

# **CCDSS Diabetes DH01c08**

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Last updated March 2021

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## About this Codebook

This Reference guide is intended for users of the CCDSS Diabetes DH01c08 data set, provided by the New Brunswick Department of Health. This guide provides an overview of the data, the general methodology used in its creation and important technical information, such as table and field descriptions. The development of this document is an ongoing process and will receive updates when changes occur in the CCDSS Diabetes database.

This data product is provided 'as is,' and NB-IRDT makes no warranty, either express or implied, including but not limited to, warranties of merchantability and fitness for a particular purpose. In no event will NB-IRDT be liable for any direct, special, indirect, consequential or other damages, however caused.

Due to the operational nature of administrative data sets, there is potential for discrepancies between the names of variables and their corresponding definitions. In the case of such a discrepancy, the variable definition should be considered the most accurate representation.

## Overview

The Canadian Chronic Disease Surveillance System (CCDSS) was developed by the Public Health Agency of Canada (PHAC) in partnership with provincial health ministries – including the New Brunswick Department of Health – as well as non-government organizations, clinicians, and researchers. The CCDSS uses administrative databases to provide a passive surveillance of chronic diseases. The data is processed at the provincial level and submitted to PHAC as aggregate data for national comparisons and further study. The CCDSS Diabetes DH01c08 database contains individual-level surveillance data for diabetes in New Brunswick.

## Sample Universe

The data capture individuals living in New Brunswick who are eligible for provincial Medicare and who satisfy the screening criteria for diabetes (see General Methodology). Records are generated per person and fiscal year and are derived from other administrative databases (see Comparison to other Products/Versions).

## Date Range

1995-2016 (Fiscal Years)

## Data Source

New Brunswick Department of Health

## How to Cite this Codebook

New Brunswick Institute for Research, Data and Training. (2021). CCDSS Diabetes DH01c08 Codebook for Years 1995-2016. Fredericton, NB: New Brunswick Institute for Research, Data and Training.

## Acknowledgements

The CCDSS Diabetes database is used with permission from the New Brunswick Department of Health.

## About this Product

### Purpose of the Product

The purpose of the CCDSS Diabetes DH01c08 Codebook is to provide information on the linkable New Brunswick data regarding diabetes, held at the New Brunswick Institute for Research, Data and Training (NB-IRDT). This data is accessible to researchers and is particularly relevant for research areas related to health, epidemiology, and chronic diseases.

### Definitions and Concepts

**Case** – A case is defined (flagged) when an individual satisfies the criteria for the specified condition (see General Methodology).

**Diagnosis** – A diagnosis is an event, such as a hospitalization or a billing record, with a code indicating that an individual assessed by a healthcare provider has a specific health condition.

**ICD** – The International Statistical Classification of Diseases and Related Health Problems (ICD) is a typology for diagnoses of illnesses and diseases. The international standard is published by the World Health Organization (WHO), and a Canadian superset – built on top of the WHO standard – is produced by the Canadian Institute for Health Information (CIHI). The most recent Canadian ICD standard is the tenth revision (ICD-10-CA); however, many data sets available at NB-IRDT use the ninth revision (ICD-9-CA).

**CCI** – The Canadian Classification of Health Interventions (CCI) is a typology of health-related interventions developed by the Canadian Institute for Health Information (CIHI). The current version, the tenth revision (ICD-10-CA/CCI), has been developed for use with the tenth revision of the Canadian adaptation of the ICD (ICD-10-CA).

**Fiscal Year** – A fiscal or financial year is a twelve-month period typically used for reporting or accounting purposes. In Canada, fiscal years usually run from April 1<sup>st</sup> to March 31<sup>st</sup> of the following calendar year. They are commonly referred to by the calendar years they span (ex: 2020-2021 or 2020-21) or simply by the calendar year in which they start (ex: 2020).

### Content

The CCDSS Diabetes database contains Individual-level data from the Canadian Chronic Disease Surveillance System and estimates the incidence and prevalence of diabetes in New Brunswick patients.

## General Methodology

Data for the CCDSS Diabetes data set are collected passively from administrative data sets, notably the Citizen Database, the Discharge Abstract Data, and the NB Physician Billing database, also held at NB-IRDT. Standardized SAS-based scripts, prepared by the Canadian Institute for Health Information (CIHI), are run periodically on the administrative data to identify cases using condition-specific algorithms.

For diabetes, a case is defined if an individual of any age has at least one hospitalization or two physician billing records within two years with at least one of the following ICD codes related to diabetes. Gestational diabetes have been excluded by removing data for women 120 days before and 180 days after any pregnancy-related or obstetrical codes.

Discharge Abstract Database Codes:

ICD-9: 250

ICD-10: E10, E11, E12, E13, E14

Physician Billing Codes:

ICD-9: 250

ICD-10: E10, E11, E12, E13, E14

Once identified, the diabetes condition is flagged indefinitely, resulting in a record per person, per fiscal year.

## Limitations

Due to a progressive rollout of and adoption of reporting requirements, the exhaustiveness of the earlier years of CCDSS data may be questionable. Conditions with algorithms that rely on New Brunswick Physician Billing data may also incur additional variability since these records are stored as free text instead of standardized ICD codes.

## Comparison to other Products/Versions

Records in the CCDSS Diabetes data set are derived from those in the Citizen Database, the Discharge Abstract Data, and the New Brunswick Physician Billing database. They also share similar methodology with other CCDSS data related to chronic conditions, including COPD, Heart Failure, Hypertension, Ischemic Heart Disease, Myocardial Infarction, Mood and Anxiety Disorders, Multiple Sclerosis, Neurological Conditions, Parkinson's, and Stroke.

## Using with other Products

**DH01c01 – CCDSS Heart Failure** – The CCDSS data set for Heart Failure is similar to the CCDSS Diabetes data except it focuses on another chronic condition. Linking CCDSS data sets can be useful in characterizing the prevalence of certain medical conditions within New Brunswick.



**DH01c02 – CCDSS COPD** – The Canadian Chronic Disease Surveillance System (CCDSS) data set for Chronic Obstructive Pulmonary Disease (COPD) is similar to the CCDSS Diabetes data except it focuses on another chronic condition. Linking CCDSS data sets can be useful in characterizing the prevalence of certain medical conditions within New Brunswick.

**DH01c04 – CCDSS Hypertension** – The CCDSS data set for Hypertension is similar to the CCDSS Diabetes data except it focuses on another chronic condition. Linking CCDSS data sets can be useful in characterizing the prevalence of certain medical conditions within New Brunswick.

**DH01c05 – CCDSS Ischemic Heart Disease** – The CCDSS data set for Ischemic Heart Disease is similar to the CCDSS Diabetes data except it focuses on another chronic condition. Linking CCDSS data sets can be useful in characterizing the prevalence of certain medical conditions within New Brunswick.

**DH01c06 – CCDSS Myocardial Infarction** – The CCDSS data set for Myocardial Infarction is similar to the CCDSS Diabetes data except it focuses on another chronic condition. Linking CCDSS data sets can be useful in characterizing the prevalence of certain medical conditions within New Brunswick.

**DH01c07 – CCDSS Stroke** – The CCDSS data set for Stroke is similar to the CCDSS Diabetes data except it focuses on another chronic condition. Linking CCDSS data sets can be useful in characterizing the prevalence of certain medical conditions within New Brunswick.

**DH01c09 – CCDSS Mood and Anxiety Disorders** – The CCDSS data set for Mood and Anxiety Disorders is similar to the CCDSS Diabetes data except it focuses on another chronic condition. Linking CCDSS data sets can be useful in characterizing the prevalence of certain medical conditions within New Brunswick.

**DH01c10 – CCDSS Multiple Sclerosis** – The CCDSS data set for Multiple Sclerosis is similar to the CCDSS Diabetes data except it focuses on another chronic condition. Linking CCDSS data sets can be useful in characterizing the prevalence of certain medical conditions within New Brunswick.

**DH01c11 – CCDSS Parkinson's** – The CCDSS data set for Parkinson's is similar to the CCDSS Diabetes data except it focuses on another chronic condition. Linking CCDSS data sets can be useful in characterizing the prevalence of certain medical conditions within New Brunswick.

**DH05 – Discharge Abstract Data** – The Discharge Abstract Data (DAD) is a collection of records of hospitalization in New Brunswick and contains details regarding patient characteristics, diagnoses, interventions, and healthcare providers. Linking the CCDSS Diabetes and Discharge Abstract Data allows an individual's hospitalization history to

be associated with their chronic condition, which may be useful for understanding disease progression or treatment.

**DH08 – New Brunswick Physician Billing** – The Physician Billing data set contains records of claims for services rendered by New Brunswick healthcare providers, including licensed practical nurses, and defrayed by provincial Medicare. It has variables regarding the types of services, the providers and their specialty, as well as referral information. Combining the Physician Billing and CCDSS Diabetes data may reveal details about the treatment paths of individuals experiencing Parkinsonism, such as whether they were referred to an endocrinologist or other specialist.

**DH10 – Citizen Database** – The Citizen Database is a longitudinal data set of individuals living in New Brunswick, based on their eligibility for provincial Medicare. Records in the CCDSS Diabetes data set are derived from those of the Citizen Database. Establishing a linkage between the two may provide additional information about censorship due to gaps in Medicare eligibility and the reason for these lapses of coverage (mobility, death, etc.).

**DH14 – NB Insulin Pump Program** – The NB Insulin Pump Program (IPP) data contains information about individuals under the age of 25 living with type 1 diabetes in New Brunswick, who have applied for insulin pump therapy through the provincial IPP. Although there is a 5-year overlap regarding the inclusion criteria for age in both data sets—the CCDSS Diabetes database only captures information for individuals aged 20 years or more—comparisons between them may be more relevant for historical (longitudinal) rather than contemporary (cross-sectional) linkages. Combining the CCDSS Diabetes and IPP data may provide insights concerning the progression and treatment of type 1 diabetes in New Brunswick.

**DH18 – Vital Statistics (Death Event)** – The Vital Statistics data set contains a summary of death events that occurred in the province of New Brunswick for residents and non-residents. Record details include the date of death, sex, and primary cause of death of the individual. Linking the Vital Statistics with the CCDSS Diabetes data may be useful for estimating the cause-specific risks or survival of individuals with diabetes.

**DH24 – Hemoglobin (HbA1c)** – The Hemoglobin<sup>1</sup> data set contains values for glycated hemoglobin (HbA1c) tests in New Brunswick, which are used as indicators of average blood glucose and diabetes. Combining the Hemoglobin and CCDSS Diabetes data may enable the longitudinal pairings of diagnoses and test results for individuals with diabetes.

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<sup>1</sup> The British spelling “Haemoglobin” is also quite commonly encountered.

**SD01 – Long-Term Care Database** – The Long-Term Care Database contains administrative data about the care received by long-term care clients in New Brunswick. Linking the Long-Term Care Database with the CCDSS Diabetes data may provide insights about the treatment or support required for individuals living with diabetes.

## Record Layouts and Data Descriptions

### Overview

#	Name	Label	Type
1	Scram_Id	Scrambled Individual Identifier	C
2	Year	Fiscal Year	N
3	RecordCount	Record Count	N
4	CaseRule	Case Rule	C
5	CaseDate	Case Date	N
6	DiagnosisYear	Diagnosis Year	N
7	Sex	Sex	C
8	Age	Age	N
9	InsuranceEndDate	Insurance End Date	N
10	DeadStatus	Dead Status	N

### Scram\_Id

Scrambled Individual Identifier. A randomly generated code that uniquely identifies the individual (identifier).

### Year

Fiscal Year. The fiscal year to which the record corresponds (numeric).

### RecordCount

Record Count. The individual's number of unique records (numeric).

### CaseRule

Case Rule. The criteria or rule, identified by source of information, used to define a case.

Code	Description
H	Hospital
I	Hospital
M	Medicare Physician Billing
P	Medicare Physician Billing
B	Both (Hospital and Medicare Physician Billing)
V	Vital Statistics (Death)

### CaseDate

Case Date. The date the case was first defined (date).

### DiagnosisYear

Diagnosis Year. The year the individual was first diagnosed (numeric).

**Sex**

Sex. The individual's gender.

Code	Description
M	Male
F	Female

**Age**

Age. The individual's age on the date the case was first defined (see: CaseDate) (numeric).

**InsuranceEndDate**

Insurance End Date. The termination date of the individual's eligibility for Medicare during the fiscal year, which may be at the end of the fiscal year (date).

**DeadStatus**

Dead Status. An indicator for whether the individual died during the fiscal year.

Code	Description
0	Alive
1	Deceased

## Document History

Version	Author	Nature of Change	Date
1.0	Jonathan Boudreau	Initial draft prepared. Requires variable modalities and validation of content.	2020-07-06
1.1	Nicholas Larade	Updated project codes.	2021-03-29
1.1.1	Jennifer Hagen	Updated formatting and removed date ranges	2022-03-25
Approved by		Approval Date	Review Date
Andy Balzer		April 21, 2021	