

Patterns of Community Care for Mental Health and Addictions

Insights From Community
Health Centre EMR Data



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Background

CIHI partnered with the Alliance for Healthier Communities (Alliance) to conduct this second proof-of-concept analysis focused on mental health and addictions. The Alliance represents a network of community-governed primary health care organizations that includes Ontario's community health centres (CHCs).ⁱ CHCs provide interdisciplinary care to clients through a team-based approach, and remuneration is on a salaried basis. Care is integrated and coordinated both within the CHCs and with external health care providers and community-based agencies.¹ All organizations have a similar service delivery model that ensures the highest-quality health and well-being for people and communities, health equity and social justice, and community vitality and belonging.²

This analysis uses 3 years of Alliance electronic medical record (EMR) data (2015–2016 to 2017–2018) from 73 CHCs. It builds upon a previous assessment of data quality and a first proof-of-concept analysis that focused on chronic obstructive pulmonary disease (COPD).

i. In addition to CHCs, the Alliance's members include Aboriginal health access centres (AHACs), community family health teams (CFHTs) and nurse practitioner-led clinics (NPLCs).

Why mental health and addictions?

Mental health and addictions (MHA) was identified as a topic of mutual interest to the Alliance and CIHI for this second proof-of-concept analysis. Up to 1 in 5 Canadians experience MHA problems each year.³ Individuals with MHA issues are also more likely to have other chronic illnesses and to die prematurely.⁴ Further, clients with MHA issues can face barriers to accessing care. There is limited data related to community care for MHA, and this project aims to help address this gap. This project explores patterns of primary care and subsequent use of acute care services among MHA clients, yielding insights about journeys through the continuum of care. This work can also inform and improve care planning within CHCs and with other health care providers.

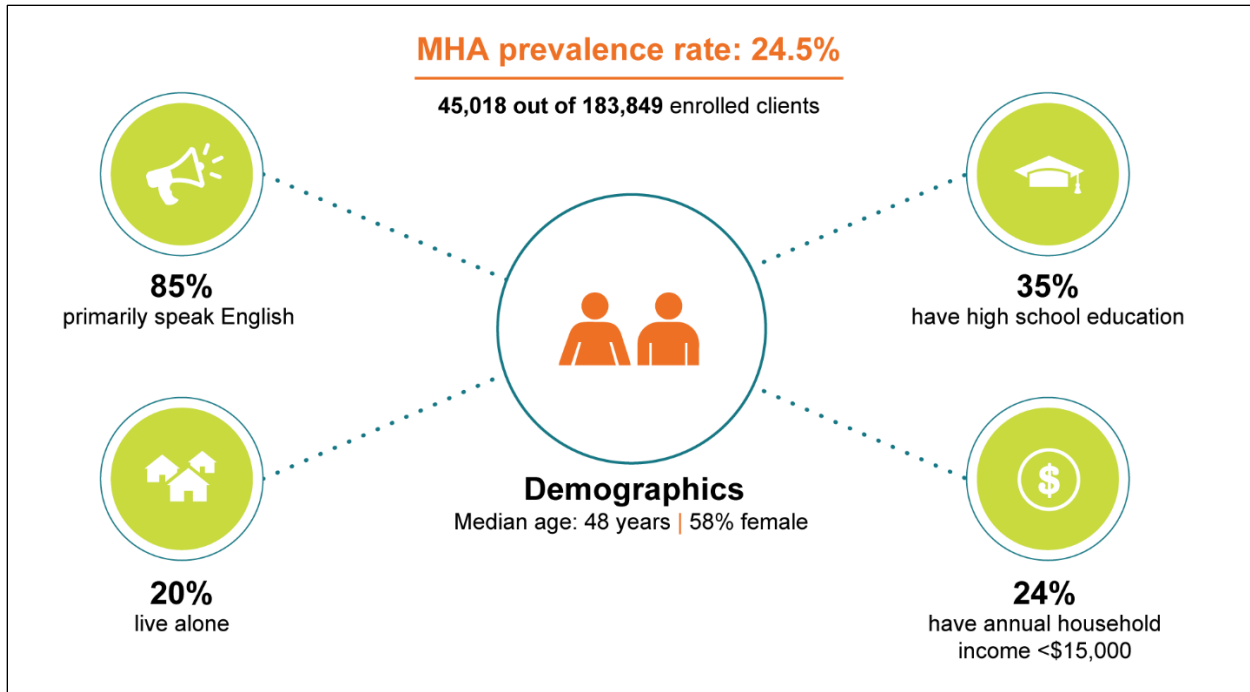
Profile of MHA clients and management in primary care

Based on Alliance EMR data from 73 CHCs over a 2-year period (April 1, 2015, to March 31, 2017), 45,018 clients with MHA were identified, giving a crude prevalence rate of 24.5%. This rate is higher than provincial and national estimates;ⁱⁱ however, this data uses different criteria to identify MHA and is not directly comparable.⁵ The median age of MHA clients was 48, and females accounted for 58% of all MHA clients. Compared with non-MHA clients, MHA clients were more likely to be middle-aged (45 to 64) and to primarily speak English. They were somewhat more likely to live alone, to have high school as the highest level of education attained and to have an annual income below \$15,000.ⁱⁱⁱ

ii. In 2015, 16% of Ontarians had at least one physician visit or one hospitalization for MHA.³

iii. High EMR data completion rates were found for age and sex (100%) and language (99%); medium completion rates were found for education (82%), household composition (87%) and household income (87%).

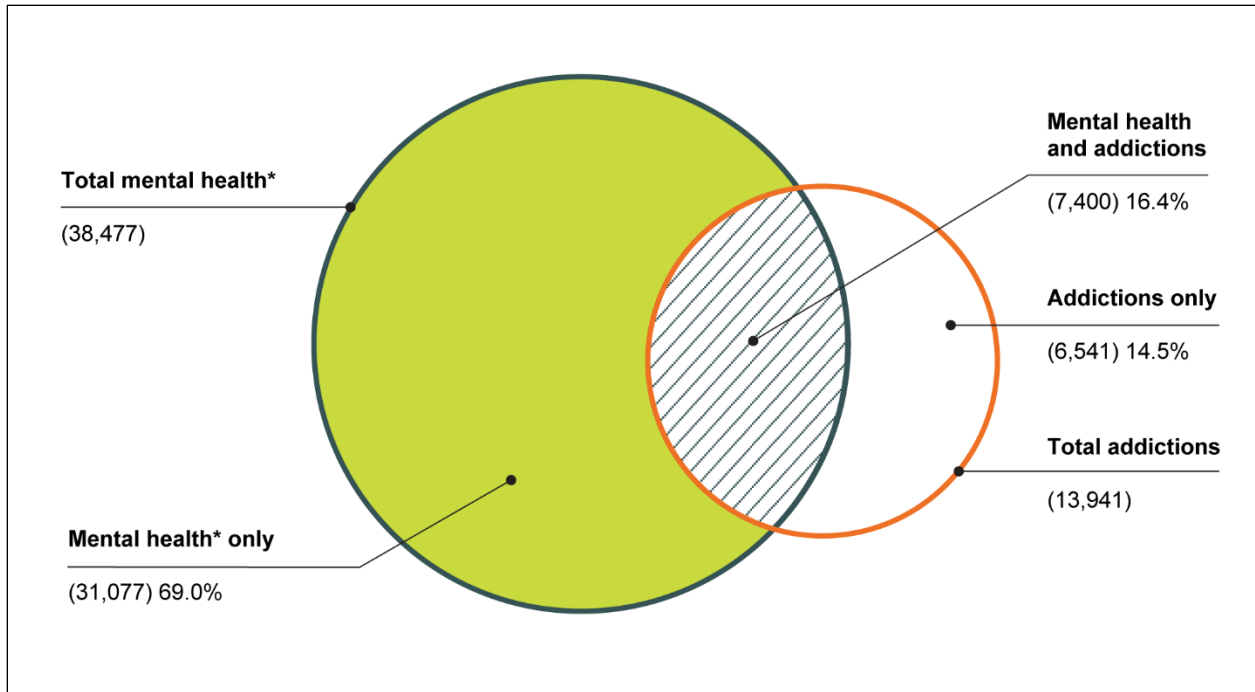
Figure 1 MHA client profiles



Prevalence of MHA: Breakdown

Of the 45,018 CHC clients with MHA, 85.5% (38,477) had mental health issues and 31% (13,941) had addictions issues. 16.4% of MHA clients (7,400) experienced both mental health and addictions issues. It is noteworthy that while more than half of the addictions clients also had mental health issues, only 19.2% of the mental health clients also had addictions issues.

Figure 2 Prevalence of MHA



Note

* Includes self-harm.

The prevalence of 7 specific MHA conditions was also assessed. The conditions selected are consistent with those used by CIHI for other recent mental health reports and those of interest to the Alliance. Over half of clients (25,049) were found to have “other” disorders, many of which were related to specific stress conditions, namely acute stress reactions, post-traumatic stress disorder and adjustment disorders. Of the 7 mental health conditions examined, nearly two-thirds of clients had only 1 condition, one-quarter had 2 conditions and about one-tenth had 3 or more conditions.

Table 1 Prevalence of specific MHA conditions

MHA condition	Number of clients with specific disorder	Prevalence (%) among MHA clients (n = 45,018)	Prevalence (%) among enrolled cohort (n = 183,849)
Other	25,049	55.6	13.6
Mood disorder	19,615	43.6	10.7
Addiction	13,941	31.0	7.6
Anxiety	4,651	10.3	2.5
Schizophrenia	2,617	5.8	1.4
Personality disorder	1,127	2.5	0.6
Self-harm	142	0.3	0.1

Note

The percentage of total MHA clients exceeds 100% because clients may have more than one condition.

Prevalence rates for 9 physical comorbidities were also examined. Conditions were selected based on their suspected association with MHA from review of the literature⁶ and consultation with experts. Prevalence rates across all conditions were found to be higher among MHA clients than non-MHA clients. For irritable bowel syndrome, COPD and hepatitis C, prevalence rates were more than 3 times higher. The fact that MHA clients were followed^{iv} slightly longer than non-MHA clients (1.7 years versus 1.5 years, on average) may have resulted in slightly elevated relative risk estimates.

iv. Follow-up here refers to the duration between the client's first recorded visit to a CHC in the first 2 years and March 31, 2017.

Table 2 Prevalence of comorbidities

Prevalence (%)	Hepatitis C*	COPD	Irritable bowel syndrome	Brain injury†	Asthma	Liver disease	Stroke	Heart disease‡	Hyper-tension	Type 2 diabetes
MHA clients	2.0	12.1	3.4	1.1	10.9	5.1	1.9	5.6	29.7	16.9
Non-MHA clients	0.3	3.4	1.1	0.4	4.3	2.2	0.9	3.6	20.2	11.3
Enrolled clients	0.7	5.5	1.7	0.6	5.9	2.9	1.2	4.1	22.6	12.6
Prevalence ratio relative risk estimate (MHA to non-MHA)	6.1	3.6	3.1	2.6	2.5	2.4	2.1	1.5	1.5	1.5

Notes

* Acute and chronic.

† Includes concussions.

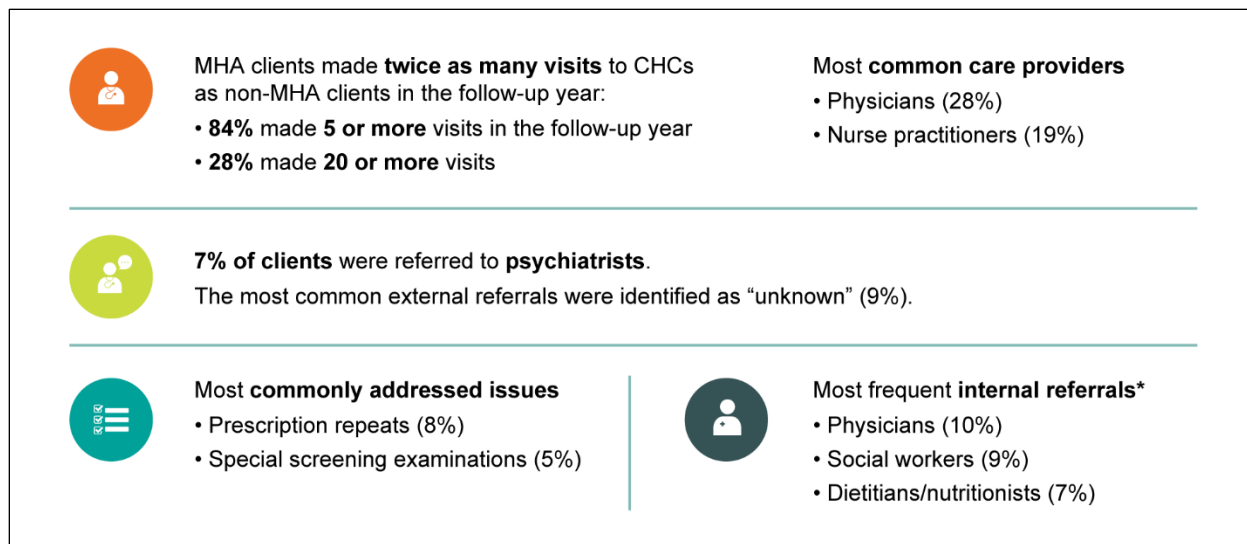
‡ Includes congestive heart failure and coronary artery disease.

Assumes equal average follow-up time in the MHA and non-MHA groups.

Patterns of primary care

On average, MHA clients made twice as many CHC visits as non-MHA clients (16 versus 8 visits) during the 1-year follow-up period. 84% of MHA clients made 5 or more visits and 28% made 20 or more visits. MHA clients' most common care providers were physicians and nurse practitioners. The most common issues addressed at CHC visits were medication renewals and special screening examinations. These clients also had frequent referrals to other internal CHC providers, such as physicians, social workers and dietitians/nutritionists. External referrals were also made to psychiatrists and unknown providers.

Figure 3 Patterns of primary care use for CHC clients with MHA conditions



Note

* 7% of internal referrals were identified as “other.”

Journey of MHA clients through the care continuum

Use of emergency departments

During the 1-year follow-up period, 42% of MHA clients made at least one emergency department (ED) visit (compared with 29% of non-MHA clients). On average, MHA clients made 3 visits during the 1-year follow-up period, and the average length of stay per ED visit was 4 hours. Most ED visits (75%) led to the client being discharged home. 11% of all ED visits led to a hospitalization, which is similar to the rate (10%) observed in the general Canadian population.⁷

Rates of frequent ED use^v were also examined. This is based on a new pan-Canadian indicator that CIHI released in May 2019.⁸ Among CHC MHA clients who had at least one ED visit for MHA-related issues in 2017–2018, 23% made 4 or more visits for MHA. This is substantially higher than the rate found for the overall Ontario population (9.5%).

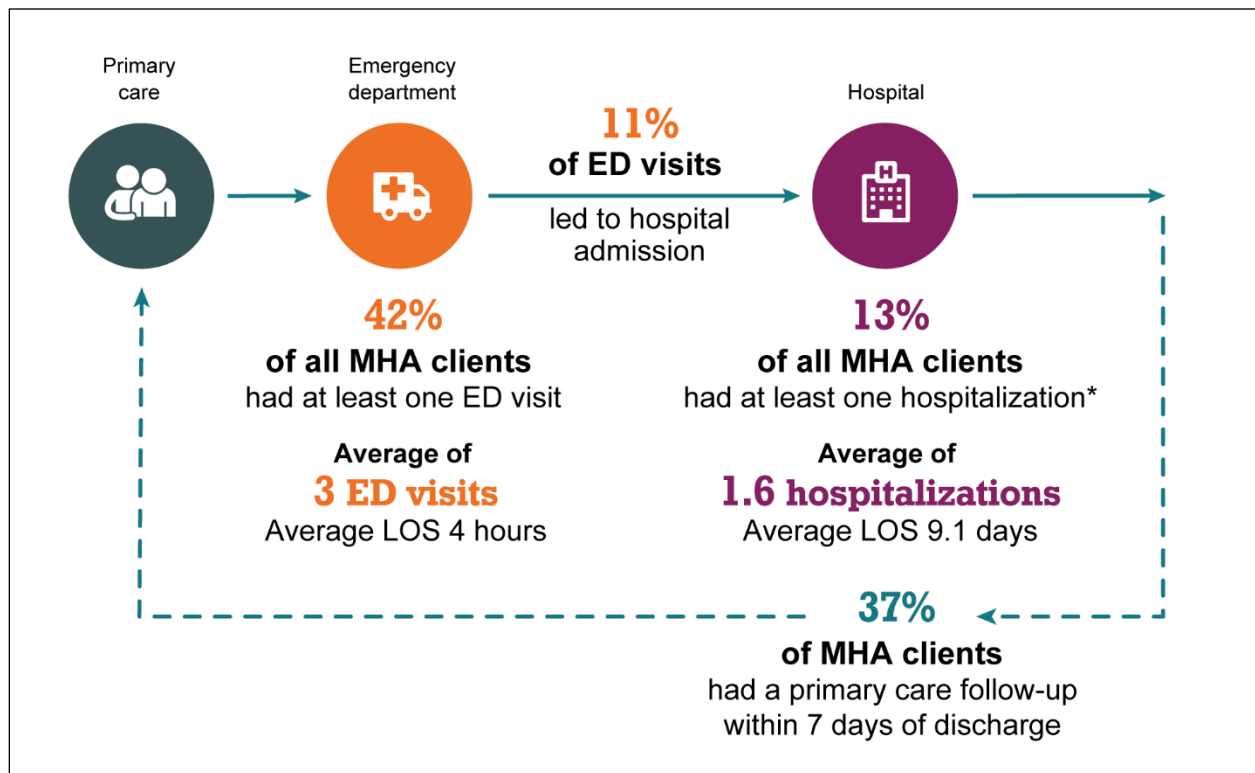
v. This indicator is calculated as the percentage of individuals who had 4 or more ED visits for help with mental health and/or addictions in a 365-day period among those who had at least one ED visit for a mental health and/or addictions problem in a given year.

Hospitalizations and post-discharge follow-up

13% of all MHA clients had at least one hospitalization during the 1-year follow-up period. This rate is substantially higher than the rate observed among non-MHA clients (8%). MHA clients had an average of 1.6 hospitalizations during the 1-year follow-up period with an average length of stay of 9.1 days. The majority (58%) of clients were discharged home.

After discharge, 37% of MHA clients had timely follow-up in primary care (within 7 days). This rate of follow-up is somewhat higher than the Ontario rate, where less than one-third of patients hospitalized for MHA-related issues received a follow-up by a physician within 7 days of leaving hospital.⁹

Figure 4 Journeys through the continuum of care



Notes

* Excludes day surgeries.

LOS: Length of stay.

Implications and future work

This proof-of-concept analysis demonstrates the value of standardized and high-quality EMR data for addressing key information gaps in primary care use. Linking this data to hospital-based administrative data also helps increase understanding of the journey of MHA clients through the health care system.

There is an opportunity to enhance Alliance EMR data to increase its potential for additional analysis. This includes improving the completeness of some data elements, including those that capture social determinants of health (e.g., racial/ethnic identity, gender identity) and behavioural risk factor data (e.g., smoking status). It would also help to have improved specificity of data for community agency referrals. This additional data could help assess the prevalence of MHA and patterns of care among MHA subgroups, and gain better understanding of the role CHCs play in coordinating services for clients within their communities.

Appendix: Methodology

MHA clients were identified from EMR data if they met the following inclusion criteria:

- Enrolled with a CHC
- Age 18 and older on April 1, 2015
- Did not choose to be anonymous
- Had at least 2 primary health care encounters between April 1, 2015, and March 31, 2017, for the same issue addressed, determined using 1 of the following ICD-10 codes:

Diagnosis category	ICD-10
Substance-related and addictive disorders	F10.x–F19.x; F55; F63.0
Schizophrenia spectrum and other psychotic disorders	F20.x; F21; F22.x–F25.x; F28.x–F29.x
Bipolar and related disorders	F30.x; F31.x; F34.0
Depressive disorders	F32.x–F33.x; F34.1; F34.8; F34.9
Other mood disorders	F38.x; F39; F53.0; F53.1
Anxiety disorders	F40.x–F41.x; F93.0–F93.2; F94.0
Personality disorders	F60.x–F62.x; F68.0; F68.8; F69
Other (e.g., sleep disorders, eating disorders, stress disorders)	F43.x; F94.1; F94.2; F42.x; F45.2; F63.3; F70.x–F73.x; F78.x–F79.x; F80.x–F83.x; F84.0; F84.1; F84.4; F84.5; F84.8; F84.9; F88; F89; F90.x; F93.3; F93.8; F93.9; F94.8; F94.9; F95.x; F98.4; F98.5; F98.8; F98.9; F98.0; F98.1; F44.4; F44.5; F44.6; F44.7; F45.1; F45.0; F45.8; F45.9; F54; F68.1; F44.0; F44.1; F44.2; F44.3; F44.8; F44.9; F48.1; F52.x; F64.x; F65.x; F66.x; F50.x; F98.2; F98.3; F51.x; G47.xx; G25.8; F63.1; F63.3; F63.8; F90.x–F91.x; F06.8; F09; F59; F99
Self-harm	X60–X84

Follow-up

MHA clients were followed for 1 year (equal follow-up time) to examine their use of primary care, acute care and ED services. Follow-up began after the client’s second visit for the same mental health condition.

Data sources

Source	Database	Fiscal year
Internal	Discharge Abstract Database (DAD)	2015–2016 to 2017–2018
Internal	National Ambulatory Care Reporting System (NACRS)	
Internal	Ontario Mental Health Reporting System (OMHRS)	
External	Alliance EMR test data	

Linkage of EMR data to CIHI’s DAD and OMHRS for acute inpatient hospitalizations, and to NACRS for ED visits, was performed using CIHI’s standard client linkage methodology, which is based on encrypted Health Card Number (HCN). Of note, 83% of MHA clients included in the analysis had a valid HCN and thus were eligible for linkage to the DAD, OMHRS and NACRS.

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