Hospital Mental Health Database, 2010–2011: User Documentation

Standards and Data Submission

Canadian Institute for Health Information
Institut canadien d'information sur la santé

Our Vision

Better data. Better decisions.
Healthier Canadians.

Our Mandate

To lead the development and maintenance of comprehensive and integrated health information that enables sound policy and effective health system management that improve health and health care.

Our Values

Respect, Integrity, Collaboration, Excellence, Innovation

Table of Contents

1 Introduction

This document provides users of the Hospital Mental Health Database (HMHDB) with information on its history and composition, as well as on the limitations of the data and the fitness of the data for various uses.

The HMHDB is an annual (fiscal year), pan-Canadian, event-based database that contains information on inpatient separations for psychiatric conditions from both general and psychiatric hospitals. The current database contains information on admission and separation dates, as well as diagnosis and demographic information. Since the HMHDB is event-based rather than person-based, an individual who had a psychiatric condition and more than one hospital separation in the fiscal year will appear in the database multiple times. In addition, the HMHDB is created based on information regarding separations from hospitals, which can occur through either discharge or death. Therefore, the population of the database should not be confused with the population of individuals who were hospitalized in a given fiscal year, as some individuals who are hospitalized in a given fiscal year are not separated until a subsequent fiscal year. In these cases, records are included in the database in the year of separation, not the year of admission to hospital.

The database contains a historical series from 1930 to 1994 that covers treatment in psychiatric hospitals. This data, referred to as the Hospital Mental Health Survey (HMHS), is maintained by Statistics Canada as the Mental Health Survey. The Canadian Institute for Health Information (CIHI) assumed responsibility for maintaining data on mental health hospitalizations from Statistics Canada beginning with data for the 1994–1995 fiscal year. Although CIHI maintains the data from 1994–1995 onward, mental health hospital data prior to that year is still held by Statistics Canada.

CIHI's first annual report on hospital mental health services was released in 2003, and was based on the data contained in the HMHDB for 2000–2001. The report focused on lengths of stay and separations for psychiatric conditions and contained results of analyses by province/territory, mental health diagnosis categories and selected demographic characteristics. The annual report series can be found on CIHI's website at www.cihi.ca/mentalhealth.

In 2006–2007, a unique identifier based on a patient's encrypted health card number was added to the database, thereby allowing for the tracking of individuals. This identifier is available for all records except those that were extracted from the HMHS; these constitute a small proportion of the database (see below).

As of October 1, 2006, Ontario facilities with designated adult mental health beds were mandated by the Ontario Ministry of Health and Long-Term Care to report psychiatric data to CIHI through the Ontario Mental Health Reporting System (OMHRS). The advent of OMHRS significantly affected the HMHDB's frame/parameters, year-over-year data comparability, and data collection and processing mechanisms. CIHI conducted an in-depth assessment of the integration of OMHRS data into the HMHDB to examine these effects, and modifications were made to enhance compatibility.

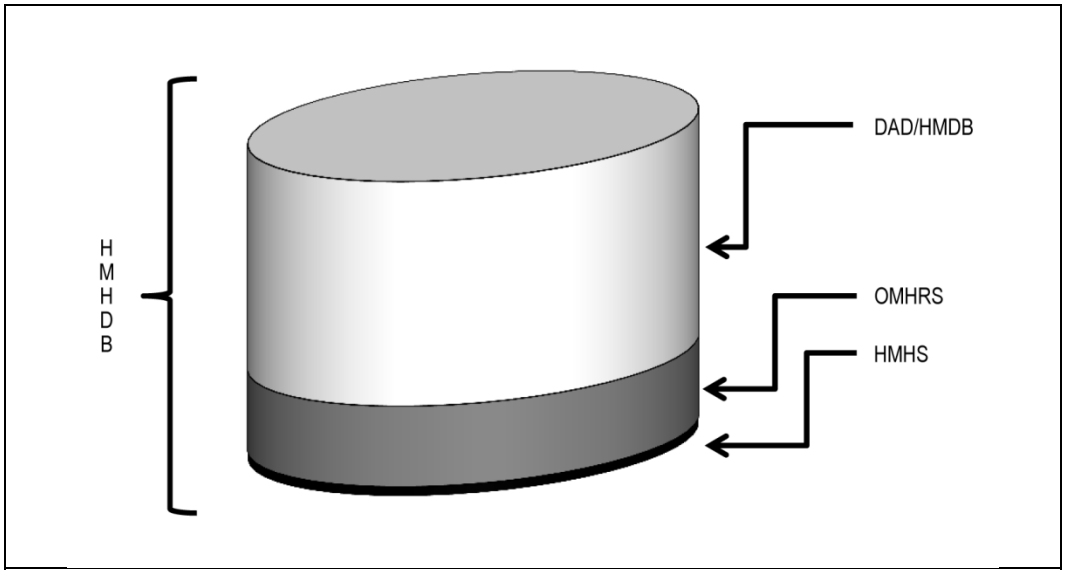
The current HMHDB has two primary components:

- General hospital data based on psychiatric separations, which is extracted as a subset of the Hospital Morbidity Database (HMDB) and OMHRS; and
- Psychiatric hospital data, which is extracted from the Discharge Abstract Database (DAD), the HMHS and OMHRS, with the exception of Quebec psychiatric hospital data, which is extracted from the HMDB.

The process by which data from these sources is combined to form the HMHDB is illustrated in Figure 1 and tables 1 and 2. This process is discussed in greater detail below.

The data quality assessment for the 2010–2011 data, of which the present document is a summary, was conducted in December 2012.

Figure 1: Data Source for the Hospital Mental Health Database



Notes
HMHDB: Hospital Mental Health Database.
DAD: Discharge Abstract Database.
HMDB: Hospital Morbidity Database.
OMHRS: Ontario Mental Health Reporting System.
HMHS: Hospital Mental Health Survey.

Table 1: Data Sources for General Hospitals in the Hospital Mental Health Database

Province/Territory	Source
British Columbia	Hospital Morbidity Database (HMDB)
Alberta	
Saskatchewan	
Manitoba	
Ontario*	
Quebec	
New Brunswick	
Nova Scotia	
Prince Edward Island	
Newfoundland and Labrador	
Yukon	
Northwest Territories	
Nunavut	
Ontario†	Ontario Mental Health Reporting System (OMHRS)

Notes

* Ontario general facilities report mental health separations from designated non-adult mental health beds to the HMDB.

† Ontario general facilities report mental health separations from designated adult mental health beds to OMHRS.

Table 2: Data Sources for Psychiatric Hospitals in the Hospital Mental Health Database

Province	Source
Saskatchewan	Hospital Mental Health Survey (HMHS)
Manitoba	
Ontario*	Ontario Mental Health Reporting System (OMHRS)
British Columbia	Discharge Abstract Database (DAD)
Alberta	
Saskatchewan	
Manitoba	
Ontario†	
New Brunswick	
Nova Scotia	
Prince Edward Island	
Newfoundland and Labrador	
Quebec	Hospital Morbidity Database (HMDB)

Notes

* Ontario specialty facilities report mental health separations from designated adult mental health beds to OMHRS.

† Ontario non-OMHRS specialty facilities report mental health separations to the DAD.

2 Concepts and Definitions

2.1 Mandate/Purpose

The mandate or purpose of the HMHDB is to compile and provide pan-Canadian information on separations from psychiatric and general hospitals for individuals who have a primary diagnosis of mental illness.

2.2 Population

As an event-based database, the HMHDB focuses on a population of events rather than on a population of individuals. The population of reference is defined as all separations that have a most responsible diagnosis of a psychiatric condition from psychiatric and general hospitals in Canada that submitted data to the DAD/HMDB, the HMHS or OMHRS between April 1, 2010, and March 31, 2011.

The following types of treatment services and facilities are **excluded** from the HMHDB:

- Outpatient facilities;
- Day and night centres;
- Offices of private practitioners;
- Residential care facilities for mental disorders, namely treatment centres for emotionally disturbed children, institutions for the mentally retarded and facilities for people with intellectual disabilities;
- Alcohol/drug treatment agencies; and
- Community mental health facilities.

Table 3 shows the number of facilities that reported data, the number of separations and the total length of stay for general and psychiatric hospitals. In 2010–2011, the HMHDB contained data on 194,312 separations. Of these separations, 167,942 (86.4%) were psychiatric separations from general hospitals whose data was derived from the HMDB and OMHRS; the remaining 26,370 separations were from psychiatric hospitals whose data was derived from the DAD/HMDB, the HMHS and OMHRS. These separations came from a total of 768 hospitals located across Canada.

Table 3: Separations and Length of Stay by Hospital Type, Hospital Mental Health Database, 2010–2011*

Type of Facility	Number of Submitting Facilities	Number of Separations	Length of Stay (Total Days)
General Hospitals	722	167,942	3,156,603
Psychiatric Hospitals	46	26,370	2,231,600
Total	**768**	**194,312**	**5,508,203**

Note

* Thirty-three separations from four Ontario specialty facilities were excluded due to outstanding data quality issues. These four facilities in the HMHDB used to report through the HMHS.

It is important to note that the number of facilities included in the HMHDB may vary from one fiscal year to the next for various reasons, including reorganization that results in some hospitals reporting under two separate institution numbers, where previously they reported under only one; the reappearance in the database of an institution that previously had separation counts at or around zero; and the exclusion of facilities from the HMHDB due to data quality issues or reporting constraints.

2.3 Data Elements and Concepts

The data elements in the HMHDB focus primarily on hospital separations and lengths of stay and are based on admission and separation dates. In addition, data elements cover types of diagnoses, age at admission, age at separation, gender and type of separation (that is, discharge or death). Although the HMHDB is an event-based database, in 2006–2007, a unique identifier consisting of a patient's encrypted health card number was added. As a result of this unique identifier, analyses that require tracking of individuals over time are now possible.

Table 4 provides a list of the key data elements in the HMHDB data file. Extended descriptions are available in the data dictionary that accompanied the HMHDB for the 2010–2011 data year.

Table 4: Main Data Elements, Hospital Mental Health Database

Data Element	Description	Type (Length)
YR	The fiscal year the patient was separated (April 1 to March 31)	Num (4)
PROV	The code for the province/territory in which the reporting hospital is located	Char (2)
HOSP	The hospital identification number as assigned to the hospital by the province/territory	Char (5)
BIRTHDATE	The patient's date of birth	Char (8)
SEX	The patient's gender	Char (1)
POSTALCODE	The patient's residential postal code	Char (6)
ADMITAGE	The age of the patient at admission	Num (8)
SEPAGE	The age of the patient at separation	Num (8)
ADMITDATE	The date the patient was admitted to the institution	Char (8)
SEPDATE	The date the patient was formally separated from the institution	Char (8)
LOS	The total number of days the patient was hospitalized, from date of admission to date of separation	Num (8)
SEPTYPE	The vital status of the patient upon separation	Char (1)
DATA_SOURCE	The original data source of the records in the merged file	Num (1)
ENCRYPTED_HCN	The unique encrypted health card number	Char (12)
PSYCH_HOSP	An indicator to differentiate psychiatric from general hospitals	Num (1)
DIAGCATEGORY*	The mental health diagnosis category	Char (40)

Note

* Please refer to Appendix A—Mental Illness Diagnosis Categories and Sub-Categories in the report *Hospital Mental Health Services in Canada*.

3 Major Data Limitations

The primary data limitations of the HMHDB are a result of changes to the frame over time and some data quality issues. Over the past few years, there have been a number of changes to the frame, particularly the lack of Quebec psychiatric hospital data for 2004–2005 and 2005–2006, which affected the historical series of the HMHDB. In some cases, hospitals that formerly reported to the HMHS began reporting through the DAD or OMHRS as a result of mergers with general hospitals. In other cases, hospitals stopped reporting altogether due to closures. These changes to the database frame place limitations on the year-to-year comparisons that can be made with the data. Although changes in the frame result in some limitations to the HMHDB, these changes are tracked each year and reported in successive data releases. However, due in part to annual changes in the frame, users are advised that any year-over-year comparisons should be considered with caution, particularly if large changes to length of stay or number of separations are encountered.

The event-based nature of the HMHDB should be considered when using the data. Because individuals who have had multiple separations appear in the database on multiple occasions, statistical analyses based on an assumption of independent observations should be avoided for the years for which there are no personal identifiers. It is expected that the multiple records that exist for some individuals will serve to inflate correlations in certain types of analyses. However, since 2006–2007, a unique identifier has been available; therefore, this limitation can be overcome.

Another limitation is related to the amount of admission data currently available in the HMHDB. When data on mental health services was originally collected by Statistics Canada, cases that were admitted to but not separated from hospitals were identified and included in the HMHS. Since provinces and facilities have gravitated toward reporting through the DAD, which records discharges rather than admissions, admission data has been de-emphasized.

Finally, the integration of OMHRS into the HMHDB presented challenges and resulted in a few data limitations that are important to note. As of 2006–2007, OMHRS data has been integrated into the HMHDB for designated adult inpatient mental health beds in Ontario. The major limitations persist from 2006–2007 and can be summarized as follows:

- Two types of mental health diagnostic codes are captured in an OMHRS record: provisional categories and *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) codes. About 20% and 18% of OMHRS records in the HMHDB for 2006–2007 and 2007–2008 respectively had neither provisional nor DSM-IV codes. This missing diagnostic information will affect some estimated indicators that were generated for diagnosis-specific groupings. For 2008–2009 and 2009–2010, the missing diagnostic information decreased to less than 1% and in 2010–2011 to 0.05%.
- There is a potential data quality issue in the HMHDB for 2007–2008 onwards due to the issue of OMHRS open episodes of care. For these open episodes, discharge assessment records that contain discharge dates were missing in OMHRS for patients who had been discharged from a designated mental health bed.

- When Ontario mandated reporting to OMHRS, each facility that reports to OMHRS was assigned a new facility number to report discharges from designated adult mental health beds; however, discharges related to mental health treatment for individuals in undesignated mental health beds in these facilities were still reported with the previous facility number. As a result, some facilities have at least two different facility numbers over time and more than one number in a given year. In some instances, two facility numbers may be used to represent a single facility. Any analysis at the facility level should be conducted after considering the source of the facility number.
- Four Ontario mental health specialty facilities in the HMHDB that used to report through the HMHS have a number of separations with artificial admission dates[i] that occurred during the OMHRS implementation period. For 2010–2011, 33 separations were affected. These separations should be excluded from analyses involving length of stay.

4 Coverage

4.1 HMHDB Frame

As mentioned, a notable change in the reporting of data occurred in 2005–2006. Psychiatric hospitals and general hospitals in Ontario with designated adult mental health beds began reporting mental health care through OMHRS. This means that the HMHDB data on separations from psychiatric and general hospitals in Ontario for 2006–2007 and beyond comes, for the most part, from OMHRS rather than from the DAD/HMDB or the HMHS, as in the past. All hospital separations that were treated in designated adult psychiatric beds in Ontario have been captured in OMHRS as of 2006–2007. Since that time, there have been separations for psychiatric illness in Ontario that were treated in non-psychiatric beds; these were captured in the DAD/HMDB and extracted from there for use in the HMHDB.

The frame of the HMHDB includes all facilities that reported data on psychiatric separations to the DAD/HMDB, the HMHS or OMHRS. In 2006–2007, 86.9% of HMHDB data was for separations that occurred at general hospitals. This proportion was 86.7% for 2007–2008, 87.1% for both 2008–2009 and 2009–2010, and 86.4% for 2010–2011. The remaining 13.1% of HMHDB data in 2006–2007 was for separations from psychiatric hospitals; similarly, the proportion was 13.3% for 2007–2008, 12.9% for 2008–2009 and 2009–2010, and 13.6% for 2010–2011. Data on separations for psychiatric conditions was submitted by hospitals from all provinces and territories.

4.2 Frame Maintenance Procedures

The DAD/HMDB and OMHRS teams at CIHI have kept all internal users of their data apprised of changes affecting those facilities that report to the DAD/HMDB and OMHRS.

i. During the OMHRS implementation period, these hospitals were instructed to submit an artificial OMHRS admission date for patients who had not been discharged yet, with April 1, 2006, as the artificial admission date. This has a significant impact on the calculation of length of stay.

4.3 Impact of the Frame Maintenance Procedures

As changes to the HMHDB frame occur yearly, the major impact of such changes will be on the comparability of the data over time. In some jurisdictions, restructuring of health services has meant that institutions have been reclassified. Often the changes involve psychiatric hospitals becoming part of a general hospital or part of a larger hospital system. As such, in addition to an impact on temporal comparisons, provincial comparisons of indices, such as average length of stay, will be affected because of variations in the amount of reclassification between psychiatric and general hospitals.

5 Collection and Non-Response

5.1 Data Collection/Abstraction

The four main data sources for the HMHDB are the DAD, the HMDB, the HMHS and OMHRS (see Figure 1). Data from the HMDB and OMHRS—general hospitals was provided as cuts of the main files based on the Chapter V (F codes) and G30* codes of ICD-10-CA and DSM-IV, which distinguish psychiatric cases. Data from the psychiatric hospitals was included regardless of diagnosis. From 2006–2007 to 2010–2011, data has been submitted to the DAD/HMDB file with diagnoses using the ICD-10-CA coding format, to OMHRS using the DSM-IV coding format, and to the HMHS using the DSM-IV coding format for Saskatchewan and the ICD-9-CM coding format for Manitoba.

To enhance verification and the correspondence between the counts provided by the data providers and those in the HMDB and OMHRS for general hospitals, extraction of the data files was conducted according to the format in which the data was originally coded. Thus, if the diagnosis was originally coded using ICD-10-CA, all primary separations that began with F as well as G30* were selected, as these are the ICD-10-CA codes associated with psychiatric diagnoses. If the original code was in ICD-9-CM or DSM-IV, all primary separations from 290 to 319 were selected, as these are the relevant psychiatric diagnostic codes in the ICD-9-CM and DSM-IV classification systems.

The data that comprised the HMHS was received from psychiatric hospitals and ministries of health. The data derived from the HMHS file is currently received from provincial providers in electronic format. Table 5 identifies data providers and the reporting and coding systems used to report their data.

Table 5: Reporting and Coding Systems, by Province/Territory and Hospital Type

Province/Territory	General Hospitals		Psychiatric Hospitals	
	Reporting System	Coding System	Reporting System	Coding System
British Columbia	HMDB	ICD-10-CA	DAD	ICD-10-CA
Alberta	HMDB	ICD-10-CA	DAD	ICD-10-CA
Saskatchewan	HMDB	ICD-10-CA	DAD/Direct*	ICD-10-CA/DSM-IV
Manitoba	HMDB	ICD-10-CA	DAD/Direct*	ICD-10-CA/ICD-9-CM
Ontario	HMDB/OMHRS	ICD-10-CA/DSM-IV	DAD/OMHRS	ICD-10-CA/DSM-IV
Quebec	HMDB	ICD-10-CA	HMDB	ICD-10-CA
New Brunswick	HMDB	ICD-10-CA	DAD	ICD-10-CA
Nova Scotia	HMDB	ICD-10-CA	DAD	ICD-10-CA
Prince Edward Island	HMDB	ICD-10-CA	DAD	ICD-10-CA
Newfoundland and Labrador	HMDB	ICD-10-CA	DAD	ICD-10-CA
Yukon	HMDB	ICD-10-CA	None	None
Northwest Territories	HMDB	ICD-10-CA	None	None
Nunavut	HMDB	ICD-10-CA	None	None

Notes

* Data was directly submitted to CIHI through the HMHS.

5.2 Data Quality Control

Controls on data quality for the HMHDB are based on protocols developed for the DAD, the HMDB,[ii] the HMHS and OMHRS.

Data from the DAD is subjected to a series of data quality steps that are intended to ensure data accuracy, to maintain the frame and to identify problem areas. In 2010–2011, the most recent reabstraction study on the contents of the DAD indicated that the level of overall error was minimal. The following are links to data quality information for the DAD and the HMDB:[iii]

- *Executive Summary: Data Quality Documentation, Discharge Abstract Database, 2010–2011*
- *Executive Summary: Data Quality Documentation, Hospital Morbidity Database, 2010–2011*
- Historical data quality documentation for the DAD and the HMDB
- *Ontario Mental Health Reporting System Data Quality Documentation, 2010–2011*
- *The Data Quality Study of the Canadian Discharge Abstract Database*
- *Quality of Hospital Morbidity Data: Discussion*
- *Quality Assurance Processes*

ii. The data that makes up the HMDB is derived as a subset of the DAD but is subjected to a different set of edits and quality controls than those for the DAD.

iii. Links were active as of December 2012, and were found on CIHI's and Statistics Canada's websites.

Data from the HMHS is subjected to a series of edit checks. Errors and anomalies are corrected before the data is subjected to a second round of edit checks to verify that the corrections that were implemented were valid. Occasionally, a third round of edit checks and corrections is necessary before the data is deemed to be free of specific errors. The edit checks primarily identify out-of-range values for certain data elements, erroneous admission or separation dates and age-related anomalies in diagnostic categories. For example, the edit procedure would correct a diagnosis code of senile dementia that might have been given to an individual younger than age 65, for whom a diagnosis of pre-senile dementia would have been technically more appropriate.

5.3 Non-Response

Unit non-response occurs when a facility in the DAD/HMDB, HMHS or OMHRS data frame does not submit data for the reporting period. Unit non-response is measured by finding the response rate and is calculated as follows:

$$\left(1 - \frac{\#\text{ of facilities that submitted data}}{\#\text{ of facilities on the frame}}\right) \times 100\%$$

Unit non-response is checked by comparing the current year's counts and lengths of stay by hospital with those of the previous year. Large and significant changes are noted and brought to the attention of providers during the data verification process. Unit non-response is usually attributable to hospital closures and reorganization; thus what initially appears as non-response is actually a permanent frame change. Unit non-response in the data derived from the HMHDB is estimated as follows:

- Number of hospitals that submitted data in 2010–2011:
  - General hospitals: 722
  - Psychiatric hospitals: 46
  - Total: 768
- Number of hospitals in the frame is the sum of
  - Hospitals with mental health separations that reported to the HMDB or OMHRS (722); and
  - Psychiatric hospitals that reported to the DAD, the HMHS or OMHRS (46).
  - Total: 768
- Thus
  - Total frame unit non-response equals (1 – 768 ⁄ 768) × 100% = 0.0%
  - Frame unit non-response for general hospitals equals (1 – 722 ⁄ 722) × 100% = 0.0%
  - Frame unit non-response for psychiatric hospitals equals (1 − 46 ⁄ 46) × 100% = 0.0%

Item non-response usually occurs when a record that is received has some blank data elements that should not be blank. Item non-response differs from unit non-response in that unit non-response deals with the number of units or records that are missing, while item non-response deals with the number of data elements that are missing within a record.

Item non-response for a data element is calculated as follows:

$$\left(1 - \frac{\text{\# of records for which data was reported}}{\text{\# of reporting records that should have reported the data}}\right) \times 100\%$$

Within the HMHDB data, certain data elements are available for only one of the data sources. For instance, the data element Admission Type is not reflected in the data from the HMDB or the HMHS; this data element is derived from the DAD only. Partial reporting can also be a function of provincial practices; an example is the two-letter postal abbreviation code that is used for Quebec separations instead of the six-digit postal code. Item non-response rates for some of the key data elements in the HMHDB are listed in Table 6.

Table 6: Item Non-Response Rates, Hospital Mental Health Database, 2010–2011

Data Element	Psychiatric Hospitals* N = 26,370	General Hospitals N = 167,942	All Hospitals N = 194,312
Date of Birth†	0.0%	0.0%	0.0%
Sex	0.0%	0.0%	0.0%
Postal Code‡	2.4%	1.5%	1.7%
Age at Admission	~0.0%	0.0%	~0.0%
Age at Separation	~0.0%	0.0%	~0.0%
Admission Date	0.0%	0.0%	0.0%
Separation Date	0.0%	0.0%	0.0%
Length of Stay	0.0%	0.0%	0.0%
Separation Type	0.1%	0.2%	0.1%
Source of Record	0.0%	0.0%	0.0%
Encrypted HCN	2.9%	0.6%	0.9%
Psychiatric Hospital Indicator	0.0%	0.0%	0.0%
Diagnosis Category	0.0%	0.0%	0.0%

Notes

* Thirty-three separations from four Ontario specialty facilities were excluded due to outstanding data quality issues. These four facilities in the HMHDB used to report through the HMHS.

† Quebec provides only an artificial date of birth (01Jan9999).

‡ Quebec provides the two-letter postal abbreviation code (QC).

5.4 Adjustment for Non-Response

Imputation was used to populate the diagnosis category (the broad mental health category that is based on the primary separation diagnosis code) when the primary diagnosis value from OMHRS was missing.

6 Revision History

Since the HMHDB was acquired from Statistics Canada, the main changes to the database have involved the frame and diagnostic coding. Diagnostic coding using the International Classification of Diseases has changed from using version ICD-9-CM[iv] to version ICD-10-CA. Another classification system, DSM-IV, is used for OMHRS data. Since 2006–2007, information on health regions and mental health categories has been added to the database to facilitate mapping data to specific groupings. However, this information has not resulted in any major revisions to the data set.

7 Comparability

The HMHDB makes a number of comparisons possible for indicators such as hospital length of stay and separations. When making comparisons over time (using previous iterations of the database) or across provinces/territories, users should be aware that certain limitations might apply. In particular, comparisons over time might be affected by changes in the frame that result in changes to the number of reporting institutions and ultimately to key data elements. As well, comparisons over time and across provinces/territories might be affected by both the recent integration into the HMHDB of OMHRS, which uses the DSM-IV diagnosis coding system and a different facility numbering system, and the changeover from ICD-9-CM to ICD-10-CA coding; however, the greater comprehensiveness and finer detail in coding using ICD-10-CA means that coverage of the major clinical psychiatric categories should not pose a problem.

The HMHDB synthesizes data on hospital separations for psychiatric cases in Canada from several sources. As such, it is a unique resource for information on and comparison of psychiatric hospitalizations across the country. Provincial comparisons for separations and lengths of stay were provided in the *2009–2010 Hospital Mental Health Services in Canada* report; as well, a dynamic presentation of the latest mental health statistics is provided through Quick Stats at www.cihi.ca. The data set also allows for comparisons between general and psychiatric hospitals, as well as among health regions.

8 Contact

Email: mentalhealth@cihi.ca

Website: www.cihi.ca/mentalhealth

iv. Manitoba facilities reporting to the HMHS still use the ICD-9-CM classification system.

9 Bibliography

Canadian Institute for Health Information. *Data Quality Documentation: Discharge Abstract Database, 2011–2012*. Ottawa, ON: CIHI; 2012.

Canadian Institute for Health Information. *Hospital Mental Health Services in Canada, 2009–2010*. Ottawa, ON: CIHI; 2012.

Richards, J, Brown A, Homan C. *The Data Quality Study of the Canadian Discharge Abstract Database: Proceedings of Statistics Canada Symposium 2001*. Ottawa, ON: Statistics Canada; 2001.

Seko, C. *Quality of Hospital Morbidity Data: Discussion: Proceedings of Statistics Canada Symposium 2001*. Ottawa, ON: Statistics Canada; 2001.

Canadian Institute for Health Information
495 Richmond Road, Suite 600
Ottawa, Ontario K2A 4H6

Phone: 613-241-7860
Fax: 613-241-8120
www.cihi.ca
copyright@cihi.ca

Cette publication est aussi disponible en français sous le titre *Base de données sur la santé mentale en milieu hospitalier 2010-2011 : documentation de l'utilisateur*.

Talk to Us

CIHI Ottawa
495 Richmond Road, Suite 600
Ottawa, Ontario K2A 4H6
Phone: 613-241-7860

CIHI Toronto
4110 Yonge Street, Suite 300
Toronto, Ontario M2P 2B7
Phone: 416-481-2002

CIHI Victoria
880 Douglas Street, Suite 600
Victoria, British Columbia V8W 2B7
Phone: 250-220-4100

CIHI Montréal
1010 Sherbrooke Street West, Suite 300
Montréal, Quebec H3A 2R7
Phone: 514-842-2226

CIHI St. John's
140 Water Street, Suite 701
St. John's, Newfoundland and Labrador A1C 6H6
Phone: 709-576-7006

www.cihi.ca
At the heart of data

Canadian Institute
for Health Information

Institut canadien
d'information sur la santé