Health Quality Ontario

The provincial advisor on the quality of health care in Ontario

Indicator Technical Specifications for the Quality Standard *Schizophrenia: Care for Adults in Hospitals*

Technical Appendix

October 14, 2016

Ontario
Health Quality Ontario

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Technical Appendix Overview

This technical appendix accompanies Health Quality Ontario's Quality Standard *Schizophrenia: Care for Adults in Hospitals*. The appendix provides additional information on the outcome indicators that were identified as important and that would provide comprehensive measurements of the overall quality of care associated with this quality standard. It also includes information on the definitions and technical details of the indicators, including data sources for indicators that can be consistently measured at the provincial level.

Indicators are categorized as follows:

- Currently measured in Ontario or similar health systems (i.e., the indicator is well defined and validated)
- Measurable with available provincial data (i.e., data are available to measure the indicator, but the indicator requires definition and validation)
- Developmental (i.e., the indicator is not well defined, and data sources do not currently exist to measure it consistently across providers and at the system level)

Outcome Indicators

Table 1: Number of deaths by inpatient suicide among people with a primary diagnosis of schizophrenia

<table>
<tr>
<td rowspan="3">GENERAL DESCRIPTION</td>
<td>Indicator description</td>
<td>The number of deaths by inpatient suicide among people with a primary diagnosis of schizophrenia

Directionality: A lower number is better.</td>
</tr>
<tr>
<td>Indicator status</td>
<td>Measurable</td>
</tr>
<tr>
<td>Dimensions of quality</td>
<td>Effectiveness, safety</td>
</tr>
<tr>
<td rowspan="3">DEFINTION AND SOURCE INFORMATION</td>
<td>Calculation</td>
<td>Number of inpatient suicides

DAD

Group 15: Mental Health Indicators Field 06 Suicide = 1 (successful suicide), AND
ICD-10-CA code X60-X84 Intentional Self-Harm as diagnosis type 9 (External Cause of Injury code) AND U98.20 Place of Occurrence, Hospital, as diagnosis type 9 (External Cause of Injury code)

OMHRS

Discharge Reason (Data Element X90) = 2 (died as a result of suicide)

Note: OMHRS methodology requires further development and validation.

Inclusions

Among acute care discharge from episode of care in which schizophrenia was coded as most responsible diagnosis
Age ≥ 18 years
Diagnosis codes

ICD-10-CA: F20 (Schizophrenia) and F25 (Schizoaffective Disorder)
DSM-IV: 295 (Schizophrenia and Schizoaffective Disorder)

Diagnosis type

DAD: Most Responsible Diagnosis (diagnosis type = M) or a Type 1 diagnosis
OMHRS: DSM-IV in Q2A/Q2D

</td>
</tr>
<tr>
<td>Data sources</td>
<td>DAD, OMHRS</td>
</tr>
<tr>
<td>Risk adjustment, age/sex standardization</td>
<td>Reported as crude numbers</td>
</tr>
<tr>
<td rowspan="2">GEOGRAPHY AND TIMING</td>
<td>Timing and frequency of data release</td>
<td>Yearly</td>
</tr>
<tr>
<td>Levels of comparability</td>
<td>Province, LHIN region, and hospital</td>
</tr>
</table>

ADDITIONAL INFORMATION	Limitations	
	Comments	The methodology for patients in designated mental health beds who die by suicide during admission is currently under review. This pertains to cases in the OMHRS database.
	Alignment	

Abbreviations: DAD, Discharge Abstract Database (Canadian Institute for Health Information); DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition; ICD-10-CA*, International Statistical Classification of Diseases and Related Health Problems*, 10th revision, Canada; LHIN, local health integration network; OMHRS, Ontario Mental Health Reporting System.

Table 2: Percentage of people admitted to hospital with a primary diagnosis of schizophrenia who die by suicide within 30 days of discharge

GENERAL DESCRIPTION	Indicator description	The percentage of people admitted to hospital with a primary diagnosis of schizophrenia who die by suicide within 30 days of discharge Directionality: A lower percentage is better.
	Indicator status	**Measurable**
	Dimensions of quality	Effectiveness, safety

DEFINTION AND SOURCE INFORMATION	Calculation	**Denominator**
		Acute care discharges in which schizophrenia is coded as most responsible diagnosis. The index cases are identified from both the DAD and OMHRS databases.
		
		Inclusions
		• Age ≥ 18 years
		• Diagnosis codes
		    ○ ICD-10-CA: F20 (Schizophrenia) and F25 (Schizoaffective Disorder)
		    ○ DSM-IV: 295 (Schizophrenia and Schizoaffective Disorder)
		• Diagnosis type
		    ○ DAD: Most Responsible Diagnosis (diagnosis type = M)
		    ○ OMHRS: DSM-IV in Q2A/Q2D
		
		Exclusions
		• Records without a valid health insurance number
		• Records without an Ontario residence
		• Gender not recorded as male or female
		• Invalid date of birth, admission date/time, discharge date/time
		• Discharges where patients signed themselves out or patients died from a cause other than suicide
		
		Numerator
		The number in the denominator who die within 30 days of discharge with the leading cause of death identified as suicide
		• ICD-10 codes: X60-X84, Y87.0
		
		Method
		Numerator ÷ Denominator × 100

	Data sources	DAD, OMHRS, Vital Statistics (Statistic Canada)
	Risk adjustment, age/sex standardization	Reported as crude numbers
GEOGRAPHY AND TIMING	Timing and frequency of data release	Yearly
	Levels of comparability	Province, LHIN region, and hospital

ADDITIONAL INFORMATION	Limitations	Due to the delay in accessing the Vital Statistics data, the data for this indicator will not be available in a timely manner.
	Comments	
	Alignment	

Abbreviations: DAD, Discharge Abstract Database (Canadian Institute for Health Information); DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition; ICD-10-CA, *International Statistical Classification of Diseases and Related Health Problems*, 10th revision, Canada; LHIN, local health integration network; OMHRS, Ontario Mental Health Reporting System.

Table 3: Percentage of people admitted to hospital with a primary diagnosis of schizophrenia who experience an improvement in behavioural symptoms between their admission and discharge, stratified by their length of stay

<table>
<tr>
<td rowspan="3">GENERAL DESCRIPTION</td>
<td>Indicator description</td>
<td>The percentage of people admitted to hospital with a primary diagnosis of schizophrenia who experience an improvement in behavioural symptoms between their admission and discharge, stratified by length of stay (LOS)

Directionality: A high percentage is better.</td>
</tr>
<tr>
<td>Indicator status</td>
<td>Developmental</td>
</tr>
<tr>
<td>Dimension of quality</td>
<td>Effectiveness</td>
</tr>
<tr>
<td rowspan="3">DEFINTION AND SOURCE INFORMATION</td>
<td>Calculation</td>
<td>Denominator
Acute care discharges in which schizophrenia was coded as most responsible diagnosis

Inclusions

Age ≥ 18 years
Diagnosis codes

ICD-10-CA: F20 (Schizophrenia) and F25 (Schizoaffective Disorder)
DSM-IV: 295 (Schizophrenia and Schizoaffective Disorder)
Aggressive Behaviour Scale score > 0

Diagnosis type

DAD: Most Responsible Diagnosis (diagnosis type = M)
OMHRS: DSM-IV in Q2A/Q2D

Exclusions

No behavioural symptoms at admission (Aggressive Behaviour Scale score = 0; violence items [D2a–c] < 4)
Records without a valid health insurance number
Records without an Ontario residence
Gender not recorded as male or female
Invalid date of birth, admission date/time, discharge date/time
Discharges where patients signed themselves out or patients died

Numerator
The number in the denominator who experienced an improvement in behavioural symptoms between admission and discharge

Method
Numerator ÷ Denominator × 100, stratified by LOS group</td>
</tr>
<tr>
<td>Data source</td>
<td>OMHRS</td>
</tr>
<tr>
<td>Risk adjustment, age/sex standardization</td>
<td></td>
</tr>
<tr>
<td rowspan="2">GEOGRAPHY AND TIMING</td>
<td>Timing and frequency of data release</td>
<td>Quarterly, yearly</td>
</tr>
<tr>
<td>Levels of comparability</td>
<td>Province, LHIN region, and hospital</td>
</tr>
</table>

ADDITIONAL INFORMATION	Limitations	
	Comments	The indicator methodology is under development: • RAI-MH to be investigated as data source • Appropriate LOS categories are meant to group patients with similar expected improvements together; these categories are yet to be determined • Risk adjustment methodology under development
	Alignment	

Abbreviations: DAD, Discharge Abstract Database (Canadian Institute for Health Information); DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition; ICD-10-CA, *International Statistical Classification of Diseases and Related Health Problems*, 10th revision, Canada; LHIN, local health integration network; LOS, length of stay; OMHRS, Ontario Mental Health Reporting System; RAI-MH, Resident Assessment Instrument–Mental Health.

Table 4: Percentage of people admitted to hospital with a primary diagnosis of schizophrenia who experience an improvement in positive symptoms between admission and discharge, stratified by their length of stay

GENERAL DESCRIPTION	Indicator description	The percentage of people admitted to hospital with a primary diagnosis of schizophrenia who experience an improvement in positive symptoms between admission and discharge, stratified by length of stay (LOS) Directionality: A high percentage is better.
	Indicator status	**Developmental**
	Dimension of quality	Effectiveness

DEFINTION AND SOURCE INFORMATION	Calculation	**Denominator**
		Acute care discharges in which schizophrenia was coded as most responsible diagnosis
		
		Inclusions
		• Age ≥ 18 years
		• Diagnosis codes
		   ○ ICD-10-CA: F20 (Schizophrenia) and F25 (Schizoaffective Disorder)
		   ○ DSM-IV: 295 (Schizophrenia and Schizoaffective Disorder)
		• Diagnosis type
		   ○ DAD: Most Responsible Diagnosis (diagnosis type = M)
		   ○ OMHRS: DSM-IV in Q2A/Q2D
		Exclusions
		• No positive symptoms at admission (Positive Symptom Scale—Short = 0)
		• Records without a valid health insurance number
		• Records without an Ontario residence
		• Gender not recorded as male or female
		• Invalid date of birth, admission date/time, discharge date/time
		• Discharges where patients signed themselves out or patients died
		
		Numerator
		The number in the denominator who experienced an improvement in positive symptoms between admission and discharge:
		• Positive Symptom Scale (PSS) score at discharge is less than at admission, measured as sum of indicators of psychosis (B1u Hallucinations, B1v Command Hallucinations, B1w Delusions, **AND** B1x Abnormal Thought Process/Form).
		
		Method
		Numerator ÷ Denominator × 100, stratified by LOS group

	Data source	OMHRS
	Risk adjustment, age/sex standardization	
GEOGRAPHY AND TIMING	Timing and frequency of data release	Quarterly, yearly
	Levels of comparability	Province, LHIN region, and hospital

ADDITIONAL INFORMATION	Limitations	
	Comments	The indicator methodology is under development: • The appropriate LOS categories are meant to group patients with similar expected improvements together; these categories are yet to be determined • Risk adjustment methodology under development
	Alignment	

Abbreviations: DAD, Discharge Abstract Database (Canadian Institute for Health Information); DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition; ICD-10-CA, *International Statistical Classification of Diseases and Related Health Problems*, 10th revision, Canada; LHIN, local health integration network; LOS, length of stay; OMHRS, Ontario Mental Health Reporting System.

Table 5: Rates of readmission to any facility within 7 days and 30 days of discharge, stratified by the reason for readmission

<table>
<tr>
<td rowspan="3">GENERAL DESCRIPTION</td>
<td>Indicator description</td>
<td>The percentage of schizophrenia discharges that are followed within 7 and 30 days by another admission for one of the following:

a. Any reason
b. A reason related to mental health and addictions
c. Schizophrenia

Directionality: The direction of improvement is unclear.</td>
</tr>
<tr>
<td>Indicator status</td>
<td>Currently measured</td>
</tr>
<tr>
<td>Dimension of quality</td>
<td>Effectiveness</td>
</tr>
<tr>
<td rowspan="1">DEFINTION AND SOURCE INFORMATION</td>
<td>Calculation</td>
<td>Denominator
Acute care discharges from episode of care in which schizophrenia was coded as most responsible diagnosis. The index cases are identified from both the DAD and OMHRS databases.

Inclusions
• Age ≥ 18 years
• Diagnosis codes
  ○ ICD-10-CA: F20 (Schizophrenia) and F25 (Schizoaffective Disorder)
  ○ DSM-IV: 295 (Schizophrenia and Schizoaffective Disorder)
• Diagnosis type
  ○ DAD: Most Responsible Diagnosis (diagnosis type = M)
  ○ OMHRS: DSM-IV in Q2A/Q2D
• Discharge disposition
  ○ DAD: 04 (discharged to home or home setting with support services) or 05 (discharged to home with no support service from an external agency required)
  ○ OMHRS: X90 = 1 (a planned and regular discharge)

Exclusions
• Records without a valid health insurance number
• Records without an Ontario residence
• Gender not recorded as male or female
• Invalid date of birth, admission date/time, discharge date/time

Note: Admission to another institution within 24 hours of discharge from an institution should be considered part of the same episode of care.

Numerator
a. Any reason
Subsequent readmission to an acute care hospital within 7 and 30 days of index hospitalization discharge for any reason

Exclusion: Elective readmission in DAD (admit category = L)

b. Mental health and addictions–related condition
Subsequent readmission to an acute care hospital within 7 and 30 days of index hospitalization discharge for a most responsible diagnosis (i.e., diagnosis type = M in DAD or DSM-IV in Q2A/Q2D, or provisional diagnosis Q1D/Q1E/Q1F/Q1G/Q1O/Q1P = 1 in OMHRS) of a mental health and addictions–related condition, including:</td>
</tr>
</table>

		- *Substance-related disorders*—ICD-10-CA: F55, F10 to F19; DSM-IV: 291.x (0, 1, 2, 3, 5, 81, 89, 9), 292.0, 292.11, 292.12, 292.81, 292.82, 292.83, 292.84, 292.89, 292.9, 303.xx (00, 90), 304.xx (00, 10, 20, 30, 40, 50, 60, 80, 90), 305.xx (00, 10 to 90 excluding 80); provisional diagnosis[a]: (d) substance-related disorders; or - *Schizophrenia, delusional, and nonorganic psychotic disorders*—ICD-10-CA: F20 (excluding F20.4), F22, F23, F24, F25, F28, F29, F53.1; DSM-IV: 295.xx (10, 20, 30, 40, 60, 70, 90), 297.1, 297.3, 298.8, 298.9; provisional diagnosis[a]: (e) schizophrenia and other psychotic disorders; or - *Mood/affective disorders*—ICD-10-CA: F30, F31, F32, F33, F34, F38, F39, F53.0; DSM-IV: 296 .0x, 296.2x, 296.3x, 296.4x, 296.5x, 296.6x, 296.7, 296.80, 296.89, 296.90, 300.4, 301.13; provisional diagnosis[a]: (f) mood disorders; or - *Anxiety disorders*—ICD-10-CA: F40, F41, F42, F43, F48.8, F48.9; DSM-IV: 300.xx (00, 01, 02, 21, 22, 23, 29), 300.3, 308.3, 309.x (0, 3, 4, 9), 309.24, 309.28, 309.81; provisional diagnosis[a]: (g) anxiety disorders or (o) adjustment disorders; or - *Selected disorders of adult personality and behaviour*—ICD-10-CA: F60, F61, F62, F69, F21; DSM-IV: 301.0, 301.20, 301.22, 301.4, 301.50, 301.6, 301.7, 301.81, 301.82, 301.83, 301.9; provisional diagnosis[a]: (p) personality disorders Exclusion: Elective readmission in DAD (admit category = L) c. *Schizophrenia* Subsequent readmission to an acute care hospital within 7 and 30 days of index hospitalization discharge for a most responsible diagnosis (i.e., diagnosis type = M in DAD or DSM-IV in Q2A/Q2D) of schizophrenia: - ICD-10-CA: F20 (Schizophrenia) and F25 (Schizoaffective Disorder) - DSM-IV: 295 (Schizophrenia and Schizoaffective Disorder) Exclusion: Elective readmission in DAD (admit category = L) **Method** Numerator ÷ Denominator × 100
	Data sources	DAD, OMHRS
	Risk adjustment, age/sex standardization	Available as crude rates as well as age- or age-and-sex standardized rates
GEOGRAPHY AND TIMING	Timing and frequency of data release	Yearly
	Levels of comparability	Province, LHIN region, and hospital

ADDITIONAL INFORMATION	Limitations	It is not possible to differentiate between elective and non-elective admissions in the OMHRS database. Both planned and unplanned readmissions are counted in OMHRS.
	Comments	
	Alignment	Similar indicators: *Measuring Up* (Health Quality Ontario) reports 30-day readmissions for mental health and addiction–related conditions; Ontario Mental Health Scorecard

Abbreviations: DAD, Discharge Abstract Database (Canadian Institute for Health Information); DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition; ICD-10-CA, *International Statistical Classification of Diseases and Related Health Problems*, 10th revision, Canada; LHIN, local health integration network; OMHRS, Ontario Mental Health Reporting System.

aProvisional diagnoses are included only for records with no DSM-IV code recorded (applies only to data extracted from OMHRS).

Table 6: Rates of unscheduled emergency department visits after hospital inpatient discharge within 7 days and 30 days, stratified by the reason for the visit

<table>
<tr>
<td rowspan="3">GENERAL DESCRIPTION</td>
<td>Indicator description</td>
<td>The percentage of schizophrenia discharges that are followed within 7 and 30 days by an unscheduled ED visit for one of the following:

a. Any reason
b. A reason related to mental health and addictions
c. Schizophrenia
d. Self-harm

Directionality: The direction of improvement is unclear.</td>
</tr>
<tr>
<td>Indicator status</td>
<td>Measurable</td>
</tr>
<tr>
<td>Dimension of quality</td>
<td>Effectiveness</td>
</tr>
<tr>
<td rowspan="1">DEFINTION AND SOURCE INFORMATION</td>
<td>Calculation</td>
<td>
Denominator
Acute care discharges from episode of care in which schizophrenia was coded as most responsible diagnosis. The index cases are identified from both the DAD and OMHRS databases.

Inclusions

Age ≥ 18 years
Diagnosis codes

ICD-10-CA: F20 (Schizophrenia) and F25 (Schizoaffective Disorder)
DSM-IV: 295 (Schizophrenia and Schizoaffective Disorder)

Diagnosis type

DAD: Most Responsible Diagnosis (diagnosis type = M)
OMHRS: DSM-IV in Q2A/Q2D

Exclusions

Records without a valid health insurance number
Records without an Ontario residence
Gender not recorded as male or female
Invalid date of birth, admission date/time, discharge date/time
Discharges where patients signed themselves out or patients died

Numerator
a. Any reason
Subsequent unscheduled ED visit within 7 and 30 days of index hospitalization discharge for any reason

Exclusion: ED visits that result in admission (i.e., visit disposition = 06 or 07) are excluded from the calculation of this indicator as this subset is captured in the readmission indicator.

b. Mental health and addictions–related condition
Subsequent unscheduled ED visit within 7 and 30 days of index hospitalization discharge for main problem of a mental health and addictions–related condition:

Substance-related disorders—ICD-10-CA: F55, F10 to F19, or
Schizophrenia, delusional, and nonorganic psychotic disorders—ICD-10-CA: F20 (excluding F20.4), F22, F23, F24, F25, F28, F29, F53.1, or
Mood/affective disorders—ICD-10-CA: F30, F31, F32, F33, F34, F38, F39, F53.0, or
Anxiety disorders—ICD-10-CA: F40, F41, F42, F43, F48.8, F48.9, or

</td>
</tr>
</table>

<table>
<tr><td colspan="3">

- *Selected disorders of adult personality and behaviour*—ICD-10-CA: F60, F61, F62, F69, F21

  Exclusion: ED visits that result in admission (i.e., visit disposition = 06 or 07) are excluded from the calculation of this indicator as this subset is captured in the readmission indicator.

  c. *Schizophrenia*
  Subsequent unscheduled ED visit within 7 and 30 days of index hospitalization discharge for a main problem of schizophrenia:
  - ICD-10-CA: F20 (Schizophrenia) and F25 (Schizoaffective Disorder)

  Exclusion: ED visits that result in admission (i.e., visit disposition = 06 or 07) are excluded from the calculation of this indicator as this subset is captured in the readmission indicator.

  d. *Self-harm*
  Subsequent unscheduled ED visit within 7 and 30 days of index hospitalization discharge for a main problem or other problem of self-harm:
  - ICD-10-CA: X60 to X84 (Intentional Self-Harm)

  Exclusion: ED visits that result in admission (i.e., visit disposition = 06 or 07) are excluded from the calculation of this indicator as this subset is captured in the readmission indicator.

  Method
  Numerator ÷ Denominator × 100
</td></tr>
<tr><td></td><td>Data sources</td><td>DAD, NACRS, OMHRS</td></tr>
<tr><td></td><td>Risk adjustment, age/sex standardization</td><td>Reported as crude rates. Risk adjustment needs further investigation.</td></tr>
<tr><td rowspan="2">GEOGRAPHY AND TIMING</td><td>Timing and frequency of data release</td><td>Yearly</td></tr>
<tr><td>Levels of comparability</td><td>Province, LHIN region, and hospital</td></tr>
<tr><td rowspan="3">ADDITIONAL INFORMATION</td><td>Limitations</td><td>Capturing intention of self-harm with available data sources is difficult. Unintentional or undetermined injuries are excluded from this indicator, despite the fact that, in some cases, the injuries may have been intentional.</td></tr>
<tr><td>Comments</td><td></td></tr>
<tr><td>Alignment</td><td></td></tr>
</table>

Abbreviations: DAD, Discharge Abstract Database (Canadian Institute for Health Information); DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition; ED, emergency department; ICD-10-CA, *International Statistical Classification of Diseases and Related Health Problems*, 10th revision, Canada; LHIN, local health integration network; NACRS, National Ambulatory Care Reporting System; OMHRS, Ontario Mental Health Reporting System.

Table 7: Positive Symptom Scale efficiency score

GENERAL DESCRIPTION	Indicator description	The Positive Symptom Scale efficiency score is intended to combine the changes in positive symptoms between admission and discharge with the length of stay (LOS) to measure efficiency. The definition and methodology are under research. Directionality: Undetermined at this stage.
	Indicator status	**Developmental**
	Dimension of quality	Effectiveness
DEFINTION AND SOURCE INFORMATION	Calculation	Currently no established method
	Data source	Currently no established data source
	Risk adjustment, age/sex standardization	
GEOGRAPHY AND TIMING	Timing and frequency of data release	
	Levels of comparability	
ADDITIONAL INFORMATION	Limitations	
	Comments	
	Alignment	

Table 8: Patient-reported outcome measure (PROM)

GENERAL DESCRIPTION	Indicator description	A patient-reported outcome measure (PROM) is intended to measure a patient's sense of health and well-being over time. Directionality: Undetermined at this stage.
	Indicator status	**Developmental**
	Dimension of quality	Patient-centredness
DEFINTION AND SOURCE INFORMATION	Calculation	Currently no established method
	Data source	Currently no established data source
	Risk adjustment, age/sex standardization	
GEOGRAPHY AND TIMING	Timing and frequency of data release	
	Levels of comparability	
ADDITIONAL INFORMATION	Limitations	
	Comments	
	Alignment	