A.1 How mental health conditions and addiction is defined in the data

The purpose of this mental health conditions and addiction service access or treatment data definition is to identify all individuals who have accessed mental health conditions and addiction services using data in the IDI.

This definition has been peer-reviewed by Ministry of Health, and is being made publicly available for use by analysts to easily define cohorts or populations that have had interactions with mental health-related services.

The diagnosis categories provided by this definition are not exhaustive, and should be treated as simple high-level inferences made from the IDI data. These should not be treated as definitive medical diagnoses information.

Table A1 shows the datasets used to identify people who access mental health conditions and addiction services and/or treatments, and the number of records in each table for the 2014 calendar year.

Note a person can be counted in multiple data sources. For example, a person may have seen a mental health specialist and appeared in PRIMHD and also collected a pharmaceuticals prescription.

**Table A1:** Datasets used to identify population groups who access mental health conditions and addiction services and number of people identified in 2014.

|  |  |  |
| --- | --- | --- |
| IDI dataset | Indicator of MENTAL HEALTH CONDITIONS AND ADDICTION service use | Number of people in 2014 |
| PRIMHD | Any record in PRIMHD | 159,630 |
| Pharmaceutical dispensing data | Pharmaceuticals deemed to be mental health conditions and addiction related (excluding potential MENTAL HEALTH CONDITIONS AND ADDICTION category) | 532,998 |
| NMDS (publically funded discharges only) | Any hospitalisation event with an associated mental health conditions and addiction diagnosis | 133,941 |
| MSD Incapacity data | Any record with an mental health conditions and addiction related medical certificate for benefit support | 41,568 |

These figures can be used as a sense check for analysts working on building their own mental health conditions and addiction dataset for analysis. Please note that these numbers are based on the IDI refresh as on 20 October 2016. The population includes only those individuals who are linked to the IDI spine, and are part of the estimated resident population as on 01 Jan 2014.

Table A2 gives the codes used to identify people who access mental health conditions and addiction services or treatments in each of the datasets in Table A1.

**Table A2:** Derivation of mental health conditions or addiction service or treatment access.

| Diagnosis | PRIMHD | Pharmaceuticals | NMDS – publicly funded hospital discharges | MSD incapacity |
| --- | --- | --- | --- | --- |
| ADHD |  | Chemical ID = 3887, 1809, 3880 | ICD-10-AM diagnosis code = F900  ICD-9-CMA-II diagnosis code = 31400, 31401 |  |
| Anxiety |  | Chemical ID = 1166, 6006, 1780 | ICD-10-AM diagnosis code = F40-F48  ICD-9-CMA-II diagnosis code = 30000-30015,  3002, 3003, 3005-3009, 3060-3064, 30650, 30652, 30653, 30659, 3066-3069, 30780, 30789, 3080-3091, 30922-30982, 30989, 3099 |  |
| Autism |  |  | ICD-10-AM diagnosis code = F84  ICD-9-CMA-II diagnosis code = 29900, 29901, 29910 |  |
| Dementia |  | Chemical ID = 3923, 3750 | ICD-10-AM diagnosis code = F00-F03  ICD-9-CMA-II diagnosis code = 290, 2941 |  |
| Eating disorder | Team type = 16 |  | ICD-10-AM diagnosis code = F50  ICD-9-CMA-II diagnosis code = 3071, 30750, 30751, 30754, 30759 |  |
| Mood |  | Chemical ID = 1069, 1437, 1438, 2466, 1824, 3753, 3901, 1125, 1955, 2285, 2301, 6009, 2636 | ICD-10-AM diagnosis code= F30-F39  ICD-9-CMA-II diagnosis code = 296, 3004, 30113, 311 |  |
| Mood anxiety |  | Same codes as for Anxiety or Mood and/or Chemical ID = 2632, 1193, 3926, 1760, 2638, 3927, 1030, 1180, 3785 | Same codes as for Anxiety or Mood |  |
| Other MH | All remaining records (where Activity type ≠ T09, T16, T17, T18, T19, T20 and/or Team type ≠ 03, 10, 11, 12, 16, 21, 23) | Not otherwise diagnosed in this table and Chemical ID = 1080, 1729, 1731, 2295, 1315, 1533, 1535, 1140, 1911, 1950, 1183, 1011, 3873, 1642 | Not otherwise diagnosed in this table and any other the following: ICD-10-AM diagnosis code = F04-F09, F51-F53, F59, F63, F68, F69, F930-F932, F99  ICD-9-CMA-II diagnosis code = 2930-2940, 2948, 2949, 29911-29991, 30016, 30019, 30151, 3027, 30651, 3074, 30921, 310, 3123, 3130, 3131 | Incapacity code = 009, 160, 163, 165 |
| Personality |  |  | ICD-10-AM diagnosis code = F60-F62  ICD-9-CMA-II diagnosis code = 3010, 30110, 30111, 30112, 30120-30150, 30159, 3016-3019 |  |
| Schizophrenia and related psychotic conditions (Psychotic) | Activity type = T09 | Chemical ID = 3884, 3878, 1078, 1532, 2820, 1732, 1990, 1994, 2255, 2260 | ICD-10-AM diagnosis code =  F20-F29  ICD-9-CMA-II diagnosis code = 2950-2959, 2970-2989 | Incapacity code = 161, 162 |
| Intellectual disability | Team type = 12 |  | ICD-10-AM diagnosis code = F70 - F79  ICD-9-CMA-II diagnosis code= 317-319 | Incapacity code = 008, 164 |
| Substance use | Team type = 03, 10, 11, 21, 23 and/or Activity type = T16, T17, T18, T19, T20 | Chemical ID = 2367, 1432, 3793 | ICD-10-AM diagnosis code = F10-F16, F18-F19, F55  ICD-9-CMA-II diagnosis code = 291, 292, 3030-3050, 3052-3059 | Incapacity code = 006, 007, 170, 171, 172 |
| Potential mental health conditions and addiction |  | Chemical ID = 1389, 4037, 1059, 1379, 1876, 1190, 1316, 1397, 1730, 6007, 1283, 2298, 2530, 3803, 3898, 8792, 1273, 1865, 1956, 2224, 2539, 3248, 1583, 1799, 3940, 4025, 3722, 3892, 3920, 3950, 1795, 1007, 1013, 1111, 1226, 1252, 1578, 1841, 2436, 3735, 3935, 1002, 1217, 2166, 2484 |  |  |

Analysts are advised to use all categories for general purpose analysis of the whole population, excluding the potential mental health conditions and addiction category. This category (or a specific subset of this category) should only be used if the analysts have a specific purpose which requires them to, and are clear about the reasons for the inclusion of this category in the analysis. They are included in the code to make them easily accessible.

The SIU excludes this category to count mental health conditions and addiction service use or treatments. This is because these codes are not definitive and there may be some disagreement. For example a particular drug could be used to treat both depression and physical pain. The pharmaceuticals dataset lacks enough information to distinguish why a drug was prescribed.

Note the diagnosis available in the PRIMHD dataset has not been used as per advice received by the Ministry of Health. This was because there are known data quality issues and the field is often left blank.

Table A3 shows the chemical names and type.

**Table A3:** Chemical ID names and types.

| **CHEMICAL\_ID** | **CHEMICAL\_NAME** | **Type** |
| --- | --- | --- |
| **1011** | Risperidone | Antipsychotics |
| **1030** | Sertraline Hydrochloride | Antidepressants |
| **1069** | Amoxapine | Antidepressants |
| **1078** | Clozapine | Antipsychotics |
| **1080** | Amylobarbitone sodium | Sedatives and Hypnotics |
| **1125** | Nefazodone | Antidepressants |
| **1140** | Olanzapine | Antipsychotics |
| **1166** | Bromazepam | Anxiolytics |
| **1180** | Venlafaxine | Antidepressants |
| **1183** | Quetiapine | Antipsychotics |
| **1183** | Quetiapine Fumarate | Antipsychotics |
| **1193** | Citalopram hydrobromide | Antidepressants |
| **1315** | Clomipramine hydrochloride | Antidepressants |
| **1432** | Disulfiram | Treatments for Substance Dependence |
| **1437** | Dothiepin hydrochloride | Antidepressants |
| **1438** | Doxepin hydrochloride | Antidepressants |
| **1532** | Flupenthixol decanoate | Antipsychotics |
| **1533** | Fluphenazine decanoate | Antipsychotics |
| **1535** | Fluphenazine hydrochloride | Antipsychotics |
| **1642** | Imipramine hydrochloride | Antidepressants |
| **1729** | Loprazolam mesylate | Sedatives and Hypnotics |
| **1731** | Lormetazepam | Sedatives and Hypnotics |
| **1732** | Loxapine succinate | Antipsychotics |
| **1760** | Maprotiline hydrochloride | Antidepressants |
| **1780** | Meprobamate | Anxiolytics |
| **1809** | Methylphenidate hydrochloride | Stimulants/ADHD Treatments |
| **1824** | Mianserin hydrochloride | Antidepressants |
| **1911** | Oxazepam | Anxiolytics |
| **1950** | Pericyazine | Antipsychotics |
| **1955** | Phenelzine sulphate | Antidepressants |
| **1990** | Pimozide | Antipsychotics |
| **1994** | Pipothiazine palmitate | Antipsychotics |
| **2255** | Thioridazine hydrochloride | Antipsychotics |
| **2260** | Thiothixene | Antipsychotics |
| **2285** | Tranylcypromine sulphate | Antidepressants |
| **2295** | Triazolam | Sedatives and Hypnotics |
| **2301** | Trimipramine maleate | Antidepressants |
| **2367** | Calcium carbimide | Stimulants/ADHD Treatments |
| **2466** | Lithium carbonate | Antipsychotics |
| **2484** | Zopiclone | Sedatives and Hypnotics, not used in SIU general mental health and addiction analysis |
| **2632** | Alprazolam | Anxiolytics |
| **2636** | Fluoxetine hydrochloride | Antidepressants |
| **2638** | Moclobemide | Antidepressants |
| **2820** | Fluspirilene | Antipsychotics |
| **3750** | Rivastigmine | Stimulants/ADHD Treatments |
| **3753** | Mirtazapine | Antidepressants |
| **3785** | Venlafaxine | Antidepressants |
| **3793** | Naltrexone hydrochloride | Treatments for Substance Dependence |
| **3873** | Ziprasidone | Antipsychotics |
| **3878** | Aripiprazole | Antipsychotics |
| **3880** | Methylphenidate hydrochloride extended-release | Stimulants/ADHD Treatments |
| **3884** | Amisulpride | Antipsychotics |
| **3887** | Atomoxetine | Stimulants/ADHD Treatments |
| **3901** | Mirtazapine | Antidepressants |
| **3923** | Donepezil hydrochloride | Treatments for Dementia |
| **3926** | Escitalopram | Antidepressants |
| **3927** | Sertraline | Antidepressants |
| **6006** | Buspirone hydrochloride | Anxiolytics |
| **6009** | Paroxetine hydrochloride | Antidepressants |
| **1389** | Dexamfetamine sulfate | TBC, not used in SIU general mental health and addiction analysis |
| **4037** | Rivastigmine | TBC, not used in SIU general mental health and addiction analysis |
| **1059** | Amitriptyline | TBC, not used in SIU general mental health and addiction analysis |
| **1379** | Desipramine hydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **1876** | Nortriptyline hydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **1190** | Citalopram hydrobromide (Celapram) | TBC, not used in SIU general mental health and addiction analysis |
| **1316** | Clonazepam | TBC, not used in SIU general mental health and addiction analysis |
| **1397** | Diazepam | TBC, not used in SIU general mental health and addiction analysis |
| **1730** | Lorazepam | TBC, not used in SIU general mental health and addiction analysis |
| **6007** | Chlordiazepoxide hydrochloride | TBC, not used in SIU general mental health and adiction analysis |
| **1283** | Chlorpromazine hydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **2298** | Trifluoperazine hydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **2530** | Haloperidol decanoate | TBC, not used in SIU general mental health and addiction analysis |
| **3803** | Zuclopenthixol decanoate | TBC, not used in SIU general mental health and addiction analysis |
| **3898** | Zuclopenthixol hydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **8792** | Droperidol | TBC, not used in SIU general mental health and addiction analysis |
| **1273** | Chlormethiazole edisylate | TBC, not used in SIU general mental health and addiction analysis |
| **1865** | Nitrazepam | TBC, not used in SIU general mental health and addiction analysis |
| **1956** | Phenobarbitone sodium | TBC, not used in SIU general mental health and addiction analysis |
| **2224** | Temazepam | TBC, not used in SIU general mental health and addiction analysis |
| **2539** | Midazolam | TBC, not used in SIU general mental health and addiction analysis |
| **3248** | Chloral hydrate | TBC, not used in SIU general mental health and addiction analysis |
| **1583** | Haloperidol | TBC, not used in SIU general mental health and adiction analysis |
| **1799** | Levomepromazine maleate | TBC, not used in SIU general mental health and addiction analysis |
| **3940** | Olanzapine pamoate monohydrate | TBC, not used in SIU general mental health and addiction analysis |
| **4025** | Paliperidone | TBC, not used in SIU general mental health and addiction analysis |
| **3722** | Nicotine | TBC, not used in SIU general mental health and addiction analysis |
| **3892** | Bupropion hydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **3920** | Varenicline tartrate | TBC, not used in SIU general mental health and addiction analysis |
| **3950** | Buprenorphine with naloxone | TBC, not used in SIU general mental health and addiction analysis |
| **1795** | Methadone hydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **1007** | Sulpiride | TBC, not used in SIU general mental health and addiction analysis |
| **1013** | Guanethidine sulphate | TBC, not used in SIU general mental health and addiction analysis |
| **1111** | Dexfenfluramine | TBC, not used in SIU general mental health and addiction analysis |
| **1226** | Zuclopenthixol dihydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **1252** | Naltrexone hydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **1578** | Glycopyrronium Bromide | TBC, not used in SIU general mental health and addiction analysis |
| **1841** | Naloxone hydrochloride | TBC, not used in SIU general mental health and addiction analysis |
| **2436** | Flunitrazepam | TBC, not used in SIU general mental health and addiction analysis |
| **3735** | Melatonin | TBC, not used in SIU general mental health and addiction analysis |
| **3935** | Modafinil | TBC, not used in SIU general mental health and addiction analysis |
| **1002** | Lamotrigine | TBC, not used in SIU general mental health and addiction analysis |
| **1217** | Carbamazepine | TBC, not used in SIU general mental health and addiction analysis |
| **2166** | Sodium valproate | TBC, not used in SIU general mental health and addiction analysis |

Access to services is different from service use

The indicator of mental conditions or addiction is defined through access to mental health services. It is not an indicator of treatment for mental health conditions or addiction.

The definition used in this report will also capture instances where a person has not accessed a service directly, but the service was made available to them.

As an example if a person is referred to a secondary mental health conditions and addiction service (captured in the data by PRIMHD), but did not attend an appointment (captured in the data by DNA = did not attend), the data will include these people.

Another example is where a patient is admitted to hospital for a reason other than mental health conditions and addiction. If the clinician seeing the patient determines a mental health conditions or addiction is related or relevant, it will be noted.

In these examples the health system is aware of a person’s need to access services. This definition of mental health conditions and addiction services access included these records.

Section A.2 provides recommendations to subset this definition to either service use or severe service use.

Two administrative service data sources available in the IDI have been excluded from our definition

Primary health care data is excluded as the format available in the IDI is unusable for the purpose of this work. The data source is provided as a quarterly snapshot of GP visits, which does not include the reason for the visit or the result of the visit. This means it is not possible to identify which GP visits are mental health conditions and addiction related, or when (within the year) they took place.

SOCRATES is excluded from the population definition as needs assessment dates and needs assessment diagnosis (to infer mental health conditions or addiction related records) are stored in different tables in the IDI with no keys to join them. This makes it impossible to tell when a diagnosis occurred. Further, there is no IDI data dictionary available for this dataset. An internal data dictionary was sourced directly from the Ministry of Health however the different data structures of the IDI data compared with Ministry of Health data meant it could not be used.

A.2 How the definition can be subset to analyse smaller populations for specific purposes

The mental health conditions and addictions service access or treatment data definition is to identify all individuals who have accessed mental health conditions and addiction services using data in the IDI.

This definition is intentionally kept broad to count all access to services we can. If an analyst is interested in evaluations of service use, it may be more appropriate to subset this population to individuals who have used services.

If an analyst is interested in analysing sever levels of service use, it may be more appropriate to subset this population to individuals who have used services deemed to be severe.

For these purposes, analysts can apply the following filters.

**A.2.1 Subset for service use, not all access**

The definition provided in Table A4 can be used by analysts if they wish to exclude cases where a direct service for mental health conditions or addition was received.

This definition was developed with the Ministry of Justice and the Ministry of Health when a more specific definition was required for analysis. It is a subset of the main definition in Table A2, to ensure all analysis starts from a consistent base.

**Table A4:** A subset to the definition provided in Table A2 to include only service or treatment use, not all access.

|  |  |  |  |
| --- | --- | --- | --- |
| IDI dataset | Mental health and addiction service or treatment access | Mental health and addiction service or treatment use | Notes |
| PRIMHD | Any record in PRIMHD (except for activity types T47 and T49). | Face-to-face PRIMHD activities where the client was present.[[1]](#footnote-1) | To have measure of actual services used (as a measure of mental health intervention) then excluding activities when the client is not present, did not attend etc., or when the activity was not face-to-face – codes based on advice from MoH. T47 and T49 codes are assigned to family members NHI number – therefore excluded as the service is not about their own mental illness. |
| Pharmaceutical dispensing data | Pharmaceuticals deemed to be MHA-related (excluding potential MHA category) | As per SIU definition | Updated in May 2017 (this is the only change from the 2015 publication of MoJ mental health service use) |
| NMDS (publically funded discharges only) | Any hospitalisation event with an associated MHA diagnosis. | As per SIU definition with the exception that the MHA diagnosis needs to be primary diagnosis. | Amendment to the service use definition since unless the MHA diagnosis is the primary diagnosis, then the hospitalisation may not have been related to MHA, but rather staff were aware of the patients MHA. |
| MSD Incapacity data | Any record with an MHA-related medical certificate for benefit support | Not included | Some benefit types (sickness / jobseeker) have to regularly see a GP for medical certification, while other benefits (invalids / supported living payment) is 2 years or never. While the former group are receiving mental health services from their GP, it is likely this group will already been included through pharmaceutical dispensing. |
| Laboratory claims (LAB) collection | More than 2 lab tests for lithium within a 4 month period | Not included | Having a lab test is not mental health treatment or service. Further previous advice from MoH to exclude this since:  (1) results of the tests are not in the data, hence not conclusive being MH related;  (2) if prescribed drugs containing lithium then these people would already be picked up with the Pharms data. |

**A.2.2 Subset for level of service use**

The definition provided in Table A5 can be used by analysts if they wish to group service use into levels. To do this, the level of service use needs to be relative to a point in time. To use this definition the point in time is based on other service interactions, for example, a justice interaction. This definition must be used in combination with other services data available in the IDI.

This definition was developed with the Ministry of Justice and the Ministry of Health when a more specific definition was required for analysis. It is a categorisation of the main definition in Table A2, to ensure all analysis starts from a consistent base.

**Table A5:** A definition to create levels of service use to supplement the definition provided in Table A2.

| Category | Derivation of level of mental health and addiction service use |
| --- | --- |
| **High use** | Include people who meet one or more of the severe / long term / hospitalisation criteria as follows:   * ***Severe:*** had any severe face-to-face PRIMHD activity started in the 12 months either side of Justice sector interaction. Severe activities include any of the following activity type codes:   T02, T03, T04, T11, T12, T13, T14, T16, T20, T21, T25, T26, T27, T28, T29, T48  *(#see below for severe code descriptions)*  and/or  Face-to-face activity with team type 01 (inpatient) or 05 (forensic)   * ***Long term:***In the 2 year period of 12 months either side of Justice sector interaction:   + Aged 10 to 16 years: Been provided new or ongoing relevant\*\* PRIMHD mental health activities in FOUR or more consecutive quarters intersecting at some point in 2 year period.   + Aged 17 years or more: Been provided new or ongoing relevant\*\* PRIMHD mental health activities in EIGHT or more consecutive quarters intersecting at some point in 2 year period.[[2]](#footnote-2)   **Notes:**   1. Age is at the time of the alleged offence. 2. Quarters are defined as 3 month periods counting back from end of the 2 year period (specifically 91.325 days ignoring leap years). 3. See diagram below to assist interpretation of the series intersecting criteria. 4. \*\*Relevant mental health activities include all face-to-face activities except for family / whanau activities: T47 (support for family/whanau) and T49 (support for children of parents with mental illness and addictions).[[3]](#footnote-3) 5. Face-to-face definition as per Phase 1 analysis of Activity type code ≠ T08, T32, T33, T35, T37 AND Activity setting code ≠ SM, PH, WR, OM  * ***Hospitalisation:*** with principal diagnosis mental health related (as per broader discharge diagnosis codes where diagnosis type = ‘A’). |
| Not categorised | *•* People not discharged from mental health services (and not classified into high use |
| Low use | Include people who meet one or more of the pharmaceutical only or low use of PRIMHD services as follows:   * ***Pharmaceutical only:***people who only had relevant pharmaceutical dispensing (that is, no relevant PRIMHD activities or MHA related hospital discharges). * ***Low use of PRIMHD services:***attended PRIMHD activities not classified as severe and / or long term above (and who had been discharged and did not die in the time period).[[4]](#footnote-4) |

A.3 What time periods can be analysed

The administrative sources used to identify individuals who are accessing services or treatments are available over different time periods. The common overlap between these data sources is 2008 – 2014.

While PRIMHD data is not considered complete until 2010, as it does not include complete NGO in 2008 and 2009, analysis can be performed from 2008. This is because the overlap between the other datasets and PRIMHD is high enough that most individuals will be captured from 2008.

The chemicals deemed to be related to mental health conditions and addictions are relevant from at least 2006 to present.

A.4 What is known about the quality of the datasets?

Data dictionaries for each of the administrative datasets are available in the IDI Wiki, an information page available to IDI users.

In addition to the data dictionaries analysts need to be aware of the quality of the datasets they are analysing.

Data does not need to be perfect to be useful for more informed decision making

The data on mental health conditions and addictions is by no means a complete picture, nor is it without quality issues. This work has been completed on the principle that data does not need to be perfect. Data quality and availability will improve in response to increased demand for insights. The SIU is committed to helping increase the quality and availability of data – at the same time, it is pragmatic about making the most of what is available.

While each dataset does have quality issues, the data is still recommended for social investment analysis when the quality issues are considered when drawing conclusions from the data.

**A.4.1 PRIMHD data quality**

PRIMHD is a Ministry of Health collection of national MENTAL HEALTH CONDITIONS AND ADDICTION information on service activity and outcomes for healthcare users. The data is collected from District Health Boards and non-government organisations (NGOs) who provide mental health services with health government funding (vote health). PRIMHD data on addiction collects information on patients who use alcohol and drug services funded by the government (vote health only).

PRIMHD was established in July 2008. Prior to PRIMHD, mental health data was collected in the Mental Health Information National Collection (MHINC) and stored in the Mental Health Data Warehouse (MHDW). The MHDW was started in July 2000. This data remains available for use in reporting and ad hoc queries run by the Ministry of Health’s Analytical Services team.

Increased NGO reporting will influence trends

Shifts or patterns in the data after 2008 may reflect the gradual inclusion of non-governmental organisations into the PRIMHD collection in addition to, or instead of, any trend in mental health service use or outcomes. Although NGO data is still incomplete, the Ministry of Health considers it complete enough for comparison across time from 1/7/2012 onwards.

Completeness of data for older people

Mental health conditions and addiction services for older people are funded as mental health conditions and addiction services in the Northern and Midland regions. In part of the Southern and Central regions they are funded as disability support services. PRIMHD mainly captures mental health conditions and addiction services, and occasionally captures data on disability support services. This means data on healthcare users aged over 65 (including psychogeriatric services) is incomplete.

Some organisations are behind on their reporting

Some NGOs and DHBs have not reported for several years due to changing systems, organisational changes etc. which creates gaps in data. The Ministry of Health works with organisations if they change their reporting method to PRIMHD to ensure minimal issues with data completeness.

The diagnosis code in PRIMHD is not recommended for data analysis

The Ministry of Health has advised that for a number of reasons many clients will have no diagnosis recorded. Also the diagnosis data can be of low quality. NGOs are unable to submit diagnosis data, and the Ministry of Health does not require a diagnosis within the first three months of treatment.

This means that there may be no diagnosis recorded for a large number (more than half) of clients particularly those who only received short term treatment. Furthermore many service organisations submit a large number of non-specific diagnoses such as 'diagnosis deferred' or 'no specific diagnosis' during this time. These codes are used too often to be considered credible.

In addition to diagnosis coding issues, users need to keep in mind clinicians treat symptoms, not diagnoses. This means use of any diagnosis identified through data should be used with care.

This work has identified situations where clinicians may use certain diagnosis codes in order to ensure medication funding is available and cases where clinicians are hesitant to record a diagnosis due to the risk of patients not being able to access certain insurance. As with all data collected for administrative purposes, the collection of data in real world circumstances can often be different to what is recorded in data dictionaries or expected.

For this reason a deep understanding of how diagnosis is captured is required, otherwise this variable is not recommended for data analysis.

Services costs are derived from 2013-2014 estimates

The method for deriving costs for events in PRIMHD was provided by the Ministry of Health. The Ministry noted the following caveats:

1. these costs have been derived from the method used in the population-based funding formula review 2015
2. they are for research purposes only
3. for additional details on this method please see Appendix 4 of the Population-based Funding Formula Review 2015 Technical Report (Ministry of Health, 2016b).

Costs are not available for all events in PRIMHD as they have not been derived in the funding formula review.

Coding changes may cause artificial variance and trends

Observed variance and trends may be a result of differences in coding practices across service providers and time, for example, coding changes have influenced the number of crisis contact services reported by some DHBs.

To assist with activity (a synonym for services and care) coding in particular, the Ministry of Health has published [Guide to PRIMHD Activity Collection and Use](http://www.health.govt.nz/publication/guide-primhd-activity-collection-and-use). As this guide was published early 2016, the effect of the guide won’t be seen in PRIMHD until the publication of 2015/16 data. A high level description of each of the activity types can also be found within the [PRIMHD Codeset](http://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/collections/primhd-mental-health-data/primhd-standards).

Data is continually updated and revised

PRIMHD is a living data collection, which continues to be revised and updated as data reporting processes are improved. For this reason, previously published data may be liable to amendments. In particular, there was notable change made to the coding of team types as part of the HISO review of the PRIMHD Code set. Team type data, extracted before 1/7/2014, should not be compared with the data within these tables.

To function as a national collection, PRIMHD requires integration with a wide range of patient management systems across hundreds of unique service providers. As the services adjust to PRIMHD, it is expected that the quality of the data will improve.

Referral date issues

It is known that there are referrals in PRIMHD with no referral end date but the referral is no longer active. It is believed that up to 30% of all open referrals in PRIMHD at the end of 2016 had not had any activity in the last 15 months. Some organisations seem to have this issue with large volumes of referrals while others just have a handful.

This is appears to be a larger problem with PRIMHD Online submitted data; however, poorly-written queries against the Ministry of Health’s Business Objects have also been known to incorrectly suggest that lots of referrals are still open with no activity, when in fact the discharge is entirely correct in the PRIMHD Datamart.

'No activity in 15 months' also happens when clients are in multiple services, and users end up recording all activity/events on one. This is the same fundamental problem as mentioned above, but it can appear as either invalid activity types or entirely missing activities (because they're actually all on that other open referral).

There are instances of NGOs that are no longer providing any services (due to loss of contract or closure, etc.) and referrals have been left open in PRIMHD. This is being managed through data quality checks and helping organisations to do a bulk-closure of referrals. In a sense they are administrative discharges, and the referral end date used is not necessarily accurate for when the client ceased accessing services.

Organisations that change their PMS or reporting method to PRIMHD sometimes end up closing all referrals and opening up new ones for clients due to a change in the referral numbering system used. This again creates administrative discharges where the referral end date will be present but the client may in fact still be in receipt of services.

Organisation takeover/merge/change often requires new organisation codes in PRIMHD, so also requires mass discharge and re-referral for existing clients.

General data quality issues

The relevance of the issues described below depends on the analysis – where (as in this report) there is a simple count of ‘access or not’ over a period of time, then many of the issues are less relevant. When analyses progress to more detailed examination of level and type of service use (see Appendix A.2 for details on how to do this), issues described below would be much more relevant.

General quality issues include:

1. PRIMHD has duplicate or overlapping records (for activity, referral, etc.) – this does not affect distinct client counts, but does mean in some cases level of service use/activity volumes will be overstated
2. some referrals remain open when they are no longer active, e.g. no activity for the last 15 months
3. invalid code combinations used, e.g. PH setting for a bed night, etc.
4. ECT/seclusion reported by NGOs (who do not provide such services)
5. incorrect reporting of bed nights, e.g. records that start and end on the same day giving a zero bed night count)
6. team type/activity type mismatch, e.g. residential teams providing contacts, community teams providing bed nights etc.
7. client age/team type mismatch, e.g. maternal mental health team with data against the baby's NHI instead of the mothers
8. invalid or default time portions reported in date/time fields – can mean duration of activity records is unable to be accurately determined.

**A.4.2 Pharmaceutical data quality**

The Pharmaceutical Collection supports the management of pharmaceutical subsidies. It is jointly owned by the Ministry of Health and PHARMAC. The Pharmaceutical Collection contains claim and payment information from pharmacists for subsidised dispensed medications.

Pharmaceutical data does not have complete coverage of mental health conditions and addiction prescriptions

This data source will not observe people who have been prescribed medicine but not collected it. Research has shown people who report high and very high levels of psychological distress (36% and 45% respectively) were more likely not to collect needed prescriptions than those reporting low levels of psychological distress (4.2%) (Jatrana, Crampton, Carter, & Richardson, 2008). It is expected many people with very high psychological distress will be captured through PRIMHD data.

Pharmaceutical data can inflate mental health conditions and addiction access numbers

This data source may also inflate the number of people who access mental health conditions and addiction services. This is because some drugs can be used to treat mental health conditions and addiction or non-mental health conditions and addiction issues; for example, some anti-depressants are used to control chronic pain, or menopausal symptoms but this analysis considers drugs that can be related to mental health conditions and addiction diagnosis as being prescribed for that use.

The source of the prescription is unknown

The data does not capture where the prescription for the dispensed medicine was issued. This means it is not possible to distinguish between primary or secondary care or public or private care using this data source.

There are duplicates in the pharmaceutical data

Data is known to include exact duplicate records due to the credit, resubmit and reversal process. The DISTINCT function is used to select one of the exact duplicate rows. However, there are also resubmits/reclaims data duplicates in the table that are not exact duplicate rows, but differ in a single column value or two.

This will not over count the number of people accessing services, but may overinflate medications and costs.

The Ministry of Health was consulted on this issue however it was unable to be resolved.

**A.4.3 National Minimum Dataset quality**

The NMDS is a national collection of publicly and privately funded hospital discharge information, including clinical information for inpatients and day patients.

Only publicly funded hospital events are available in the IDI

Privately funded hospital events have been excluded from the version of this dataset in the IDI because of the lack of completeness. However, it is very likely these people would be captured through the pharmaceutical and/or PRIMHD data.

The implication of this dataset is that it will undercount those accessing treatment by excluding those who privately fund their hospitalisations.

All events do not have costs

Some publicly funded hospital events may not have cost associated because the purchase unit costing information was not available.

**A.4.4 MSD incapacity dataset quality**

The MSD incapacity dataset identifies people who receive Job Seeker Health Conditions and Disability (JS-HCD) or Supported Living Payment (SLP). This dataset records the reason for their incapacity to work through incapacity codes, which allows this analysis to identify patients who have received a medical certificate application or renewal.

The source of the medical certificate is unknown

The data does not capture where the medical certificate was issued. This means it is not possible to distinguish between primary or secondary care or public or private care using this data source.

MSD incapacity data may miss some people who access mental health conditions and addiction services

Up to four reasons, or incapacity codes, can be recorded for each person. This analysis only uses the primary, or prioritised, incapacity code to determine whether mental health was listed as the reason for incapacity. It is unclear why a particular code is given the highest priority. There is a possibility that this data will miss those people whose mental health affects their incapacity, but is not listed as the prioritised incapacity code. However, these people might be picked up by the other datasets.

**A.4.5 Laboratory claims dataset quality**

The Laboratory Claims collection contains claim and payment information for laboratory tests referred from community laboratories. It does not contain any information about tests conducted in hospital laboratories that have been processed by the General Transaction Processing System (GTPS), Sector Operations, Ministry of Health. It also contains laboratory test information from Pegasus and Medlab South IPA providers. As at February 2011, this amounted to over 275 million rows of claim and payment data.

Cost is calculated as an aggregated daily sum per person, per lab test code, per test number. Lab claims are exclusive of GST.

There are many duplicate records in laboratory claims data

There are many records in the data where only the lab test number is different. It is unclear if each lab claim is valid so we’re including them all each with separate lab claims costs at this point.

There are many labs with zero cost. We believe this is because of the change to bulk funding and that estimated costs for an individual event may be available. This needs to be confirmed with the Ministry of Health.

The IDI data only contains information from community laboratories, test conducted in hospital laboratories are excluded.

A.4 How robust is the definition of mental health conditions and addiction in the data?

Results are robust to subtle changes in the definition of service access

To check the sensitivity of our definition of service access, alternate versions of the access definition are used to measure how different the results are. The following variations of the service access are tested:

* exclusion of Dementia diagnosis from the existing definition
* retention of only Mood, Anxiety and Others (miscellaneous) diagnosis
* exclusion of pharmaceuticals dispensed from existing definition.

Excluding dementia as mental health conditions diagnosis has little impact on results

After exclusion of diagnoses related to dementia, it was found that the odds ratios obtained with this new treatment definition are quite similar to the original results. For instance, the odds of mental health conditions and addiction service access are exactly the same as in the case of the original service access definition.

The regional, ethnic and gender differences in service access odds are largely preserved, and almost always the same in both definitions. Even in the case mental health conditions and addiction service access the odds across age groups, where differences are expected (since dementia is a condition more likely to be associated with older adults), did not produce any significantly different results from the original. It can be concluded that the results are not sensitive to exclusion of dementia from the mental health conditions and addiction service access definition.

Focusing on only mood, anxiety and other as a mental health conditions diagnosis has little impact on results

The next variant of the mental health conditions and addiction service access uses only mood and anxiety related disorders, along with the diagnoses classified under miscellaneous/uncategorised group.

Again, the odds ratios across distress, region, gender, and ethnicity largely remained the same as the original definition. The only difference observed was in the case of age groups, but even in this case, the difference is not statistically significant.

The odds ratio of accessing mental health conditions and addiction services increases for the older age groups of 35-49 and 50+, but it is still within the confidence intervals of the original results. Hence it can be concluded that the results are not sensitive to this definition either.

Excluding pharmaceutical dispensed has a large impact on results

The final variant of the mental health conditions and addiction service access definition excludes all pharmaceuticals dispensed. This effectively gets rid of almost all primary care information with the exception of those in the MSD incapacity dataset.

The results observed under this definition are quite different to the original definition, as expected. This is because without pharmaceuticals dispensed, PRIMHD becomes the largest data source of treatment information. This is likely to shift the focus from people with a range of psychological distress levels to those with high levels of psychological distress that are accessing secondary or specialist services.

The results show the odds of accessing mental health conditions and addiction services increased by approximately one to four times. This can be attributed to the fact that the change in treatment definition now captures the specialist care spectrum more than primary care, and hence only includes the more serious mental health treatment cases which are more likely to access the mental health conditions and addiction services.

In case of regional and ethnic differences in the mental health conditions and addiction service access, all the differences observed across groups in the original mental health conditions and addiction service access definition, vanish in the new definition. The only observable difference in service access across ethnicities is for Asian ethnicities.

The gender and age-based differences observed in the original definition also vanish with the new definition.

These differences in statistically significant results are attributed to either the insufficient sample size in SoFIE to measure differences in specialist care, or there actually being no significant differences across ethnicity/age/gender/regions when it comes to specialist care. Further work is required to determine the cause of the differences.

A.5 Can self-harm and suicide be identified in available data?

Yes. We do not focus on self-harm and suicide in this report, but these events can be identified in data.

This can be done using the data sources and codes in Table A4.

**Table A4:** Data and codes available in the IDI to identify self-harm or suicide attempts, or suicide.

|  |  |  |
| --- | --- | --- |
| Data source | Self-harm, suicide attempt codes, or suicide codes | Cause of death codes |
| ACC injury claims | acc\_cla\_wilful\_self\_inflicted\_status\_text = ‘Confirmed’ |  |
| CYF abuse events | cyf\_abe\_source\_uk\_var2\_text in ('SHM', 'SHS', 'SUC') |  |
| Hospital admissions (NMDS) | External causes (diagnosis type = ‘E’) + ICD10 code between X60-X84 (intentional self-harm). Also include ACC claim is NULL as ACC events will be double counted if you are using ACC data as well. |  |
| Mortality data (Ministry of Health) |  | moh\_mor\_icd\_d\_code in (X60-X84) (Intentional self-harm) |

Note ACC injury data and hospital admission data both record if a person is deceased. However the mortality data is the only source which uses a standard process to code mortality. This is the recommended source and is comparable internationally.

The mortality data has a time lag getting into the IDI, so current data is always a few years behind.

This data could be improved using self-harm and suicide calls made to the New Zealand Police, known as X1 and M1 calls. However, this data is not available in the IDI.

A.6 The definition of mental health conditions and addiction service or treatment access is subject to change

The definition provided in Table A.2, as well as subsets provided in Sections 4.2.1 and 4.2.2, are subject to change when:

1. new data is available, or
2. new recommendations from clinicians or service providers are received.

Defining mental health conditions and addiction in data is complex. While our definition reflects the best recommendations we have been able to combine from the Ministry of Health, DHBs, NGOs, other clinicians, and data experts, as new recommendations become available we need to be able to incorporate these into the definition in a timely way.

For this reason we have made code available on GitHub, so we are able to manage versions of the definition and code. This document describes Version 1.

A.7 Code is publicly available to create this definition of mental health conditions and addiction service use within the IDI

The code for the reusable data foundation is publicly available on GitHub under a GNU GPLv3 license. GitHub allows version control, so the latest version will always be available.

<https://github.com/nz-social-investment-unit>

To use the code:

1. download the zip file
2. email: [access2microdata@stats.govt.nz](mailto:access2microdata@stats.govt.nz) (the Microdata team at Statistics NZ) asking them to drop the code into your own project for your own use.

More detailed instructions can be found in the README files on GitHub.

Users are free to use the code as is or to create their own modified versions that use the same license. Readers can learn more about the license by visiting Choose a License:

[https://choosealicense.com/](https://choosealicense.com/%20)

If you would like to contribute to the master version on GitHub, please contact: [info@siu.govt.nz](mailto:info@siu.govt.nz)

1. Activity\_type\_code not T08 (care/liasison co-ordination contacts), T32 (contact with family/whānau, consumer not present), T33 (seclusion), T35 (did not attend), T37 (on leave), T47 (support for family/whānau), T49 (support for children of parents with mental illness and addictions). And activity\_setting\_code not SM (text messaging), PH (telephone), WR (written correspondent), OM (other social media / e-therapy). [↑](#footnote-ref-1)
2. Please note that the activities do not need to be part of the same referral and all referrals for the person should be considered. [↑](#footnote-ref-2)
3. Note codes T47 and T49 were not excluded from the original indicator in Phase 1. However this code has only been used since 01/07/2016 and therefore the inclusion/exclusion of these codes will have no effect since the time period for analysis is 2011-2013. However this has been coded to future-proof the use of this indicator. [↑](#footnote-ref-3)
4. Need this criteria as people who have not been discharged may still be receiving treatment and hence may not remain a short term / minimal client. [↑](#footnote-ref-4)