

**Universal Coverage Without Universal Access: a study of
psychiatrist supply and practice patterns in Ontario.**

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ABSTRACT

Background: We studied the relationship between psychiatrist supply, practice patterns and access to psychiatrists in three Ontario regions with up to 6-fold difference in psychiatrist supply.

Methods: We analyzed practice patterns of full-time psychiatrists (N = 1379), and post-discharge care to hospitalized psychiatric patients in 3 Ontario regions in 2009. We measured patient panel characteristics including sociodemographic characteristics, outpatient panel size, number of new patients, inpatient and outpatient visits per psychiatrist per year; percent of psychiatrists seeing <40 and <100 unique patients per year; rate of psychiatrist visits, readmissions and ED visits within 30 and 180 days after discharge among patients hospitalized with major depression, bipolar disorder or schizophrenia (N = 254,562).

Results: Psychiatrist supply in Toronto, Ottawa and the rest of Ontario was 64, 24, and 10 per 100,000 residents. On average, Toronto psychiatrists had 50% smaller outpatient panels and saw 50% fewer new patients. However, outpatient visit frequencies were almost double in Toronto and Toronto psychiatrists were more likely to see outpatients >16 times per year. In Toronto, 10% of psychiatrists saw <40 patients and 40% saw <100 patients

annually. Follow-up visits within 30 or 180 days of psychiatric discharge were low and did not vary across regions.

Interpretation: Psychiatrists who practice in Ontario regions with high psychiatrist supply had lower overall clinical volumes but saw their patients more frequently than psychiatrists in low-supply regions. Increasing the supply of psychiatrists while funding unlimited frequency and duration of care may not improve access for patients who need psychiatric services.

Introduction

Primary care physicians (PCP) have difficulty accessing psychiatrists in many jurisdictions. In a US survey of primary care physicians, 66% reported they could not get patients with mental health problems seen by psychiatrists, a rate double that of other specialties. In Canada, 35.1% of family doctors rated access to psychiatrists as poor, compared to 4.1% for access to internal medicine specialists and 2.4% for access to pediatricians. These data are corroborated by a recent study in Vancouver in which 6 out of a possible 297 psychiatrists were able to provide a timely consultation for a patient referred by a PCP.

Poor access to psychiatrists could lead to the conclusion that there are not enough psychiatrists to meet the needs of the population. Recently, the Canadian Psychiatric Association used various approaches to recommend a supply of 15 psychiatrists per 100,000 residents, an increase compared to the 2007 supply of 13.9 psychiatrists per 100,000 in Canada or the 2011 supply of 13.5 per 100,000 in the USA. However, these national rates conceal large variations across regions. Typically, there are fewer psychiatrists per capita in rural settings. In Ontario, the rural psychiatrist shortage has persisted for nearly two decades. This provides a unique opportunity to study the effect

of psychiatrist supply on practice in an environment where universal access, including access to care provided by psychiatrists, is provided by a government-funded health insurance program.

Ontario psychiatrists are reimbursed for patient care on a fee-for-service basis, with the exception of a very small proportion of patient activity. For example, psychiatrists who work on Assertive Community Treatment (ACT) teams are paid a salary and do bill for patient encounters with ACT team patients. The majority of Ontario psychiatrists work in ambulatory settings in hospital clinics or in private offices. The Ontario fee schedule, similar to fee schedules in other Canadian provinces, defines payments for consultations (a one-time assessment with a report to the referring physician). Psychiatrists also have time-based fee codes that permit them to provide ongoing care including psychotherapy; these time-based fee codes do not define or limit duration of follow-up, visit frequency, or acuity/complexity of patients being seen. Psychiatrists providing psychotherapy are reimbursed by the provincial health insurance. Alternatively, Ontario residents can pay out-of-pocket for psychotherapy from other providers such as psychologists and social workers.

The objective of this study was to study the relationship between psychiatrist supply, practice patterns, and access to psychiatrists in Ontario regions with differing psychiatrist supply in a setting with universal health care coverage and a fee schedule that allows unlimited frequency and duration of psychiatric care.

Methods

Overview

The Ontario population of 13,505,900 in 2012 is grouped into 14 regions called "Local Health Integration Networks" (LHINs). We measured psychiatrist supply and psychiatrist demand in three regions: Toronto Central, not including Toronto suburbs, Ottawa, and the 12 other LHINs representing the rest of Ontario (referred to as "Other"). We examined the practice patterns of full-time psychiatrists, and measured post-discharge care to hospitalized psychiatric patients in these 3 regions in 2009.

Data Sources

Psychiatrist supply was obtained from the Institute for Clinical Evaluation Sciences (ICES) Physician Database (IPDB) and the Ontario Physician Workforce Database (OPWD) to identify self-designated functional specialty, and practice location. Patient records were linked using unique, anonymized, encrypted

identifiers across multiple Ontario health administrative databases containing information on all publicly insured, medically necessary hospital and physician services. These included the Ontario Health Insurance Plan (OHIP) for physician billings for physician visits and consultations that lists patient diagnosis codes and location of visit; for psychotherapy or psychiatric visits, psychiatrists can bill for units of time spent with the patient (1 "unit" is 20 to 45 minutes; 2 units is 46 minutes to 79 minutes; 3 units is 80 to 115 minutes...); the Discharge Abstract Database (DAD) for non-mental health hospital admissions that includes the most responsible diagnosis (MRD) for patient length of stay ; the Ontario Mental Health Reporting System (OMHRS) for all hospitalizations occurring in mental health-designated hospital beds that includes the MRD; the National Ambulatory Care Reporting System (NACRS) for Emergency Department (ED) visits; the Registered Persons Database (RPDB) for patient demographic information and deaths. Neighborhood income was derived from Statistics Canada 2001 census estimates.

Regional Characteristics

We computed psychiatrist supply and patient visits per capita across each of the three regions. As a crude measure of disease burden, we computed regional rates of hospitalization for schizophrenia, bipolar disorder, and major depression using DSM-

IV codes for hospitalizations captured in OMHRS (schizophrenia, 295.x; bipolar disorder, 296.x except 296.2 and 296.3; major depression, 296.2 and 296.3) or ICD-10 codes for psychiatric hospitalizations captured in DAD(schizophrenia, F20, F25; bipolar affective disorder, F30, F31; major depression, F32, F33).

Full-time Psychiatrist Patient Panel Characteristics

We defined full-time psychiatrists as those whose income from annual billings (April 2009 - March 2010) were above the 30th percentile for all Ontario psychiatrists to conform with the Health Canada definition of a full-time equivalent physician. For each full-time psychiatrist, we measured the number of unique outpatients, number of new outpatients, and number of patient encounters, overall and by location (inpatient vs. outpatient). New patients were defined as those with no visits to the same psychiatrist in the preceding 12 months. For psychotherapy visits, we computed the time spent per visit. A patient seen by more than one psychiatrist during the 12 month period was assigned to one psychiatrist based on highest visit frequency.

For each outpatient, we recorded age, sex, income (area-level income quintiles), visit frequency, and psychiatric and non-psychiatric hospitalizations in the two years prior to the first visit date. Psychiatric hospitalizations were included as a

measure of illness severity. Hospitalizations for delirium and dementia (ICD codes F00 to F09; DSM-IV codes 293, 780, 290, 294 and V-codes) were excluded.

Outcomes Following Psychiatric Hospitalization

In a separate population-based analysis, we examined follow-up care to adults hospitalized with a primary diagnosis of schizophrenia, bipolar disorder, or major depression between April 1, 2009 and March 31, 2010. For each patient, we recorded the first hospitalization within each diagnostic category. We measured follow-up visits with a psychiatrist, ED visits, and cause-specific readmissions within 30 and 180 days following discharge.

Statistical Analysis

Data are presented as counts, means, and percentages with standard deviations. We used t-tests to compare Toronto and Ottawa psychiatrists with psychiatrists in the rest of Ontario. Unless specified, all analyses were significant at $p < 0.001$. We replicated all our results for April 1, 2008 to March 31, 2009 to assess the consistency of our findings.

Sponsor Role

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Ethics Approval

This study was approved by the Research Ethics Board of Sunnybrook Health Sciences Centre, Toronto.

Results

Regional Psychiatrist Supply, Patients, and Psychiatric Disease Burden

The psychiatrist supply in Ontario was 16 psychiatrists per 100,000 residents; however, there were substantial regional variations, with Toronto and Ottawa having 64 and 24 psychiatrists respectively vs. 10 per 100,000 residents in the rest of the province. Population-based inpatient and outpatient visit rates were 3.6- and 6.1-fold higher in Toronto and Ottawa

than in the rest of the province (Table 1). There were 2.4-fold higher admission rates for schizophrenia in Toronto than in the rest of the province while admission rates for depression and bipolar disorder were similar across regions.

Full-Time Psychiatrist Practice Characteristics

There were 523 full-time psychiatrists practicing in Toronto (71.5% of a total of 731 practicing psychiatrists), 218 in Ottawa (73.4% of a total of 297 practicing psychiatrists), and 638 in the rest of Ontario (62.6% of a total of 1019 practicing psychiatrists). In Toronto and Ottawa, psychiatric outpatient panels were slightly older, and less likely to have a prior psychiatric or non-psychiatric hospitalization than in the rest of the province (Table 2). Outpatients in Toronto were more likely to be in the highest income quintile compared to other regions.

About 50% of psychiatrists in Toronto and Ottawa, and 63% in the rest of the province saw inpatients, but Toronto and Ottawa psychiatrists saw half the number of unique inpatients and billed less than a third (Ottawa) or half (Toronto) as many inpatient visits as those in the rest of Ontario. Toronto and Ottawa psychiatrists saw about half as many unique outpatients, enrolled half as many new outpatients, and billed about 20% fewer

outpatient visits, However, they saw their patients about 40-75% more frequently than in the rest of the province (Table 3).

Twenty percent of Toronto psychiatrists saw their patients <4 times per year (vs. 51% in the rest of the province) whereas 25% saw their patients more than 16 times per year (vs. 5% in the rest of the province). Most Toronto (85%) and Ottawa (76%) psychiatrists saw patients, on average, > 45 minutes per visit vs. 53% in the rest of the province. A significant proportion of full-time Toronto and Ottawa psychiatrists had practices consisting of fewer than 40 (Toronto, 10%; Ottawa, 7% vs. Other, 4%) or fewer than 100 unique outpatients (Toronto, 40%; Ottawa, 28%; Other 13%).

In Toronto and Ottawa, 8.3% and 3.5%, respectively, of patients were seen >16 times per year compared with 0.9% in the rest of the province (Table 4); these patients were more likely to be middle-aged (40-64 years), to have higher income and to have fewer psychiatric hospitalizations. In contrast, patients with a prior psychiatric hospitalization were less likely to be seen with high frequency.

Follow-up of Hospitalized Psychiatric Patients

Among patients hospitalized for a psychiatric condition, 42-67% were seen by a psychiatrist within 30 days of discharge (Table

5). The likelihood of a follow-up visit within 30 and 180 days of discharge was higher in Toronto and Ottawa than in the rest of Ontario for all three psychiatric diagnoses. For all diagnoses, the proportion of discharged patients with ED visits within 30 and 180 days was similar across regions but the proportion of patients readmitted for the same diagnosis within 30 and 180 days was higher in Toronto than in other regions.

Interpretation

In Ottawa and Toronto, areas with a 2 to 6-fold higher supply of psychiatrists than the rest of the province, psychiatrists saw half as many inpatients and outpatients and enrolled half as many new outpatients in a given year, but saw their patients much more frequently and for longer visits. Patients who were seen more frequently were wealthier and less likely to have had a psychiatric hospitalization, consistent with previous observations of inequities with psychiatrist access in Ontario, and socioeconomic gradients in access to primary care in Ontario. In Toronto, 10% of full-time psychiatrists saw <40 unique patients per year compared to 4% outside Toronto, and 40% saw <100 unique patients per year compared to 13% outside Toronto. While there was a slightly higher likelihood to be seen by a psychiatrist following psychiatric hospitalization in Toronto and

Ottawa, the differences were not large considering the much higher supply of psychiatrists in these regions.

In all regions, the majority of psychiatrists saw patients on average ≤ 16 times per year, a visit frequency consistent with providing evidence-based psychotherapy or ongoing care. In higher supply urban regions, however, a substantial number of full-time psychiatrists had very small practices consisting of wealthier, healthier patients seen very frequently. The result is a relatively stable level of unmet need for those who needed specialty psychiatric care. Our data do not provide a direct causal explanation of these findings. One can speculate that the fee schedule encourages this pattern of practice. Indeed, psychotherapy provided by a psychiatrist multiple times per week with no limit to the duration of treatment is entirely funded by the Ontario public health system. In the absence of appropriateness criteria for outpatient psychiatric therapy and with a fee schedule that has no restrictions on the types or quantity of services provided, a proportion of psychiatrists may elect to provide care to a small number of patients who are relatively easy to manage and who show up for appointments. However, all psychiatrists in Ontario are subject to the same fee schedule and this type of practice was rare outside of the two larger urban areas.

Difficulty with access to psychiatrists is an issue in many jurisdictions. Our results suggest that increasing the supply of psychiatrists and providing unlimited access to psychotherapy services does not necessarily solve this problem. Strategies to plan psychiatric human resources to improve access have been proposed. Internationally, the role of a psychiatrist has adjusted to address access difficulties. In the UK, Australia, and the US most psychiatrists in managed care and publically funded health care settings have stopped doing psychotherapy with a small number of patients on a recurrent basis and have a consultant-based clinical role similar to other types of specialists. Other mental health professionals have been hired to provide psychotherapies in these settings. In the UK, psychiatrists have the role of consultants mandated to manage the most complex psychiatric cases, ideally with a multi-disciplinary team. Services of psychologists and other mental health workers are covered by the public insurance and they provide evidence-based psychotherapy at a lower hourly rate than the psychiatrists' rate. Similarly, in 2006 in Australia, psychotherapy and focused psychological strategies by psychologists, occupational therapists and social workers were incorporated into the Australia Fee Schedule. Additionally, disincentives for high frequency repeat patient visits led to

reductions in visit frequency, suggesting that financial incentives are effective at changing psychiatrist practice patterns. In the US, health maintenance organizations have created mental health “carve-outs” in which psychologists and other allied mental health professionals provide psychotherapy . Within US Medicaid and Medicare, psychiatrists are paid hourly fee more than twice as high for pharmacotherapy and psychiatric consultations as for psychotherapy.

Our study is the first to investigate psychiatrist practice patterns in regions of differing supply in a universal health care setting. It is population-based, evaluating psychiatric service provision to more than 13 million residents. Our study has several limitations. First, while approximately 94% of Ontario physicians have a fee-for-service practice, a small proportion of psychiatrists are salaried. These salaried physicians are requested to “shadow bill” for the services they provide but since their earnings are not tied to shadow billing, it is possible that their clinical activity was under-reported and we may have excluded some full-time psychiatrists. However, this is unlikely to have biased the study since their patient panels should be similar to those who were included. Most salaried psychiatrists work within Assertive Community Treatment (ACT) multidisciplinary teams designed to provide treatment to

individuals with severe and persistent mental illness. Since these psychiatrists are relatively few in numbers and not preferentially located in specific regions, they cannot account for the practice variations observed in this study. Second, we ascertained case mix or clinical severity solely based on prior psychiatric hospitalizations; however, this measure was sufficiently sensitive to detect significant variations across visit frequency categories. Finally, our outcomes measure quantity but not quality of care.

In summary, our study confirms a strong relationship between supply and demand but a mismatch between supply and population need. Many Ontario psychiatrists in high supply regions see healthier and wealthier patients more frequently. Overall, these practice patterns undermine access to psychiatrists in large urban areas and demonstrate that focusing on how psychiatrists practice rather than headcounts is necessary to determine the extent to which more psychiatrists would result in better access to care. Our study raises fundamental questions about the scope of practice of psychiatrists and how they should be incentivized to meet the population mental health needs.

References

Table 1: Psychiatrist supply, patients and visits per capita

Variable	Toronto	Ottawa	Other	Ratio Toronto vs Other
Population	1,143,686	1,228,967	10,692,256	
Psychiatrists, N	731	297	1,019	
Psychiatrists/100,000 Residents	64	24	10	6.4
Inpatients/100,000 Residents	2,445	855	646	3.8
Outpatients/100,000 Residents	9,376	4,212	2,598	3.6
New Outpatients/100,000 Residents	5,489	2,224	1,497	3.7
Inpatient Visits/1000 Residents	117	64	33	3.6
Outpatient Visits/1000 Residents	635	238	104	6.1
Schizophrenia Hospital Admissions/100,000	155	85	66	2.4
Bipolar Disorder Hospital Admissions/100,000	58	47	53	1.1
Depression Hospital Admissions/100,000	74	72	76	1.0

Table 2: Patient characteristics for full-time psychiatrists

Characteristic	Toronto	Region Ottawa	Other
Outpatients, N	76,399	38,759	217,233
Females (N, %)	41,977 (54.9)	22,135 (57.1)	117,603 (54.1)
Age (years), N (%)			
<17	6052 (7.9)	1944 (5.0)	23,266 (10.7)
18-29	12,452 (16.3)	5811 (15.0)	32,250 (16.2)
30-39	12,509 (16.4)	5801 (15.0)	33,881 (15.6)
40-49	15,610 (20.4)	8033 (20.7)	45,893 (21.1)
50-64	20,418 (26.7)	10,506 (27.1)	55,315 (25.5)
>64	9358 (12.3)	6664 (17.2)	23,628 (10.9)
Income Quintiles, N (%)			
Missing	639 (0.8)	264 (0.7)	1218 (0.6)
1	16,607 (21.7)	8100 (20.9)	52,686 (24.3)
2	13,420 (17.6)	8092 (20.9)	44,557 (20.5)
3	12,089 (15.8)	7068 (18.2)	41,276 (19.0)
4	13,337 (17.5)	7866 (20.3)	40,490 (18.6)
5	20,307 (26.6)	7369 (19.0)	37,006 (17.0)
Psychiatric Hospitalization*, previous 2 years, N (%)	4239 (5.6)	2621 (6.8)	16,375 (7.5)
Hospitalization for Depression, previous 2 years, N (%)	853 (1.1)	488 (1.3)	3497 (1.6)
Hospitalization for Bipolar Disorder, previous 2 years, N (%)	612 (0.8)	405 (1.0)	2907 (1.3)
Hospitalization for Schizophrenia, previous 2 years, N (%)	1142 (1.5)	625 (1.6)	3103 (1.4)
Any Hospitalization, previous 2 years, N (%)	10,606 (13.9)	5985 (15.4)	33,534 (15.4)

*excluding dementia, delirium, and DSM-IV V-code diagnoses.

Table 3: Panel characteristics for full-time psychiatrists				
	Region			Ratio Toronto vs Other
	Toronto	Ottawa	Other	
N	523	218	638	
Psychiatrists with Inpatient Billings, N (%)	251 (48)	112 (51)	399 (63)	
Unique Inpatients, Mean (SD)	49 (98)	46 (83)	101 (133)	0.49
Annual Inpatient Visits*, Mean (SD)	240 (517)	351 (647)	530 (786)	0.45
Unique Outpatients*, Mean (SD)	181 (177)	211 (188)	397 (339)	0.46
New Outpatients*, Mean (SD)	105 (134)	110 (125)	226 (248)	0.46
Annual Outpatient Visits*, Mean (SD)	1275 (735)	1245 (732)	1615 (1193)	0.79
Visits per Outpatient ^b , Mean (SD)	6.8 (92)	5.7 (81)	4.0 (63)	1.70
Mean Outpatient Visit Frequency, N (%)				
< 4 Visits/Year	112 (21)	62 (28)	323 (51)	0.41
4 to 16 Visits/Year	283 (54)	127 (58)	285 (45)	1.20
> 16 Visits/Year	128 (25)	29 (13)	30 (5)	5.00
Mean Time per Visit, N (%)				
20-45 minutes	78 (15)	52 (24)	300 (47)	0.32
46-79 minutes	382 (73)	140 (64)	287 (45)	1.62
>79 minutes	63 (12)	26 (12)	51 (8)	1.50
Psychiatrists with <40 Outpatients ^c , N (%)	50 (10)	16 (7)	25 (4)	2.5
Psychiatrists with <100 Outpatients ^c , N (%)	208 (40)	60 (28)	82 (13)	3.1

*All visit rates are per psychiatrist.

^bThe average visits per patient per psychiatrist were calculated as weighted means.

^cPsychiatrists with inpatient visits as 50% or greater of total annual visits were excluded from this calculation.

Table 4: Patient characteristic by outpatient visit frequency for full-time psychiatrists

Visit Frequency	<4	4 to 16	>16
TORONTO			
N (% of Total N=76,399)	29,362 (38.4)	40,732 (53.3)	6305 (8.3)
Sex (N, % Female)	15,351 (52.3)	22,627 (55.6)	3999 (63.4)
Age, N (%)			
<17	2697 (9.2)	3229 (7.9)	126 (2.0)
18-29	4296 (14.6)	7358 (18.1)	798 (12.7)
30-39	4265 (14.5)	7043 (17.3)	1201 (19.1)
40-49	5550 (18.9)	8540 (21.0)	1520 (24.1)
50-64	7426 (25.3)	10,813 (26.6)	2179 (34.6)
>64	5128 (17.5)	3749 (9.2)	481 (7.6)
Income Quintiles, N (%)			
Missing	276 (0.9)	330 (0.8)	33 (0.5)
1	6907 (23.5)	8879 (21.8)	821 (13.0)
2	5760 (19.6)	6874 (16.9)	786 (12.5)
3	4969 (16.9)	6301 (16.5)	819 (13.0)
4	5170 (17.6)	7099 (17.4)	1068 (16.9)
5	6280 (21.4)	11,249 (27.6)	2778 (44.1)
Prior Psychiatric Hospitalizations*, N (%)	1680 (5.7)	2479 (6.1)	80 (1.3)
Prior Hospitalizations for Depression, N (%)	281 (1.0)	549 (1.4)	23 (0.4)
Prior Hospitalizations for Bipolar Disorder, N (%)	211 (0.7)	392 (1.0)	9 (0.1)
Prior Hospitalizations for Schizophrenia, N (%)	465 (1.6)	668 (1.6)	9 (0.1)
Any Hospitalization, N (%)	4893 (16.7)	5391 (13.2)	322 (5.1)
OTTAWA			
N (% of Regional Total N=38,759)	14,720 (38.0)	22,684 (58.5)	1355 (3.5)
Sex (N, % Female)	8521 (57.9)	12,796 (56.4)	818 (60.4)
Age, N(%)			
<17	519 (3.5)	1420 (6.3)	≤5
18-29	2342 (15.9)	3346 (14.8)	123 (9.1)
30-39	2161 (14.7)	3422 (15.1)	218 (16.1)
40-49	2612 (17.7)	5054 (22.3)	367 (27.1)
50-64	2998 (20.4)	6945 (30.6)	563 (41.6)
>64	4088 (27.8)	2497 (11.0)	79 (5.8)
Income Quintiles, N (%)			
Missing	67 (0.5)	195 (0.9)	≤5
1	3259 (22.1)	4673 (20.6)	168 (12.4)
2	3113 (21.2)	4741 (20.9)	238 (17.6)
3	2621 (17.8)	4203 (18.5)	244 (18.0)
4	3056 (20.8)	4513 (19.9)	297 (21.9)
5	2604 (17.7)	4359 (19.2)	406 (30.0)
Prior Psychiatric Hospitalizations*,N (%)	1163 (7.9)	1445 (6.4)	13 (1.0)

Table 4: Patient characteristic by outpatient visit frequency for full-time psychiatrist (cont.)

Prior Hospitalizations for Depression, N (%)	207 (1.4)	276 (1.2)	≤5
Prior Hospitalizations for Bipolar Disorder, N (%)	151 (1.0)	253 (1.1)	≤5
Prior Hospitalizations for Schizophrenia, N (%)	259 (1.8)	365 (1.6)	≤5
Any Hospitalization, N (%)	3008 (20.4)	2916 (12.9)	61 (4.5)
OTHER REGIONS			
N (% of Regional Total N=217,233)	133,140 (61.3)	82,119 (37.8)	1974 (0.9)
Sex (N, % Female)	68,796 (51.7)	47,662 (58.0)	1145 (58.0)
Age, N(%)			
<17	19,690 (14.8)	3553 (4.3)	23 (1.2)
18-29	22,396 (16.8)	12,432 (15.1)	422 (21.4)
30-39	19,995 (15.0)	13,475 (16.4)	411 (20.8)
40-49	25,969 (19.5)	19,455 (23.7)	469 (23.8)
50-64	29,645 (22.3)	25,162 (30.6)	508 (25.7)
>64	15,445 (11.6)	8042 (9.8)	141 (7.1)
Income Quintiles, N (%)			
Missing	825 (0.6)	382 (0.5)	11 (0.6)
1	33,035 (24.8)	19,236 (23.4)	415 (21.0)
2	27,869 (20.9)	16,351 (19.9)	337 (17.1)
3	25,413 (19.1)	15,530 (18.9)	333 (16.9)
4	24,299 (18.3)	15,813 (19.3)	378 (19.2)
5	21,699 (16.3)	14,807 (18.0)	500 (25.3)
Prior Psychiatric Hospitalizations*, N(%)	10,351 (7.8)	5992 (7.3)	32 (1.6)
Prior Hospitalizations for Depression, N (%)	2140 (1.6)	1351 (1.7)	6 (0.3)
Prior Hospitalizations for Bipolar Disorder, N (%)	1817 (1.4)	1082 (1.3)	8 (0.4)
Prior Hospitalizations for Schizophrenia, N (%)	1882 (1.4)	1220 (1.5)	≤5
Any Hospitalization, N (%)	21,547 (16.2)	11,842 (14.4)	145 (7.4)

*Psychiatric hospitalizations excluded dementia, delirium, and DSM-IV V-code diagnoses.

Table 5: Regional access and outcomes following psychiatric hospitalization discharge

Region	Toronto	Ottawa	Other
BIPOLAR DISORDER			
Patients, N	549	468	4501
Psychiatrist Visit, N (%)			
Within 30 days	369 (67.2)	284 (60.7)	2192 (48.7)
Within 180 days	476 (86.7)	389 (83.1)	3255 (72.3)
Emergency Department Visits Post-Discharge, N(%)			
Within 30 days	135 (24.6)	99 (21.2)	1019 (22.6)
Within 180 days	269 (49.0)	229 (48.9)	2265 (50.3)
Psychiatric Readmission, N (%)			
Within 30 days	100 (18.2)	57 (12.2)	532 (11.8)
Within 180 days	195 (35.5)	122 (26.1)	1231 (27.4)
DEPRESSION			
Patients, N	735	703	7013
Psychiatrist Visit, N (%)			
Within 30 days	447 (60.8)	402 (57.2)	3097 (44.2)
Within 180 days	584 (79.5)	529 (75.3)	4702 (67.1)
Emergency Department Visits Post-Discharge, N(%)			
Within 30 days	138 (18.8)	132 (18.8)	1415 (20.2)
Within 180 days	320 (43.5)	311 (44.2)	3421 (48.8)
Psychiatric Readmission, N (%)			
Within 30 days	77 (10.5)	61 (8.7)	580 (8.3)
Within 180 days	185 (25.2)	137 (19.5)	1425 (20.3)
SCHIZOPHRENIA			
Patients, N	1291	727	5136
Psychiatrist Visit, N (%)			
Within 30 days	722 (55.9)	446 (61.4)	2168 (42.2)
Within 180 days	1038 (80.4)	618 (85.0)	2400 (66.2)
Emergency Department Visits Post-Discharge, N(%)			
Within 30 days	337 (26.1)	141 (19.4)	994 (19.4)
Within 180 days	671 (52.0)	341 (46.9)	2416 (47.0)
Psychiatric Readmission, N (%)			
Within 30 days	219 (17.0)	92 (12.7)	672 (13.1)
Within 180 days	504 (39.0)	235 (32.3)	1709 (33.3)