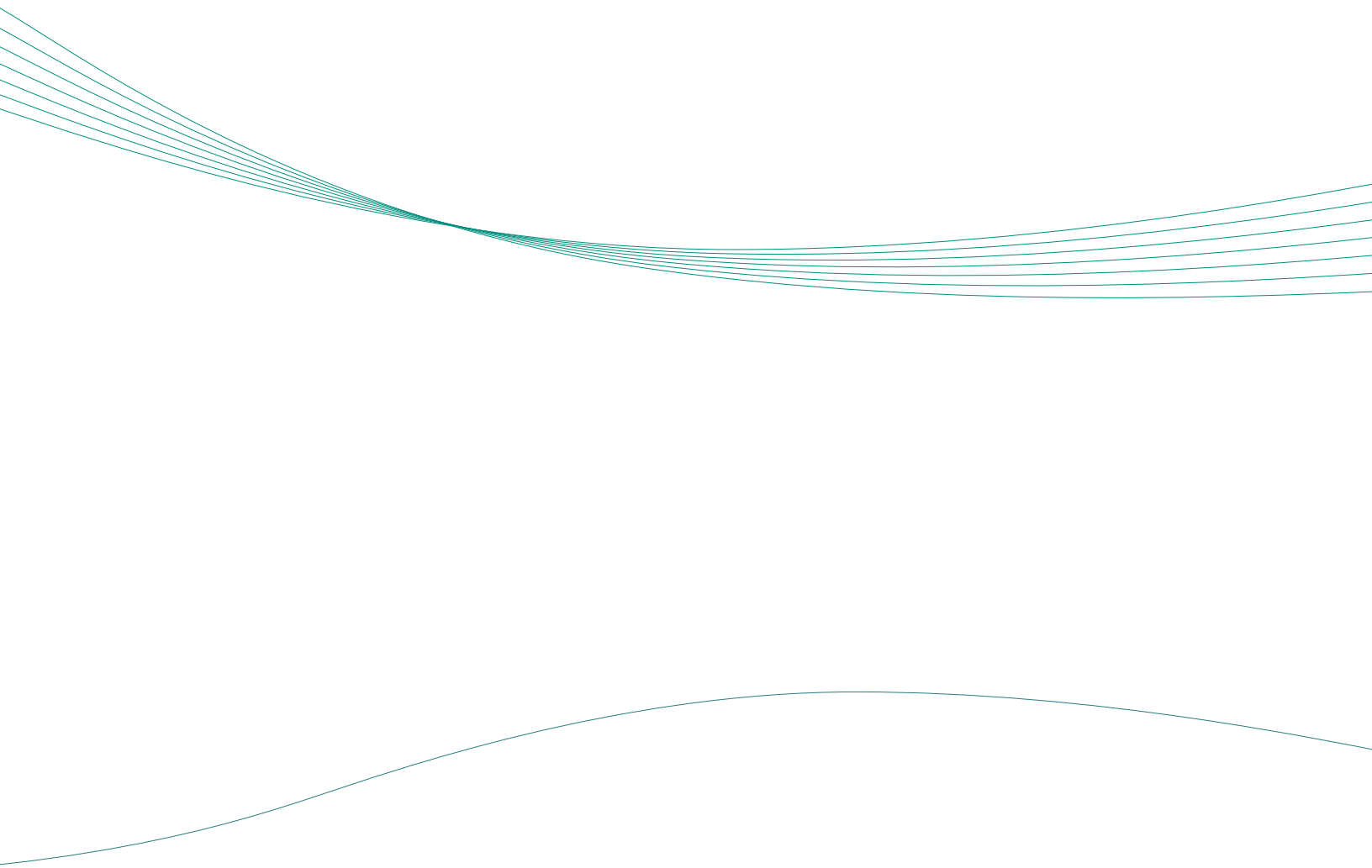


Table of Contents

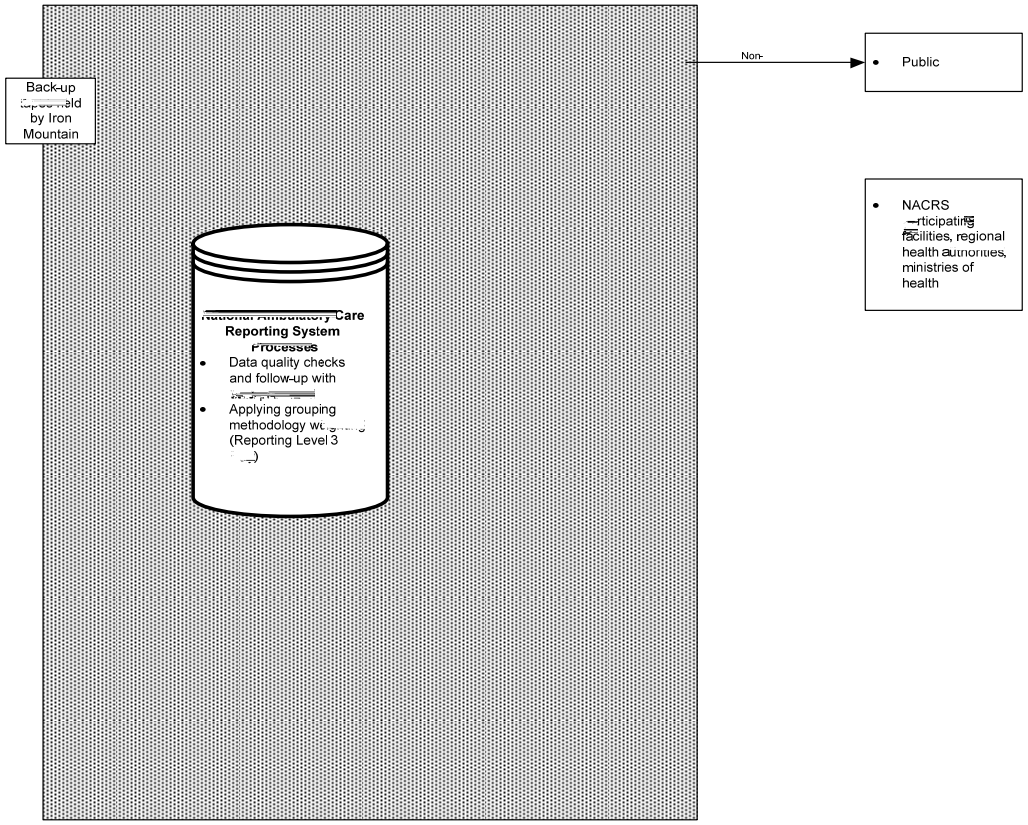
1 Introduction

1.1 An Overview of the National Ambulatory Care Reporting System

The National Ambulatory Care Reporting System (NACRS) at the Canadian Institute for Health Information (CIHI) is a national database designed to capture information on client visits to facility- and community-based ambulatory care. Data about visits is collected at the time of service in participating facilities. Data elements in NACRS can be grouped according to five categories—demographic, clinical, administrative, financial and service-specific—with information on discharges, deaths and transfers within a fiscal year (April 1 to March 31). Over time, NACRS has been used to capture not only emergency department (ED) visits but also day surgery (DS) procedures, diagnostic imaging (DI) visits and numerous clinic visits, including renal dialysis (RD), cardiac catheterization (CC), oncology (OC) and mental health (MH).

Figure 1 illustrates the flow of data in NACRS and the uses of NACRS information.

Figure 1: National Ambulatory Care Reporting System Data Flow Diagram



3.1.1 Abstracting and Data Submission

The NACRS abstract is a tool designed to capture ambulatory care visit activity; it contains relevant data elements to be submitted to CIHI's NACRS database. The NACRS abstract completed for each patient visit uses a variety of sources—including admission/discharge/transfer (ADT) systems, emergency department information systems (EDIS), patient records, physician notes, and laboratory and diagnostic imaging results—to create a complete picture of a patient's visit, as depicted by the "Health Record" section in Figure 2. In other words, each abstract is associated with a patient visit and is submitted to the NACRS database from the facility. If a patient visits an ambulatory care setting on multiple occasions within the fiscal year, multiple abstracts are submitted.

Prior to 2006–2007, a multiple contact record (MCR) was created when an allied health professional (AHP) provided care or treatment outside of the mandated Management Information System Functional Centre (MIS FC) in which the visit occurred. MCRs were discontinued in the 2006–2007 reporting year. Clients were instructed to record information on AHP care on the main visit abstract, using an additional data element, MIS FC Account Code. This, as well as the data element Service Provider, allows for multiple MIS FCs to be identified. In other words, there is one abstract submitted per visit, even if during that visit a patient is seen by several physicians, clinicians and AHPs in different MIS FCs. As of 2010–2011, the province of Alberta submits all ambulatory care visits to NACRS. Alberta's emergency and day surgery abstracts conform to CIHI's NACRS abstract creation submission requirements; no MCRs are created. Alberta's ambulatory care clinic visits also, whenever possible, follow the NACRS abstract creation process, though some facilities submitted MCRs for Alberta mental health and other clinic visits.

The *National Ambulatory Care Reporting System Manual* is available as a PDF on CIHI's website through CIHI's Core Plan service package. The manual provides data element definitions, collection instructions, valid data values, validation rules and edits. The manual is used by clients, researchers and abstracting software vendors.

Adherence to the data submission and abstracting standards described in the manual helps

Period closure is important in communicating the completeness of data submission to CIHI and is indicated by a data element called Ready for Reports Flag in a data submission. Once the period closure is submitted and accepted, NACRS assumes that facilities have sent in all their data for that period. Each period within a fiscal year must be closed regardless of whether or not NACRS data was submitted for that period. The presence of a period closure in the absence of data will convey that the facility had no activity for that period (for example, if the unit closed in July) or that the facility closed within that fiscal year.

3.2 Data Quality Control

In addition to the above, quality control for NACRS also occurs through the following channels:

3.2.1 CIHI Production System Edits and Correction Process

The comprehensive NACRS edit structure is designed to identify or flag inconsistencies. More than 750 data element edits and warnings are applied to NACRS. Since NACRS accepts only error-free abstracts, an error detected by the edit system results in the rejection of the entire abstract; the client is asked to correct and resubmit the abstract. Abstracts receiving only a warning message are not rejected and are accepted into NACRS. The correction and editing steps must be repeated for a rejected record until it is successfully corrected.

All submission, deletion, correction and editing of abstracts for the fiscal year must be completed prior to the closure of the NACRS database on July 31. After that time, no additional abstracts or changes can be accepted. Edits are reviewed and updated each year as new data elements are added, and changes to the database are made to ensure relevance and consistency. Test cases and specifications are created according to internal guidelines for all new edits to ensure that they function correctly.

3.2.2 Abstracting Software

In order to standardize and ensure accurate data collection, CIHI’s clients hire external software vendors to install any software r adde2hothe eru(Cbstracts receivinCi0 0aw86)5(v)4(7T-0.iw86)5nare fta is 8se6

3.2.3 Annual Database Change Cycle

Every year, enhancements are made to the database to address emerging health care issues, address client needs and improve data quality. Refinements and suggested enhancements to data elements and edits in NACRS are communicated to CIHI in several ways, including

- Routine communication from clients (both internal and external) to NACRS client services representatives;
- Input from advisory committees; and
- Formal submissions for data element additions or deletions from key stakeholders.

Appendix B in *Data Quality Documentation, National Ambulatory Care Reporting System—Current-Year Information*

3.2.7 Special Studies

CIHI occasionally completes reabstraction and data-quality assessment studies. The last reabstraction study on NACRS data was released in January 2008 and was completed for 2004–2005 data. The study involved returning to the original source of information (client charts), reabstracting the data and comparing results with the data originally submitted to NACRS. Results of these studies can help focus data quality efforts.

3.3 Standardization

3.3.1 Classification System

Classification systems in health care provide a standard mechanism for the capture and coding of diagnoses and interventions. As of 2002–2003, all facilities submitting to NACRS use the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada (ICD-10-CA) and the Canadian Classification of Health Interventions (CCI) coding standards. **For years prior to this, users are strongly advised to analyze data using the original classification scheme.**

3.3.2 NACRS Pick-Lists

Pick-lists are standardized lists from which predefined words or phrases can be selected.

3.4.3 Facility-Unique Identifier

The facility-unique identifier is the ambulatory care number assigned by provincial ministries of health and territorial governments. Each province or territory has the autonomy to determine how the facility ambulatory care number is assigned. As some facilities close and others merge, a single facility can have different numbers. A frame of ambulatory care number changes is required to perform linkages by ambulatory care number over time.

Users should also be aware that the facility identifier numbers for the reporting of DS visits are not the same in NACRS as they are in the Discharge Abstract Database (DAD). When conducting trend analyses, mappings must be performed between the DAD DS Institution Numbers and the NACRS ambulatory care facility numbers.

In order to prevent potential identification, any requests for facility-identifying information require approval by CIHI's Privacy, Confidentiality and Security Committee.

3.4.4 Health Care Numbers

Health Care Numbers (HCNs) are assigned to individuals by provincial ministries of health and territorial governments. NACRS also captures a variable representing the province or territory that issued an HCN, as the numbers are unique only within the province or territory. Combining the two variables with other relevant personal information data fields (such as Birth Date, Gender and Postal Code) allows individuals to be uniquely identified within NACRS. The HCNs facilitate linkage to other databases with the same fields.

CIHI applies standardized algorithms to encrypt all HCNs to maintain patients' privacy and, at the same time, to enable linkage. Linkage over time, therefore, can be accomplished only by using the encrypted HCN. Health Care Number, Birth Date and full Postal Code are not

4 Major Changes to NACRS

4.1 Historical Comparability

4.1.1 NACRS Re-Engineering (2002–2003)

The re-engineering of the NACRS database in 2002–2003 resulted in a database-wide move to ICD-10-CA/CCI coding. Other changes in the re-engineering consisted of a new record layout, electronic rejection reports and additional data fields.

4.1.2 NACRS Multiple Submission Level Implementation (2009–2010 and 2010–2011)

During 2008–2009, CIHI undertook a special project to enhance the NACRS database to address the burden of data collection, improve timeliness and functionality of reporting and increase coverage across the country. As of April 1, 2009, the NACRS database was modified to allow for different levels of data submission for ED visits. These are referred to as data submission levels 1, 2 and 3. As a result, facilities submitting to the NACRS database under submission levels 1 and 2 report a subset of the full NACRS data set. Facilities that have been reporting the full NACRS data set are categorized as submission Level 3. **Users are strongly advised to take into consideration the data submission level information when performing their analysis.**

General details regarding submission levels 1, 2 and 3, available in NACRS as of 2010–2011, are as follows:

Level 1 (ED Only):

Introduced in 2009–2010.

Level 2 (ED Only):

Option became available in 2010–2011.

Level 2 data submission contains the same data elements as Level 1, except completion of at least one of the NACRS pick-lists is mandatory.

CACS grouped data is not available.

Level 3:

Applicable to all ambulatory care, such as ED, DS and outpatient clinics.

Understanding variation in NACRS data by facility size or a rural/urban designation, for example, may indicate groupings to help analyze the data. The known variation by these groupings in ambulatory care services provided is reflected in data. It includes, but is not limited to, ED Visit Indicator, types of service providers and visit dispositions (such as transfers).

Other data exclusions and inclusions may need to be considered for specific analyses. A review of the *NACRS Manual* is recommended so that the data elements and the information collected can be understood.

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