Mental Health and Addictions System Performance in Ontario

A Baseline Scorecard

TECHNICAL APPENDIX

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Mental Health and Addictions System Performance in Ontario: A Baseline Scorecard

Technical Appendix

MHASEF Research Team

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Abbreviations

DA	dissemination area
DAD	Discharge Abstract Database
DATIS	Drug and Alcohol Treatment Information System
ED	emergency department
GP/FP	general practitioner/family physician
IPDB	ICES Physician Database
IRCC-PR	Immigration, Refugees and Citizenship Canada – Permanent Resident database
LHIN	Local Health Integration Network
MHA	mental health and addictions
NACRS	National Ambulatory Care Reporting System
NOS	not otherwise specified
OCAN	Ontario Common Assessment of Need
OHIP	Ontario Health Insurance Plan
OMHRS	Ontario Mental Health Reporting System
ORG-D	Office of the Registrar General – Deaths (Vital Statistics database)
RPDB	Registered Persons Database
WTIS-ALC	Wait Time Information System – Alternate Level of Care

1.0 Indicators Reported in This Scorecard

EXHIBIT 1.1 Performance indicators for the mental health and addictions system in Ontario*

Equity	Client-centred	Safe	Effective	Timely	Efficient
Indicators will be assessed through five equity dimensions: • Geography • Income by neighbourhood • Immigration status • Age • Sex	1. Overall rating of services received by client — TBD, MHA	2. Use of physical restraints — OMHRS, MH	3. Years of life lost due to MHA — DAD, NACRS, OHIP, OMHRS, ORG-D, MHA	5. Wait times from referral to service initiation — OCAN, DATIS, MHA	7. Repeat unscheduled ED visit within 30 days — NACRS, MHA
	A. Stigma/ discrimination indicator — TBD, MHA	D. Medication reconciliation — TBD, MHA	4. Rate of death by suicide — ORG-D, MHA	6. First contact in the emergency department (ED) for MHA — DAD, NACRS, OHIP, OMHRS, MHA	8. Doctor visit within 7 days of leaving hospital after treatment for MHA — DAD, OHIP, OMHRS, MHA
Major gaps in sociodemographic dimensions include: • Francophone communities • Indigenous communities • Racialized communities	B. Decrease in a client's unmet needs indicator — OCAN, MHA		E. Global assessment of functioning (GAF) scores ≥ 10 points — OMHRS, MHA	F. Common definition of "wait times" — TBD, MHA	9. Rate of inpatient readmission within 30 days of discharge — DAD, OMHRS, MHA
	C. Family/caregiver support indicator — TBD, MHA				10. Alternate level of care — ATC, MH
					G. System transitions indicator — TBD, MHA

Legend

- Population
- System
- Community-based & hospital services
- Community-based services
- Hospital services
- Indicators recommended for development

Data source: ATC, Access to Care; DAD, Discharge Abstract Database; DATIS, Drug and Alcohol Treatment Information System; NACRS, National Ambulatory Care Reporting System; OCAN, Ontario Common Assessment of Need; OHIP, Ontario Health Insurance Plan; OMHRS, Ontario Mental Health Reporting System; ORG-D, Office of the Registrar General – Deaths; TBD, to be determined.

Abbreviations: A, Addictions; MH, Mental health; MHA, Mental health & addictions.

*Adapted from *Moving Forward: Better Mental Health Means Better Health*. Toronto, ON: Mental Health and Addictions Leadership Advisory Council; 2016.

EXHIBIT 1.2 Contextual indicators for the mental health and addictions system in Ontario

Outpatient care	Acute care
• Primary care physicians' full-time equivalent allocation to mental health and addictions care • Rate at which individuals were seen by a psychiatrist or a general practitioner/family physician for mental health and addictions care • Rate at which individuals received telepsychiatry consultations • Rate of mental health and addictions–related outpatient physician visits	• Length of stay for psychiatric hospitalizations • Rate of hospitalizations for mental health and addictions care • Rate of emergency department visits for deliberate self-harm • Rate of mental health and addictions-related emergency department visits

2.0 Indicator Methodology

2.1 General instructions for indicator creation

2.1.1 General exclusion criteria for indicators

Unless otherwise stated, the following numerator and denominator exclusion criteria were consistent across all indicators (for additional indicator-specific exclusions, please see **Section 2.2**):

- Age younger than 16 years or older than 105 years
- Non-residents of Ontario
- Individuals with an invalid health card number
- Missing sex information

For indicators that used a general Ontario population denominator, in addition to the exclusions above, exclude:

- Individuals born after the midpoint (July 1) of the calendar year
- Individuals not eligible for OHIP at the midpoint of the calendar year
- Individuals whose date of last contact with the health care system was more than 10 years from the midpoint of the calendar year

Note: Exclusion criteria were applied to the numerator independently, as the denominator is a population estimate at the midpoint of the year (i.e., the numerator is not a subset of the population denominator).

2.1.2 Indicator stratifications

These variables are used for stratification of indicators. Please note that stratifications may vary across indicators. For indicator-specific calculations, please refer to Section 2.2.

Stratification	Definition	Categories
Age group	Age group cut-offs were defined in order to examine transitions between youth and adult services.	• 16–24 years • 25–44 • 45–64 • 65–84 • 85–105
Sex	Sex	• Male • Female
Diagnostic category	Some indicators were stratified by type of disorder. These diagnostic groups do not add up to the overall MHA category, as they are more specific. For more detail on diagnostic codes and definitions, see Section 2.3.	• Substance-related disorders • Schizophrenia • Mood disorders • Anxiety disorders • Deliberate self-harm
Neighbourhood income quintile	In the absence of individual-level income data, neighbourhood-based income was calculated according to methods developed by Statistics Canada. Individuals' postal codes were first matched to dissemination areas (or DAs, the smallest census areas), where the average income per single-person equivalent (weighing for household size) was obtained from the 2006 census. DAs within each census metropolitan area were ranked and assigned to five groups, or quintiles, of approximately equal size. The corresponding neighbourhood income quintile of that DA was assigned to the individual.	• Quintile 1 (lowest) • Quintile 2 • Quintile 3 • Quintile 4 • Quintile 5 (highest)
Immigrant category	Information on immigrant category was taken from the Ontario portion of the Immigration, Refugees and Citizenship Canada Permanent Resident (IRCC-PR) Database, which contains records of individuals who landed in Ontario between 1985 and 2012. Individuals in the refugee category include government-assisted refugees, privately sponsored refugees, refugees landed in Canada and refugee dependents. Individuals in the immigrant category include economic immigrants (permanent residents selected for their skills and ability to contribute to Canada's economy) and family class immigrants (permanent residents sponsored by a Canadian citizen or a permanent resident living in Canada who is 18 years of age or older). Non-immigrants were identified as all other persons not found in the IRCC-PR Database.	• Refugee • Immigrant • Non-immigrant
Local Health Integration Networks	Local Health Integration Networks (LHINs) are the regional health authorities responsible for administering public health care services funded by the Ontario Ministry of Health and Long-Term Care.[1] Individual postal codes were first mapped to census geography and then to a LHIN.	1. Erie St. Clair 2. South West 3. Waterloo Wellington 4. Hamilton Niagara Haldimand Brant 5. Central West 6. Mississauga Halton 7. Toronto Central 8. Central 9. Central East 10. South East 11. Champlain 12. North Simcoe Muskoka 13. North East 14. North West

2.1.3 Indicator rates that were calculated

Method	Calculation	Categories
Rate calculation	Over time (calendar years 2006–2014, where possible)	• Ontario • Age • Sex • Diagnostic category
	Three-year average rate (calendar years 2012–2014)	• Ontario • Age • Sex • Diagnostic category • Equity lens: – Neighbourhood income quintile – Local Health Integration Network – Immigrant category (calendar years 2010–2012)
Standardization	Direct standardization method[2]	• Ontario • Local Health Integration Network
	Standard population	2006 Ontario population, standardized by age and sex: • Males: 16–24, 25–44, 45–64, 65–84, 85–105 years • Females: 16–24, 25–44, 45–64, 65–84, 85–105 years
Calculation of three-year averages	Crude rate	• (N1/D1+N2/D2+N3/D3)/3 where N1 = numerator for 2012 and D1 = denominator for 2012
	Standardized rate	• (N1/D1+N2/D2+N3/D3)/3 where N1 = standardized numerator for 2012 and D1 = reference population denominator
Maps	Heat maps were produced using ArcGIS software. Breaks were established using the natural breaks method, which partitions data into classes based on natural groups in the data distribution.[3]	• Local Health Integration Network

Note: Stratifications and calendar years examined may vary across indicators. For indicator-specific calculations, see **Section 2.2**.

2.2 Indicator calculation

For a list of the diagnostic codes used to calculate indicators, please refer to **Section 2.3**.

2.2.1 Mental health and addictions system performance indicators

SAFE

Use of physical restraints	
Rationale	In caring for individuals with severe mental illness who are in acute crisis, reducing risk for harm to self or others is a priority. Physical restraints can be defined as external devices, materials or equipment that are attached or near a person's body and prevent that person from moving freely,[4] and thus may prevent suicidal or aggressive acts. Because of the highly restrictive nature of physical restraints and the possible medical risk from being immobilized, other methods for reducing agitation are preferred whenever possible. These include providing a hazard-free environment, using verbal de-escalation and even administering sedative medications. Following a coroner's inquest in Ontario in 2008,[5] psychiatric health care facilities have been strongly encouraged to minimize the use of physical restraints.
Data sources	OMHRS, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	All OMHRS hospitalizations (see Section 2.1)
Numerator	Any restraint use in the past three days
Exclusions	General exclusions (see Section 2.1)
Date used to pull patient characteristics and group individuals into calendar years	Hospital discharge date
Note	Any restraint use included mechanical restraint use, chair prevents rising, and physical/manual restraint by staff.
Limitations	General limitations of health administrative data include potential coding errors and lack of clinical detail.

EFFECTIVE

Years of potential life lost among individuals with schizophrenia	
Rationale	Premature mortality is often assessed by analyzing years of potential life lost (YPLL), which measures the years not lived, or "lost," by each individual who died before age 75. This indicator weights deaths at younger ages more heavily. Extensive public health efforts have led to longer lifespans in the general population. Examining premature mortality in a population with serious mental illness, such as schizophrenia, helps to inform the need for specialized interventions in this population.
Data sources	OHIP, DAD, OMHRS, ORG-D
Years	2006 to 2012
Denominator	Ontario population aged 15 to 74, inclusive, stratified by schizophrenia diagnosis
Numerator	The sum of all YPLL was determined by computing, for each age group (15–24, 25–34, 35–44, 45–54, 55–64, 65–74) the difference between 75 and the median age at death and multiplying that difference by the number of deaths in that age group.
Exclusions	Age younger than 15 or older than 74
Date used to pull patient characteristics and group individuals into calendar years	Date of death
Notes	• Schizophrenia status was ascertained using a validated case-finding algorithm.[6] • Most developed countries recognize 75 years as the cut-off age for premature mortality, and this is the standard currently used by Statistics Canada and the Canadian Institute for Health Information.[7,8] • Rates were age- and sex-standardized to enable comparison with individuals without schizophrenia.
Limitations	This indicator was not examined for other mental health conditions.

Rate of death by suicide	
Rationale	Suicide is a major public health issue. Understanding variations and trends in suicide rates may assist in identifying high-risk groups and designing appropriate interventions to reduce suicide.
Data sources	ORG-D, RPDB, IRCC-PR
Years	2006 to 2012
Denominator	Ontario general population aged 16 to 105 years
Numerator	Number of deaths caused by suicide
Exclusions	General exclusions (see Section 2.1)
Date used to pull patient characteristics and group individuals into calendar years	Date of death
Limitations	• Suicide rates may be underreported due to misclassification. • Deaths by suicide are only reported until 2012 due to data availability.

TIMELY

First contact in the emergency department for mental health and addictions	
Rationale	When access to timely outpatient and community-based mental health and addictions assessment and treatment is insufficient, individuals who require services may use the emergency department (ED) as their first point of contact. Therefore, a high rate of use of the ED as a first point of contact for mental health or addictions care may be a useful indicator of access to outpatient physician- and community-based care.
Data sources	NACRS, DAD, OHMRS, OHIP, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Incident (first in a calendar year) unscheduled ED visit for MHA (overall and by diagnostic category: see Section 2.3) with a disposition of discharge home in Ontario adults.
Numerator (subset of denominator)	Number of Ontario adults without any MHA-related service contact in a 2-year look-back period; includes only those who did not have an MHA-related outpatient visit to a psychiatrist or a general practitioner/family physician or an MHA-related ED visit (scheduled or unscheduled) or an MHA-related hospitalization in the 2 years preceding the index ED visit (see Section 2.3).
Exclusions	In addition to exclusions listed in Section 2.1, also excluded were scheduled ED visits (from the denominator only).
Date used to pull patient characteristics and group individuals into calendar years	• Date to identify denominator: Date of ED visit. • Date to identify numerator: OHIP service date, date of ED visit or date of hospital admission.
Notes	• Diagnostic categories represent the reason for the incident ED visit (i.e., the denominator). • Diagnoses-specific denominators do not add up to the overall denominator (see Section 2.3). • ED visits in the 2-year look-back period can be scheduled or unscheduled. • The numerator included only individuals who did not have any MHA-related visits in any setting as captured by the available data.
Limitations	• The data do not capture MHA-related care provided in the community by non-physicians. • General limitations of health administrative data include potential coding errors and lack of clinical detail.

EFFICIENT

Repeat unscheduled emergency department visits within 30 days	
Rationale	Repeat unscheduled emergency department visits for mental health and addictions-related care could signal inadequate transitions in care between hospital/emergency department settings and outpatient/community settings.
Data sources	NACRS, DAD, OMHRS, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Incident (first in a calendar year) unscheduled ED visit for MHA (overall and by diagnostic group: see Section 2.3) with a disposition of discharge home in Ontario adults.
Numerator (subset of denominator)	Number of Ontario adults with an unscheduled ED visit for any MHA-related reason within 30 days following the index ED visit.
Exclusions	In addition to exclusions listed in Section 2.1, also excluded were: • Scheduled emergency department visits from both the numerator and denominator. • Individuals who died within 30 days of the index ED visit without revisiting the ED. • For the index visit (i.e., the denominator), individuals who were transferred to a different ED or to inpatient care, or those who died before leaving the ED.
Date used to pull patient characteristics and group individuals into calendar years	Date of ED visit
Notes	• Index ED visits were restricted to calendar years, but 30-day follow-up could cross over into the next calendar year. • Diagnostic categories represent reason for the incident ED visit (i.e., denominator); repeat ED visit may be for any MHA-related reason (i.e., does not have to be the same diagnosis as the initial visit). • Diagnoses-specific denominators do not add up to the overall denominator (see Section 2.3).
Limitations	• Data did not capture non-physician mental health and addictions care that may have been provided in the period between ED discharge and repeat visit. • General limitations of health administrative data include potential coding errors and lack of clinical detail.

Doctor visit within 7 days of leaving hospital after treatment for mental health and addictions	
Rationale	Early follow-up after hospital discharge, a universally measured performance indicator, likely helps to improve adherence to treatment, communication between care providers and patients, and may prevent hospital readmissions.
Data sources	OMHRS, DAD, OHIP, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Incident (first in a calendar year) hospital discharge for MHA (overall, and by diagnostic category: see Section 2.3) in Ontario adults. • Hospitalizations were constructed as episodes whereby admission and discharge dates that overlapped by ±1 day were considered part of the same hospitalization stay. • The final discharge of the hospital episode must result in: a discharge home (with or without supportive services); a transfer to a long-term or continuing care facility or to other ambulatory care, palliative care/hospice, addiction treatment centre, jail or social services; or a sign- out against medical advice/AWOL.
Numerator (subset of denominator)	Within 7 days following hospital discharge, the number of Ontario adults with: • Any outpatient (office, home or long-term care) visit to a psychiatrist or a general practitioner/family physician (GP/FP) • Only an outpatient psychiatrist visit • Only an outpatient GP/FP visit • Combined care: Outpatient visits to a psychiatrist and a GP/FP
Exclusions	In addition to the exclusions listed in Section 2.1, also excluded were individuals who died or were admitted to hospital within 7 days of discharge without outpatient follow-up.
Date used to pull patient characteristics and group individuals into calendar years	• Date to identify the denominator: Hospital discharge date (follow-up starts after discharge date). • Date used to identify the numerator: OHIP claim service date.
Notes	• Index hospital discharges were restricted to calendar years, but the 7-day follow-up could cross over into the next calendar year. • Diagnostic categories represent the reason for the incident hospital discharge (i.e., the denominator). • Diagnoses-specific denominators do not add up to the overall denominator (see Section 2.3). • The physician specialty categories are mutually exclusive; GP/FP but not psychiatrist + psychiatrist but not GP/FP + combined psychiatrist and GP/FP care = any outpatient.
Limitations	• Data did not capture non-physician follow-up care provided in the community. • General limitations of health administrative data include potential coding errors and lack of clinical detail.

Rate of inpatient readmission within 30 days of discharge	
Rationale	The rate of inpatient readmissions within 30 days of discharge is a universally reported performance indicator and could reflect inadequate community support and outpatient physician-based mental health and addictions services.
Data sources	DAD, OMHRS, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Incident (first in a calendar year) hospital discharge for MHA (overall, and by diagnostic category: see Section 2.3) in Ontario adults. • Hospitalizations were constructed as episodes whereby admission and discharge dates that overlapped by ±1 day were considered part of the same hospitalization stay. • The final discharge of the hospital episode must result in: a discharge home (with or without supportive services); a transfer to a long-term or continuing care facility or to other ambulatory care, palliative care/hospice, addiction treatment centre, jail or social services; or a sign-out against medical advice/absent without leave.
Numerator (subset of denominator)	Number of Ontario adults with a hospital admission for any MHA-related reason within 30 days following the index hospital discharge visit.
Exclusions	In addition to exclusions listed in Section 2.1, also excluded were individuals who died without a readmission within 30 or fewer days of the index hospital discharge.
Date used to pull patient characteristics and group individuals into calendar years	• Date to identify the denominator: hospital discharge date (follow-up starts after discharge date). • Date to identify the numerator: hospital admission date.
Notes	• Index discharges (i.e., the denominator) were restricted to calendar years but 30-day follow-up could cross over into the next calendar year. • Diagnostic categories represent the reason for the incident hospital discharge (i.e., the denominator); readmission may be for any MHA-related reason (i.e., does not have to be the same diagnosis as the initial visit). • Diagnoses-specific denominators do not add up to the overall denominator (see Section 2.3).
Limitations	• Data did not capture non-physician mental health and addictions services that may have been provided in the period between hospital discharge and readmission. • General limitations of health administrative data include potential coding errors and lack of clinical detail.

Alternate level of care	
Rationale	Alternate level of care (ALC) is a designation assigned to patients who occupy acute care hospital beds but do not require the intensity of care provided in the inpatient setting. For mental health–designated beds, ALC typically occurs because resources that would support an appropriate discharge, such as supportive housing, are in relatively short supply.
Data sources	WTIS-ALC
Years	2012 to 2015
Denominator	Not applicable
Numerator	• ALC wait time – open cases: the median wait time from ALC designation for discharge destination of supportive housing/group homes/assisted living to the last day of the reporting period for cases in mental health beds • ALC wait time – discharged cases: the median wait time from ALC designation for discharge destination of supportive housing/group homes/assisted living to the date of discharge to an ALC discharge destination for cases in mental health beds
Exclusions	• ALC cases discontinued for a reason of 'data entry error' • ALC closed cases having a calculated ALC length of stay of zero days (ALC designation date = ALC discharge/discontinued date) • ALC cases in post-acute care where inpatient service = discharge destination (same bed type) • ALC cases that were identified by a facility for exclusion
Notes	• This indicator was calculated by Access to Care, an information and service delivery agency, for the Institute for Clinical Evaluative Sciences. • This indicator was not stratified by neighbourhood income quintile and immigrant category as it was not linked to ICES data holdings. • Open cases refers to cases that were designated ALC and still active at the end of the reporting period. • Discharged cases refers to cases that were designated ALC and discharged to an ALC discharge destination before the end of the reporting period.
Additional analyses	
Volume of ALC cases in mental health beds whose next place of care is supportive housing, group home or assisted living	The number of cases in mental health beds that were designated as ALC for supportive housing/group homes/assisted living
Total ALC days contributed by individuals in mental health beds whose next place of care is supportive housing, group home or assisted living	The number of ALC days contributed by patients in mental health beds who were designated ALC for supportive housing/group homes/assisted living
ALC mental health rate for supportive housing, group home or assisted living	The proportion of mental health inpatient bed days that were occupied by patients who were designated as ALC for supportive housing/group homes/assisted living

2.2.2 Contextual indicators for the mental health and addictions system in Ontario

OUTPATIENT CARE

Primary care physicians' full-time equivalent allocation to mental health and addictions care	
Rationale	This indicator contributes to our knowledge of existing mental health and addictions service availability in Ontario by providing a more complete understanding of the existing capacity of Ontario primary care physicians to provide mental health and addictions services. This indicator cannot be used in isolation to measure the adequacy of primary care provider resources as adequacy also depends on the jurisdictional context, including local models of care, demand for care and provider mix (i.e., non-physician mental health service providers).
Data sources	IPDB, OHIP, RPDB
Years	Fiscal years 2010/11 to 2012/13 (April 1 to March 31)
Denominator	Total annual, migration-adjusted, full time equivalent (FTE) allocated by general practitioners or family physicians towards outpatient services for Ontario adults aged 16 to 105 • The proportion of billings in outpatient settings (home, office or long-term care) for adults aged 16 to 105 out of the total billings for a physician was multiplied by that physician's FTE.
Numerator (subset of denominator)	Total annual, migration-adjusted, full-time equivalent (FTE) allocated by general practitioners or family physicians towards MHA-related outpatient services for Ontario adults aged 16 to 105 • The proportion of MHA-related billings in outpatient settings for adults aged 16 to 105 out of the total billings for a physician was multiplied by that physician's FTE.
Exclusions	General exclusions (see Section 2.1)
Date used to pull patient characteristics and group individuals into calendar years	Date of OHIP service claim
Notes	• MHA-related FTE is a subset of the denominator, whereby the MHA-related outpatient algorithm was applied (see Section 2.3) to identify the proportion of the FTE attributable to MHA care. • This indicator was adjusted for migration by using the geographic location of the patients for whom OHIP claims were submitted, rather than the location of the physicians.
Limitations	• General limitations of health administrative data include potential coding errors and lack of clinical data. • This indicator cannot be used in isolation to measure the adequacy of primary care provider resources as this also depends on the jurisdictional context including local models of care, demand for care, and provider mix (i.e., non-physician mental health service providers).

Rate at which individuals were seen by a psychiatrist or a general practitioner/family physician for mental health and addictions care	
Rationale	Psychiatrists are physicians who specialize in mental health and addictions care. Their services are funded through the Ontario Health Insurance Plan (OHIP) and require a referral from another physician. Measuring the number of individuals who are seen by a psychiatrist is one measure of access to specialized care. Primary care providers, such as general practitioners and family physicians, provide variable amounts of mental health and addictions services in addition to general health care, depending on the case-mix of their practice. In addition to being a measure of access to mental health and addictions care, knowledge of the rate of and trends for visits to primary care providers for mental health and addictions services can help with human resource planning.
Data sources	OHIP, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Ontario population aged 16 to 105 years (see Section 2.1)
Numerator	Number of unique individuals who received MHA-related service from a psychiatrist or a general practitioner/family physician (see Section 2.3).
Exclusions	General exclusions (see Section 2.1)
Date used to pull patient characteristics and group individuals into calendar years	Date of OHIP service claim
Note	If a patient had multiple OHIP claims, only the first claim for each physician specialty was considered (i.e., each patient was counted once per specialty).
Limitations	Rates may be undercounted because some specialists only shadow bill (i.e., they submit claims for services provided to patients that are funded through sources other than fee-for-service).

Rate at which individuals received telepsychiatry consultations	
Rationale	Telepsychiatry is a mode of care provided via secure, real-time videoconferencing and can be an effective way to improve access to mental health care services in regions with few or no psychiatrists. Consultations take place in health care settings such as hospitals, physician clinics and community-based mental health agencies.
Data sources	OHIP, RPDB, IRCC-PR
Years	2008 to 2014
Denominator	Ontario population aged 16 to 105 years (see Section 2.1)
Numerator	Number of unique individuals who received a telepsychiatry consultation (see Section 2.3).
Exclusions	General exclusions (see Section 2.1)
Date used to pull patient characteristics and group individuals into calendar years	Date of OHIP service claim
Note	If a patient had multiple OHIP claims, only the first claim was considered (i.e., each patient was counted once).
Limitations	Lack of clinical detail around the types of services provided through telepsychiatry.

Rate of mental health and addictions–related outpatient physician visits	
Rationale	The use of physician services for mental health and addictions problems (currently the only outpatient service for which data are available) provides a measure of the need for service, which may inform human resource planning. Knowledge of the rate of and trends for outpatient visits according to physician type may help in human resource planning.
Data sources	OHIP, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Ontario population aged 16 to 105 years (see Section 2.1)
Numerator	Number of MHA-related outpatient (office, home or long-term care) visits to: • Any physician specialty: psychiatrist or general practitioner/family physician (GP/FP) • A psychiatrist only • A GP/FP only For a definition of MHA-related outpatient visits based on physician specialties and diagnostic codes, see Section 2.3.
Exclusions	General exclusions (see Section 2.1)
Date used to pull patient characteristics and group individuals into calendar years	Date of OHIP service claim
Notes	• When reporting visits, rather than unique individuals, the numerators for different physician specialties are mutually exclusive and should add up to 'any specialty.' • A visit is, at most, one claim per patient per physician per service date (individuals may contribute more than one visit to various physician specialties in a calendar year).
Limitations	• Data did not include individuals with MHA problems who did not visit a physician. • General limitations of health administrative data include potential coding errors and lack of clinical data.

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Length of stay for psychiatric hospitalizations	
Rationale	The length of psychiatric hospitalizations can be affected by illness severity at admission, discharge planning and other care processes at the hospital, and by the availability of resources to support discharge in the community. Along with patterns of hospitalization prevalence, trends in lengths of stay could reflect the efficiency of the mental health and addictions care system.
Data sources	DAD, OMHRS, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Not applicable
Numerator	Median length of stay (in days) for hospitalizations related to mental health and addictions
Exclusions	General exclusions (see Section 2.1)
Date used to pull patient characteristics and group individuals into calendar years	Hospital discharge date
Notes	• Length of stay was calculated for adults aged 16 to 105 years. • Diagnoses-specific lengths of stay do not add up to the overall length of stay (see Section 2.3). • In addition to median length of stay for psychiatric hospitalizations, interquartile ranges (25th and 75th percentile) were also calculated.
Limitations	General limitations of health administrative data include potential coding errors and lack of clinical detail.

Rate of hospitalizations for mental health and addictions care	
Rationale	The rate of hospitalizations for mental illness or addictions is an aggregate measure of a number of processes, including population-based illness burden requiring psychiatric hospitalization, regional availability of hospital beds, adequacy of community resources to provide timely access to resources and other factors.
Data sources	DAD, OMHRS, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Ontario population aged 16 to 105 years (see Section 2.1)
Numerator	Number of hospitalizations related to mental health and addictions
Exclusions	General exclusions (see Section 2.1)
Date used to pull patient characteristics and group individuals into calendar years	Hospital discharge date
Notes	• Diagnoses-specific denominators do not add up to the overall denominator (see Section 2.3). • Hospitalizations were constructed as episodes whereby admission and discharge dates that overlapped by ±1 day were considered part of the same hospitalization stay. • For deliberate self-harm hospitalizations, there must not be a mental illness (i.e., ICD-10-CA: F04–F99) listed as a most responsible diagnosis.
Limitations	General limitations of health administrative data include potential coding errors and lack of clinical detail.

Rate of emergency department visits for deliberate self-harm	
Rationale	Deliberate self-harm refers to non-fatal self-poisoning or self-injury and encompasses a wide range of behaviours, from non-suicidal acts to attempted suicide (carried out with at least some intent to end one's life). These behaviours are important markers of mental health and may reflect a lack of access to primary care and community-based mental health services. This indicator takes into account all visits for deliberate self-harm regardless of whether a mental illness or addiction diagnosis is present.
Data sources	NACRS, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Ontario general population aged 16 to 105 years
Numerator	Number of emergency department visits for deliberate self-harm
Exclusions	In addition to exclusions listed in Section 2.1, also excluded were: • Scheduled ED visits • Transfers from another ED
Date used to pull patient characteristics and group individuals into calendar years	Date of the ED visit
Limitations	• Individuals who self-harm but do not present to the ED are not included. • General limitations of health administrative data include potential coding errors and lack of clinical detail.

Rate of mental health and addictions–related emergency department visits	
Rationale	The use of the emergency department for mental health and addictions care may signal a lack of early identification of mental health and addictions needs, as well as gaps in service provided by the primary care, specialty service and community sectors.
Data sources	NACRS, RPDB, IRCC-PR
Years	2006 to 2014
Denominator	Ontario population aged 16 to 105 years (see Section 2.1)
Numerator	Number of ED visits related to mental health and addictions care
Exclusions	In addition to exclusions listed in Section 2.1, also excluded were: • Scheduled ED visits • Transfers from another ED
Date used to pull patient characteristics and group individuals into calendar years	Date of the ED visit
Notes	• Diagnoses-specific denominators do not add up to the overall denominator (see Section 2.3). • For deliberate self-harm ED visits, there must not be a mental illness (i.e., ICD-10-CA: F04–F99) listed as a most responsible diagnosis.
Limitations	General limitations of health administrative data include potential coding errors and lack of clinical detail.

2.3 Diagnostic groupings used in indicator calculation

2.3.1 Hospitalizations

Hospitalizations	ICD-10-CA (DAD)	DSM-IV or provisional diagnoses* (OMHRS)
Overall, any mental health disorder or addiction	Primary diagnosis at discharge equals F04–F99 (which excludes dementia), or secondary diagnoses fields equal X60–X84, Y10–Y19, Y28 when primary diagnosis is not F04–F99	Any diagnosis (including missing diagnoses; excluding 290.x or 294.x, which are dementia codes)
Substance-related disorders	F55, F10–F19	291.x (all 291 codes, excluding 291.82), 292.x (all 292 codes, excluding 292.85), 303.x (all 303 codes), 304.x (all 304 codes), 305.x (all 305 codes) or provisional diagnosis 4
Schizophrenia	F20 (excluding F20.4), F22–F25, F28, F29, F53.1	295.x (all 295 codes), 297.x (all 297 codes), 298.x (all 298 codes) or provisional diagnosis 5
Mood disorders	F30–F34, F38, F39, F53.0	296.x (all 296 codes), 300.4x, 301.13 or provisional diagnosis 6
Anxiety disorders	F40–F43, F48.8, F48.9	300, 300.0x, 300.2x, 300.3x, 308.3x, 309.0x, 309.24, 309.28, 309.3x, 309.4x, 309.8x, 309.9x or provisional diagnosis 7, 15
Deliberate self-harm	Secondary diagnoses fields X60–X84, Y10–Y19, Y28 when primary diagnosis is not F04–F99	Not applicable

*Provisional diagnoses were used when the `Primary diagnosis at discharge' field was not complete.
Note: Diagnostic groupings included suspect diagnoses; for more details on diagnostic codes, see **Standard mental health and addiction diagnostic codes**.

2.3.2 Emergency department visits

Emergency department visits	ICD-10-CA (NACRS)
Overall, any mental health disorder or addiction	Primary diagnosis field equals F04–F99 (which excludes dementia), or secondary diagnoses fields equal X60–X84, Y10–Y19, Y28 when primary diagnosis is not F04–F99
Substance-related disorders	F55, F10–F19
Schizophrenia	F20 (excluding F20.4), F22–F25, F28, F29, F53.1
Mood disorders	F30–F34, F38, F39, F53.0
Anxiety disorders	F40–F43, F48.8, F48.9
Deliberate self-harm	Secondary diagnoses fields X60–X84, Y10–Y19, Y28 when primary diagnosis is not F04–F99

Note: Diagnostic groupings included suspect diagnoses; for more details on diagnostic codes, see **Standard mental health and addiction diagnostic codes**.

2.3.3. Outpatient visits

Outpatient visits	OHIP algorithm
Any physician specialty	Psychiatrist or general practitioner/family physician, as defined below
Psychiatrist	Any outpatient (office, home or long-term care) OHIP visit/consult to a psychiatrist (exclude all laboratory fee codes G.x)
General practitioner or family physician	Any outpatient (office, home or long-term care) OHIP visit/consult to a GP/FP and a mental health diagnostic code listed below (exclude all laboratory fee codes G.x)
Mental health diagnostic codes for Ontario adults	OHIP diagnostic codes: 295–298, 300–304, 306, 309, 311, 897–902, 904–906, 909

Note: For more details on diagnostic codes, see **Standard mental health and addiction diagnostic codes**.

2.3.4 Standard mental health and addictions diagnostic codes

Diagnostic category	International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10), Canadian Enhancement codes	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) codes
Substance-related disorders	F10: Mental and behavioural disorders due to use of alcohol F11: Mental and behavioural disorders due to use of opioids F12: Mental and behavioural disorders due to use of cannabinoids F13: Mental and behavioural disorders due to use of sedatives or hypnotics F14: Mental and behavioural disorders due to use of cocaine F15: Mental and behavioural disorders due to use of other stimulants, including caffeine F16: Mental and behavioural disorders due to use of hallucinogens F17: Mental and behavioural disorders due to use of tobacco F18: Mental and behavioural disorders due to use of volatile solvents F19: Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances F55: Abuse of non-dependence-producing substances	291.00: Alcohol – Intoxication or withdrawal delirium 291.10: Alcohol – Induced persisting amnestic disorder 292.20: Alcohol – Induced persisting dementia 291.30: Alcohol – Induced psychotic disorder, with hallucinations 291.50: Alcohol – Induced psychotic disorder, with delusions 291.81: Alcohol – Withdrawal 291.89: Alcohol – Induced anxiety/mood disorder or sexual dysfunction 291.90: Alcohol – Related disorder not otherwise specified (NOS) 292.00: Substance – Withdrawal 292.11: Substance – Induced psychotic disorder, with delusions 292.12: Substance – Induced psychotic disorder, with hallucinations 292.81: Substance – Intoxication or withdrawal delirium 292.82: Substance – Induced persisting dementia 292.83: Substance – Induced persisting amnestic disorder 292.84: Substance – Induced mood disorder 292.89: Substance – Intoxication or induced anxiety disorder/ sexual dysfunction 292.90: Substance – Related NOS 303.00: Alcohol intoxication 303.90: Alcohol dependence 304.00: Opioid dependence 304.10: Sedative, hypnotic or anxiolytic dependence 304.20: Cocaine dependence 304.30: Cannabis dependence 304.40: Amphetamine dependence 304.50: Hallucinogen dependence 304.60: Inhalant or phencyclidine dependence 304.80: Polysubstance dependence 304.90: Other (or unknown) substance dependence 305.00: Alcohol abuse 305.10: Nicotine dependence 305.20: Cannabis abuse 305.30: Hallucinogen abuse 305.40: Sedative, hypnotic or anxiolytic abuse 305.50: Opioid abuse 305.60: Cocaine abuse 305.70: Amphetamine abuse 305.90: Other (or unknown) substance abuse

Diagnostic category	International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10), Canadian Enhancement codes	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) codes
Schizophrenia	F20: Schizophrenia (excluding F20.4: Post-schizophrenic depression) F22: Persistent delusional disorders F23: Acute and transient psychotic disorders F24: Induced delusional disorder F25: Schizoaffective disorders F28: Other nonorganic psychotic disorders F29: Unspecified nonorganic psychosis F53.1: Severe mental and behavioural disorders associated with the puerperium, not elsewhere classified	295.10: Schizophrenia, disorganized type 295.20: Schizophrenia, catatonic type 295.30: Schizophrenia, paranoid type 295.40: Schizophreniform disorder 295.60: Schizophrenia, residual type 295.70: Schizoaffective disorder 295.90: Schizophrenia, undifferentiated type 297.10: Delusional disorder 297.30: Shared psychotic disorder 298.80: Brief psychotic disorder 298.90: Psychotic disorder NOS
Mood disorders	F30: Manic episode F31: Bipolar affective disorder F32: Depressive episode F33: Recurrent depressive disorder F34: Persistent mood [affective] disorders F38: Other mood [affective] disorders F39: Unspecified mood [affective] disorder F53.0: Mild mental and behavioural disorders associated with the puerperium, not elsewhere classified	296.0x: Bipolar I disorder, single manic episode 296.2x: Major depressive disorder, single episode 296.3x: Major depressive disorder, recurrent 296.4x: Bipolar I disorder, most recent episode manic 296.5x: Bipolar I disorder, most recent episode depressed 296.6x: Bipolar I disorder, most recent episode mixed 296.7: Bipolar I disorder, most recent episode unspecified 296.80: Bipolar disorder NOS 296.89: Bipolar II disorder 296.90: Mood disorder NOS 300.4: Dysthymic disorder 301.13: Cyclothymic disorder
Anxiety disorders	F40: Phobic anxiety disorders F41: Other anxiety disorders F42: Obsessive-compulsive disorder F43: Reaction to severe stress and adjustment disorders F48.8: Other specified neurotic disorders F48.9: Neurotic disorder, unspecified	300.00: Anxiety disorder NOS 300.01: Panic disorder without agoraphobia 300.02: Generalized anxiety disorder 300.21: Panic disorder with agoraphobia 300.22: Agoraphobia without history of panic disorder 300.23: Social phobia 300.29: Specific phobia 300.3: Obsessive-compulsive disorder 308.3: Acute stress disorder 309.0: Adjustment disorder with depressed mood 309.24: Adjustment disorder with anxiety 309.28: Adjustment disorder with mixed anxiety and depressed mood 309.3: Adjustment disorder with disturbance of conduct 309.4: Adjustment disorder with mixed disturbance of emotions and conduct 309.81: Posttraumatic stress disorder 309.9: Adjustment disorder unspecified

Diagnostic category	International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10), Canadian Enhancement codes	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) codes
Deliberate self-harm	X60: Intentional self-poisoning by and exposure to non-opioid analgesics, antipyretics and antirheumatics X61: Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, NOS X62: Intentional self-poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], NOS X63: Intentional self-poisoning by and exposure to other drugs acting on the autonomic nervous system X64: Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances X65: Intentional self-poisoning by and exposure to alcohol X66: Intentional self-poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours X67: Intentional self-poisoning by and exposure to other gases and vapours X68: Intentional self-poisoning by and exposure to pesticides X69: Intentional self-poisoning by and exposure to other and unspecified chemicals and noxious substances X70: Intentional self-harm by hanging, strangulation and suffocation X71: Intentional self-harm by drowning and submersion X72: Intentional self-harm by handgun discharge X73: Intentional self-harm by rifle, shotgun and larger firearm discharge X74: Intentional self-harm by other and unspecified firearm discharge X75: Intentional self-harm by explosive material X76: Intentional self-harm by smoke, fire and flames X77: Intentional self-harm by steam, hot vapours and hot objects X78: Intentional self-harm by sharp object X79: Intentional self-harm by blunt object X80: Intentional self-harm by jumping from a high place X81: Intentional self-harm by jumping or lying before a moving object X82: Intentional self-harm by crashing of motor vehicle X83: Intentional self-harm by other specified means X84: Intentional self-harm by unspecified means Y10: Poisoning by and exposure to non-opioid analgesics, antipyretics and antirheumatics, undetermined intent Y11: Poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified, undetermined intent Y12: Poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified, undetermined intent Y13: Poisoning by and exposure to other drugs acting on the autonomic nervous system, undetermined intent Y14: Poisoning by and exposure to other and unspecified drugs, medicaments and biological substances, undetermined intent	Not applicable

Diagnostic category	International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10), Canadian Enhancement codes	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) codes
Deliberate self-harm	Y15: Poisoning by and exposure to alcohol, undetermined intent Y16: Poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours, undetermined intent Y17: Poisoning by and exposure to other gases and vapours, undetermined intent Y18: Poisoning by and exposure to pesticides, undetermined intent Y19: Poisoning by and exposure to other and unspecified chemicals and noxious substances, undetermined intent Y28: Contact with sharp object, undetermined intent	
Death caused by suicide (from ICD-9)	E950: Suicide and self-inflicted poisoning by solid/liquid substances E951: Suicide and self-inflicted poisoning by gases in domestic use E952: Suicide and self-inflicted poisoning by other gases and vapours E953: Suicide and self-inflicted injury by hanging, strangulation and suffocation E954: Suicide and self-inflicted injury by submersion (drowning) E955: Suicide and self-inflicted injury firearms and explosives E956: Suicide and self-inflicted injury by cutting and piercing instruments E957: Suicide and self-inflicted injury jumping from a high place E958: Suicide and self-inflicted injury by other and unspecified means E959: Late effects of self-inflicted injury	

OHIP diagnostic codes (based on DSM-IV)	
Any mental health disorder or addiction	Psychotic disorders • 295: Schizophrenia • 296: Manic-depressive psychoses, involutional melancholia • 297: Other paranoid states • 298: Other psychoses Non-psychotic disorders • 300: Anxiety neurosis, hysteria, neurasthenia, obsessive-compulsive neurosis, reactive depression • 301: Personality disorders • 302: Sexual deviations • 306: Psychosomatic illness • 309: Adjustment reaction • 311: Depressive disorder Substance use disorders • 303: Alcoholism • 304: Drug dependence Social problems • 897: Economic problems • 898: Marital difficulties • 899: Parent-child problems • 900: Problems with aged parents or in-laws • 901: Family disruption/divorce • 902: Education problems • 904: Social maladjustment • 905: Occupational problems • 906: Legal problems • 909: Other problems of social adjustment

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