



Clinical Administrative Databases
Privacy Impact Assessment, November 2012



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.

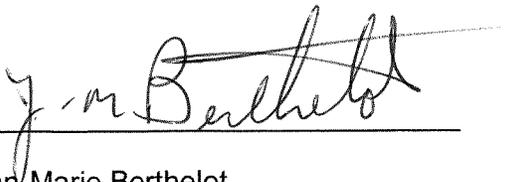
Our Values

Respect, Integrity, Collaboration,
Excellence, Innovation

CIHI is pleased to publish the following Privacy Impact Assessment pursuant to its Privacy Impact Assessment Policy:

Clinical Administrative Databases (CAD)
Privacy Impact Assessment

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Ottawa – November 2012

Table of Contents

Ten Quick Facts About the Clinical Administrative Databases	iii
1 Introduction	1
2 Clinical Administrative Databases at CIHI.....	1
2.1 Background	1
2.2 Description of Data Elements and Data Collection, and Overview of Data Flow	3
3 Privacy Analysis	9
3.1 Authorities Governing CIHI and the Clinical Administrative Databases	9
3.2 Principle 1: Accountability for Personal Health Information	10
3.3 Principle 2: Identifying Purposes for Personal Health Information	10
3.4 Principle 3: Consent for the Collection, Use or Disclosure of Personal Health Information	11
3.5 Principle 4: Limiting Collection of Personal Health Information.....	11
3.6 Principle 5: Limiting Use, Disclosure and Retention of Personal Health Information...	12
3.7 Principle 6: Accuracy of Personal Health Information	16
3.8 Principle 7: Safeguards for Personal Health Information	16
3.9 Principle 8: Openness About Management of Personal Health Information	17
3.10 Principle 9: Individual Access to and Amendment of Personal Health Information.....	17
3.11 Principle 10: Complaints About CIHI’s Handling of Personal Health Information	17
4 Conclusion	17

Ten Quick Facts About the Clinical Administrative Databases

1. The Clinical Administrative Databases (CAD) consist of two separate databases: the Discharge Abstract Database–Hospital Morbidity Database (DAD–HMDB) and the National Ambulatory Care Reporting System (NACRS).
2. The data supplied to the CAD is based on that which is collected from admission to discharge for inpatient acute visits, emergency department visits and outpatient (ambulatory care) visits (such as those in clinics or day surgery settings).
3. Prior to 2001, the HMDB was maintained separately from the DAD. Starting with 2001–2002 data, the two data holdings were merged.
4. The DAD was originally developed in 1963 to collect data on acute inpatient visits in Ontario.
5. The HMDB was developed by the Dominion Bureau of Statistics (now Statistics Canada) and was maintained by that organization until 1995, when responsibility was transferred to the Canadian Institute for Health Information (CIHI).
6. NACRS received its first full year of usable data in 2001–2002. Some data elements are specific to emergency activity, while others are specific to day surgery and/or clinic visits.
7. Special project fields are used to collect supplemental information required to meet specific jurisdiction and/or facility needs; these data elements are not routinely collected in the DAD and NACRS.
8. Limited data about long-term care, rehabilitation and mental health events is also collected from some hospitals and other health care facilities.
9. As of 2012, data is being collected for all acute inpatient and day surgery visits in all provinces and territories.
10. In 2011–2012, the most recent year for which data is complete, 3,258,256 records were submitted to the DAD and 18,143,511 records were submitted to NACRS. Approximately 750,000 records will be included in the HMDB from Quebec for 2011–2012.

1 Introduction

The Canadian Institute for Health Information (CIHI) collects and analyzes information on health and health care in Canada. Its mandate is to provide timely, accurate and comparable information to inform health policies, support the effective delivery of health services and raise awareness among Canadians of the factors that contribute to good health. CIHI obtains data directly from hospitals, regional health authorities, medical practitioners and governments, including patient personal health information and registration and health professional practice information.

The Clinical Administrative Databases (CAD) consist of two separate databases: the Discharge Abstract Database–Hospital Morbidity Database (DAD–HMDB) and the National Ambulatory Care Reporting System (NACRS). They were created in response to a need for standardized clinical administrative health services data that permits comparisons across the country. Governments use CAD data for funding, system planning and evaluation. Hospitals use the data to support facility-specific utilization management decisions and administrative analysis, as well as research.

The purpose of this privacy impact assessment (PIA) is to update a previous PIA completed in 2005–2006 and to re-examine the potential privacy, confidentiality and security risks, if any, associated with the CAD. A review was undertaken of the 10 privacy principles set out in the Canadian Standards Association’s *Model Code for the Protection of Personal Information*, as they apply to the CAD.

2 Clinical Administrative Databases at CIHI

2.1 Background

The CAD consist of two separate databases: the DAD–HMDB and NACRS. They are related in that each is a repository of clinical, demographic and administrative data that was originally collected by hospitals and other health care facilities. Each record submitted to the CAD is referred to as an abstract. Each abstract contains health care and administrative information about a patient during the normal course of a single inpatient, emergency or outpatient (ambulatory care) visit.

Discharge Abstract Database–Hospital Morbidity Database

Discharge Abstract Database

The DAD was originally developed in 1963 to collect data on acute inpatient separations in Ontario. Since then, coverage has expanded to include data for all acute care separations from all provinces and territories except Quebec. Day surgery data is also collected in the DAD. Limited data about long-term care, rehabilitation and mental health events is also collected from some facilities. The data collected on each record includes coded diagnostic, intervention and patient demographic and administrative information.

Hospital Morbidity Database

The HMDB is a national data holding that contains data about all acute inpatient separations from all provinces and territories. It was developed by the Dominion Bureau of Statistics (now Statistics Canada) and was maintained by that organization until 1995, when responsibility was transferred to CIHI. Statistics Canada continues to hold the data from 1960 to 1993–1994.

Approximately 77% of the acute care records included in the HMDB data set are collected via the DAD system; the remaining records are received directly from the ministère de la Santé et des Services sociaux du Québec in a single annual data submission following the closure of its provincial database, MED-ÉCHO, at the end of the fiscal year. The HMDB data file contains demographic, clinical and administrative data for acute inpatient care and day surgery separations, as well as data from some rehabilitation, chronic and psychiatric facilities, captured in MED-ÉCHO. The HMDB file format is not the same as the DAD file format; however, many of the data elements are the same. The HMDB contains a subset of the data elements in the DAD. To enable national reporting and provincial comparisons, CIHI, with the input of the Quebec ministry, maps the available MED-ÉCHO data elements to the DAD data elements where definitions and concepts are similar. This mapping allowed the two data holdings to be merged in 2001–2002.

Prior to 2001–2002, the HMDB was maintained separately from the DAD. The DAD and HMDB populations can be identified for analysis with the use of specific data elements created for this purpose. The name of the database is now the Discharge Abstract Database—Hospital Morbidity Database.

National Ambulatory Care Reporting System

Emergency and ambulatory care activity has grown significantly in recent years to become one of the largest-volume patient activities in Canadian health care. This increasing activity was the primary reason for creating NACRS, which captures clinical, administrative and demographic information from all facility-based and community-based emergency and ambulatory care: emergency departments, day surgery settings and outpatient clinics, such as those for diagnostic imaging, cardiac catheterization, renal dialysis and oncology. NACRS received its first full year of usable data in 2001–2002. Some data elements are specific to emergency activity, while others are specific to day surgery and/or clinic visits. NACRS currently collects data on emergency and ambulatory care events from all facilities in Ontario and Alberta, and from some facilities in Prince Edward Island, Nova Scotia, Manitoba, Saskatchewan, British Columbia and Yukon.

2.2 Description of Data Elements and Data Collection, and Overview of Data Flow

Description of Data Elements

The CAD hold patient demographic, diagnostic, intervention and administrative information. A hospital or clinic chart (for example, patient history, discharge summary, operative report and diagnostic test results report) contains patient-specific information that hospitals are legally required to collect, which reflects the normal course of patient care and administration for individual patients resulting from a hospital or clinic visit. The data supplied to the CAD is based on that which is collected between a patient's admission and separation, be it an inpatient acute visit (where a patient stay in hospital is usually longer than 24 hours), an emergency department visit or an outpatient (ambulatory care) visit (such as in a clinic or day surgery setting), where a patient stay in hospital or other health care facility is usually less than 24 hours.

The CAD contain data elements that could, alone or in combination with other information, lead to the identification of an individual. These elements include the original Health Care Number, full Postal Code, Date of Birth and Gender. The following links provide more details on CAD data elements: [Discharge Abstract Database \(Metadata\)](#) and [National Ambulatory Care Reporting System \(Metadata\)](#).

Below is a list of data elements collected in the CAD that are particularly sensitive.

Facility-Assigned Identifiers

- *Chart Number* (DAD, HMDB, NACRS)
- *Register Number* (DAD, NACRS)—This is not collected in all provinces.
- *Second Chart/Register Number/Sequence Number* (DAD, NACRS)—This is not collected in all facilities.
- *Maternal/Newborn Chart or Register Number* (DAD, HMDB)

Emergency Services—Assigned Identifiers

- *Ambulance Call Number* (NACRS)—This is not collected in all facilities.

Personal Attributes/Identifiers

- *Health Care Number* (DAD, HMDB, NACRS)—Health care (card) numbers from Manitoba and Quebec are encrypted by Manitoba Health and the ministère de la Santé et des Services sociaux du Québec, respectively, prior to submission to CIHI. Health care numbers from P.E.I. are submitted to CIHI in the *Chart Number* field.
- *Date of Birth* (DAD, HMDB, NACRS)—Quebec submissions to the HMDB include the age of the patient in lieu of Date of Birth; age is derived at the Quebec health ministry using CIHI's methodology.
- *Living Arrangement* (NACRS)—Examples include living with family or living in an institution. This is not collected in all facilities.

- *Residence Type* (NACRS)—Examples include living in a private dwelling or homeless. This is not collected in all facilities.
- *Highest Level of Education* (NACRS)—This is not collected in all facilities.

Geographic Attributes of the Patient

- *Postal Code* (DAD, HMDB)—All provinces submit full patient postal codes to the DAD–HMDB, with the exception of Quebec. Patient geographic information submitted by Quebec consists of a mini-postal code (a two-letter code identifying the Canadian province/territory of residence) and a ministry-assigned administrative (health) region code for Quebec residents and Quebec facilities.

Clinical Attributes

- *Diagnoses and Interventions* (DAD, HMDB, NACRS)—The main clinical information in the CAD is related to diseases or health problems (diagnoses) and the procedures or treatments applied (interventions). Diagnosis information is captured using the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada (ICD-10-CA) standard; the ICD is an international standard for reporting clinical diagnoses developed by the World Health Organization, and the ICD-10-CA is an enhanced version developed by CIHI for morbidity classification in Canada. ICD-10-CA classifies diseases, injuries and causes of death, as well as external causes of injury and poisoning. Intervention information is captured using the Canadian Classification of Health Interventions (CCI), which was developed by CIHI to accompany ICD-10-CA.
- *Supplemental Information for Reproductive Care and Mental Health Information* (DAD, NACRS)—This is not collected in all provinces.

Data Collection

Health records personnel in hospitals and other health care facilities use CIHI's coding standards and the DAD or NACRS abstracting manual to code and abstract specific data elements from the facility's records. Some data is electronically captured from hospital information systems (for example, a registration system or emergency department information system), and other data is manually entered into software applications specifically developed for coding and abstracting. Each record submitted represents a single inpatient, emergency or outpatient visit and is referred to as an abstract.

Data collected in designated fields is either mandatory or optional. A mandatory field is one that all provinces collect and includes information, such as Date of Birth or Gender, that is core to analyses or permits the categorization of patients into clinically cohesive groups. Optional fields are those that are not collected in all provinces or facilities. There are also fields that individual provinces, hospitals or other health care facilities may mandate for collection. Provinces, hospitals or other health care facilities also have the option of capturing information in special project fields to support specific initiatives. Special project fields are used to collect supplemental information required for specific jurisdictional and/or facility needs; these data elements are not routinely collected in the DAD and NACRS.

As of 2011, data is being collected for all acute inpatient and day surgery visits in all provinces and territories. Data for emergency department and ambulatory care separations is also being collected in some provinces and territories, with varying levels of coverage.

Limited data about long-term care, rehabilitation and mental health events is also collected from some hospitals and other health care facilities. In 2011–2012, the most recent year for which data is complete, 3,258,256 records were submitted to the DAD and 18,143,511 records were submitted to NACRS. Approximately 750,000 records will be included in the HMDB from Quebec for 2011–2012.

The table below summarizes the coverage of the DAD, the HMDB and NACRS as of 2012–2013:

Table 1: Summary of 2012–2013 Coverage, by Event Type and Province/Territory, for CAD

Event Type	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Nun.	Y.T.
Acute Care	D/H	D/H	D/H	D/H	H	D/H	D/H	D/H	D/H	D/H	D/H	D/H	D/H
Day Surgery	D	D	N	D	H [†]	N	D	D	N	D	D	D	D
Emergency Department (Level 1 Data)			N*			N	N*	N*	N	N			
Emergency Department (Level 3 Data)		N*	N*			N			N				N
Ambulatory Clinics						N			N				
Rehabilitation			D*	D*	H*				D*	D*			
Special Rehabilitation			D*										
Chronic Care	D*			D*	H*	D*	D*	D*		D*	D*		
Psychiatric			D*	D*	H [†]		D*		D*				
Home for the Aged							D*						

Notes

* Submissions from a limited number of facilities only.

† Quebec day surgery and psychiatric data is housed in the DAD–HMDB data tables but is not part of the DAD or HMDB populations.

D: Discharge Abstract Database (DAD).

H: Hospital Morbidity Database (HMDB).

N: National Ambulatory Care Reporting System (NACRS).

Overview of Data Flow

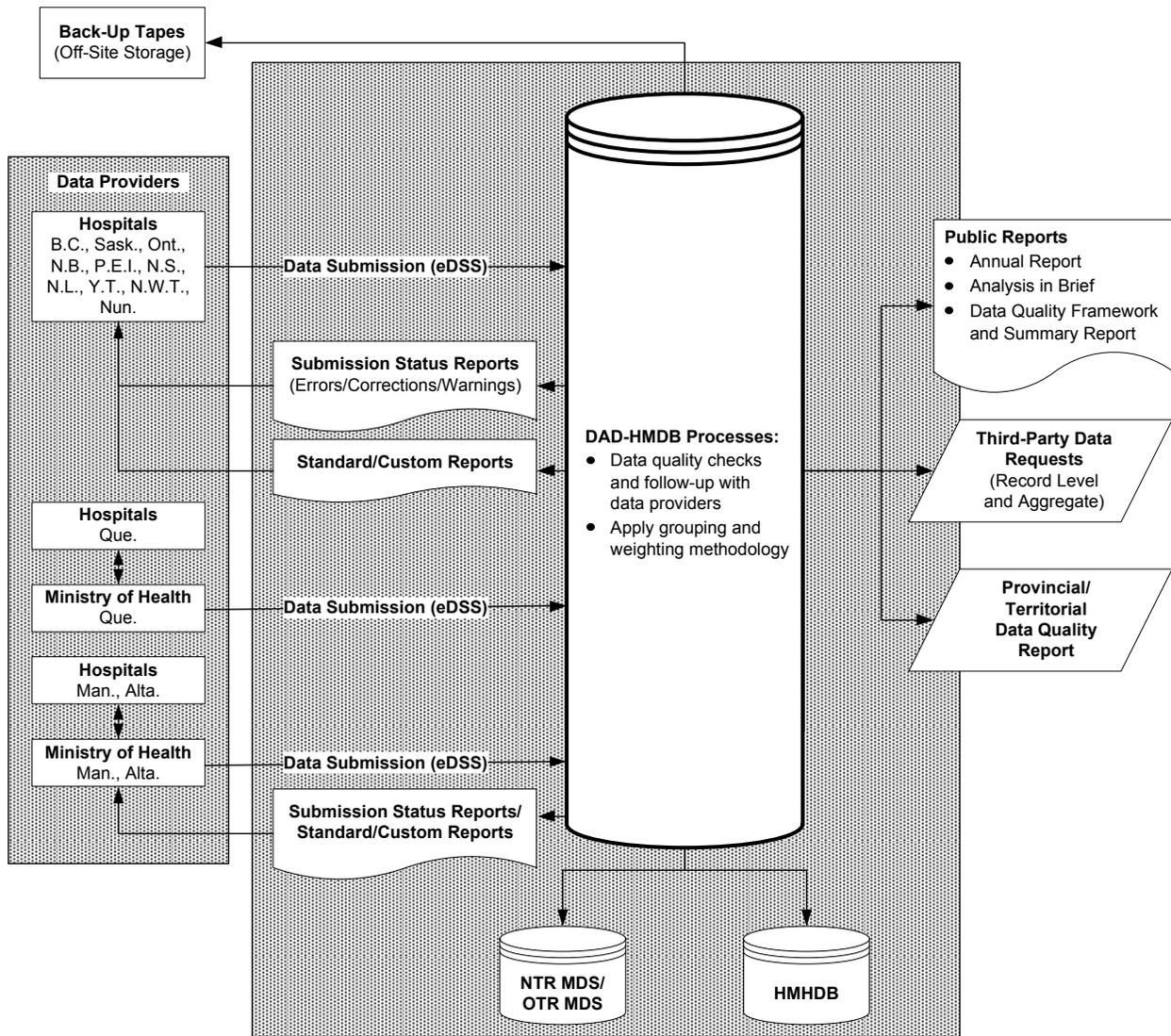
Data for the DAD and NACRS is received directly from submitting facilities in participating provinces and territories, with the exception of Alberta and Manitoba. In Alberta and Manitoba, hospitals submit their data to the provincial ministry of health, which then, in its role as a custodian or trustee, submits the data to CIHI. As Quebec does not participate in the DAD, its ministry of health submits one data file annually to CIHI specifically for the HMDB.

Data collection standards are set out in documents prepared and maintained by the CAD, such as coding standards, abstracting manuals and data dictionaries, and are used to specify validity/edit checks on the data transmitted from facilities to identify duplicate records, missing and/or invalid data and inconsistencies in data transmissions. If and when errors are found, facilities are notified and are given an opportunity to submit corrected abstracts, delete duplicates or submit additional abstracts missing at the time of initial submission.

Incoming CAD data is submitted to CIHI through CIHI's secure web-based electronic Data Submission Services (eDSS). Once in CIHI's possession, data is processed and validated (that is, run through edit checks) on central data servers. Prior to loading data into or extracting it from production databases, where it will be used and accessed for internal and external reporting and analysis, CIHI applies various formulas to the data to make it meaningful for analysis and to source CIHI's Trauma Registries and the Hospital Mental Health Database.

The following figures present an overview of the data flow for the DAD–HMDB and NACRS.

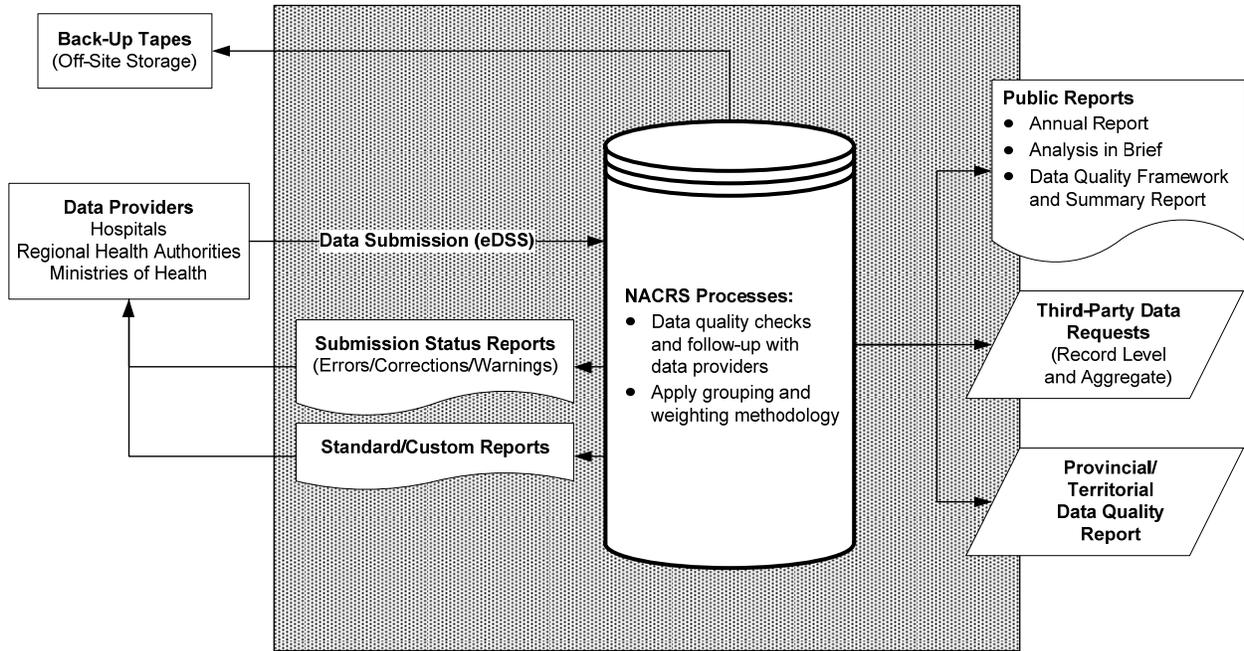
Figure 1: Clinical Administrative Databases: Discharge Abstract Database–Hospital Morbidity Database



Notes

NTR MDS: National Trauma Registry Minimum Data Set.
 OTR MDS: Ontario Trauma Registry Minimum Data Set.
 HMHDB: Hospital Mental Health Database.

Figure 2: Clinical Administrative Databases: National Ambulatory Care Reporting System



3 Privacy Analysis

3.1 Authorities Governing CIHI and the Clinical Administrative Databases

General

CIHI adheres to its *Privacy Policy on the Collection, Use, Disclosure and Retention of Personal Health Information and De-Identified Data, 2010*, and to any applicable privacy legislation and/or agreements.

Legislation

CIHI is a secondary data collector of health information, specifically for the planning and management of the health system, including statistical analysis and reporting. Data providers are responsible for meeting the statutory requirements in their respective jurisdictions, where applicable, at the time the data is collected.

All provinces and territories have public-sector privacy legislation in place. Canadian privacy legislation includes provisions that authorize public bodies covered by the acts to disclose person-identifiable data, without the consent of the individual, for statistical purposes. Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick and Newfoundland and Labrador (legislation pending in Nova Scotia) also have health information-specific privacy legislation with express lawful authority to use and disclose personal health information, without individual consent, for purposes of managing the health system, including statistical analysis and reporting.

For example, CIHI is recognized as a prescribed entity under the *Personal Health Information Protection Act* of Ontario. Custodians in Ontario may disclose personal health information to CIHI without patient consent pursuant to Section 29, as permitted by Section 45(1) of the act.

Agreements

As indicated above in Section 2.2, CAD data flows directly to CIHI via existing applications/systems from data providers, for example, from hospitals and other health care facilities. For the most part, these existing data flows are governed by CIHI's *Privacy Policy, 2010*, existing legislation in the jurisdictions and data-sharing agreements with the provinces and territories. The data-sharing agreements set out the purpose, use, disclosure, retention and disposal requirements, as well as any subsequent data sharing that may be permitted. The agreements also describe the legislative authority under which personal health information is disclosed to CIHI.

3.2 Principle 1: Accountability for Personal Health Information

CIHI’s President and Chief Executive Officer is accountable for ensuring compliance with CIHI’s *Privacy Policy, 2010*. CIHI has a Chief Privacy Officer and General Counsel, a corporate Privacy, Confidentiality and Security team, a Privacy and Data Protection Committee of its Board of Directors and an external Chief Privacy Advisor.

Organization and Governance

CIHI’s Steering Committee for National Clinical Administrative Databases guides the ongoing maintenance and enhancements of the CAD. The committee discusses and makes recommendations to CIHI on operational or strategic issues related to the DAD–HMDB and NACRS. Each province or territory appoints a member to this committee, with the requirement that the member be able to provide input representing the province’s or territory’s position on matters related to the CAD and bring back relevant information for discussion. In addition, there is one representative from Statistics Canada and one representative from the Public Health Agency of Canada.

The following table identifies key internal senior positions within CIHI with responsibilities for the CAD in terms of privacy and security risk management.

Position/Group	Roles/Responsibilities
Vice President, Programs	Responsible for the overall operations and strategic direction of the CAD
Director, Acute and Ambulatory Care Information Services	Responsible for strategic and operational decisions about the CAD and ensuring their continued successful development
Manager, Clinical Administrative Databases (Two Positions)	1) Responsible for CAD development and expansion, including eReporting and production systems 2) Responsible for other CAD operations, including client support, education, data quality and analytics
Vice President and Chief Technology Officer	Responsible for the strategic direction and overall operations/implementation of CIHI’s technological and security solutions
Chief Privacy Officer	Responsible for the strategic direction and overall implementation of CIHI’s privacy program

3.3 Principle 2: Identifying Purposes for Personal Health Information

Personal health information is collected for the CAD for the following purposes:

- Analyze acute inpatient separations and ambulatory care events.
- Support management decision-making at the facility, regional and provincial/territorial levels and management report cards.
- Facilitate provincial and national comparative reporting, including health system performance and longitudinal analysis.

- Support the development and use of analytical tools, such as case grouping methods, length of stay analysis and resource utilization analysis.
- Support administrative research, system planning and evaluation, as well as funding decisions.
- Support quality and risk management.
- Streamline data collection and reduce duplication between provinces.

The intended purposes and scope of the CAD are clearly identified in this PIA, on CIHI's website and in relevant publications.

3.4 Principle 3: Consent for the Collection, Use or Disclosure of Personal Health Information

CAD data is disclosed to CIHI without individual consent, for purposes of planning and managing the health system, including statistical analysis and reporting.

3.5 Principle 4: Limiting Collection of Personal Health Information

CIHI is committed to the principle of data minimization. Per sections 1 and 2 of CIHI's *Privacy Policy, 2010*, CIHI collects from data providers only the personal health information and de-identified data that is reasonably required for health system uses, including statistical analysis and reporting, in support of the management, evaluation or monitoring of the allocation of resources to, or planning for, the health care system in Canada, including support for the improvement of the overall health of Canadians.

CIHI limits its collection of personal health information to that which is necessary to support authorized data quality and analytical activities. The data elements collected and their purpose have been identified in consultation with appropriate stakeholders, including CIHI's Steering Committee for National Clinical Administrative Databases.

The CAD also contain data collected in special project fields found in the DAD and NACRS abstracts. This data is used by data providers to capture supplemental information not routinely captured in the DAD and NACRS abstracts for all jurisdictions. A range of special project fields is reserved for the use of CIHI and/or specific jurisdictions (for example, fields for wait times and stroke information). Data related to these reserved projects is stored within the DAD and NACRS and routinely returned to data providers as part of CIHI's data quality processing, which includes error/warning notifications. CIHI may use and report on this project information, where appropriate.

For unreserved project fields—those not specified for use by CIHI and/or specific provinces/territories—undefined data in the form of alpha and/or numeric values may be submitted to CIHI. These values are meaningful only to the data provider. The DAD and NACRS abstracting manuals inform data providers to not use special project fields to record personal identifiable or confidential information (such as health care [card] numbers, chart numbers and provider numbers).

3.6 Principle 5: Limiting Use, Disclosure and Retention of Personal Health Information

Limiting Use

CIHI limits the use of data in the CAD to authorized purposes, as described in Section 3.3. This includes comparative analyses within and among jurisdictions; trend analyses to assess/monitor the impact of differences in policy, practices and service delivery; and statistics to support planning, management and quality improvement. Staff from the CAD program area are permitted to access and use data on a need-to-know basis only, including for data processing and quality management, the production of statistics and data files, and conducting analyses. All authorized users are made aware of their obligations and responsibilities for privacy and confidentiality. All CIHI staff are required to sign a confidentiality agreement at the commencement of employment, and they are subsequently required to renew their commitment to privacy yearly.

Direct identifiers such as patient names are not collected in the CAD. Since 2009, data sets used for analysis purposes do not contain direct identifiers such as unencrypted (original) health care numbers. Health care numbers in an unencrypted (original) form are available to CIHI staff on an exceptional, need-to-know basis only. Semi-annually, the CAD audit data fields in the DAD–HMDB and NACRS to determine whether health care numbers have been submitted in non-health care number fields.

Subsets of CAD data are extracted and used to create parts of CIHI's Hospital Mental Health Database, National Trauma Registry and Ontario Trauma Registry. Each of these separate program areas has completed a PIA and may release its own reports and respond to requests for data from third parties. All data requests or reports are subject to CIHI's *Privacy Policy, 2010*, and related procedures.

CAD data is used to create case mix methodologies including Case Mix Group+ (CMG+),ⁱ the Comprehensive Ambulatory Classification System (CACS) and the Resource Intensity Weight (RIW)ⁱⁱ methodologies, which are used by hospitals and ministries to study health system utilization and resource allocation. CAD data is used by CIHI's Research and Analysis division and all analytical areas across CIHI to conduct analyses, create reports and undertake special studies. Annual CIHI reports using CAD data include *Health Care in Canada* and *Health Indicators*.

i. This is the new acute care inpatient ICD-10-CA/CCI grouping methodology.

ii. This is the resource indicator used with CMG+.

Data Linkage

Sections 14 to 31 of CIHI's *Privacy Policy, 2010*, govern linkage of records of personal health information. Pursuant to this policy, CIHI permits the linkage of personal health information under certain circumstances. Data linkage within a single data holding for CIHI's own purposes is generally permitted. Data linkage across data holdings for CIHI's own purposes and all third-party requests for data linkage are subject to an internal review and approval process. When carrying out data linkages, CIHI will generally do so without using names or personal health numbers. The linked data remains subject to the use and disclosure provisions in the *Privacy Policy, 2010*.

Criteria for approving data linkages are set out in sections 23 and 24 of CIHI's *Privacy Policy, 2010*, as follows:

- (23) The individuals whose personal health information is used for data linkage have consented to the data linkage; or
- (24) All of the following criteria are met:
- a. The purpose of the data linkage is consistent with CIHI's mandate;
 - b. The public benefits of the linkage significantly offset any risks to the privacy of individuals;
 - c. The results of the data linkage will not be used for any purpose that would be detrimental to the individuals that the personal health information concerns;
 - d. The data linkage is for a time-limited specific project and the linked data will be subsequently destroyed in a manner consistent with sections 28 and 29; or
 - e. The data linkage is for the purposes of an approved ongoing program of work at CIHI where the linked data will be retained for as long as necessary to meet the identified purposes and, when no longer required, will be destroyed in a manner consistent with sections 28 and 29; and
 - f. The data linkage has demonstrable savings over other alternatives or is the only practical alternative.

Section 28 of CIHI's *Privacy Policy, 2010*, sets out the requirement that CIHI will destroy personal health information and de-identified data in a secure manner, using destruction methodologies appropriate to the format, media or device, such that reconstruction is not reasonably foreseeable.

Section 29 of CIHI's *Privacy Policy, 2010*, further requires that for linked data, secure destruction will occur within one year after publication of the resulting analysis or three years after the linkage, whichever is sooner, in a manner consistent with CIHI's *Information Destruction Standard*. For linked data resulting from an ongoing program of work at CIHI, secure destruction will occur when the linked data is no longer required to meet the identified purposes, in a manner consistent with CIHI's *Information Destruction Standard*. This requirement applies both to data linkages for CIHI's own purposes and to third-party data requests.

Return of Own Data

Section 34 of CIHI's *Privacy Policy, 2010*, establishes that the return of data to the health care facility that originally provided it to CIHI or the relevant ministry of health is not a disclosure; rather, it is considered a use.

On an ongoing basis, CIHI makes available to data providers reports on the outcome of their data submissions, including details of records that contain errors, so these organizations can investigate and, where necessary, correct and resubmit data. Following a specified time frame, CIHI will return to providers data in standardized reports, including value-added data elements (such as case mix-related data elements, including CMGs and RIWs) consistent with the purpose of the CAD.

When requested, CIHI provides customized data cuts of record-level or aggregate data back to the original data providers and/or their respective provincial or territorial ministries of health. Such data cuts may contain personal health information and are returned to the original data provider in accordance with CIHI's *Privacy Policy, 2010*.

Limiting Disclosure

Disclosures to Data Provider Community

CIHI creates statistics based on the CAD data and discloses them to registered users. These reports include aggregate and de-identified information on patient demographics, clinical outcomes, service utilization, and quality and performance indicators. They also include organization-specific reports and reports comparing information across organizations, but they do not contain any person-identifying information (for example, they exclude health care numbers, dates of birth and full postal codes).

The CAD make aggregate data accessible to registered users (that is, organizations that submit data to the CAD and their respective provincial or territorial ministries of health) through CIHI's eReporting System—a secure, web-based business intelligence tool that provides registered users with an online means of viewing and customizing reports to suit their business needs, along with performing trending and comparing utilization and performance indicators with other facilities in the DAD and NACRS. CAD's eReports are composed of eDAD and eNACRS.

Subsets of de-identified data from the DAD–HMDB and NACRS are also included in CIHI Portal, an analytical web-based tool for health care data that was designed by CIHI to provide clients, such as hospitals, regional health authorities and ministries of health, with online access to pan-Canadian health care data in a secure environment that safeguards privacy and confidentiality. Clients sign a service agreement that limits their rights to use and disclose confidential information, including personal health information and facility-identifiable information, obtained through CIHI Portal. (The following links provide more details on the [CIHI Portal PIA](#), including the [2008–2009](#) and [2010–2011](#) addenda.)

Public Release of CAD Data

As part of its mandate, CIHI publishes aggregated data only in a manner designed to minimize any risk of identifiability and residual disclosure. This generally requires a minimum of five observations per cell. Aggregate statistics and analyses are made available on CIHI's website. These publications include Quick Stats tables and Analysis in Brief reports, such as *Caring for Seniors With Alzheimer's Disease and Other Forms of Dementia*, released in 2010.

Third-Party Data Requests

CIHI administers a third-party data request program, which contains and ensures tight privacy and security controls within the recipient organization. Furthermore, as set out in sections 45 to 47 of CIHI's *Privacy Policy, 2010*, CIHI's data disclosures are made at the highest degree of anonymity possible while still meeting the research and/or analytical purposes of the requester. Only those data elements necessary to meet the intended purpose may be disclosed. Whenever possible, data is aggregated. Where aggregate data is not sufficiently detailed for the intended purpose, data that has been de-identified may be disclosed to the recipient on a case-by-case basis. Recipients are required to submit a written request, enter into an agreement or other legally binding instrument with CIHI, and agree to comply with the conditions and restrictions, including CIHI's right to audit, imposed by CIHI relating to the collection, purpose, use, security, disclosure and return or disposal of data.

In 2009, CIHI adopted a complete lifecycle approach to data management. As part of that lifecycle, Privacy and Legal Services (PLS) developed and is responsible for the ongoing compliance monitoring process whereby all data sets that are disclosed to third-party data recipients are tracked and monitored for secure destruction at the end of their lifecycle.

As of January 2011, in addition to the compliance monitoring process, which leverages data captured to monitor compliance with data destruction requirements, PLS contacts third-party data recipients on an annual basis to certify that they continue to comply with their obligations as set out in the Third-Party Data Request Form and Non-Disclosure/Confidentiality Agreement signed with CIHI.

Data recipients must also sign an agreement wherein they agree to use the data for only the research specified. All non-disclosure/confidentiality agreements with third parties specify that receiving organizations must keep de-identified record-level data strictly confidential and not disclose such data to anyone outside the organization.

Limiting Retention

The CAD form part of CIHI's information holdings; as such, consistent with its mandate and core functions, CIHI retains such information for as long as necessary to meet the identified purposes.

3.7 Principle 6: Accuracy of Personal Health Information

CIHI has a comprehensive data quality program. Any known data quality issues are addressed by the data provider or documented in data limitations documentation, which is made available to all users.

Similar to other CIHI data holdings, the CAD are subject to an annual data quality assessment, based on CIHI's *Data Quality Framework*. This framework provides an objective approach to applying consistent criteria that focus on data quality priorities, assessing the data quality of a data holding and producing standard data-holding documentation with the ultimate goal of continuous improvement in data quality for CIHI's data holdings. It considers data quality from a user's perspective, whereby quality is defined as "fitness for use." Data quality is assessed based on 19 characteristics rolled up into five dimensions: timeliness, usability, relevance, accuracy and comparability. The process to complete the framework contains numerous activities to assess the accuracy of the data.

3.8 Principle 7: Safeguards for Personal Health Information

CIHI Privacy and Security Framework

CIHI has developed a *Privacy and Security Framework* to provide a comprehensive approach to privacy and security management. Based on best practices from across the public, private and health sectors, the framework is designed to coordinate CIHI's privacy and security policies and provide an integrated view of the organization's information management practices. Key aspects of CIHI's system security with respect to the CAD are described below.

System Security

CIHI has created preferred methods of collection that set out standard practices for the secure submission of data. All CAD data is submitted to CIHI electronically in keeping with the *Health Data Collection Standard*.

More generally, CIHI has established physical, technical and administrative security practices to ensure the confidentiality and security of all of its data holdings. Moreover, CIHI employees are made aware of the importance of maintaining the confidentiality of personal health information through a mandatory privacy and security training program, and through ongoing communications about CIHI's privacy and security policies and procedures.

CIHI is committed to safeguarding its IT ecosystem, to securing its data holdings and to protecting information with administrative, physical and technical security safeguards appropriate to the sensitivity of the information. Audits are an important component of CIHI's overall information security program and are intended to ensure that best practices are being followed and to assess compliance with all information security policies, procedures and

practices implemented by CIHI. Audits are used to assess, among other things, the technical compliance of information processing systems with best practices and published architectural and security standards, CIHI's ability to safeguard its information and information processing systems against threats and vulnerabilities, and the overall security posture of CIHI's technical infrastructure, including networks, servers, firewalls, software and applications.

An important component of CIHI's audit program is regular third-party vulnerability assessments and penetration tests of its infrastructure and selected applications. All recommendations resulting from third-party audits are tracked in the corporate risk register, and action is taken as needed.

3.9 Principle 8: Openness About Management of Personal Health Information

CIHI makes information available about its privacy policies, data practices and programs relating to the management of personal health information on its corporate website. As well, this PIA will be accessible on CIHI's website (www.cihi.ca).

3.10 Principle 9: Individual Access to and Amendment of Personal Health Information

Personal health information held by CIHI is not used by CIHI to make any administrative or personal health decisions affecting the individual. Requests from individuals seeking access to their personal health information will be processed in accordance with sections 60 to 63 of CIHI's *Privacy Policy, 2010*. It should be noted that over the six years since the original CAD PIA was completed, there have been no cases where an individual has approached CIHI to request access to, or amendment, of his or her personal health information in the CAD.

3.11 Principle 10: Complaints About CIHI's Handling of Personal Health Information

As set out in sections 64 and 65 of CIHI's *Privacy Policy, 2010*, complaints about CIHI's handling of personal health information are investigated by the Chief Privacy Officer. The Chief Privacy Officer may direct an inquiry or complaint to the privacy commissioner of the jurisdiction of the person making the inquiry or complaint.

4 Conclusion

This PIA summarizes CIHI's assessment of the privacy implications of CIHI's CAD. No privacy risks were identified in this assessment.

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