

Appendix 2. Detailed description of each characteristic

Region of Residence

Residence was classified according to Local Health Integration Network (LHIN) and Ontario community size by assigning postal codes to their relevant census metropolitan or census agglomeration areas.¹ Postal codes associated with residence codes and census subdivisions unique to First Nations communities were also used to classify whether an individual resided within a First Nations community (“on-reserve”), outside of a First Nations Community, out of province, or unknown in each year.²

HIV and HBV

Cases of human immunodeficiency virus (HIV) and hepatitis B virus (HBV) were identified by searching diagnostic codes, service/procedure codes, the Ontario HIV database at ICES, and/or PHO testing records (Supplemental Table S1). For each, the earliest record date was used as a surrogate measure for date of diagnosis. Cases were reported if ever present in the entire timeframe searched in each administrative dataset for all cohorts. For the diagnosed cohort, complications were also reported if the earliest record date was prior to HCV infection diagnosis date.

Supplemental Table S1. Codes used to identify records of HIV or HBV

Flag	Database Searched	Codes Searched
HIV	Ontario HIV Database	Any record
	DAD, SDS, and NACRS	ICD-9 diagnostic codes starting with: 042, 043, 044 ICD-10 diagnostic codes starting with: B20, B21, B22, B23, B24
HBV	DAD, SDS, and NACRS	ICD-9 diagnostic codes: 0702, 0703 ICD-10 diagnostic codes: B160, B161, B162, B169, B170, B180, B181, Z2250
	PHO Laboratory Testing Records	Any positive HBV antibody or confirmatory test

Abbreviations: DAD, Discharge Abstract Database; HIV, human immunodeficiency virus; HBV, hepatitis B virus; ICD, International Classification of Diseases; PHO, Public Health Ontario; NACRS, National Ambulatory Care Reporting System; SDS, same day surgery database.

Mental Health Conditions

Records of mental health diagnoses, including substance abuse-related disorders, were reported by using stratified diagnostic groupings that categorize mental health and addictions-related diagnostic codes in the administrative datasets (Supplemental Table S2). Diagnostic groups were developed by ICES and used as part of the Ontario Mental Health and Addiction Scorecard.³ Diagnostic groups were supplemented with OHIP outpatient mental health diagnostic codes where there was sufficient detail to categorize the physician services claim. Conditions were flagged if present from Jan 1, 2002 (the earliest date of the diagnostic grouping variable) to Dec 31, 2017.

Supplemental Table S2. Codes used to identify records of mental health and addiction disorders.

Diagnostic Group	ICD-9 codes (Used to search OMHRS)	ICD-10 Codes (Used to search DAD and NACRS)	OHIP Diagnostic Code
Substance-Related and Addiction Disorders	291.x, 292.x, 303.x, 304.x, 305.x, 312.31, Provisional=16	F10, F11, F12, F13, F14, F15, F16, F17, F18, F19, F55, F63.0	303, 304
Schizophrenia Spectrum and Other Psychotic Disorders	293.81, 293.82, 295.x, 297.x, all 298.x, Provisional=2	F06.0-2, F20, F22-F29, F53.1	295, 297, 298
Depression mood disorder	296.2x, 296.3x, 296.9x, 300.4x, 311.x, 625.4x, Provisional=4	F32.x, F33.x, F34.1	311
Bipolar mood disorder	296.0x, 296.4x, 296.5x, 296.6x, 296.7x, 296.8x, 301.13, Provisional=3	F30.x, F31.x, F34.0	-
Other mood disorders	293.83	F06.3, F38.x, F39.x, F53.0, F34.8, F34.9	-
Anxiety disorders	293.84, 300, 300.0x, 300.2x, 309.21, 313.23. Provisional=5	F06.4, F40, F41, F93.0, F93.1, F93.2, F94.0	300
Trauma/stressor-related disorders	308.3x, 309, 309.0x, 309.24, 309.28, 309.3x, 309.4x, 309.81, 309.89, 309.9x, 313.89. Provisional=7	F43.x, F94.1, F94.2	309
Personality disorders	301, 301.0x, 301.2x, 301.4x, 301.5x, 301.6x, 301.7x, 301.81-3, 301.89, 301.9x 310.1. Provisional=18	F07.0, F21, F60, F61, F62, F68, F69	301
Deliberate self-harm	-	X60-X84, Y10-Y19, Y28*	-

Note: x represents all subcategories within the respective diagnosis code. Provisional represents broader provisional diagnoses categories found in OMHRS based on DSM-IV and DSM-V codes. Diagnostic group codes were adapted from the Ontario Mental Health and Addiction Scorecard.

*when primary diagnostic code was not F06-F99

Abbreviations: DAD, Discharge Abstract Database; ICD, International Classification of Diseases; NACRS, National Ambulatory Care Reporting System; OHIP, Ontario Health Insurance Plan; OMHRS, Ontario Mental Health Reporting System.

Outpatient Prescription Drugs

Outpatient prescription drugs likely related to HCV infection, were captured from the Ontario Drug Benefit (ODB) database, which contains information about claims covered by the Ontario Drug Benefit plan for eligible individuals.⁴ Eligible individuals include Ontario residents who are aged 65 and older, or living in long-term care facilities, or who have a high drug cost relative to their income.⁴ Claims specific to direct-acting antivirals (DAA), interferon, ribavirin, and interferon-based combination therapies were captured and categorized using their respective drug identification numbers (DIN) (Supplemental Table S3).

Supplemental Table S3. HCV-related treatment regimens and their associated identification numbers searched in the Ontario Drug Benefit database.

Treatment	Drug Identification Numbers
Ribavirin	02246030, 02246026, 02246027, 02246028, 02246029, 02254581, 02254603, 02254638, 02254646, 02239730, 02241159, 09852417, 09853260, 02439212
Direct Acting Antivirals	02371464, 02371472, 02436027, 02432226, 02425890, 02425904, 02416441, 02418355, 02371553, 02444747, 02452294, 09857396, 02370816, 02451131, 02456370, 02467542, 02444755, 02447711, 02371448, 02371456
Interferon	02239832, 02223384, 02223392, 02223406, 02231651, 00889067, 02223414, 02238674, 02238675, 09853995, 09854045, 09854053, 00705896, 00705918, 00705926, 02240693, 02240695, 01911988, 01911996, 01912003, 00812471, 00812498, 00812501, 02217015, 02217031, 02217058, 02217066, 02019914,
Peginterferon	02240694, 02242966, 02242967, 02242968, 02242969, 02248077, 02248078

Peginterferon-Ribavirin Combination	09857505, 02253429, 02253410, 09857418, 09857420, 09857421, 09857421, 09857506, 09857509, 02254573
-------------------------------------	--

Multimorbidity

Multimorbidity was captured and scored using the Johns Hopkins ACG System, Aggregated Diagnosis Groups (ADG),⁵ based on the two years prior to reference date. The number of individuals within each ADG category was reported. Also, individuals were categorized as having 0 to 3, 4 to 7, 8 to 10, and 11+ categories, corresponding to an increasing degree of multimorbidity.

References

1. Postal Code Conversion File (PCCF), Reference Guide, 2017. Statistics Canada Catalogue no. 92-154-G.
2. Slater M, Green ME, Shah B, Khan S, Jones CR, Sutherland R, et al. First Nations people with diabetes in Ontario: methods for a longitudinal population-based cohort study. *CMAJ Open*. 2019 Oct 1;7(4):E680–8.
3. MHASEF Research Team. Mental Health and Addictions System Performance in Ontario: A Baseline Scorecard. [Internet]. Toronto, Ontario: Institute for Clinical Evaluative Sciences; 2018 [cited 2019 Dec 17]. Available from: <https://www.ices.on.ca/Publications/Atlases-and-Reports/2018/MHASEF>
4. Chu A, Han L, Roifman I, Lee DS, Green ME, Jacklin K, et al. Trends in cardiovascular care and event rates among First Nations and other people with diabetes in Ontario, Canada, 1996–2015. *CMAJ*. 2019 Nov 25;191(47):E1291.
5. Johns Hopkins ACG® System [Internet]. Johns Hopkins ACG® System. [cited 2019 Feb 7]. Available from: <https://www.hopkinsacg.org/>