbooks, to ensure that the training is uniform throughout New Zealand and there are agreed principles about minimum documentation etc, so readers of the assessments can readily find the information they seek.

Other resources to support coding
- The interRAI Education and Support Service regularly updates its website to provide self-help information for assessors and trainees. We also provide a generic email and 0800 number for competent assessors to access support.

Maintaining interRAI competency
- Assessors do have minimum competency requirements. The intent is to ensure interRAI coding and methodology is understood and practised, to ensure the quality of the data.
- The assessor completes self-learning modules annually that test their understanding and decision making with regards to coding items in the assessment tool(s) they use.
- The assessor must complete a minimum of two assessment per annum. An assessment is quality reviewed by the educator to ensure it still meets the minimum standard required for competency. The service has developed a number of criteria that are weighted so that the assessors must meet an 85% correctly coded threshold, in order to maintain competency. Quality reviews occur annually for all DHB assessors and are randomly selected across ARRC facilities each year.

Skills boosters
- All educators are involved in providing 'Skills Booster' training to competent assessors. This enables assessors to learn about any changes to the assessment tools, review their methodology and experience continual learning in the assessment space.