



AMHOCN

**Australian Mental Health
Outcomes & Classification Network**

'Sharing Information to Improve Outcomes'

An Australian Government funded initiative

**Key Performance Indicators for Australian
Public Mental Health Services**

Modelling Candidate Indicators of Effectiveness

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What is Australian Mental Health Outcomes and Classification Network?

The Australian Mental Health Outcomes and Classification Network (AMHOCN) was established by the Australian Government in December 2003 to provide leadership to the mental health sector to support the sustainable implementation of the outcomes and casemix collection as part of routine clinical practice. It aims to support states and territories and to work collaboratively with the mental health sector to achieve the vision of the introduction of outcomes and casemix measures. AMHOCN consists of three components: a data bureau responsible for receiving and processing information; an analysis and reporting component providing analysis and reports of submitted data; and a training and service development component supporting training in the measures and their use for clinical practice, service management and development purposes. Currently, the Australian Government has contracted the following organisations to undertake these roles: Strategic Data Pty Ltd, (data bureau); The University of Queensland (analysis and reporting); The NSW Institute of Psychiatry (training and service development). In February 2005, an AMHOCN State Liaison Manager role was established to coordinate activities between the state and territory health authorities and the AMHOCN components. The Australian Government has contracted Allen Morris-Yates to undertake that role. Further information regarding AMHOCN can be found at <http://www.mhnocc.org>.

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Feedback

Comments on the document are welcomed. Readers are encouraged to submit comments via the on-line NOCC forum at <http://www.mhnocc.org/> Alternatively, comments can be forwarded to:

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Section 1: Background & Context

This paper follows on from earlier work presented to the National Mental Health Performance Subcommittee in March 2008 where two background papers were considered: (i) *Overview of NOCC Data 2006-2007*; and (ii) *Developing Effectiveness KPIs from the NOCC Data*. It is assumed that readers of this paper will be familiar with the conceptual and technical issues raised in these two background papers. Both of these papers were also considered by each of the three Mental Health Outcomes Expert Groups. Feedback from these stakeholders has informed the next stage of the Key Performance Indicator development work.

The materials presented in this report are based on the 5 June 2008 extraction from the AMHOCN Data Warehouse. These data were submitted by all Jurisdictions per the 2006-2007 Quality Through Outcomes agreement and represent data from 1 July 2006 to 30 June 2007 and represent a one-year 'snapshot' of routine outcomes collections for participating Mental Health Service Organisations over this period. In accordance with agreements with the Department of Health and Ageing, no Jurisdictional data is identified. At the same time, it is assumed that the key objective is to measure and to compare Jurisdictions on an agreed set of Key Performance Indicators.

The purpose of this report is to model candidate 'effectiveness' Indicators from the Mental Health National Outcomes and Casemix Collection (NOCC) datasets. It is primarily concerned with statistical and technical considerations. To that end, this report is limited to measurement issues, specifically reliability and validity, rather than the broader set of criteria used to evaluate candidate indicators.

Section 2: Unit of Analysis & Number of ‘Matched Pairs’

The first step in the modelling of candidate effectiveness indicators is to determine the unit of analysis. The March 2008 paper, *Overview of NOCC Data 2006-2007*, considered in detail the distinction between ‘Episodes of Care’ and ‘Periods of Care’. There are two key considerations in determining the most appropriate units of analysis:

1. Are there sufficient volumes of data to be confident that findings are reliable;
2. Are the comparisons conceptually meaningful?

With respect to the former, the following set of tables (2.1 – 2.4) presents the overall number, and the number of paired clinical ratings, of Episodes of Care and Periods of Care. These tables separately report volume data for each of the three Collection Occasion age groups and the two Mental Health Service Settings.

It can be seen that approximately 85% of all Episodes of Care in Psychiatric Inpatient settings are not censored (i.e., ‘Completed’) for all three age groups. There are somewhat fewer ‘Admission to Discharge’ Periods of Care in these settings – this is the case since there are instances where ‘Reviews’ occur in the course of mental health care.

For Ambulatory care, patterns of care are more complex and vary by collection occasion age group. Whereas a significant proportion of care represents ‘Completed’ episodes, there are also significant proportions of ‘Ongoing’ care, especially for Adults and Older Persons.

With respect to ‘Admission to First Review’ Periods of Care, there is a view that this is a useful unit of analysis since there is generally an expectation of change in the early phase of care should treatment be effective. While there is also a view that there is an expectation of change in the later phases of care (‘Last Review to Discharge’), there is concern that some patterns of care ‘end’ with the consumer being appropriately admitted to inpatient care. Moreover, given the long term nature of care, ‘Last Review to Discharge’ periods of care will have different profiles for different episodes (e.g., a consumer discharge after only one Review vs a consumer discharged after an extended period of care involving multiple Reviews).

Given those considerations, it was decided to limit the analysis of candidate indicators to ‘Completed’ Episodes of Care and ‘Admission to Discharge’ Periods of Care for both Psychiatric Inpatient and Ambulatory mental health service settings. No other pattern of care in Psychiatric Inpatient settings was explored, primarily due to the relatively small proportions of these patterns. For Ambulatory services, additional candidate indicators were explored for ‘Ongoing’ Episodes of Care, ‘Admission to First Review’ and ‘Review to Review’ Periods of Care. These models were examined for all three age groups.

Table 2.1: Overall Number of Episodes of Care by Collection Occasion Age Group and Mental Health Service Setting

Age Group	Setting	Types of Episodes of Care							
		Left Censored		Left & Right Censored		Not Censored		Right Censored	
		N	Row %	N	Row %	N	Row %	N	Row %
Child & Adolescent	Inpatient	16	.9%	32	1.8%	1653	93.7%	63	3.6%
	Ambulatory	2245	18.0%	1509	12.1%	6283	50.3%	2458	19.7%
Adult	Inpatient	948	3.3%	931	3.3%	25857	91.0%	666	2.3%
	Ambulatory	6121	13.3%	14018	30.5%	18772	40.8%	7121	15.5%
Older Persons	Inpatient	192	4.8%	151	3.8%	3403	85.6%	228	5.7%
	Ambulatory	1492	15.7%	1753	18.5%	4881	51.4%	1363	14.4%

Table 2.2: Number of Episodes of Care with 'Paired' Clinical Ratings by Collection Occasion Age Group and Mental Health Service Setting

Age Group	Setting	Types of Episodes of Care							
		Left Censored		Left & Right Censored		Not Censored		Right Censored	
		N	Row %	N	Row %	N	Row %	N	Row %
Child & Adolescent	Inpatient	15	1.0%	20	1.3%	1456	94.4%	51	3.3%
	Ambulatory	1522	17.4%	1286	14.7%	3829	43.7%	2129	24.3%
Adult	Inpatient	415	1.7%	875	3.6%	22778	92.5%	563	2.3%
	Ambulatory	4209	12.3%	12509	36.5%	11744	34.2%	5854	17.1%
Older Persons	Inpatient	165	4.5%	150	4.1%	3106	85.3%	222	6.1%
	Ambulatory	1254	15.2%	1606	19.5%	4155	50.3%	1242	15.0%

Table 2.3: Overall Number of Periods of Care by Collection Occasion Age Group and Mental Health Service Setting

Age Group	Setting	Types of Periods of Care							
		Admission to Review		Admission to Discharge		Review to Review		Review to Discharge	
		N	Row %	N	Row %	N	Row %	N	Row %
Child & Adolescent	Inpatient	101	5.4%	1616	85.6%	117	6.2%	53	2.8%
	Ambulatory	3563	21.0%	5178	30.5%	4896	28.8%	3350	19.7%
Adult	Inpatient	1905	6.0%	24653	77.8%	2979	9.4%	2146	6.8%
	Ambulatory	9212	14.0%	16681	25.4%	31591	48.1%	8212	12.5%
Older Persons	Inpatient	719	14.1%	2913	57.2%	781	15.3%	682	13.4%
	Ambulatory	2041	15.2%	4203	31.3%	5006	37.3%	2170	16.2%

Table 2.4: Number of Periods of Care with 'Paired' Clinical Ratings by Collection Occasion Age Group and Mental Health Service Setting

Age Group	Setting	Types of Periods of Care							
		Admission to Review		Admission to Discharge		Review to Review		Review to Discharge	
		N	Row %	N	Row %	N	Row %	N	Row %
Child & Adolescent	Inpatient	87	5.3%	1421	85.9%	97	5.9%	50	3.0%
	Ambulatory	2902	23.6%	3056	24.9%	4023	32.8%	2295	18.7%
Adult	Inpatient	1614	5.9%	21749	78.9%	2772	10.1%	1444	5.2%
	Ambulatory	7244	14.3%	10354	20.4%	27435	54.2%	5599	11.1%
Older Persons	Inpatient	675	14.3%	2653	56.4%	760	16.1%	618	13.1%
	Ambulatory	1800	15.3%	3597	30.6%	4549	38.7%	1812	15.4%

Section 3: Modelling Change Scores for Candidate Episodes of Care & Periods of Care

This section presents findings from the modelling of candidate patterns of care. The outcome of interest was the change score on the relevant HoNOS measure (i.e., the HoNOSCA for Child & Adolescents; the HoNOS for Adults; and the HoNOS 65+ for Older Persons). Only the total score on each of these measures was considered.

Three approaches to measuring effectiveness were explored: (i) Effect Size (ES); (ii) Reliable Change (RC); and (iii) Standard Error of Measurement (SEM). These approaches share some common features but are technically and conceptually distinct. Moreover, the first two of these approaches can be further classified. For Effect Size, two models were explored – Medium Effects (ES at least 0.5) and Large Effects (ES at least 0.8). For Reliable Change, four models were explored – Confidence Intervals for Reliable Change were set at 67%, 80%, 90% and 95%. Thus, a total seven models were explored (i.e., ES – Medium; ES – Large; RC – 67%; RC – 80%; RC – 90%; RC 95%; and SEM).

With all three approaches, parameter estimates incorporate the standard deviation of the baseline score. For Reliable Change and for Standard Error of Measurement, parameter estimates also incorporate the reliability (or ‘unreliability’) of the total score. For the former, reliability of the ‘change’ score is used; for the latter, reliability of the ‘baseline’ score is used. Effect Size approaches do not incorporate any adjustment for the ‘unreliability’ of the measure.

Modelling candidate indicators is a two stage process. First, model parameters are estimated. This involves calculating various statistics such as the mean, standard deviation, standard error of difference scores and the reliability (internal consistency) for the relevant HoNOS measure at baseline, follow-up and change from baseline to follow-up. Model parameters were determined separately for each of the three age groups and separately for the two mental health service settings. Detailed, background statistical information on these measures is reported in Attachments 1 – 6. These materials allow for independent evaluation of the statistical properties of these measures and the validity of the approaches taken here. Importantly, there is sufficient information to replicate all of the statistical models evaluated here.

Tables 3.1 & 3.2 show the change score thresholds for each of the three age groups, per setting for Episodes of Care and Periods of Care, and how each of the three broad approaches classifies change. For example, for Episodes of Care, the least conservative approach arises with Medium Effect Size. A positive change score of at least 4 would indicate ‘Significant Improvement’ (and conversely, a negative change score of at least -4 would indicate ‘Significant Deterioration’). The most conservative approach arises with a Reliable Change index with 95% confidence intervals. While thresholds are age group (and thus measure) and service setting specific, a minimum change score of +/- 10 is required for change to be considered ‘significant’.

Medium ES thresholds are similar to those for SEM although the latter approach does correct for the reliability of the change scores. Large ES thresholds fall

somewhere between 67% and 80% Reliable Change thresholds. By definition, stricter confidence intervals for Reliable Change yield higher thresholds for Significant Change.

Table 3.1: Absolute Thresholds for ‘Significant Change’ for Episodes of Care

Age Group	Setting	SEM	ES (Medium)	ES (Large)	RC (67%)	RC (80%)	RC (90%)	RC (95%)
Child & Adolescent	Inpatient	5	4	7	6	8	10	12
	Ambulatory	4	4	7	6	8	10	11
Adult	Inpatient	5	4	6	5	7	9	11
	Ambulatory	4	4	6	5	6	8	10
Older Persons	Inpatient	5	4	6	6	8	10	11
	Ambulatory	4	4	6	5	7	9	10

Table 3.2: Absolute Thresholds for ‘Significant Change’ for Periods of Care

Age Group	Setting	SEM	ES (Medium)	ES (Large)	RC (67%)	RC (80%)	RC (90%)	RC (95%)
Child & Adolescent	Inpatient	5	5	7	6	8	10	12
	Ambulatory	4	4	6	6	7	9	11
Adult	Inpatient	5	4	6	5	7	9	10
	Ambulatory	4	4	6	5	6	8	10
Older Persons	Inpatient	5	4	6	6	7	9	11
	Ambulatory	4	4	6	5	7	9	10

The second step in the modelling process involves applying the derived thresholds to each individual consumer’s change score for any given Episode of Care or Period of Care. Positive change scores of at least the threshold are classified as ‘Significant Improvement’; negative change scores of at least the threshold are classified as ‘Significant Deterioration’; change scores within these limits are classified as ‘No Significant Change’.

The following sets of Tables present findings of the application of these thresholds, for each of the three collection occasion age groups and for the candidate Episodes of Care and Periods of Care.

Table 3.3: Modelling of HoNOS/CA/65+ Changes Scores for ‘Completed’ Episodes of Care - Psychiatric Inpatient Settings

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	57.1	35.7	7.2
	Effect Size - Medium	62.3	29.0	8.7
	Effect Size - Large	44.6	50.8	4.6
	Reliable Change - 67%	51.1	43.2	5.7
	Reliable Change - 80%	39.8	56.5	3.7
	Reliable Change - 90%	30.4	66.8	2.8
	Reliable Change - 95%	23.8	74.3	1.9
Adult	Standard Error of Measurement	67.4	28.6	4.1
	Effect Size - Medium	72.9	22.0	5.2
	Effect Size - Large	61.7	35.0	3.3
	Reliable Change - 67%	67.4	28.6	4.1
	Reliable Change - 80%	55.6	41.9	2.5
	Reliable Change - 90%	43.7	54.7	1.5
	Reliable Change - 95%	32.8	66.3	.9
Older Persons	Standard Error of Measurement	59.5	34.9	5.6
	Effect Size - Medium	66.0	26.6	7.4
	Effect Size - Large	54.1	41.6	4.3
	Reliable Change - 67%	54.1	41.6	4.3
	Reliable Change - 80%	42.1	55.7	2.2
	Reliable Change - 90%	31.5	67.4	1.2
	Reliable Change - 95%	27.0	72.2	.7

Table 3.4: Modelling of HoNOS/CA/65+ Changes Scores for ‘Completed’ Episodes of Care – Ambulatory Settings

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	30.7	52.1	17.2
	Effect Size - Medium	30.7	52.1	17.2
	Effect Size - Large	16.3	75.6	8.2
	Reliable Change - 67%	19.6	70.0	10.4
	Reliable Change - 80%	13.3	80.2	6.5
	Reliable Change - 90%	8.2	87.9	3.9
	Reliable Change - 95%	6.7	90.6	2.7
Adult	Standard Error of Measurement	22.4	59.8	17.8
	Effect Size - Medium	22.4	59.8	17.8
	Effect Size - Large	13.1	76.6	10.2
	Reliable Change - 67%	17.1	69.3	13.6
	Reliable Change - 80%	13.1	76.6	10.2
	Reliable Change - 90%	7.8	86.1	6.1
	Reliable Change - 95%	4.4	92.1	3.5
Older Persons	Standard Error of Measurement	14.9	68.4	16.6
	Effect Size - Medium	14.9	68.4	16.6
	Effect Size - Large	7.7	82.4	9.8
	Reliable Change - 67%	11.3	76.1	12.6
	Reliable Change - 80%	5.3	88.0	6.7
	Reliable Change - 90%	2.5	94.0	3.5
	Reliable Change - 95%	1.6	95.8	2.6

Table 3.5: Modelling of HoNOS/CA/65+ Changes Scores for Left & Right Censored ('Ongoing') Episodes of Care – Ambulatory Settings

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	57.8	37.3	4.8
	Effect Size - Medium	57.8	37.3	4.8
	Effect Size - Large	38.7	59.5	1.8
	Reliable Change - 67%	44.5	53.0	2.6
	Reliable Change - 80%	33.5	65.1	1.4
	Reliable Change - 90%	24.3	74.7	.9
	Reliable Change - 95%	19.8	79.5	.7
Adult	Standard Error of Measurement	49.3	39.7	10.9
	Effect Size - Medium	49.3	39.7	10.9
	Effect Size - Large	36.4	55.8	7.7
	Reliable Change - 67%	42.7	48.1	9.2
	Reliable Change - 80%	36.4	55.8	7.7
	Reliable Change - 90%	25.6	69.0	5.4
	Reliable Change - 95%	17.4	78.8	3.8
Older Persons	Standard Error of Measurement	48.2	43.6	8.2
	Effect Size - Medium	48.2	43.6	8.2
	Effect Size - Large	33.4	61.3	5.3
	Reliable Change - 67%	40.9	52.6	6.5
	Reliable Change - 80%	27.2	68.8	3.9
	Reliable Change - 90%	18.1	79.5	2.4
	Reliable Change - 95%	13.9	84.2	1.9

Table 3.6: Modelling of HoNOS/CA/65+ Changes Scores for ‘Admission > Discharge’ Periods of Care - Psychiatric Inpatient Settings

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	57.1	35.7	7.1
	Effect Size - Medium	57.1	35.7	7.1
	Effect Size - Large	44.5	51.1	4.4
	Reliable Change - 67%	51.1	43.3	5.6
	Reliable Change - 80%	39.7	56.7	3.6
	Reliable Change - 90%	30.4	66.9	2.7
	Reliable Change - 95%	23.8	74.4	1.8
Adult	Standard Error of Measurement	67.4	28.7	3.9
	Effect Size - Medium	72.9	22.1	5.0
	Effect Size - Large	61.7	35.1	3.2
	Reliable Change - 67%	67.4	28.7	3.9
	Reliable Change - 80%	55.6	42.0	2.4
	Reliable Change - 90%	43.6	54.9	1.5
	Reliable Change - 95%	38.0	60.8	1.1
Older Persons	Standard Error of Measurement	58.6	35.8	5.7
	Effect Size - Medium	65.3	27.1	7.6
	Effect Size - Large	53.0	42.6	4.4
	Reliable Change - 67%	53.0	42.6	4.4
	Reliable Change - 80%	47.3	49.6	3.2
	Reliable Change - 90%	35.4	62.8	1.8
	Reliable Change - 95%	26.3	72.9	.8

Table 3.7: Modelling of HoNOS/CA/65+ Changes Scores ‘Admission > Discharge’ Periods of Care – Ambulatory Settings

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	50.5	39.1	10.3
	Effect Size - Medium	50.5	39.1	10.3
	Effect Size - Large	38.4	55.5	6.1
	Reliable Change - 67%	38.4	55.5	6.1
	Reliable Change - 80%	32.5	62.7	4.8
	Reliable Change - 90%	23.8	73.2	3.0
	Reliable Change - 95%	16.2	82.4	1.5
Adult	Standard Error of Measurement	37.3	45.1	17.6
	Effect Size - Medium	37.3	45.1	17.6
	Effect Size - Large	25.5	62.9	11.6
	Reliable Change - 67%	30.8	55.0	14.3
	Reliable Change - 80%	25.5	62.9	11.6
	Reliable Change - 90%	17.3	75.0	7.8
	Reliable Change - 95%	11.9	83.1	5.1
Older Persons	Standard Error of Measurement	35.7	49.4	14.8
	Effect Size - Medium	35.7	49.4	14.8
	Effect Size - Large	24.1	66.9	9.0
	Reliable Change - 67%	29.4	58.9	11.6
	Reliable Change - 80%	18.9	74.2	6.9
	Reliable Change - 90%	11.0	85.0	4.0
	Reliable Change - 95%	8.6	88.1	3.3

Table 3.8: Modelling of HoNOS/CA/65+ Changes Scores for ‘Admission to First Review’ Periods of Care – Ambulatory Settings

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	55.3	39.9	4.8
	Effect Size - Medium	55.3	39.9	4.8
	Effect Size - Large	41.9	55.5	2.6
	Reliable Change - 67%	41.9	55.5	2.6
	Reliable Change - 80%	36.2	62.1	1.6
	Reliable Change - 90%	26.3	72.6	1.0
	Reliable Change - 95%	17.7	81.4	.9
Adult	Standard Error of Measurement	49.5	40.8	9.7
	Effect Size - Medium	49.5	40.8	9.7
	Effect Size - Large	36.7	56.6	6.8
	Reliable Change - 67%	42.9	48.9	8.1
	Reliable Change - 80%	36.7	56.6	6.8
	Reliable Change - 90%	25.7	69.7	4.6
	Reliable Change - 95%	17.4	79.4	3.1
Older Persons	Standard Error of Measurement	48.3	44.4	7.3
	Effect Size - Medium	48.3	44.4	7.3
	Effect Size - Large	33.2	62.2	4.6
	Reliable Change - 67%	41.0	53.3	5.8
	Reliable Change - 80%	27.2	69.4	3.3
	Reliable Change - 90%	18.0	80.2	1.8
	Reliable Change - 95%	13.7	84.9	1.4

Table 3.9: Modelling of HoNOS/CA/65+ Changes Scores for ‘Review to Review’ Periods of Care – Ambulatory Settings

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	40.3	45.5	14.2
	Effect Size - Medium	40.3	45.5	14.2
	Effect Size - Large	28.5	63.1	8.4
	Reliable Change - 67%	28.5	63.1	8.4
	Reliable Change - 80%	23.7	69.5	6.8
	Reliable Change - 90%	15.9	80.0	4.1
	Reliable Change - 95%	10.4	87.3	2.3
Adult	Standard Error of Measurement	25.4	56.0	18.5
	Effect Size - Medium	25.4	56.0	18.5
	Effect Size - Large	15.8	73.1	11.1
	Reliable Change - 67%	20.2	65.3	14.5
	Reliable Change - 80%	15.8	73.1	11.1
	Reliable Change - 90%	10.0	82.9	7.1
	Reliable Change - 95%	6.1	89.5	4.3
Older Persons	Standard Error of Measurement	20.9	61.7	17.4
	Effect Size - Medium	20.9	61.7	17.4
	Effect Size - Large	12.5	77.1	10.4
	Reliable Change - 67%	16.6	70.2	13.3
	Reliable Change - 80%	9.3	83.2	7.5
	Reliable Change - 90%	4.5	91.1	4.4
	Reliable Change - 95%	3.3	93.3	3.4

Section 4: Modelling Change Scores for ‘Completed’ Episodes of Care & Periods of Care in Ambulatory Settings

There has been some discussion regarding the validity of indicators where outcomes can be expected to vary according to ‘known’ factors. Specifically, this issue has been raised in relation to Ambulatory episodes and periods of care that ‘end’ when the service determines that the consumer would be more appropriately treated in an inpatient setting. The National Outcomes and Casemix Collection protocol defines four distinct reasons for ‘discharge; from care: (i) ‘No Further Care; (ii) Change of Setting; (iii) Death; and (iv) ‘Other’. While these four reasons are applicable to all service settings, the present section models change scores separately for each of these ‘discharge’ reasons for Ambulatory settings only to inform further development analysis and reporting.

The overall number, and the number of paired clinical ratings, is reported in Attachment 7. Detailed, background statistical information on these three measures is reported in Attachments 8-9.

The following set of Tables (4.1 – 4.6) present findings of the application of statistical thresholds, for each of the three collection occasion age groups and for the candidate Episodes of Care and Periods of Care.

Table 4.1: Modelling of HoNOS/CA/65+ Changes Scores for Completed Episodes of Care in Ambulatory Settings: Discharge Type - No Further Care

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	59.1	36.5	4.5
	Effect Size - Medium	59.1	36.5	4.5
	Effect Size - Large	39.3	59.1	1.6
	Reliable Change - 67%	45.1	52.6	2.3
	Reliable Change - 80%	34.2	64.6	1.2
	Reliable Change - 90%	25.2	74.1	.8
	Reliable Change - 95%	20.6	78.8	.6
Adult	Standard Error of Measurement	54.1	39.7	6.2
	Effect Size - Medium	54.1	39.7	6.2
	Effect Size - Large	40.3	55.8	3.9
	Reliable Change - 67%	47.2	48.0	4.8
	Reliable Change - 80%	40.3	55.8	3.9
	Reliable Change - 90%	28.4	69.1	2.4
	Reliable Change - 95%	19.5	79.1	1.5
Older Persons	Standard Error of Measurement	52.5	43.2	4.3
	Effect Size - Medium	52.5	43.2	4.3
	Effect Size - Large	36.5	61.2	2.3
	Reliable Change - 67%	44.7	52.2	3.1
	Reliable Change - 80%	29.5	68.9	1.7
	Reliable Change - 90%	19.5	79.7	.8
	Reliable Change - 95%	14.7	84.7	.6

Table 4.2: Modelling of HoNOS/CA/65+ Changes Scores for Episodes of Care in Ambulatory Settings: Discharge Type - Change of Setting

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	37.1	45.2	17.6
	Effect Size - Medium	37.1	45.2	17.6
	Effect Size - Large	21.0	71.4	7.6
	Reliable Change - 67%	26.7	63.3	10.0
	Reliable Change - 80%	19.0	74.8	6.2
	Reliable Change - 90%	12.4	82.9	4.8
	Reliable Change - 95%	11.0	85.2	3.8
Adult	Standard Error of Measurement	30.3	41.6	28.1
	Effect Size - Medium	30.3	41.6	28.1
	Effect Size - Large	21.1	57.8	21.1
	Reliable Change - 67%	25.2	50.2	24.6
	Reliable Change - 80%	21.1	57.8	21.1
	Reliable Change - 90%	13.9	70.4	15.7
	Reliable Change - 95%	9.3	78.8	11.9
Older Persons	Standard Error of Measurement	15.9	50.8	33.3
	Effect Size - Medium	15.9	50.8	33.3
	Effect Size - Large	10.3	63.9	25.8
	Reliable Change - 67%	13.1	57.4	29.5
	Reliable Change - 80%	8.0	72.4	19.7
	Reliable Change - 90%	5.4	81.7	12.9
	Reliable Change - 95%	4.4	84.8	10.8

Table 4.3: Modelling of HoNOS/CA/65+ Changes Scores for Episodes of Care in Ambulatory Settings: Discharge Type - Death

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	.0	.0	100.0
	Effect Size - Medium	.0	.0	100.0
	Effect Size - Large	.0	.0	100.0
	Reliable Change - 67%	.0	.0	100.0
	Reliable Change - 80%	.0	.0	100.0
	Reliable Change - 90%	.0	.0	100.0
	Reliable Change - 95%	.0	.0	100.0
Adult	Standard Error of Measurement	16.0	60.0	24.0
	Effect Size - Medium	16.0	60.0	24.0
	Effect Size - Large	16.0	72.0	12.0
	Reliable Change - 67%	16.0	68.0	16.0
	Reliable Change - 80%	16.0	72.0	12.0
	Reliable Change - 90%	8.0	84.0	8.0
	Reliable Change - 95%	.0	96.0	4.0
Older Persons	Standard Error of Measurement	46.1	36.8	17.1
	Effect Size - Medium	46.1	36.8	17.1
	Effect Size - Large	36.8	55.3	7.9
	Reliable Change - 67%	39.5	51.3	9.2
	Reliable Change - 80%	35.5	57.9	6.6
	Reliable Change - 90%	25.0	72.4	2.6
	Reliable Change - 95%	22.4	76.3	1.3

Table 4.4: Modelling of HoNOS/CA/65+ Changes Scores for Episodes of Care in Ambulatory Settings: Discharge Type – Other

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	59.0	38.9	2.0
	Effect Size - Medium	59.0	38.9	2.0
	Effect Size - Large	41.6	57.7	.7
	Reliable Change - 67%	47.4	51.4	1.2
	Reliable Change - 80%	35.5	64.0	.5
	Reliable Change - 90%	24.4	75.4	.2
	Reliable Change - 95%	18.9	80.9	.2
Adult	Standard Error of Measurement	59.8	36.3	3.9
	Effect Size - Medium	59.8	36.3	3.9
	Effect Size - Large	44.8	52.3	2.8
	Reliable Change - 67%	52.1	44.7	3.2
	Reliable Change - 80%	44.8	52.3	2.8
	Reliable Change - 90%	32.6	65.7	1.7
	Reliable Change - 95%	21.8	77.3	1.0
Older Persons	Standard Error of Measurement	49.6	41.6	8.8
	Effect Size - Medium	49.6	41.6	8.8
	Effect Size - Large	33.8	60.9	5.3
	Reliable Change - 67%	41.6	51.5	6.9
	Reliable Change - 80%	28.7	67.3	3.9
	Reliable Change - 90%	19.3	78.0	2.7
	Reliable Change - 95%	15.2	82.4	2.4

Table 4.5: Modelling of HoNOS/CA/65+ Changes Scores for Periods of Care in Ambulatory Settings: Discharge Type – No Further Care

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	56.5	39.0	4.5
	Effect Size - Medium	56.5	39.0	4.5
	Effect Size - Large	42.4	55.1	2.5
	Reliable Change - 67%	42.4	55.1	2.5
	Reliable Change - 80%	36.6	61.8	1.6
	Reliable Change - 90%	26.7	72.4	.9
	Reliable Change - 95%	18.2	81.1	.7
Adult	Standard Error of Measurement	53.5	40.5	6.0
	Effect Size - Medium	53.5	40.5	6.0
	Effect Size - Large	39.9	56.3	3.8
	Reliable Change - 67%	46.8	48.5	4.7
	Reliable Change - 80%	39.9	56.3	3.8
	Reliable Change - 90%	28.1	69.6	2.3
	Reliable Change - 95%	19.1	79.5	1.4
Older Persons	Standard Error of Measurement	52.0	43.8	4.1
	Effect Size - Medium	52.0	43.8	4.1
	Effect Size - Large	35.9	61.8	2.3
	Reliable Change - 67%	44.2	52.8	3.1
	Reliable Change - 80%	29.3	69.1	1.7
	Reliable Change - 90%	19.3	79.9	.8
	Reliable Change - 95%	14.5	85.0	.6

Table 4.6: Modelling of HoNOS/CA/65+ Changes Scores for Periods of Care in Ambulatory Settings: Discharge Type – Change of Setting

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	34.9	47.7	17.4
	Effect Size - Medium	34.9	47.7	17.4
	Effect Size - Large	25.0	66.3	8.7
	Reliable Change - 67%	25.0	66.3	8.7
	Reliable Change - 80%	18.6	75.0	6.4
	Reliable Change - 90%	14.0	81.4	4.7
	Reliable Change - 95%	9.9	86.0	4.1
Adult	Standard Error of Measurement	31.6	43.7	24.7
	Effect Size - Medium	31.6	43.7	24.7
	Effect Size - Large	22.0	60.0	18.1
	Reliable Change - 67%	26.3	52.4	21.4
	Reliable Change - 80%	22.0	60.0	18.1
	Reliable Change - 90%	14.6	72.4	13.0
	Reliable Change - 95%	9.9	80.5	9.7
Older Persons	Standard Error of Measurement	15.9	54.0	30.1
	Effect Size - Medium	15.9	54.0	30.1
	Effect Size - Large	9.5	68.2	22.3
	Reliable Change - 67%	12.7	61.6	25.7
	Reliable Change - 80%	7.5	76.6	15.9
	Reliable Change - 90%	5.2	85.8	9.0
	Reliable Change - 95%	4.3	88.2	7.5

Table 4.7: Modelling of HoNOS/CA/65+ Changes Scores for Periods of Care in Ambulatory Settings: Discharge Type – Death

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	.0	.0	100.0
	Effect Size - Medium	.0	.0	100.0
	Effect Size - Large	.0	.0	100.0
	Reliable Change - 67%	.0	.0	100.0
	Reliable Change - 80%	.0	.0	100.0
	Reliable Change - 90%	.0	.0	100.0
	Reliable Change - 95%	.0	.0	100.0
Adult	Standard Error of Measurement	17.4	60.9	21.7
	Effect Size - Medium	17.4	60.9	21.7
	Effect Size - Large	17.4	73.9	8.7
	Reliable Change - 67%	17.4	69.6	13.0
	Reliable Change - 80%	17.4	73.9	8.7
	Reliable Change - 90%	8.7	82.6	8.7
	Reliable Change - 95%	.0	95.7	4.3
Older Persons	Standard Error of Measurement	45.2	38.7	16.1
	Effect Size - Medium	45.2	38.7	16.1
	Effect Size - Large	35.5	56.5	8.1
	Reliable Change - 67%	38.7	51.6	9.7
	Reliable Change - 80%	33.9	59.7	6.5
	Reliable Change - 90%	25.8	72.6	1.6
	Reliable Change - 95%	22.6	77.4	.0

Table 4.8: Modelling of HoNOS/CA/65+ Changes Scores for Periods of Care in Ambulatory Settings: Discharge Type – Other

Age Group	Model	Classification of Change		
		Significant Improvement	No Significant Change	Significant Deterioration
Child & Adolescent	Standard Error of Measurement	56.8	41.7	1.5
	Effect Size - Medium	56.8	41.7	1.5
	Effect Size - Large	45.5	53.9	.6
	Reliable Change - 67%	45.5	53.9	.6
	Reliable Change - 80%	40.6	59.4	.0
	Reliable Change - 90%	29.1	70.9	.0
	Reliable Change - 95%	18.1	81.9	.0
Adult	Standard Error of Measurement	59.4	37.0	3.6
	Effect Size - Medium	59.4	37.0	3.6
	Effect Size - Large	45.0	52.2	2.8
	Reliable Change - 67%	51.6	45.2	3.1
	Reliable Change - 80%	45.0	52.2	2.8
	Reliable Change - 90%	32.6	65.7	1.7
	Reliable Change - 95%	21.7	77.3	1.0
Older Persons	Standard Error of Measurement	50.9	41.4	7.8
	Effect Size - Medium	50.9	41.4	7.8
	Effect Size - Large	34.8	60.8	4.4
	Reliable Change - 67%	43.3	50.5	6.2
	Reliable Change - 80%	29.2	67.6	3.2
	Reliable Change - 90%	18.9	78.7	2.4
	Reliable Change - 95%	14.9	83.1	2.0

Section 5: Summary and Future Directions

This report has considered three broad statistical approaches to the classification of change on the HoNOS suite of measures, for all three Collection Occasion age groups and both Psychiatric Inpatient and Ambulatory Mental Health Service Settings. The analyses presented assume that whatever approach is adopted, it is equally applicable to all three age groups and both mental health service settings. It is also assumed that parameter estimates should be specific to the service setting.

Two of these approaches, Effect Size and Reliable Change, can be further refined by introducing additional statistical criteria. For the former, the size of the effect can be adjusted; for the latter, the confidence level about the estimate also can be adjusted. Selecting among the size of the effects or the confidence levels around each estimate is a process that involves ‘trading off’ the statistical precision of the method with the practical purpose of its application.

Findings presented demonstrated that of the candidate models, Medium Effect Size thresholds produced the least conservative estimates of significant change and the Reliable Change thresholds set at the 95% Confidence Interval produced the most conservative estimates.

All three approaches have been previously applied and reported in both the general health as well as the mental health research literature on outcome measurement. The critical differences among the approaches relate to whether adjustments are made to account for the unreliability of the measurement tool (i.e., the total score on the HoNOS/CA/65+). Practically, it can be seen from the results of the modelling that models that account for this factor generally have higher thresholds for detecting ‘significant change’.

Additional analyses investigated differences within Ambulatory Episodes and Periods of Care stratified by Reason for Collection at Discharge. Findings presented showed that change scores for patterns of care resulting in ‘Change of Setting’ (presumably admission to Psychiatric Inpatient Care), were typically smaller than change scores for patterns of care resulting in ‘No Further Care’ or ‘Other’. The latter category is not further specified in the NOCC Protocol but can be speculated to mean either referral to the primary care sector, community-based organisations or the private sector.

The outcome measure investigated thus far has been restricted to the total change score on the relevant HoNOS measure. Other metrics, such as percentage of change from baseline to follow-up, should also be explored.

Finally, it is noted that all three approaches are distribution-based approaches to measuring change. As such, all approaches are suitable for more detailed models that also incorporate risk adjustment (i.e., casemix) factors. This is the logical extension of the analyses presented to date and will be explored in future research and development work.

Attachment 1: Descriptive Statistics for Episodes of Care

Attachment 1.1: Descriptive Statistics for Child & Adolescent Psychiatric Inpatient Services – Types of Episodes of Care

Episode	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Left Censored	Baseline	15	17.8	7.4	13.7	21.9	8	11	19	24	28
	Follow-up	16	14.1	9.4	9.0	19.1	2	5	14	20	31
	Change	15	3.0	11.0	-3.1	9.1	-12	-4	2	9	22
Left & Right Censored	Baseline	25	23.7	11.1	19.1	28.3	12	16	24	28	42
	Follow-up	25	21.3	11.9	16.4	26.2	7	12	21	26	42
	Change	20	2.1	5.8	-.7	4.8	-7	-2	3	5	12
Not Censored	Baseline	1528	19.5	7.8	19.1	19.9	10	14	19	25	30
	Follow-up	1473	13.1	7.9	12.7	13.5	4	7	12	18	24
	Change	1456	6.3	8.1	5.9	6.7	-3	1	6	11	17
Right Censored	Baseline	53	19.5	7.2	17.5	21.5	11	14	18	25	31
	Follow-up	53	16.9	8.0	14.7	19.2	7	10	16	24	29
	Change	51	2.5	8.8	.0	5.0	-7	-2	2	8	12
Total Episodes of Care	Baseline	1621	19.5	7.9	19.1	19.9	10	14	19	25	30
	Follow-up	1567	13.4	8.1	13.0	13.8	4	7	12	18	24
	Change	1542	6.1	8.2	5.7	6.5	-3	1	6	11	17

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 1.2: Descriptive Statistics for Child & Adolescent Ambulatory Services – Types of Episodes of Care

Episode	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Left Censored	Baseline	2017	12.7	7.4	12.3	13.0	4	7	12	17	23
	Follow-up	1599	9.1	7.2	8.7	9.4	2	4	7	13	19
	Change	1522	3.2	5.9	2.9	3.5	-3	0	3	6	10
Left & Right Censored	Baseline	1410	13.7	7.0	13.3	14.1	5	9	13	18	23
	Follow-up	1342	12.5	6.8	12.1	12.9	4	7	12	17	22
	Change	1286	1.3	6.0	1.0	1.6	-6	-2	1	5	9
Not Censored	Baseline	5893	14.6	7.7	14.4	14.7	6	9	14	19	25
	Follow-up	3978	8.6	7.5	8.4	8.9	1	3	6	12	20
	Change	3829	5.5	6.6	5.3	5.7	-1	1	5	9	14
Right Censored	Baseline	2302	16.3	7.4	16.0	16.6	7	11	15	21	27
	Follow-up	2247	13.2	7.1	12.9	13.5	5	8	12	17	22
	Change	2129	3.2	6.7	2.9	3.5	-4	-1	3	7	11
Total Episodes of Care	Baseline	11622	14.5	7.6	14.3	14.6	5	9	14	19	25
	Follow-up	9166	10.4	7.5	10.2	10.5	2	4	9	15	21
	Change	8766	3.9	6.6	3.8	4.1	-3	0	3	8	12

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 1.3: Descriptive Statistics for Adult Psychiatric Inpatient Services – Types of Episodes of Care

Episode	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Left Censored	Baseline	464	11.1	6.5	10.5	11.7	3	6	10	15	20
	Follow-up	468	7.4	6.2	6.8	7.9	0	3	6	11	15
	Change	415	3.5	6.9	2.8	4.1	-4	0	3	7	12
Left & Right Censored	Baseline	879	11.5	6.7	11.0	11.9	3	6	11	16	20
	Follow-up	895	11.0	6.4	10.5	11.4	3	6	10	15	19
	Change	875	.5	5.1	.1	.8	-5	-2	0	3	6
Not Censored	Baseline	24719	14.2	6.7	14.2	14.3	6	9	14	18	23
	Follow-up	23321	6.5	5.5	6.5	6.6	1	2	5	9	14
	Change	22778	7.8	7.4	7.7	7.9	-1	3	7	12	17
Right Censored	Baseline	602	14.2	7.0	13.6	14.8	6	9	13	19	24
	Follow-up	583	11.6	6.6	11.1	12.1	4	7	11	15	21
	Change	563	2.6	8.0	2.0	3.3	-7	-2	2	8	12
Total Episodes of Care	Baseline	26664	14.1	6.7	14.0	14.2	6	9	13	18	23
	Follow-up	25267	6.8	5.7	6.8	6.9	1	3	6	10	15
	Change	24631	7.3	7.5	7.2	7.4	-1	2	7	12	17

N: Number of Observations;
SD: Standard Deviation;
LCI: Lower bound Confidence Interval (95%);
UCI: Upper bound Confidence Interval (95%);
Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 1.4: Descriptive Statistics for Adult Ambulatory Services – Types of Episodes of Care

Episode	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Left Censored	Baseline	5500	9.1	6.3	8.9	9.2	2	4	8	13	18
	Follow-up	4446	7.9	7.0	7.7	8.1	0	2	6	12	18
	Change	4209	1.0	6.3	.8	1.1	-6	-1	1	4	8
Left & Right Censored	Baseline	13160	9.3	6.1	9.2	9.4	2	5	8	13	18
	Follow-up	13017	8.9	6.1	8.8	9.0	2	4	8	12	17
	Change	12509	.4	5.3	.3	.5	-6	-2	0	3	7
Not Censored	Baseline	16720	12.2	6.3	12.1	12.3	5	8	12	16	21
	Follow-up	12187	8.8	7.2	8.6	8.9	1	3	7	13	19
	Change	11744	3.6	6.9	3.5	3.7	-4	0	3	8	12
Right Censored	Baseline	6346	11.6	6.7	11.4	11.8	4	7	11	16	21
	Follow-up	6333	9.8	6.5	9.7	10.0	2	5	9	14	19
	Change	5854	1.7	6.6	1.5	1.9	-6	-2	1	5	10
Total Episodes of Care	Baseline	41726	10.8	6.5	10.7	10.8	3	6	10	15	20
	Follow-up	35983	8.9	6.7	8.8	9.0	1	4	8	13	18
	Change	34316	1.8	6.4	1.7	1.9	-5	-1	1	5	10

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 1.5: Descriptive Statistics for Older Persons Inpatient Services – Types of Episodes of Care

Episode	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Left Censored	Baseline	179	14.3	7.6	13.1	15.4	4	8	14	19	25
	Follow-up	167	12.2	8.1	10.9	13.4	2	7	12	18	24
	Change	165	2.2	7.0	1.1	3.3	-6	-1	2	5	11
Left & Right Censored	Baseline	150	14.5	7.1	13.4	15.6	6	10	14	19	24
	Follow-up	151	14.2	7.0	13.1	15.3	5	9	14	19	23
	Change	150	.2	5.4	-6	1.1	-5	-2	0	2	7
Not Censored	Baseline	3254	15.1	6.8	14.9	15.3	7	10	14	19	25
	Follow-up	3182	8.7	6.4	8.5	8.9	1	4	8	12	18
	Change	3106	6.5	7.1	6.2	6.7	-2	2	6	11	16
Right Censored	Baseline	223	15.4	7.0	14.5	16.3	7	10	15	20	25
	Follow-up	227	12.5	7.3	11.6	13.5	4	7	12	17	22
	Change	222	2.8	7.0	1.9	3.7	-5	-1	2	7	12
Total Episodes of Care	Baseline	3806	15.1	6.9	14.8	15.3	7	10	14	19	25
	Follow-up	3727	9.3	6.8	9.1	9.5	2	4	8	13	19
	Change	3643	5.8	7.2	5.6	6.0	-3	1	5	10	15

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 1.6: Descriptive Statistics for Older Persons Ambulatory Services – Types of Episodes of Care

Episode	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Left Censored	Baseline	1453	10.5	6.2	10.2	10.8	3	6	10	15	19
	Follow-up	1273	9.3	6.6	8.9	9.6	2	4	8	13	18
	Change	1254	1.0	5.2	.8	1.3	-5	-1	1	4	7
Left & Right Censored	Baseline	1646	8.7	5.6	8.5	9.0	2	5	8	12	16
	Follow-up	1634	8.9	5.8	8.6	9.2	2	4	8	13	17
	Change	1606	-.2	4.3	-.4	.0	-5	-2	0	2	5
Not Censored	Baseline	4710	13.1	6.3	12.9	13.3	5	9	13	17	22
	Follow-up	4201	9.4	6.5	9.2	9.6	2	4	8	13	18
	Change	4155	3.6	5.9	3.4	3.8	-3	0	3	7	11
Right Censored	Baseline	1293	11.4	6.1	11.0	11.7	4	7	11	15	20
	Follow-up	1279	10.1	6.1	9.8	10.5	3	6	10	14	18
	Change	1242	1.3	5.2	1.0	1.5	-5	-2	1	4	7
Total Episodes of Care	Baseline	9102	11.6	6.4	11.5	11.8	4	7	11	16	20
	Follow-up	8387	9.4	6.3	9.3	9.5	2	5	8	13	18
	Change	8257	2.1	5.6	2.0	2.3	-4	-1	2	5	9

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 2: Descriptive Statistics for Periods of Care

Attachment 2.1: Descriptive Statistics for Child & Adolescent Psychiatric Inpatient Services – Types of Periods of Care

Period	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Admission to Review	Baseline	91	20.1	8.0	18.4	21.8	11	14	18	25	32
	Follow-up	89	16.5	8.6	14.7	18.3	7	9	15	23	29
	Change	87	3.7	8.9	1.8	5.6	-7	-2	3	10	14
Admission to Discharge	Baseline	1491	19.4	7.8	19.0	19.8	10	14	19	25	30
	Follow-up	1438	13.0	7.9	12.6	13.4	4	7	12	18	24
	Change	1421	6.3	8.1	5.9	6.8	-3	1	6	11	17
Review to Review	Baseline	104	24.8	11.1	22.7	27.0	12	16	24	31	43
	Follow-up	103	23.6	11.7	21.3	25.9	8	15	22	29	44
	Change	97	1.1	8.2	-5	2.8	-8	-3	1	4	12
Review to Discharge	Baseline	52	20.1	8.7	17.7	22.5	10	12	20	27	32
	Follow-up	51	15.5	9.4	12.8	18.1	5	8	15	20	29
	Change	50	4.5	9.6	1.8	7.2	-10	0	4	10	17
Total Periods of Care	Baseline	1738	19.8	8.1	19.4	20.2	10	14	19	25	31
	Follow-up	1681	13.9	8.6	13.5	14.4	5	8	13	19	26
	Change	1655	5.8	8.3	5.4	6.2	-4	1	5	11	17

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 2.2: Descriptive Statistics for Child & Adolescent Ambulatory Services – Types of Periods of Care

Period	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Admission to Review	Baseline	3363	16.0	7.4	15.7	16.2	7	11	15	20	26
	Follow-up	3052	11.7	7.3	11.5	12.0	3	6	11	16	22
	Change	2902	4.2	7.0	4.0	4.5	-4	0	4	8	13
Admission to Discharge	Baseline	4832	14.4	7.8	14.2	14.6	5	9	13	19	25
	Follow-up	3173	8.9	7.8	8.6	9.1	1	3	7	13	20
	Change	3056	5.2	6.4	4.9	5.4	-1	1	4	9	13
Review to Review	Baseline	4600	14.2	7.2	14.0	14.4	5	9	13	19	24
	Follow-up	4197	11.6	7.0	11.4	11.8	3	6	11	16	21
	Change	4023	2.7	6.6	2.5	2.9	-5	-1	2	6	11
Review to Discharge	Baseline	3078	13.6	7.4	13.3	13.8	5	8	13	18	23
	Follow-up	2404	8.6	7.0	8.4	8.9	1	3	7	12	18
	Change	2295	4.5	6.6	4.2	4.7	-3	0	4	8	13
Total Periods of Care	Baseline	15873	14.5	7.5	14.4	14.6	6	9	14	19	25
	Follow-up	12826	10.4	7.4	10.3	10.5	2	5	9	15	21
	Change	12276	4.0	6.7	3.9	4.1	-3	0	3	8	13

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 2.3: Descriptive Statistics for Adult Psychiatric Inpatient Services – Types of Periods of Care

Period	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Admission to Review	Baseline	1731	14.8	6.8	14.5	15.2	7	10	14	19	24
	Follow-up	1673	9.0	6.5	8.7	9.3	2	4	8	13	18
	Change	1614	5.8	8.3	5.4	6.2	-4	0	6	11	16
Admission to Discharge	Baseline	23618	14.2	6.7	14.1	14.3	6	9	13	18	23
	Follow-up	22254	6.5	5.5	6.4	6.6	0	2	5	9	14
	Change	21749	7.8	7.4	7.7	7.9	-1	3	7	12	17
Review to Review	Baseline	2830	12.3	6.7	12.1	12.6	4	7	12	16	21
	Follow-up	2842	10.8	6.3	10.5	11.0	3	6	10	15	19
	Change	2772	1.5	6.3	1.2	1.7	-6	-2	1	4	9
Review to Discharge	Baseline	1565	14.0	6.9	13.6	14.3	6	9	14	18	23
	Follow-up	1535	7.5	6.0	7.2	7.8	1	3	6	11	15
	Change	1444	6.4	7.9	6.0	6.8	-3	1	6	11	17
Total Periods of Care	Baseline	29744	14.0	6.7	14.0	14.1	6	9	13	18	23
	Follow-up	28304	7.1	5.8	7.1	7.2	1	3	6	10	15
	Change	27579	6.9	7.6	6.9	7.0	-2	2	7	12	17

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 2.4: Descriptive Statistics for Adult Ambulatory Services – Types of Periods of Care

Period	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Admission to Review	Baseline	8294	11.6	6.7	11.5	11.7	4	7	11	16	21
	Follow-up	7786	9.7	6.8	9.5	9.8	2	5	8	14	19
	Change	7244	1.9	7.0	1.7	2.0	-6	-2	2	6	10
Admission to Discharge	Baseline	14772	12.3	6.3	12.2	12.4	5	8	12	16	21
	Follow-up	10734	8.7	7.1	8.6	8.9	1	3	7	13	19
	Change	10354	3.7	6.7	3.6	3.9	-3	0	3	8	12
Review to Review	Baseline	29671	9.4	6.1	9.3	9.5	2	5	9	13	18
	Follow-up	28628	8.7	6.2	8.7	8.8	2	4	8	12	17
	Change	27435	.7	5.8	.6	.7	-6	-2	0	4	8
Review to Discharge	Baseline	7448	9.7	6.5	9.6	9.9	2	5	9	14	19
	Follow-up	5899	8.2	7.2	8.0	8.4	0	3	6	12	19
	Change	5599	1.4	6.9	1.2	1.5	-7	-1	1	5	9
Total Periods of Care	Baseline	60185	10.5	6.4	10.4	10.5	3	6	10	14	19
	Follow-up	53047	8.8	6.6	8.8	8.9	1	4	8	13	18
	Change	50632	1.5	6.4	1.5	1.6	-6	-2	1	5	9

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 2.5: Descriptive Statistics for Older Persons Inpatient Services – Types of Periods of Care

Period	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Admission to Review	Baseline	700	15.6	6.7	15.1	16.1	7	10	15	20	25
	Follow-up	691	9.8	7.0	9.3	10.4	2	4	9	14	20
	Change	675	5.8	7.2	5.3	6.4	-3	1	6	11	15
Admission to Discharge	Baseline	2778	15.0	6.9	14.7	15.3	7	10	14	19	25
	Follow-up	2718	8.7	6.4	8.5	9.0	1	4	8	12	18
	Change	2653	6.3	7.1	6.1	6.6	-2	2	6	11	15
Review to Review	Baseline	773	15.0	6.8	14.5	15.4	7	10	15	19	25
	Follow-up	768	11.7	7.3	11.2	12.2	2	6	11	17	22
	Change	760	3.2	7.2	2.7	3.7	-5	-1	2	8	13
Review to Discharge	Baseline	655	15.3	6.9	14.7	15.8	7	10	14	20	25
	Follow-up	631	9.5	7.1	8.9	10.0	2	4	8	13	19
	Change	618	5.9	7.3	5.3	6.5	-3	1	6	11	15
Total Periods of Care	Baseline	4906	15.1	6.8	14.9	15.3	7	10	14	19	25
	Follow-up	4808	9.5	6.8	9.3	9.7	2	4	8	13	19
	Change	4706	5.7	7.3	5.5	5.9	-3	1	5	10	15

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 2.6: Descriptive Statistics for Older Persons Ambulatory Services – Types of Periods of Care

Period	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
Admission to Review	Baseline	1959	11.8	6.3	11.6	12.1	4	7	11	16	20
	Follow-up	1843	10.0	6.3	9.7	10.2	2	5	9	14	18
	Change	1800	1.8	5.9	1.6	2.1	-5	-1	2	5	9
Admission to Discharge	Baseline	4044	13.1	6.3	12.9	13.3	5	9	13	17	22
	Follow-up	3637	9.4	6.4	9.2	9.6	2	4	8	13	18
	Change	3597	3.7	5.7	3.5	3.9	-3	0	3	7	11
Review to Review	Baseline	4808	9.7	5.9	9.5	9.9	3	5	9	14	18
	Follow-up	4628	9.4	6.0	9.2	9.5	2	5	9	13	17
	Change	4549	.3	5.1	.1	.4	-6	-2	0	3	6
Review to Discharge	Baseline	2119	11.2	6.4	10.9	11.5	3	6	11	15	19
	Follow-up	1837	9.4	6.7	9.1	9.7	2	4	8	14	18
	Change	1812	1.7	5.9	1.4	2.0	-5	-1	2	5	8
Total Periods of Care	Baseline	12930	11.3	6.3	11.2	11.5	3	7	11	15	20
	Follow-up	11945	9.5	6.3	9.4	9.6	2	5	9	13	18
	Change	11758	1.8	5.7	1.7	1.9	-5	-1	1	5	9

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 3: Reliability, Correlation & Distributional Statistics for Episodes of Care

Age Group	Setting	N	bAlpha	fAlpha	cAlpha	Corr	Skew	SE Skew	Z Skew	Kurt	SE Kurt	Z Kurt
Child & Adolescent	Inpatient	1542	.66	.79	.73	.47	.19	.06	3.07	.23	.12	1.93
	Ambulatory	8766	.76	.83	.74	.62	.42	.02	16.17	.41	.05	8.93
Adult	Inpatient	24631	.62	.76	.70	.28	.15	.01	9.72	.33	.03	10.93
	Ambulatory	34316	.71	.78	.74	.53	.00	.01	.20	.29	.02	11.92
Older Persons	Inpatient	3643	.62	.75	.68	.44	.18	.04	4.51	-.15	.08	-1.89
	Ambulatory	8257	.68	.75	.69	.61	.07	.03	2.72	.07	.05	1.43

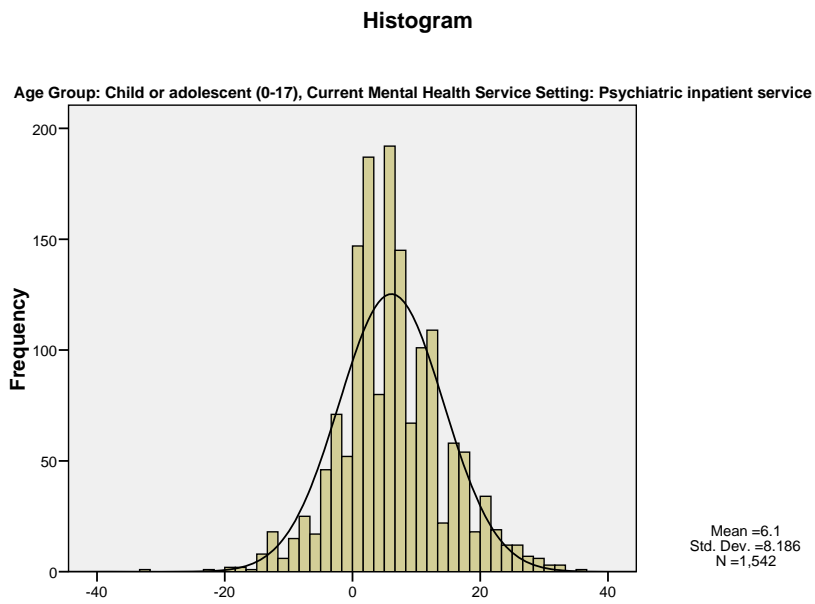
N: Number of Observations;
 bAlpha: Cronbach's Alpha – Internal Consistency Reliability Coefficient – Baseline Score;
 fAlpha: Cronbach's Alpha – Internal Consistency Reliability Coefficient – Follow-up Score;
 cAlpha: Cronbach's Alpha – Internal Consistency Reliability Coefficient – Change Score;
 Corr: Correlation between Baseline and Follow-up Scores;
 Skew: Skewness;
 SESkew: Standard Error of Skewness;
 Z Skew: Z test for Skewness;
 Kurt: Kurtosis;
 SEKurt: Standard Error of Kurtosis;
 Z Kurt: Z test for Kurtosis.

Attachment 4: Reliability, Correlation & Distributional Statistics for Periods of Care

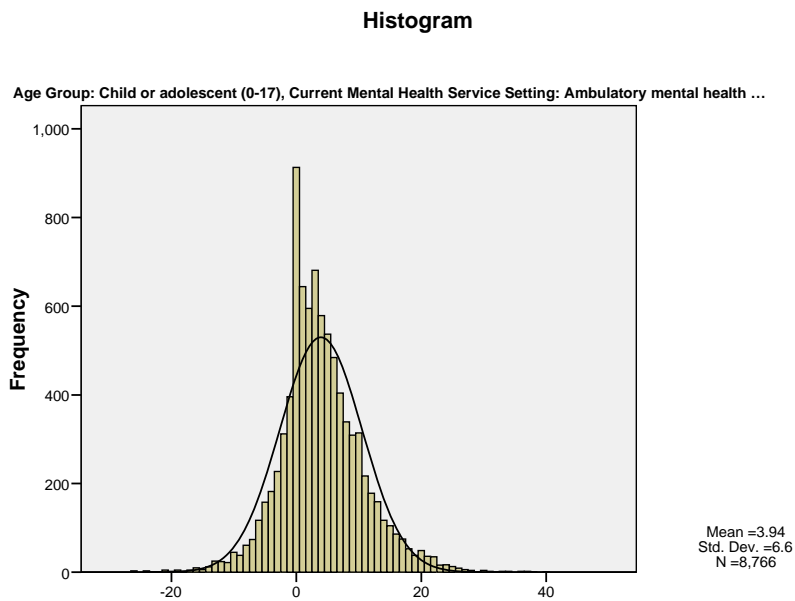
Age Group	Setting	N	bAlpha	fAlpha	cAlpha	Corr	Skew	SE Skew	Z Skew	Kurt	SE Kurt	Z Kurt
Child & Adolescent	Inpatient	1655	.69	.81	.72	.51	.19	.06	3.20	.71	.12	5.91
	Ambulatory	12276	.76	.82	.74	.59	.39	.02	17.61	.40	.04	10.26
Adult	Inpatient	27579	.63	.76	.72	.27	.15	.01	9.93	.31	.03	10.97
	Ambulatory	50632	.72	.78	.74	.52	.01	.01	.78	.35	.02	17.49
Older Persons	Inpatient	4706	.62	.75	.69	.44	.13	.03	3.69	-.19	.07	-2.67
	Ambulatory	11758	.70	.75	.69	.59	-.01	.02	-.41	.11	.04	2.57

N: Number of Observations;
 bAlpha: Cronbach's Alpha – Internal Consistency Reliability Coefficient – Baseline Score;
 fAlpha: Cronbach's Alpha – Internal Consistency Reliability Coefficient – Follow-up Score;
 cAlpha: Cronbach's Alpha – Internal Consistency Reliability Coefficient – Change Score;
 Corr: Correlation between Baseline and Follow-up Scores;
 Skew: Skewness;
 SESkew: Standard Error of Skewness;
 Z Skew: Z test for Skewness;
 Kurt: Kurtosis;
 SEKurt: Standard Error of Kurtosis;
 Z Kurt: Z test for Kurtosis.

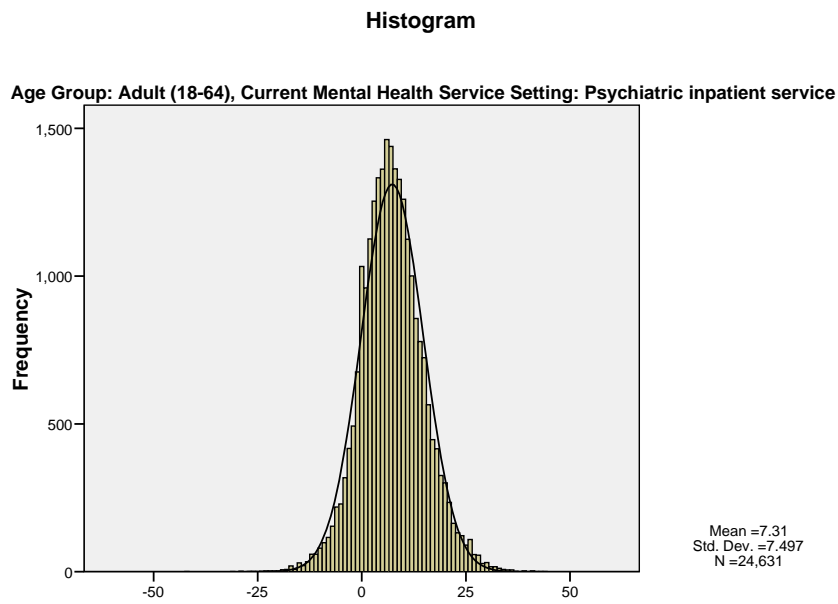
Attachment 5: Change Score Distributions for Episodes of Care



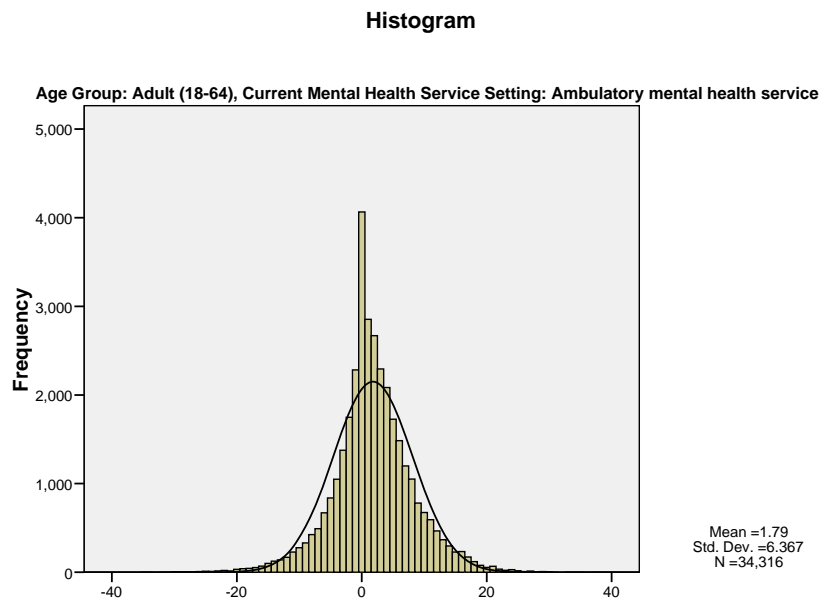
Attachment 5 - Figure 5.1: Episodes of Care Change Score Distribution - Child & Adolescent - Psychiatric Inpatient services



Attachment 5 - Figure 5.2: Episodes of Care Change Score Distribution - Child & Adolescent - Ambulatory services

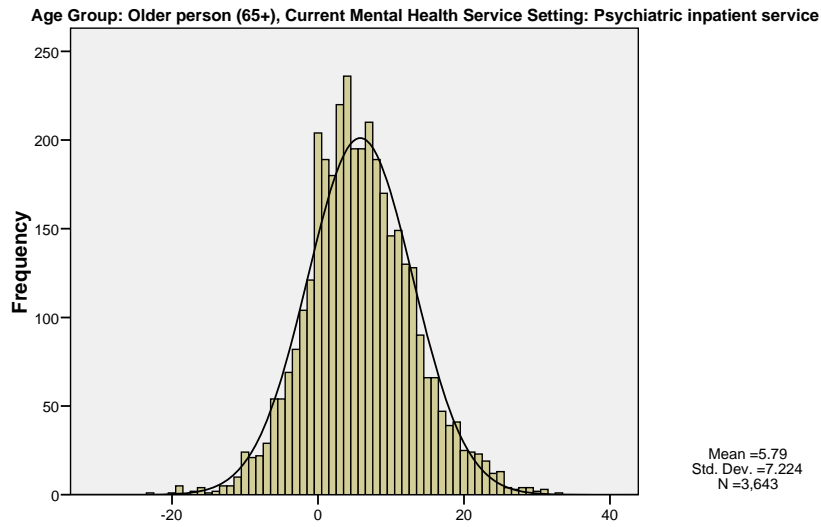


Attachment 5 - Figure 5.3: Episodes of Care Change Score Distribution – Adults Psychiatric Inpatient services



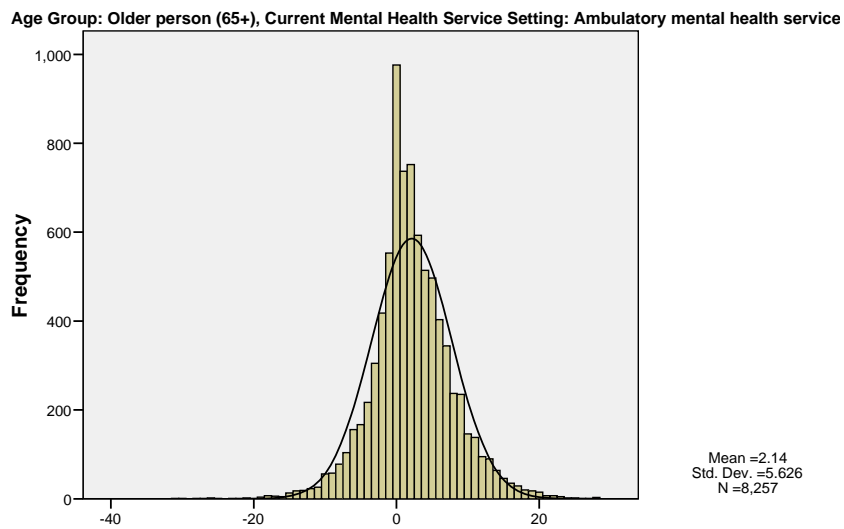
Attachment 5 - Figure 5.4: Episodes of Care Change Score Distribution – Adults Ambulatory services

Histogram



Attachment 5 - Figure 5.5: Episodes of Care Change Score Distribution - Older Persons Psychiatric Inpatient services

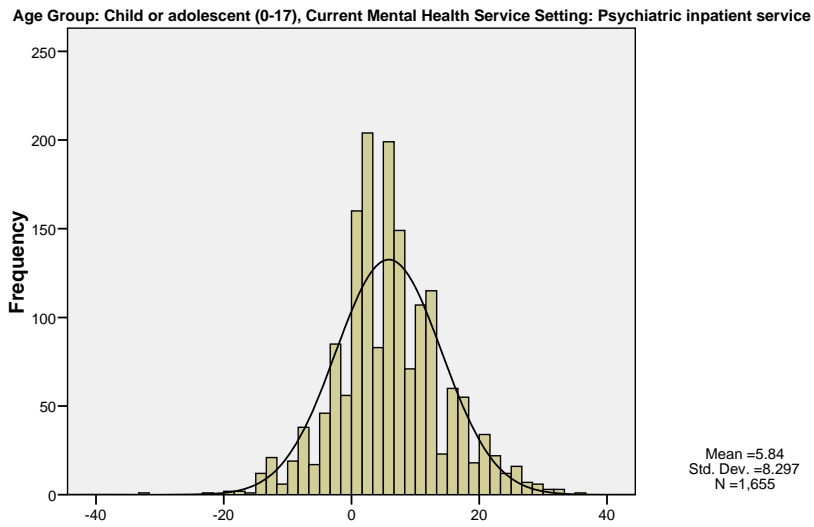
Histogram



Attachment 5 - Figure 5.6: Episodes of Care Change Score Distribution - Older Persons Ambulatory services

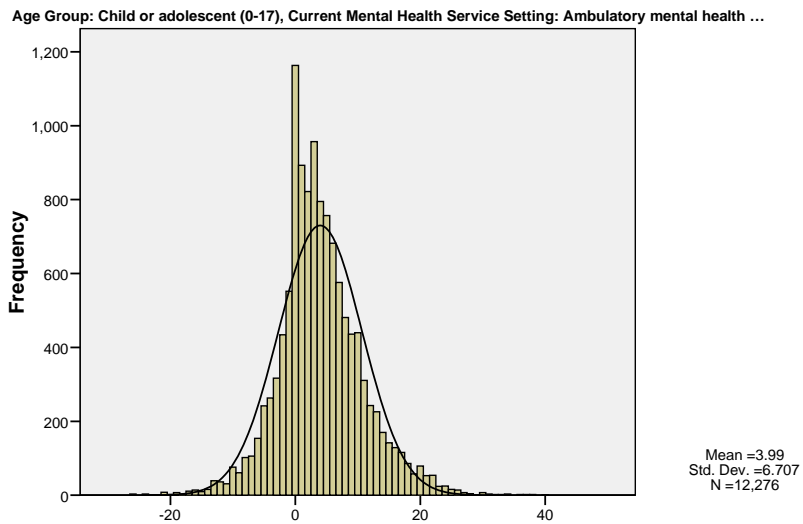
Attachment 6: Change Score Distributions for Periods of Care

Histogram

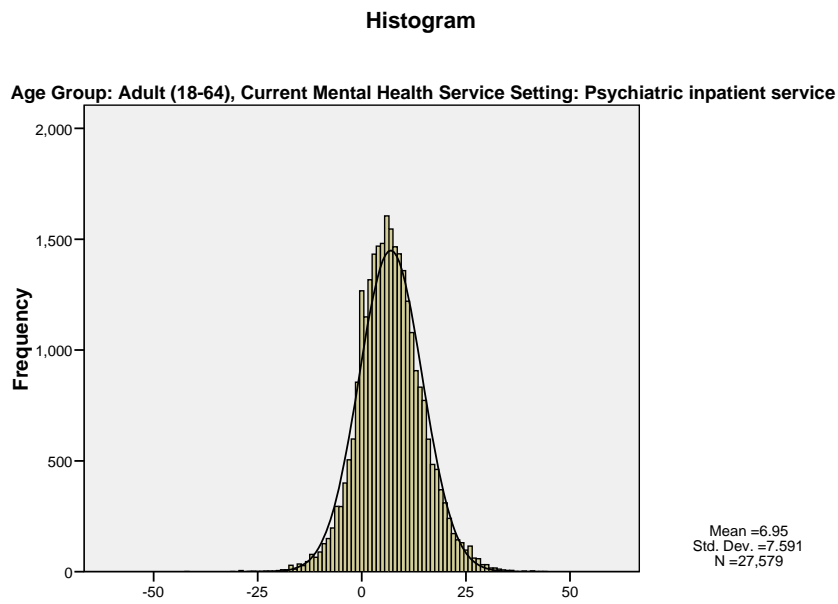


Attachment 6 - Figure 6.1: Periods of Care Change Score Distribution - Child & Adolescent - Psychiatric Inpatient services

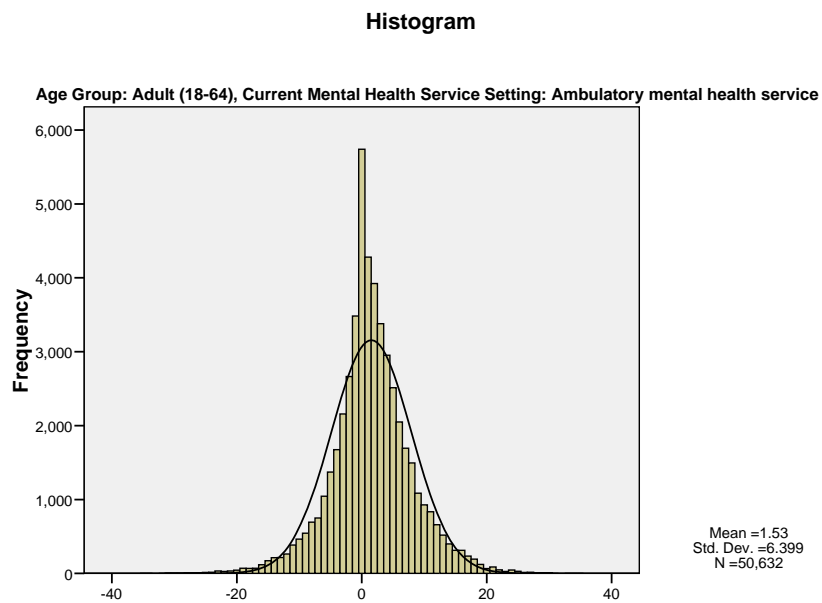
Histogram



Attachment 6 - Figure 6.2: Periods of Care Change Score Distribution - Child & Adolescent - Ambulatory services

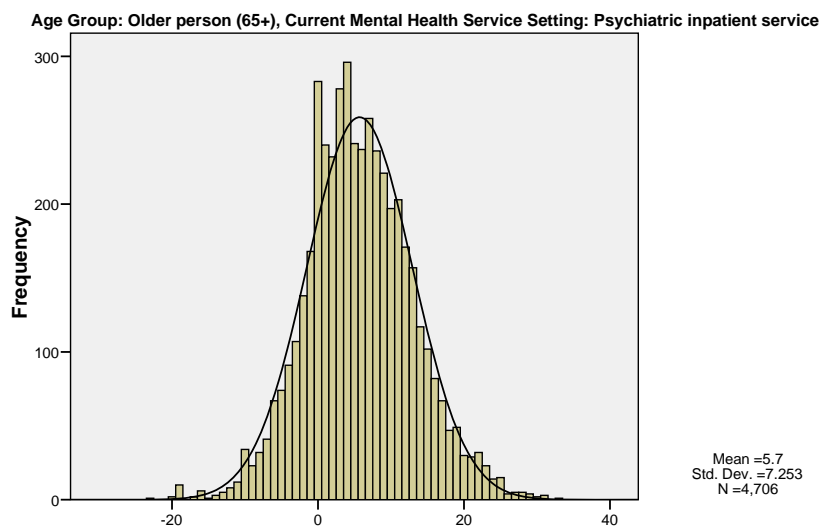


Attachment 6 - Figure 6.3: Periods of Care Change Score Distribution – Adults Psychiatric Inpatient services



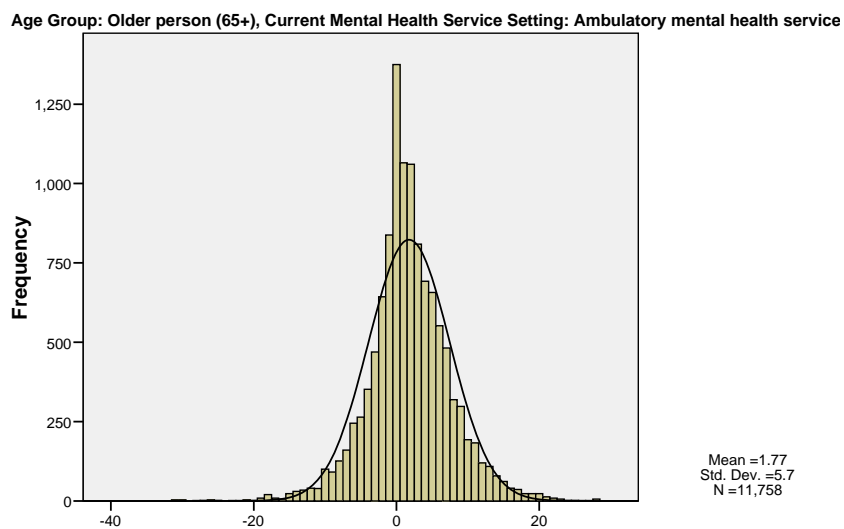
Attachment 6 - Figure 6.4: Periods of Care Change Score Distribution – Adults Ambulatory services

Histogram



Attachment 6 - Figure 6.5: Periods of Care Change Score Distribution - Older Persons Psychiatric Inpatient services

Histogram



Attachment 6 - Figure 6.6: Periods of Care Change Score Distribution - Older Persons Ambulatory services

Attachment 7: Overall number and number of matched pairs for 'Completed' Ambulatory Episodes of Care & Periods of Care by Discharge Type

Table 7.1: Overall Number of Episodes of Care by Collection Occasion Age Group by Discharge Type from Ambulatory Services

Age Group	Setting	Discharge Type							
		No Further Care		Change of Setting		Death		Other	
		N	Row %	N	Row %	N	Row %	N	Row %
Child & Adolescent	Ambulatory	4025	64.1%	373	5.9%	2	.0%	1883	30.0%
Adult	Ambulatory	9565	51.0%	3843	20.5%	55	.3%	5309	28.3%
Older Persons	Ambulatory	3282	67.2%	524	10.7%	158	3.2%	917	18.8%

Table 7.2: Number of 'Completed' Episodes of Care with Paired Clinical Ratings by Collection Occasion Age Group by Discharge Type from Ambulatory Services

Age Group	Setting	Discharge Type							
		No Further Care		Change of Setting		Death		Other	
		N	Row %	N	Row %	N	Row %	N	Row %
Child & Adolescent	Ambulatory	3032	79.2%	210	5.5%	1	.0%	586	15.3%
Adult	Ambulatory	7493	63.8%	2682	22.8%	25	.2%	1544	13.1%
Older Persons	Ambulatory	3015	72.6%	427	10.3%	76	1.8%	637	15.3%

Table 7.3: Overall Number of Periods of Care by Collection Occasion Age Group by Discharge Type from Ambulatory Services

Age Group	Setting	Discharge Type							
		No Further Care		Change of Setting		Death		Other	
		N	Row %	N	Row %	N	Row %	N	Row %
Child & Adolescent	Ambulatory	3225	62.3%	331	6.4%	1	.0%	1621	31.3%
Adult	Ambulatory	8549	51.2%	3281	19.7%	50	.3%	4801	28.8%
Older Persons	Ambulatory	2891	68.8%	430	10.2%	126	3.0%	756	18.0%

Table 7.4: Number of 'Completed' Periods of Care with Paired Clinical Ratings by Collection Occasion Age Group by Discharge Type from Ambulatory Services

Age Group	Setting	Discharge Type							
		No Further Care		Change of Setting		Death		Other	
		N	Row %	N	Row %	N	Row %	N	Row %
Child & Adolescent	Ambulatory	2408	78.8%	172	5.6%	1	.0%	475	15.5%
Adult	Ambulatory	6756	65.3%	2231	21.5%	23	.2%	1344	13.0%
Older Persons	Ambulatory	2686	74.7%	346	9.6%	62	1.7%	503	14.0%

Attachment 8: Descriptive Statistics for ‘Completed’ Ambulatory Episodes of Care by Discharge Type

Attachment 8.1: Descriptive Statistics for Child & Adolescent Ambulatory 'Completed' Episodes of Care by Discharge Type

Discharge Type	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
No Further Care	Baseline	3819	14.0	7.5	13.8	14.3	5	9	13	18	24
	Follow-up	3154	8.1	7.1	7.9	8.4	1	3	6	11	18
	Change	3032	5.7	6.5	5.5	6.0	-1	1	5	10	15
Change of Setting	Baseline	307	17.7	7.8	16.8	18.5	7	12	17	23	28
	Follow-up	217	16.5	9.2	15.2	17.7	5	9	17	23	28
	Change	210	2.0	7.6	1.0	3.0	-6	-2	1	6	12
Death	Baseline	2	14.5	2.1	-4.6	33.6	13	13	15	.	.
	Follow-up	1	.	.	.	.	.	.	.	.	.
	Change	1	.	.	.	.	.	.	.	.	.
Other	Baseline	1765	15.1	7.9	14.7	15.5	6	9	14	20	26
	Follow-up	606	8.4	7.7	7.8	9.1	0	3	7	13	20
	Change	586	5.9	6.4	5.4	6.4	0	1	5	9	14
Total Discharges	Baseline	5893	14.6	7.7	14.4	14.7	6	9	14	19	25
	Follow-up	3978	8.6	7.5	8.4	8.9	1	3	6	12	20
	Change	3829	5.5	6.6	5.3	5.7	-1	1	5	9	14

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 8.2: Descriptive Statistics for Adult Ambulatory ‘Completed’ Episodes of Care by Discharge Type

Discharge Type	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
No Further Care	Baseline	8840	12.3	6.2	12.2	12.5	5	8	12	16	21
	Follow-up	7725	7.9	6.4	7.8	8.0	1	3	6	11	18
	Change	7493	4.6	6.2	4.5	4.7	-1	0	4	8	13
Change of Setting	Baseline	3172	12.5	6.8	12.3	12.8	4	7	12	17	22
	Follow-up	2830	12.7	8.1	12.4	13.0	3	6	12	18	24
	Change	2682	-1	7.9	-4	.2	-10	-4	0	5	9
Death	Baseline	51	14.4	7.3	12.3	16.4	7	9	12	18	26
	Follow-up	26	14.5	8.6	11.1	18.0	5	8	13	20	28
	Change	25	-1	5.0	-2.2	1.9	-8	-4	0	3	8
Other	Baseline	4657	11.7	6.0	11.6	11.9	4	7	11	16	20
	Follow-up	1606	5.8	6.1	5.5	6.1	0	0	4	9	14
	Change	1544	5.2	5.9	4.9	5.5	-1	1	5	9	13
Total Discharges	Baseline	16720	12.2	6.3	12.1	12.3	5	8	12	16	21
	Follow-up	12187	8.8	7.2	8.6	8.9	1	3	7	13	19
	Change	11744	3.6	6.9	3.5	3.7	-4	0	3	8	12

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 8.3: Descriptive Statistics for Older Persons Ambulatory 'Completed' Episodes of Care by Discharge Type

Discharge Type	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
No Further Care	Baseline	3217	12.9	6.1	12.7	13.1	5	9	12	17	21
	Follow-up	3043	8.6	5.7	8.4	8.8	2	4	8	12	16
	Change	3015	4.3	5.2	4.1	4.5	-1	1	4	7	11
Change of Setting	Baseline	476	12.8	6.6	12.2	13.4	5	8	12	17	22
	Follow-up	437	14.4	7.5	13.7	15.1	4	9	14	19	23
	Change	427	-1.6	6.4	-2.2	-1.0	-10	-6	-1	2	6
Death	Baseline	152	17.1	6.0	16.1	18.1	9	12	17	21	25
	Follow-up	77	12.5	7.6	10.8	14.3	0	7	13	19	23
	Change	76	4.2	8.1	2.3	6.0	-4	-1	2	9	16
Other	Baseline	865	13.3	6.8	12.9	13.8	4	8	13	18	22
	Follow-up	644	9.8	7.4	9.2	10.4	0	4	9	15	20
	Change	637	3.8	6.5	3.3	4.3	-3	0	3	7	12
Total Discharges	Baseline	4710	13.1	6.3	12.9	13.3	5	9	13	17	22
	Follow-up	4201	9.4	6.5	9.2	9.6	2	4	8	13	18
	Change	4155	3.6	5.9	3.4	3.8	-3	0	3	7	11

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 9: Descriptive Statistics for ‘Completed’ Ambulatory Periods of Care by Discharge Type

Attachment 9.1: Descriptive Statistics for Child & Adolescent Ambulatory 'Admission > Discharge' Periods of Care by Discharge Type

Discharge Type	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
No Further Care	Baseline	3052	13.9	7.6	13.6	14.2	5	8	13	18	24
	Follow-up	2502	8.4	7.3	8.1	8.7	1	3	6	12	19
	Change	2408	5.3	6.3	5.0	5.5	-1	1	4	9	13
Change of Setting	Baseline	267	17.4	7.8	16.5	18.4	7	11	17	23	28
	Follow-up	177	16.2	9.4	14.8	17.6	5	8	16	23	29
	Change	172	1.9	7.6	.8	3.1	-5	-2	1	6	11
Death	Baseline	1	.	.	.	.	.	.	.	.	.
	Follow-up	1	.	.	.	.	.	.	.	.	.
	Change	1	.	.	.	.	.	.	.	.	.
Other	Baseline	1512	14.9	7.9	14.5	15.3	6	9	14	20	26
	Follow-up	493	8.4	7.9	7.7	9.1	0	2	6	13	20
	Change	475	5.8	6.2	5.2	6.3	0	1	5	9	14
Total Discharges	Baseline	4832	14.4	7.8	14.2	14.6	5	9	13	19	25
	Follow-up	3173	8.9	7.8	8.6	9.1	1	3	7	13	20
	Change	3056	5.2	6.4	4.9	5.4	-1	1	4	9	13

N: Number of Observations;
SD: Standard Deviation;
LCI: Lower bound Confidence Interval (95%);
UCI: Upper bound Confidence Interval (95%);
Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 9.2: Descriptive Statistics for Adult Ambulatory ‘Admission > Discharge’ Periods of Care by Discharge Type

Discharge Type	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
No Further Care	Baseline	7895	12.5	6.2	12.3	12.6	5	8	12	16	21
	Follow-up	6950	8.1	6.5	7.9	8.2	1	3	7	12	18
	Change	6756	4.5	6.1	4.4	4.7	-1	0	4	8	12
Change of Setting	Baseline	2653	12.7	6.7	12.4	12.9	4	8	12	17	22
	Follow-up	2361	12.3	7.9	12.0	12.6	3	6	11	17	24
	Change	2231	.5	7.6	.1	.8	-9	-3	1	5	9
Death	Baseline	47	14.5	7.5	12.3	16.7	7	9	12	18	26
	Follow-up	24	14.0	8.6	10.4	17.7	4	8	13	19	29
	Change	23	.2	5.0	-2.0	2.3	-7	-3	0	3	8
Other	Baseline	4177	11.7	6.0	11.5	11.9	5	7	11	16	20
	Follow-up	1399	5.7	6.2	5.4	6.0	0	0	4	9	14
	Change	1344	5.2	5.8	4.9	5.5	-1	1	5	9	13
Total Discharges	Baseline	14772	12.3	6.3	12.2	12.4	5	8	12	16	21
	Follow-up	10734	8.7	7.1	8.6	8.9	1	3	7	13	19
	Change	10354	3.7	6.7	3.6	3.9	-3	0	3	8	12

N: Number of Observations;
 SD: Standard Deviation;
 LCI: Lower bound Confidence Interval (95%);
 UCI: Upper bound Confidence Interval (95%);
 Pnn: 10th, 25th, 50th, 75th & 90th percentiles.

Attachment 9.3: Descriptive Statistics for Older Persons Ambulatory 'Admission > Discharge' Periods of Care by Discharge Type

Discharge Type	Measure	N	Mean	SD	LCI	UCI	P10	P25	P50	P75	P90
No Further Care	Baseline	2831	12.9	6.0	12.7	13.1	5	9	12	17	21
	Follow-up	2711	8.7	5.7	8.5	8.9	2	4	8	12	17
	Change	2686	4.3	5.1	4.1	4.5	-1	1	4	7	11
Change of Setting	Baseline	385	13.2	6.8	12.5	13.9	5	8	13	17	22
	Follow-up	355	14.3	7.6	13.5	15.1	4	9	14	19	23
	Change	346	-1.2	6.0	-1.8	-0.6	-8	-5	0	2	5
Death	Baseline	121	17.2	6.1	16.1	18.3	9	13	17	21	25
	Follow-up	63	12.4	7.3	10.6	14.3	0	8	12	18	22
	Change	62	4.1	7.9	2.1	6.1	-5	-1	2	9	17
Other	Baseline	707	13.3	6.9	12.8	13.8	4	8	13	18	22
	Follow-up	508	9.5	7.5	8.9	10.2	0	3	9	15	20
	Change	503	4.0	6.3	3.5	4.6	-3	0	4	7	12
Total Discharges	Baseline	4044	13.1	6.3	12.9	13.3	5	9	13	17	22
	Follow-up	3637	9.4	6.4	9.2	9.6	2	4	8	13	18
	Change	3597	3.7	5.7	3.5	3.9	-3	0	3	7	11

N: Number of Observations;
SD: Standard Deviation;
LCI: Lower bound Confidence Interval (95%);
UCI: Upper bound Confidence Interval (95%);
Pnn: 10th, 25th, 50th, 75th & 90th percentiles.