The Utilization of Medical Services for Mental Health Disorders Manitoba: 1991 - 1992

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Contents

Tables

Figures

Appendix Tables

Executive Summary

Expenditures on the treatment of mental health disorder in Manitoba are substantial. In FY91/92, approximately 10% of days in the $945 million acute care hospital system and 10% of the $266 million in disbursements to physicians were for the care of mental health disorder. The Mental Health Division of Manitoba Health annually expends approximately $45 million in the provision of institutional and community-based mental health care services. Additionally, perhaps one third of admissions to the $232 million personal care home system in the province can be attributed to the needs of persons with behavioral or functional disabilities associated with cognitive impairment disorders.

In this report, we have given prominent emphasis to serious mental illness, which includes psychosis, schizophrenia, major depression and personality disorders. The report also details care provided to individuals with the more prevalent disorders frequently termed mental health problems; the more transient and mild affective disturbances and neuroses. We have chosen by intention to exclude dementia and cognitive impairment disorders from detailed analysis in this report, because the etiology and therapeutic management of these disorders is very different from those of mental illness and mental health problems.

We emphasize to readers of this report that while approximately 10% of Manitobans will receive medical treatment each year for a mental health disorder, the true prevalence of disorder is substantially higher for many conditions. Efforts to define the magnitude of unmet need represented by this untreated mental health disorder are controversial and highly dependent on assumptions about the efficacy of mental health care.

Analyses contained in this report give sharp emphasis to the needs of persons with severe mental illness, grouped in this report under the category of psychotic disorder. The needs of the severely mentally ill are profound. Although persons in treatment for psychotic disorder represent no more than 1.5% of the Manitoba population and less than 15% of all persons in treatment for mental health disorder, they use a majority of physician services and hospital care for mental health care. Of the estimated total provincial expenditure of $96.1 million for acute mental health care in FY91/92, persons in treatment for psychotic disorder used approximately $65.6 million in services. Fully 90% of these expenditures were for hospital care.

Among adult urban residents, persons in treatment for mental health disorder are disproportionately concentrated in neighbourhoods with low average household income. This pattern is most profound among persons with psychotic disorder and reflects the impact of these serious mental health illnesses on social and occupational roles. Persons who develop severe mental illness have difficulty maintaining social relationships and participation in the labour force, and are at high risk for downward socio-economic migration. Fully 30% of provincial welfare recipients on permanent disability have serious mental illness, pointing to the substantial common agenda of health and social service agencies in responding to the needs of this population.

The provision of mental health care by psychiatry, as described in this report, is distinctive both for the much higher frequency, or intensity, of patient encounters and the higher proportion of care provided in inpatient settings relative to other physicians providing treatment to persons with mental health disorder. From one perspective, these characteristics of psychiatric practice can be argued to be appropriate given the tertiary role of psychiatry in the provision of mental health care, where psychiatrists are referred the difficult and complex cases of disorder. However, in describing patterns of access to psychiatric care among person's in treatment for mental health disorder, this report has identified a number of patient groups in the province who do not seem to have equal access to psychiatrists. Psychiatric practice preferentially provides care to urban residents of middle and upper income neighbourhoods. Psychiatry also concentrates the delivery of clinical care to Winnipeg residents to a much greater degree than other medical specialties.

Winnipeg residents in treatment for mental health disorders received hospital and physician services valued at an estimated average of $943. annually per patient, compared to an average of $620. for non-Winnipeg residents. Approximately one-third of this difference is due to the concentration of care by psychiatric specialists to Winnipeg residents noted above. The remainder of the difference is due attributable to the higher cost of inpatient mental health care in Winnipeg hospitals relative to inpatient mental health care in non-Winnipeg settings. Although an important issue, the data available to this study cannot determine whether any therapeutic benefit is associated with this higher cost inpatient care in Winnipeg hospitals.

In FY93/94, a major reduction (25%) in the supply of acute care psychiatric beds in Winnipeg was implemented, in parallel with an expansion of community-based services. This reduction in acute care

psychiatric beds in Winnipeg will have the greatest impact on the care of Winnipeg adults with psychotic disorder. The psychiatric bed closures will result in a reduction of 13,500 acute bed days for mental health disorder among Winnipeg residents, and this study has estimated that fully 80% of this reduction will be experienced in the care of adults with psychotic disorder. The coordinated initiatives implemented by the Mental Health Division of Manitoba Health to expand community-based social and housing services in Winnipeg are appropriate policy responses which anticipate the effects of the reduction in hospital-based care on persons with psychotic disorder. These reforms represent important initiatives which are not without risk, and it will be important to monitor the sufficiency of the reforms and their effectiveness in improving the mental health status of residents of the province.

Over the past two decades of universal health insurance, a limited range of organizational responses for care for the severely mentally ill have evolved under a system which emphasized fee-for-service physician services. The closure of acute care psychiatric beds in Winnipeg will impose a substantial change in the practice of psychiatry, reducing the opportunities to provide care in inpatient settings to persons with psychotic disorder. These changes provide further challenge to providers of care to participate in coordinating the organization and delivery of care and services to meet the special requirements of this community. We would suggest the following issues should be considered in planning the future of mental health services in the province:

- to what extent is the high rate of hospital re-admission among persons in treatment for psychotic disorder due to a failure to access timely and appropriate ambulatory care?
- what implication does the reduction in acute care psychiatric beds have for the appropriate training of psychiatric interns and residents?
- are hospital, medical and community care resources being organized in the most coordinated manner, given the substantial social services expenditures for rent, food and medication and health expenditures on hospital and medical care which are related to the high prevalence of poverty among persons with psychotic disorders?
- since many individuals in treatment for mental health disorder reside in poor neighbourhoods, should these neighbourhoods be provided enhanced treatment and prevention services?
- what criteria are appropriate to determine if resources devoted to community-based mental services, introduced to compensate for the closure of acute care psychiatric beds, are sufficient and will appropriate data describing the use of these services be available?

Summary and Overview Of Results

Introduction

In a twelve month period, approximately 10.5% of Manitobans will be provided medical or acute hospital care for a mental health disorder (TABLE A.1) , representing a total estimated annual expenditure of $96.1 million (FY91/92, TABLE F.2). An additional estimated $33.5 million is expended on the care of long-term admission to the three provincial mental health institutions (PMHI[1]). This report provides a detailed analysis of the use of insured medical and acute hospital care for persons in treatment for mental health disorder in fiscal year 91/92. Individuals are defined as in treatment if at any point during the year at least one contact with a physician or hospital is made for which a diagnosis of mental health disorder is recorded. As is discussed in more detail in the Methods Section and Section A of the report, it is an assumption of this analysis that the true prevalence of mental health disorder in Manitoba is, in some classes of disorder, several times higher than the estimated prevalence based on persons in treatment. Efforts to define the magnitude of unmet need represented by this untreated mental health disorder are controversial and highly dependent on assumptions about the efficacy of mental health care (1-7).

The proportion of people in treatment for all mental health disorder is similar across regions of the province. On an age-adjusted basis, treatment rates range from 7.8% of the population of Central region to 11.8% of the population of Thompson region. There are, however, important differences across regions in the numbers of people in treatment for specific mental health disorders. Perhaps more significantly, there are dramatic differences in the use of medical and hospital resources, especially between Winnipeg and non-Winnipeg regions, which do not appear to be related to the prevalence of persons in treatment for mental health disorder.

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[1] The Eden Mental Health Centre, while not a provincial mental health facility like Selkirk or Brandon, has been grouped with these two facilities in this study because of the similar exclusive focus on the care of mental health disorder.

Highlighting Psychotic Disorder

Analyses contained in this report give sharp emphasis to the needs of persons with severe mental illness, grouped in this report under the category of psychotic disorder (for precise definitions based on diagnosis, please see the Methods Section). The needs of the severely mentally ill are profound. Historically, the social and public health response to the needs of these individuals was to provide institutional care. Social and clinical attitudes no longer support this approach to meeting the needs of the severely ill. At the same time, the emphasis on the provision of health care through universally insured physician services has led to a limited range of organizational responses for care for the severely mentally ill. It is not clear that all providers of mental health care are currently responding appropriately and in a coordinated manner to the special requirements of this community.

Although persons in treatment for psychotic disorder represent no more than 1.5% of the Manitoba population (TABLE A.2) and less than 15% of all persons in treatment for mental health disorder, they use a majority of physician services and hospital care for mental health care. Of the estimated total provincial expenditure of $96.1 million for acute mental health care, persons in treatment for psychotic disorder used approximately $65.6 million in services (68% of total, TABLE F.2). Fully 90% of these expenditures were for hospital care, and persons with psychotic disorder used a total of 76% of total hospital care for treatment of mental health disorder, on a bed-day cost basis. Persons with psychotic disorder were responsible for 35% of all physician services associated with mental health care.

While the distribution of non-psychotic disorder is relatively similar across regions, the regional distribution of persons in treatment for psychotic disorder is unequal. Patients with psychotic disorder are concentrated in Central, Westman, Interlake and Winnipeg regions, where mental health services are most available. Cross-sectional analysis presented in this report suggests that the three provincial mental health institutions and the acute care hospital resources in Winnipeg have induced inter-regional migration in the population in need of care for serious mental illness.

Among adult urban residents, persons in treatment for mental health disorder are disproportionately concentrated in neighbourhoods with low average household income. This pattern is most profound among persons with psychotic disorder, where the treatment prevalence in the poorest 20% of the population is three times greater than the prevalence among residents of wealthy neighbourhoods (APPENDIX TABLE A.8). One pattern revealed in these analyses, showing an increase in the numbers of psychotic patients in poor neighbourhoods with increasing age, is consistent with the serious impacts of these severe mental health disorders on social and occupational roles (FIGURE A.13-A.14). Persons who develop severe mental illness have difficulty holding a job and maintaining social relationships and are at high risk for downward socio-economic migration (8-10). Fully 30% of provincial (11) welfare clients on permanent disability have serious mental illness, and this observation points to the substantial common agenda of health and social service agencies in responding to the needs of this population.

Persons with psychotic disorder have an exceptionally high hospitalization rate: adults, 224.4 per 1,000 persons in treatment; elderly, 142.7 per 1,000 (APPENDIX TABLE B.8). In the case of adults, the hospitalization rate among persons in treatment for psychotic disorder is 14 times greater than for persons in treatment for non-psychotic disorder. Average lengths of stay are long; the mean stay for adults was 31.3 days, and for the elderly was 57.4 days (APPENDIX TABLE B.1, B.4), and did not change in the three year period prior to the major reduction in the supply of urban hospital psychiatric beds (12). Among adults with psychotic disorder, approximately 30% of hospital admissions are patients being readmitted for the second or third time in the same fiscal year (APPENDIX TABLE B.1).

The very different set of disorders constituting the profiles of adult and elderly psychotics needs to be emphasized when interpreting the finding of this report. In this study, we have reported a treatment prevalence of psychotic disorder in elderly adults (age 65+) of 51.8/1,000, which is 3.5 times greater than the rate reported for adults 18-64 (14.1/1,000, APPENDIX TABLES B.1, B.4). This profile contradicts clinical understanding of these disorders as primarily adult onset illnesses which decline in severity in older age and may frequently present as clinically dormant in the elderly. The high prevalence of elderly psychotic disorder

in this report is attributable almost entirely to the reporting of disorder in the category of Other Nonorganic Psychoses (ICD-9-CM 298, APPENDIX TABLE A.2). These diagnoses may be recorded as a condition secondary to dementia and cognitive impairment. Approximately 40% of the elderly individuals in treatment for psychotic disorder were resident in personal care homes, and much of the emphasis on care focuses on resolving behavioral problems associated with intractable cognitive decline.

As is described in the longitudinal analysis in Section D of the report, this pattern of intensive utilization among persons with psychotic disorder shows strong persistence over time, consistent with the chronic course of these disorders and the limited efficacy of therapeutic interventions focused on the maintenance of states of remission (6,13-16). In a two year period, 24.7% of persons in treatment for psychotic disorder were classified as intensive users of mental health care, where intensive use was defined as 12 or more contact months or two episodes of care lasting 60 days in the 24 month observation period. This group of patients used 68.2% of total hospital days and 70.8% of physician contacts for treatment of psychotic disorder (TABLE D.1). In the two year follow-up period, fully 49.6% of this group continued to receive treatment at the levels of intensity observed in the initial period (TABLE D.2).

Of adults in treatment for psychotic disorders, 55.9% were found to have fewer than seven annual ambulatory contacts with physicians, with a mean of 1.5 visits per year (APPENDIX TABLE C.2). Approximately 16% of these patients were hospitalized one or more times. This profile suggests that a substantial number of the severely mental ill may have difficulty maintaining a continuous relationship with a provider of mental health care in ambulatory settings.

Regional Patterns in the Utilization of Mental Health Services

This report describes mental health care provided by physicians in both ambulatory and inpatient settings, the use of acute care hospital stays and inpatient care provided in the three provincial mental health institutions. While therapeutic services provided by psychologists and other non-physician mental health providers are of substantial importance, information on this care was not available to this study.

The population of the province does not have equivalent access to these insured services, largely due to differences in the geographic distribution of mental health providers and institutional resources. For example, dedicated psychiatric beds in acute care hospitals and psychiatric specialists are concentrated in the Winnipeg region, far in excess of what might be expected given the distribution of persons in treatment for mental health disorder in the province overall. Conversely, institutional care provided by the PMHIs is almost exclusively used by rural residents, especially those in the Westman, Interlake and Central regions. For example, among the differences in institutional care, more than 90% of hospital bed days were provided on acute care hospital psychiatric wards for Winnipeg adults in treatment for psychotic disorder, while rural adults with similar disorder received 75.4% of bed days in PMHI (TABLE B.4). The concentration of psychiatric specialists in Winnipeg results in unequal regional rates of specialist mental health care. For example, adults with psychotic disorder in Winnipeg received more than four times the number of annual therapeutic encounters with psychiatrists compared to non-Winnipeg residents (638.1 vs 148.6 per 100 persons in treatment, APPENDIX TABLE C.10), while the number of encounters with non-specialist physicians was essentially identical (324.3 vs 346.8 per 100 persons in treatment).

As a general pattern, residents of Winnipeg in treatment for mental health disorder use fewer hospital days than non-Winnipeg residents. As is described in Section B (APPENDIX TABLES B.1-B.7), this difference is primarily due to a lower rate of admission to hospital, rather than a substantially shorter average length of treatment stay. As is summarized in Table I.1, hospital days per 100 persons in treatment are 25-35% lower for children and adults in Winnipeg relative to non-Winnipeg residents, while conversely, the use of hospital days for mental health care by the elderly is higher in Winnipeg. When the relative cost of this care is compared, however, Winnipeg residents consume a greater proportion of health care resources than would be indicated by their numbers, because of the much higher cost of a Winnipeg bed-day. Although an important issue, these data cannot satisfactorily resolve whether any therapeutic benefit is associated with the higher cost of hospital care in Winnipeg relative to non-Winnipeg regions. Furthermore, the primary reliance on hospital-based care may no longer be indicated. There is evidence that community-based case management

Table I.1
Comparison of Utilization of Mental Health Care Between Winnipeg and Non-Winnipeg Health Regions

		Physican Services (1)			Hospital Care (2)		
		Winnipeg Visits	Non-Winnipeg Visits	Ratio	Winnipeg Days	Non-Winnipeg Days	Ratio
By Disorder							
Pediatric	GP/Other	119.6	111.1	1.07	66.7	101.6	0.65
	Psychiatrists	108.7	27.8	3.91			
Adult Psychotic	GP/Other	324.7	346.8	0.94	890.7	1,151.8	0.77
	Psychiatrists	638.1	148.6	4.29			
Adult Non-Psychotic	GP/Other	182.7	203.1	0.90	15.9	24.6	0.64
	Psychiatrists	179.5	30.5	5.89			
Adult Other	GP/Other	127.2	71.2	1.79	64.9	60.4	1.07
	Psychiatrists	31.8	0.0	-			
Elderly Psychotic	GP/Other	358.4	334.7	1.07	1,038.9	879.9	1.16
	Psychiatrists	89.6	15.9	5.63			
Elderly Non-Psychotic	GP/Other	182.0	188.3	0.97	65.2	51.5	1.26
	Psychiatrists	41.4	7.8	5.30			
Elderly Other	GP/Other	254.0	126.5	2.01	235.9	418.7	0.56
	Psychiatrists	31.8	0.07	-			

1 Mean ambulatory visits per 100 patients

2 Mean bed days per 100 patients, combining short and long term acute care hospital stays and acute admissions to Provincial Mental Health Institutions.

strategies are cost-effective or cost-neutral in providing equivalent therapeutic benefits in chronic mental illness (17-24)

In contrast to these differences in regional use and expenditure on hospital care, physician services provided by non-psychiatrists were found to be very similar across regions. The average annual expenditure per person in treatment for mental health disorder for non-psychiatric physician services was $43.98, ranging from $40.03 in Interlake to $59.36 in Norman (APPENDIX TABLE F.7). Care provided by psychiatrists, however, is extremely divergent on a regional basis, ranging from a low of $11.04 per person in treatment in Thompson to $53.32 in Eastman among non-Winnipeg regions, and climbing to $160.66 per person in treatment among Winnipeg residents.

In summary, Winnipeg residents in treatment for mental health disorders received hospital and physician services valued at an estimated average of $943.39 annually per patient, compared to an average of $620.74 for non-Winnipeg residents. These differences are examined in more detail in Table I.2 and Section F of this report, focusing on per capita rates of expenditure. Approximately two-thirds of this $320 difference in health services is due to Winnipeg residents use of hospital care; this despite the fact that Winnipeg residents in treatment for mental health disorder use fewer days of care. The remainder of the difference is due exclusively to the behaviour of psychiatrists, who have chosen to concentrate the delivery of tertiary psychiatric services to residents of the region of Winnipeg and those regions immediately adjacent.

Profiling the Practice of Psychiatry in Manitoba

The following patterns characterize psychiatric practice in the province of Manitoba. Some of these patterns are paradoxical.

1) Despite evidence that the prevalence of mental health disorder is distributed evenly in the Manitoba population, psychiatrists preferentially provide care to residents of Winnipeg;

Table I.2

Comparison of Estimated Expenditure on Mental Health Care Between Winnipeg and Non-Winnipeg Health Regions

		Physican Services (1)			Hospital Care (2)		
		Winnipeg	Non-Winnipeg		Winnipeg	Non-Winnipeg	
		/Patient $	/Patient $	Ratio	/Patient $	/Patient $	Ratio
All Persons in Treatment	GP/Other	42.73	45.97	0.92	740.00	540.80	1.37
	Psychiatrists	160.66	33.97	4.73			
By Disorder							
Pediatric	GP/Other	40.65	37.22	1.09	666.80	671.30	0.99
	Psychiatrists	108.8	38.75	2.80			
Adult Psychotic	GP/Other	77.91	87.68	0.88	4,403.10	3,199.80	1.41
	Psychiatrists	637.54	158.35	4.02			
Adult Non-Psychotic	GP/Other	37.87	42.16	0.89	241.20	131.60	1.81
	Psychiatrists	146.10	24.89	5.86			
Adult Other	GP/Other	33.40	23.35	1.42	305.70	219.80	1.39
	Psychiatrists	23.54	2.99	7.87			
Elderley Psychotic	GP/Other	108.14	116.50	0.92	4,796.30	3,197.50	1.50
	Psychiatrists	156.53	17.05	9.18			
Elderly Non-Psychotic	GP/Other	34.08	41.97	0.81	401.20	187.20	2.14
	Psychiatrists	35.24	6.12	5.75			
Elderly Other	GP/Other	53.66	40.89	1.31	1,337.50	1,525.60	0.87
	Psychiatrists	2.85	3.37	0.84			

1 Total physician services, combining inpatient and ambulatory care

2 Estimated total hospital expenditure, combining short and long term acute care hospital stays and acute admissions to Provincial Mental Health Institutions. Cost estimates are based on adjusted hospital per diems (See Appendix G).

2) In the provision of both ambulatory and inpatient care, psychiatric practice is much more intensive in the frequency of average number of patient encounters than mental health care provided by other physicians;
3) Despite higher prevalence of disorder among urban residents residing in poor neighbourhoods, psychiatric practice appears to preferentially serve residents of middle and upper income neighbourhoods;
4) Inpatient care forms a larger proportion of total psychiatric practice than is observed among non-psychiatric specialists;
5) The elderly in treatment for mental health disorder have poor access to psychiatric therapy relative to other adults.

These patterns raise concerns about the commitment of psychiatry to a population-based practice which ensures equity of access to all citizens in the taxpayer-funded universal health insurance system.

Among adult urban residents, ambulatory psychiatric care is most accessible to residents of middle and upper income neighbourhoods. Among adults with non-psychotic disorder, male residents of the wealthiest neighbourhoods received three times, and female residents received two times the number of ambulatory psychiatric visits as residents of the poorest neighbourhoods (TABLE I.3). While psychiatrists provided approximately 35% of total ambulatory visits to adults with non-psychotic disorder in the poorest neighbourhoods, they provided 60% of care to residents of the wealthiest neighbourhoods. Similar patterns of differential access are evident across income groups among adults with psychotic disorder. These observations raise serious concerns about the equity of access to specialist mental health care. It is not plausible that these treatment patterns are explained by more severe disease among residents of middle and upper income neighbourhoods. However, psychiatrists may be preferentially treating individuals in whom they assess an optimistic prognosis. While it is possible that residents of poor neighbourhoods may be less compliant with therapy, and therefore more difficult to reach, this argument is not supported by evidence of non-psychiatric physicians, who provide equivalent levels of care to residents of high, median and low income neighbourhoods. It is possible that unmeasured care, provided by community-

Table I.3

Comparison of Use of Psychiatric and Non-Psychiatric Ambulatory Physician Services By Income Quintile, Adult (18-64) Urban Residents

Rate per 100 Patients

Non-Psychotic Disorder		Income Quintile Q1 Lowest	Q2	Q3	Q4	Q5 Highest	Ratio Q5/Q1
Males in Treatment	N	5,646	3,448	3,334	3,398	3,148	
Psychiatrist Visits	/100	85	145	150	158	259	3.05
Other Physician Visits	/100	162	218	190	180	162	1.00
Psychiatrist Visits as Percent of Total	%	34.5	39.9	44.1	46.8	61.6	
Females in Treatment	N	6,754	6,484	6,351	6,276	5,694	
Psychiatrist Visits	/100	121	156	145	189	258	2.13
Other Physician Visits	/100	219	199	184	184	173	0.79
Psychiatrist Visits as Percent of Total	%	35.5	43.9	55.9	50.7	59.8	
Psychotic Disorder							
Males in Treatment	N	1,191	650	529	391	395	
Psychiatrist Visits	/100	386	545	518	486	687	1.77
Other Physician Visits	/100	322	333	324	279	238	0.73
Psychiatrist Visits as Percent of Total	%	54.5	62.1	61.5	63.5	74.3	
Females in Treatment	N	994	810	660	607	560	
Psychiatrist Visits	/100	525	582	637	642	762	1.45
Other Physician Visits	/100	409	338	306	305	300	0.73
Psychiatrist Visits as Percent of Total	%	56.2	63.2	67.5	67.8	71.2	

based non-physician providers, is substituting for psychiatric care in lower income neighbourhoods.

Of the total of 544,000 visits to physicians for mental health care, 46.7% were provided by psychiatric specialists (TABLE C.3). Care provided to inpatients accounts for 44.4% of all encounters with psychiatrists, compared to 20% of mental health encounters with other physicians, and illustrates the current hospital-based practice focus of psychiatry in the province (TABLE C.4).

Adults in treatment for mental health disorder had 381,000 physician encounters, of which 54.4% were provided by psychiatrists. In contrast, only 23.7% of all physician visits to the elderly for mental health care were provided by psychiatrists. In ambulatory settings, this percentage falls; psychiatrists provided 14.8% of physician visits to elderly psychotic patients and 13.2% of visits to non-psychotic elderly. The mental health needs of the elderly are generally understood to be under-recognized in clinical practice (7,25,26). While the limited care provided by psychiatry to many of the elderly with psychotic disorder may be an appropriate clinical response, these data again point to a clear pattern of psychiatric practice preferentially serving specific groups within the population of the province, all of whom are entitled to equal access to comprehensive, medically-necessary care.

While it may be suggested that these patterns of unequal access are indicative of a deficit of psychiatric specialists in the province, there is no obvious evidence that Manitoba is under-supplied relative to other jurisdictions. On a per capita basis, the supply of psychiatrists in the province is equivalent to the Canadian norm (27). When compared to the United States, the Manitoba population receives substantially more ambulatory mental health services provided by both psychiatrists (123 vs 72 ambulatory visits per 100 residents, TABLE I.4) and non-psychiatrists (202 vs 43 visits per 100 residents) (28).

Table I.4
Comparison of Utilization of Mental Health Services in Manitoba and the United States

		Manitoba (1)	United States (2)
Hospital Separations for Mental Health Disorder			
/10,000 population	18-64	67.7	76.9
	≥65	108.4	73.9
Physician Visits for Mental Health Disorder			
Total Ambulatory Visits		371,207	28,220,000
Percent of Total Visits	Psychiatrists	37.9%	62.4%
	Non-Psychiatrists	62.1%	37.6%
Visits / 1,000 population	Total	325	115
	Psychiatrists	123	71.8
	Non-Psychiatrists	202	43.4

1) Excludes separations associated with long-term stays in both the acute care hospital sector and the Provincial Mental Health Institutions

2) Hospital separation data: Graves EJ. 1990 Summary: National Hospital Discharge Survey. Advance data from vital and health statistics no 210. Hyattsville, Maryland: National Center for Health Statistics. 1992.
Physician services data: Schappert SM. Office visits to psychiatrists: United States, 1989-90. Advance data from vital and health statistics no 237. Hyattsville, Maryland: National Center for Health Statistics. 1993.

Prospects for Using Administrative Data to Monitor the Impact of Mental Health Reform

Impact of Health Reform on the Use of Health Services

Reform of mental health services in the province has been underway for a number of years, focused on a redefinition of the role of the provincial mental health institutions and expanded regional community mental health centres. In FY93/94, a major reduction (25%) in the supply of acute care psychiatric beds in Winnipeg was implemented, in parallel with an expansion of community-based services.

The reduction in acute care psychiatric beds in Winnipeg will have the greatest impact on the care of Winnipeg adults with psychotic disorder. This group of patients was responsible for 45% of total acute psychiatric bed days used by Winnipeg residents in FY91/92 (TABLE E.1). Approximately 90% of all hospital days of care for this group were in acute psychiatric settings, with an average length of stay of 29.1 days. The psychiatric bed closures will produce a reduction of 13,500 acute bed days for mental health disorder among Winnipeg residents, and this study estimates that fully 80% of this reduction will be experienced in the care of adults with psychotic disorder.

While unlikely, the reduction in psychiatric bed supply may lead to a displacement of psychiatric admissions to other hospital services. These impacts can be monitored using the administrative health care data. Emergency department use by persons with mental health disorder should also be monitored as an indicator of the effectiveness and coverage of primary mental health services. Mental health reform has substantially increased the supply of community-based resources in Winnipeg, while simultaneously reducing the supply of acute care psychiatric beds. Independently, these two initiatives may be expected to have opposite impacts on the use of urban emergency departments, with increased community-based resources mitigating the need for emergency department utilization.

In FY91/92, only the two largest urban hospital emergency departments, Health Sciences Centre and St. Boniface Hospital reported computerized outpatient records of individual patient contacts to the Manitoba Health Services Insurance Plan (MHSIP). Despite this

shortcoming, these data may be useful as indicators of the impact of mental health reform in Winnipeg. Assuming no substantial change in the provision of outpatient psychiatric services at these facilities, a reduction over time in the mean number of emergency/outpatient contacts for all diagnoses would suggest that community-based services have successfully replaced a need formerly met by emergency departments.

Impact of Health Reform on Health Status of Persons with Mental Health Disorder

While mental health reform in Winnipeg will result in reduced utilization of psychiatric bed days and should result in reduced inpatient physician contacts and may also result in a lower rate of readmission, these measures of health service use do not directly indicate the impact of reform on the mental health status of persons in treatment for mental health disorder.

The assessment of the outcome of care in psychiatric health services is not well advanced. The most significant innovation in psychiatric therapy are the advances in the effectiveness of pharmaceutical agents for the control of psychotic mental health disorder. The efficacy of these agents has resulted in a movement towards delivery of care and services to community-dwelling patients, with a focus on integrating health and social services to maintain community residence. Increasingly, the hospital is used as a crisis response facility.

Indicators of mental health status include clinical measures of disease course, such as duration and severity of episode and duration of period of remission or all-cause or cause-specific mortality (suicide) as indicators of population mental health status. Additional indicators include measures of social and occupational disability and global measures of quality of life. Indicators of the outcome of care might include: suicide attempts, use of psychoactive medication, self-reported physical and emotional health, time lost from work and disability days (14), use of general medical services or use of emergency departments for emotional problems (29).

In this context, administrative data has both strengths and limitations as a source of information by which the effectiveness of mental health care may be assessed. Among the strengths of the administrative data are: 1) the comprehensive reporting of care provided by

physicians and institutions, 2) the potential for long term follow-up, which is important given frequency of remission and frequency of long duration therapeutic courses, and 3) as a resource for monitoring impact of changes in treatment modality over time on the use of health services.

However, the administrative data in Manitoba currently has a number of significant limitations: 1) an absence of information on pharmaceutical use[2]: medications are important in contemporary management of mental health disorders, 2) no measures of social, functional and occupational disability, and 3) no measure of the role played by non-medical providers: especially in serious, chronic disease, current management efforts focus on integrated case management: social workers and clinical psychologists: the physician's role is marginal, most present during remission or exacerbation.

The attributes of currently available information on mental health services and patient health status are summarized in Table I.5. Both inpatient and ambulatory care provided by physicians under the MHSIP can be accurately described, as can inpatient and outpatient care provided by mental health workers in PMHIs or community mental health centres. No information is available describing clinical services provided by private sector psychologists or public sector psychologists working in other agencies. However, even with accurate information on services, the specifics of therapeutic interventions are poorly defined in the administrative data. Information on patient diagnostic status is available from most sources, but is of reduced precision in physician claims, where only a single, three digit ICD-9 classification is provided.

In light of the changes in the organization and delivery of mental health services following the reduction in the supply of psychiatric beds in acute care settings, this report recommends the following efforts to improve the routine reporting of information on the use of mental health services:

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[2] As of April 1, 1994, most community pharmacies will report computerized information on medication prescribing to the Manitoba Health Services Insurance Plan.

Table I.5
Attributes of Administrative Information on Mental Health Care in Manitoba

+: good quality information
+/-: partial information
o: missing or no information

	Setting and Source of Care					
	Inpatient			Ambulatory		
	Acute Hospital		PMHI	Physician	PMHI + Mental Health Centres	Clinical Psychologists
	Physician	Other Provider (1)				
Patient Services	+	o	+	+	+	o
Therapy	+/-	o	+	+	+/-	o
Patient Diagnostic Status	+	o	+	+/-	+/-	o
Medication Therapy	o	o	o	o	o	o
Severity of Illness or Degree of Disability	o	o	+/-	o	+/-	o

(1) Other provider would include clinical psychologists, psychiatric nurses and social workers

- to the extent possible, evaluation claims should be submitted by psychiatrists working on a salaried or sessional basis
- monitoring the effectiveness of mental health reform would be enhanced by the introduction of a method of recording patient encounters with community-based mental health services

Introduction

In the past decade, a significant body of research in psychiatric epidemiology and health services research has established the magnitude of disability in North America attributable to mental health disorders. Over the life course, one in three persons will experience a mental health disorder. In a six month period, approximately one in five persons will exhibit symptoms of distress sufficient to establish a clinical diagnosis of mental health disorder. A significant number of these persons will have been in contact with a medical provider during the illness course, but fewer than 25% will receive active treatment for these disorders (3,30-34). Mental health disorder is frequently not detected by physicians, especially providers without specialty training in mental health (8,26,33-36).

Although direct impacts on mortality are thought to be small (37-43), mental health disorders encompass a diverse range of morbidities ranging from mild, transient disturbances often reflecting reaction to life events (9,10,44,45), to severe and chronic disorders which cause serious social and occupational disability (31,46). The social and economic impacts of serious mental illness rival the chronic diseases in effects on function and quality of life (47-50). Recent research evidence suggests that persons with current depressive disorder, for example, have greater impairment of physical, social and role function than comparison groups with chronic physical disorders of hypertension, diabetes, advanced coronary artery disease, angina pectoris, arthritis, back problems, lung problems or gastrointestinal disease (48).

Historically, approaches to the classification of mental health disorder have been contentious (51). Comprehensive diagnostic classification criteria, developed in the past twenty years, have been crucial in advancing psychiatric epidemiology and health services research over this period (52). The development of valid survey instruments for the detection and classification of mental health disorder have also contributed to an understanding of the true population prevalence of mental health disorders in western societies (53,54). At the same time, important recent research has demonstrated that psychological distress which is sub-clinical in manifestation may be responsible for a degree of social disability and health service utilization equivalent in magnitude to that experienced by persons with clinically manifest disease (29).

There is also some evidence that appropriate therapy for mental health disorder can reduce utilization of medical services for other disorders (1,55-57).

This report describes the utilization of health services for mental health disorder in Manitoba in the period immediately prior to the introduction of significant changes in the structure and organization of the mental health care sector. (These changes and their impacts are discussed in Results Section E.)

The objectives of the study are:

1) to present a comprehensive profile of the treatment prevalence of mental health disorder and the utilization of mental health services in Manitoba, by combining information from physician claims, hospital discharge abstracts, and provincial mental health institutions for the one year period from April 1, 1991 through March 31, 1992, and,
2) to describe the diagnostic profile and persistence of health service utilization among intensive users of mental health services over a four year period, from April 1, 1988 through March 31, 1992.
3) to identify the opportunities and limitations in using existing information on the use of health services to monitor the process and impacts of mental health reform.
4) to assess the comprehensiveness of information on mental health medical services and opportunities for assessing the effectiveness of mental health care.

Methods

Study Population

This report describes the use of mental health services by the complete population of Manitoba residents registered with the Manitoba Health Services Insurance Plan (MHSIP) in the period April 1, 1991 through to March 31, 1992. Additional analysis reported in Section D of the report examines the longitudinal utilization profile for persons in treatment for mental health disorder for a four year period, from April 1, 1988 through to March 31, 1992. For most persons in the province, the region of residence was obtained from the Manitoba Health registry file as of December 31, 1991. No adjustment has been made for inter-regional migration in the observation year. Residents of the province holding treaty status under the federal Indian Act were assigned regional residence on the basis of postal code information. Age was calculated as of December 31, 1991.

Prevalence and utilization estimates at the regional level were based on the region of residence of the patient, regardless of where the contact with the care provider took place. For example, hospital services received in Winnipeg by residents of Thompson are attributed back to Thompson region.

Source of Data

Information for this report was derived from three computerized datasets: MHSIP hospital separation abstracts, MHSIP physician claims and case records of the Mental Health Management Information System (MHMIS). Additional information on average household income for neighbourhoods was derived from public use 1986 census files.

All records on the health services datasets contain common individual identifiers which permit the linking of records across the three information sources to produce comprehensive histories of mental health care utilization. Neighbourhood census estimates of average household income were attributed to the level of the postal code and linked to postal code information on health care users registration information. Names and addresses of individual patients are not available to researchers on any file and were not used to link utilization information.

The Mental Health Management Information System contains comprehensive case management information for all residents who receive clinical, social or rehabilitation services from the Mental Health Division of Manitoba Health. These services may be provided on an inpatient basis at one of three provincial mental health institutions (PMHI: Brandon, Eden[1] and Selkirk Mental Health Centres), or they may be provided on an outpatient basis through the same three facilities or through regional community mental health centres.

All eligible[2] bed days of care provided by MHMIS facilities are reported in the study. Ambulatory physician services provided through Brandon, Eden and Selkirk Mental Health Centres are included in limited sections of this report. Outpatient services provided at other community mental health centres were incompletely reported in the observation period and are excluded. Inpatient bed days have been reported as the number of days of care, to correspond with the unit of measure of acute care hospital utilization.

Classification of Mental Health Disorder

Mental health disorder is diagnostically classified by psychiatry largely on criteria of manifesting symptoms and signs, rather than etiology (58). Disability and duration of disorder are important in the diagnostic hierarchy. Because of implications for the intensity of health care utilization, the dimensions of disease severity and persistence are also very important factors in health services research.

In this report, ICD-9-CM codes for mental health disorder have been classified into three broad categories: psychotic disorder, non-psychotic disorder and other disorder. The psychotic disorders (ICD-9-CM 295-299) include schizophrenic disorders, paranoid conditions and major depressions. These disorders are typically chronic or persistently recurrent and are

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[1] The Eden Mental Health Centre, while not a provincial mental health facility like Selkirk or Brandon, has been grouped with these two facilities in this study because of the similar exclusive focus on the care of mental health disorder.

[2] Excluded services were those not accompanied by diagnoses in the range ICD-9-CM: 290-319 recorded during the period April 1, 1991 through March 31, 1992.

associated with serious social and occupational disability. In other investigations, this category of disorder has been termed serious, long-term or chronic (47,59,60). The category of non-psychotic disorder (ICD-9-CM 300-301, 306-309,311) combines mild affective disturbance and neurotic and personality disorders. While some individuals with non-psychotic disorder may have illness of severity and duration equivalent to the disease course of the psychotic disorders, the typical disease course in this class of disorder is shorter, milder and without profound disability impacts. While unsatisfactory to the needs of clinical care, we believe the two groupings of psychotic and non-psychotic disorder have sufficient construct validity to be used in this report, and we will show these constructs to be predictive of important differences in health service utilization. The final category, other disorders, combines a heterogenous group of conditions (ICD-9-CM 290-294,302-305,310,317-319), including pediatric behavioural disorders, organic states and mental disorders attributable to addiction and mental retardation.

In this study, all residents of the province aged 18 or older who received a diagnosis of mental health disorder in the one year observation period have been assigned to one of these three categories. This assignment was made hierarchically: individuals receiving one or more services where a diagnosis of a psychotic disorder was reported were classified in the psychotic disorder category, regardless of comorbidity reported in the non-psychotic or other disorder categories in the observation period. Individuals without a psychotic disorder diagnosis were classified in the non-psychotic disorder category if they received one or more services where a diagnosis of a non-psychotic disorder was reported. Individuals classified in the other disorder category received care with an other disorder noted and did not receive a psychotic or non-psychotic diagnosis in the observation period. This method was not used to classify pediatric disorder (ages 0-17).

Diagnostic information contained in hospital separation abstracts, physician claims and MHMIS cases records were used for this hierarchical classification of individuals. Physician

claims report a single diagnosis for each service. Multiple diagnoses may be reported on hospital separation abstracts and in MHMIS case records[3].

Correspondence of ICD-9-CM with DSM-III

The contemporary clinical diagnostic standard for mental health disorder is the DSM-III, adopted by the American Psychiatric Association (61). Diagnostic information in Manitoba is recorded in ICD-9-CM, which was released prior to the adoption of DSM-III. There are significant differences in the two classification systems. Perhaps most significantly for this study, ICD-9-CM combines classes of disorder at the third digit which are meaningfully distinguished in DSM-III. Although the classification of mental disorder in ICD-10 has been substantially revised to be more concordant with DSM-III (62), there are significant discrepancies between ICD-9-CM (at the third digit) and DSM-III which cannot be resolved. These differences limit the precision with which distinctions across types of mental health disorders can be made using the administrative data as well as the ability to precisely compare the mental health profile of Manitobans with the important population studies performed in North America over the past decade.

Measures of Treatment Prevalence

Administrative data describing the use of health services have been used in this report to develop estimates of rates of treatment prevalence of mental health disorder. For these estimates, rates of the number of persons in treatment for a particular mental health disorder were developed by counting the total number of individuals with a specific diagnosis and dividing by the appropriate population denominator. For purposes of this report, any person seen to be in treatment for a mental health reason during the study period has been defined as an "ever-user" of mental health services. Treatment prevalence was estimated for six month and twelve month periods. Many acute and transient episodes of disorder will commence and resolve within the prevalence estimate period. The twelve month period prevalence estimates will include a higher proportion of acute, transient disorder.

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[3] Hospital separation abstracts may contain up to 16 diagnoses. MHMIS records may report a maximum of six diagnoses which describe patient mental health status during an episode of care.

Treatment Prevalence versus True Prevalence

It is an assumption of this analysis that the true prevalence of mental health disorder in Manitoba is in some classes of disorder several times higher than the measured treatment prevalence. Depending on the specific class of disorder, we estimate that cases in treatment represent 15 to 60 percent of the true prevalence of mental health disorder in the Manitoba population. These issues will be examined in more detail in Section A.

Random and Systematic Error in the Measurement of Mental Health Disorder in Administrative Data

We acknowledge that measurement error is present in diagnostic information used in this analysis. Some error in diagnostic information may be attributed to random effects, an example being a transcription error in the recording of clinical information on a reimbursement claim or a hospital separation abstract. Previous research in Manitoba has shown the reliability of diagnostic information in administrative data to be of consistently high quality (63,64).

Measurement error due to systematic effects, however, represents a much more significant threat to valid inference. Physician reimbursement claims permit the recording of a single diagnosis for each patient service. Where a patient is treated concurrently for both a physical and a mental disorder, the physician can name only one of these conditions on the claim. While mental health specialists may be biased towards reporting the mental health diagnosis, the biases may run in the opposite direction for other physicians. A separate underreporting bias would occur if a clinically treated mental health disorder was deliberately not reported on the reimbursement claim and an alternate or nonspecific condition was reported. For example, research in Saskatchewan's computerized administrative data has determined that approximately 20% of prescription records for the psychotropic agent Benzodiazepine report nonspecific diagnostic codes, such as symptoms, as the indication for medication therapy (65). The potential consequence of these effects is to underestimate the treatment prevalence of mental health disorder. Another source of underreporting on physician claims can be attributed to the limitation of a three-digit diagnostic field. Overreporting biases may also occur in administrative data, for example, when a physician records a presumptive diagnosis

which is subsequently excluded or where a condition is misdiagnosed. Although no research has been undertaken to examine these issues in the specific area of mental health, we estimate that underreporting effects are significantly more prevalent than overreporting biases.

Measurement of Disability

While partial information assessing social and occupational disability is available for persons receiving care from the Mental Health Division of Manitoba Health, administrative health care data in Manitoba currently cannot provide comprehensive information on social and occupational disability at the individual level for the population.

Underreported Classes of Disorder

This report does not develop comprehensive estimates of the treatment prevalence and utilization of health services for two important classes of morbidity which are frequently included in the domain of mental health. The domain of alcohol and drug addiction and abuse disorders, while represented in some of the data presented in this report, are known to be underreported in the MHSIP administrative data, in part because of the mandated responsibility of the Addictions Foundation of Manitoba to provide services in this area. Secondly, the domain of cognitive impairment, which includes Alzheimer disease and vascular dementia, has not been comprehensively examined in this report. There is evidence that the true treatment prevalence of this disorder is underreported in the MHSIP administrative data (66). In addition, the primary responsibility for provision and coordination of services to this population has historically been within the mandate of the Continuing Care Division of Manitoba Health.

Measures of Utilization

Hospital Utilization

In this report, inpatient hospital stays for mental health disorder have been classified as either long-term or acute care admissions. Because a significant number of hospital stays in this period were of a duration longer than 30 days, this report has not adopted the convention of defining an acute admission as 30 or fewer days of care.

Acute Care Admissions: In the general hospital sector, an acute care admission for a mental health disorder was defined as an admission to an acute care hospital where the principal diagnosis[4] was in the range ICD-9-CM 290-319 regardless of length of the specific stay, unless the admission was to an extended care service. Excluded from the acute care category were admissions to the extended care facilities at Deer Lodge Centre and Municipal Hospital. Stays in these two facilities as well as stays in the extended care services of acute hospitals[5] were classified as long-term care admissions.

Acute care stays in the general hospital sector were further classified as admissions to psychiatric services or a non-psychiatric service. Eight facilities operated psychiatric services during this period; Brandon, Grace, Misericordia, St. Boniface, Victoria, Seven Oaks, Health Sciences Centre and Thompson hospitals. Admissions to psychiatric services were distinguished from admissions to non-psychiatric services on the basis of service codes on the hospital separation abstract.

Long-term Care Admissions: As described above, in the general hospital sector a long-term stay was defined on the basis of the patient service to which the patient was admitted, rather than by the actual length of stay. Hospital stays in the provincial mental health institutions were counted in this census if any of the diagnostic codes were in the range 290-311, and if a patient was resident for one or more days in a facility during the observation period, independent of the year the admission occurred. This approach was selected to enumerate the patients in these facilities who were in long-term care. Long-term patients in PMHI were distinguished from acute treatment patients by a number of criteria involving admission status, discharge status and length of stay (TABLE B2). The methods used to classify long-term residents result in the classification of a similar proportion of patients as was found in a Mental Health Division patient survey in 1991/92 (67).

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[4] Throughout this report we refer to the most responsible diagnosis as the principal diagnosis.

[5] In FY91/92, there were 45 admissions to extended care facilities and 219 admissions to extended care services with a primary diagnosis of mental health disorder.

Measures of hospital utilization used in this report include: number of persons hospitalized, annual number of separations, total number of bed days, rates of hospital separation and bed days per 100 ever-users, and average lengths of stay per person hospitalized and per separation.

In the general hospital sector, total bed days of utilization were counted for all separations that occurred in FY91/92, including those portions of hospital stays which may have occurred prior to April 1, 1991. For hospital stays in PMHI, bed days were counted over the period April 1991 through March 1992, regardless of whether the separation occurred in this period.

Physician Services

A distinction is made in this analysis between "ever-users" of mental health services and "patients:" **Ever-users** are defined as all persons identified from any of the diagnostic information sources with a diagnosis of mental health disorder. **Patients**, whether ambulatory or inpatient, are defined as the subset of ever-users who received care from a physician. A small minority of ever-users were never seen by a physician for mental health purposes (or at least no physician claim was filed on the patients behalf). This would include, for example, persons hospitalized for a non-mental health reason with a secondary diagnosis of mental health disorder for whom no mental health therapy was provided by a physician.

Psychiatric and psychotherapeutic tariffs are billed in 15 minute service units. In this report, we have described the use of physician care in terms of visits, rather that service units.

Several indicators are reported throughout the text to profile different aspects of physician utilization:

Proportion of Ever-users Making Contact with a Physician gives the percentage of ever-users who had at least one mental health contact with a physician during the fiscal year. A mental health physician contact was defined by an ICD-9-CM diagnostic code in the range 290-319.

Number of Visits per 100 Ever-users counts the total number of mental health physician contacts and divides by the total number of ever-users. This is a measure of the visit

frequency of persons in treatment for mental health disorder and provides a useful measure of the intensity with which they utilize physician services. This measure controls for the varying treatment prevalence across regions and is thus useful in comparing utilization across regions.

Number of Visits per Patient is the average number of visits in a year received by persons in treatment for mental health disorder. For example, in the hospital setting, this amounts to the average number of mental health physician contacts received during inpatient stays.

Number of Visits per 100 Residents is the total number of mental health physician contacts divided by the total population of the region. This measure expresses mental health utilization from a population perspective.

Location and Type of Therapy: A limited number of therapeutic categories specific to the provision of mental health care can be identified in physician claims. Physician encounters can be classified by location of care as inpatient or ambulatory. In addition, care provided by any physician may be billed under psychotherapy tariffs. A heterogeneous group of therapeutic approaches will be represented within this category, including cognitive, behavioural or dynamic psychotherapeutic strategies as well as pharmaceutical management. It is a general assumption of psychotherapeutic methods that effective treatment requires frequent and sustained patient contact (68).

Expenditures per Resident is calculated as the sum of all disbursements to fee-for-service physicians for mental health care, divided by the total population of the region. Expenditures excluded from this analysis include fees paid for any ancillary services associated with the visit, such as laboratory or diagnostic imaging services. The fee per visit is influenced by the type of visit (e.g., primary care vs consultative care), where the visits takes place[6], as well as differences in physician specialty.

Neighbourhood Income Rank

In the absence of individual-level measures of socio-economic status, data from the 1986 Canadian census, aggregated to the geographic unit of the enumeration area, were used to rank neighbourhoods into population quintiles on the basis of the average household income of

[6] Fee premiums are assigned to different regions of Manitoba. Physicians practising in Brandon receive an additional 2.5%; in rural Manitoba, an additional 5%; and in the Northern regions, an additional 10%.

enumeration areas. This approach has been used previously in research using administrative data (69-77). Rural and urban areas[7] of the province were ranked separately. Accordingly, urban and rural populations in similar quintile ranks cannot be assumed to reside in areas of equivalent average household income. Using this method, the assignment of an average neighbourhood income value to rural residents has poor validity. Accordingly, analysis based on income quintiles for rural residents has not been extensively reported and where present, the rural data should be interpreted with caution.

Age and Sex Adjustment of Rates of Utilization

In addition to crude rates, age- and sex-adjusted rates of indicators were developed to permit comparisons across regions. The age and sex structure of the population, together with differing needs for care, are recognized as factors that contribute to different regional requirements for utilization and ultimately influence patterns of care delivered. Eleven categories were used for age-standardization: 0-17, 18-24, 25-34,...65-74, 75-79, 80-84, 85-89, and 90 and older. Unless otherwise specified, rates presented in this report have been age- and sex- adjusted using Manitoba population proportions and a direct method of standardization. This procedure mathematically removes the effects of different population structures in influencing rates of health care and provides an indication of the use of care in one region relative to use in another.

[7] An urban area is defined as having a population density greater than 400 persons per sq km, the definition used by Statistics Canada.

Section A:
Treatment Prevalence of Mental Health Disorder

This section describes the treatment prevalence of mental health disorder in the Manitoba population in FY91/92, emphasizing the distribution of disorder in relation to age, sex, region and average household income of neighbourhood of residence. As described in the Methods chapter, the report has classified mental health disorder into three categories: psychotic disorders, non-psychotic disorders and other disorders. In this section, individuals who have received diagnoses in two or more categories are counted in each category. As result, the sum of the treatment prevalence of psychotic, non-psychotic and other disorder will generally be greater than the composite rate representing any disorder. Treatment prevalence (reported here over six and twelve month periods) is the product of disorder prevalence and the percent in treatment.

Comparison of Estimates of Treatment Prevalence in Manitoba with Estimates from the Epidemiologic Catchment Area Project

The Epidemiologic Catchment Area Project has investigated the prevalence and incidence of clinically definite mental health disorder in five predominantly urban US samples. The project has also collected information on the utilization of mental health care services. Estimates of the twelve month prevalence of disorder and treatment prevalence derived from this work are reported in Table A.1. Based on disorder ascertained by the Diagnostic Interview Schedule (54), this project has estimated the twelve month prevalence of any disorder as 28.1/100 in the United States. The twelve month prevalence of schizophrenia is estimated to be 1.1/100; affective disorders, 9.5/100 and anxiety disorders, 12.6/100. In addition, the study has estimated rates of treatment. Over a twelve month period, the project estimates that only 21.9% of all disorder is treated by a physician, ranging from 60% of schizophrenic disorders, to 37.8% of affective disorders and 25.7% of anxiety disorders.

The ECA twelve month treatment prevalence estimate for any mental health disorder in adults aged 18 or older is 6.15/100, which is 40% lower than the twelve month estimate of 10.63/100 derived from administrative data in Manitoba. Within specific classes of disorder, the ECA and Manitoba treatment prevalence estimates are very close: substance abuse,

Table A.1

Comparison of Treatment Prevalence Estimates of Mental Health Disorder: Manitoba Administrative Data vs Epidemiologic Catchment Area Study

Twelve Month Prevalence,
Adults 18 years or older, combined community and institutional population

	Epidemiologic Catchment Area Estimates(1)			Manitoba	
	Twelve Month Prevalence (2)	Percent in Treatment (3)	Twelve Month Treatment Prevalence (4)	Twelve Month Treatment Prevalence (5)	
	/100	/100	/100	/100	
Any Disorder	28.1	21.9	6.15	10.63	
Substance Abuse	9.5	17.5	1.66	1.38	(6)
Schizophrenia	1.1	60.0	0.66	0.52	(7)
Affective Disorders	9.5	37.8	3.59	3.59	(8)
Anxiety Disorders	12.6	25.7	3.24	7.75	(9)
Antisocial Personality Disorder	1.5	22.9	0.34	--	(10)
Severe Cognitive Impairment	2.7	12.9	0.34	--	(11)

(1) Regier et al. The de Facto US Mental and Addictive Disorders Service System. Arch Gen Psychiatry 1993;50:85-94.
(2) Twelve month prevalence of disorders determined from DIS
(3) Treatment information based on respondent self-report: specialty mental health or addiction professionals and general medical professionals
(4) Treatment prevalence is calculated as twelve month prevalence X percent reporting treatment in previous twelve months
(5) Manitoba treatment prevalence estimated from MHSC and MHMIS sources, FY91/92
(6) Manitoba data combines ICD-9-CM 291-292, 303-305
(7) Manitoba data incorporates ICD-9-CM 295 only
(8) Manitoba data combines ICD-9-CM 296: Affective Psychoses and ICD-9-CM 311: Depressive Disorder NEC
(9) Manitoba data combines ICD-9-CM 300: Neurotic Disorders and ICD-9-CM 301: Personality Disorders
(10) In ICD-9-CM, anti-social personality disorder is classified with other personality disorders (ICD-9-CM 301) at the level of the third digit.
(11) ECA diagnosis is based on Mini Mental State examination. Comparable data is not available from administrative health data in Manitoba, although estimates in the elderly population are available from the Longitudinal Study on Aging and the Canadian Study on Health and Aging.

1.66/100 and 1.38/100 respectively; schizophrenia, 0.66/100 and 0.52/100; affective disorders, 3.59/100 and 3.59/100. The largest divergence is in the class of anxiety disorders, where the ECA estimate of 3.24/100 is approximately one half the Manitoba estimate of 7.75/100.

Differences in the two estimates can be attributed to three factors, two of which probably account for only a small proportion of the divergence: 1) Differences in access to care in the two settings generally predict higher rates of utilization in Canada, and 2) differences in the classification of disorder between ICD-9-CM and DSM-III create obstacles to forming groups of cases with clinically similar characteristics. The largest source of difference in the two estimates arises from the ECA methodology, which is based on estimating the treatment prevalence of disorder meeting the diagnostic criteria of the DIS. The ECA project has determined that persons reporting receiving treatment for mental health reasons who had symptoms of disorder below the diagnostic threshold of the DIS represent a group of health care users numbering approximately 40% of the group in treatment with clinically definitive disorder. The difference in treatment prevalence estimates can be accounted for by assuming that a similar proportion of Manitobans in treatment for mental health reasons do not have disorder which meets DIS diagnostic criteria. The estimate of the treatment prevalence of mental health disorder in this study also agree closely with the limited number of Canadian studies which have been based on representative population surveys (78,79).

Age and Sex Distribution of Mental Health Disorder in Manitoba

For both men and women, the six month treatment prevalence of any mental health disorder rises with age, from 17.78/1000 in males aged 0-14 to 117.75/1000 in males aged 75+, and from 11.36/1000 in females 0-14 to 148.78/1000 in women aged 75 or older (APPENDIX TABLE A.1). In children, pediatric disorders classified in the category of Other Disorders represent the dominant share of total morbidity; approximately 67% of male and 47% of female pediatric disorder is in this category. Among adults aged 15-64, the group of non-psychotic disorders is dominant. The treatment prevalence of mental health disorders rises sharply in the elderly (Figure A.1) and especially in those 80 years and older. The treatment

Figure A1:
Six Month Treatment Prevalence
Any Mental Health Disorder

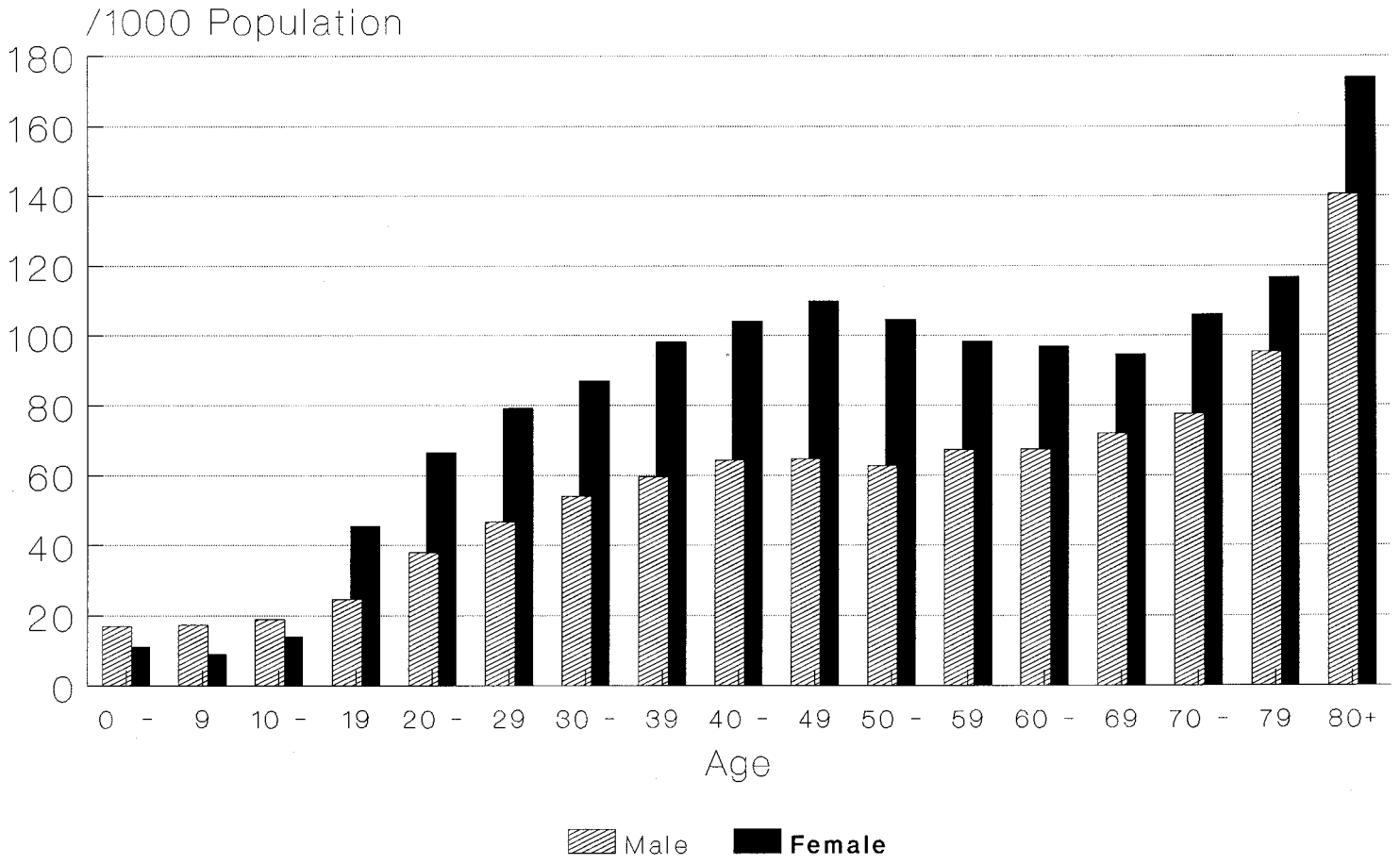


Figure A2
Six Month Treatment Prevalence
Non-Psychotic Mental Health Disorder

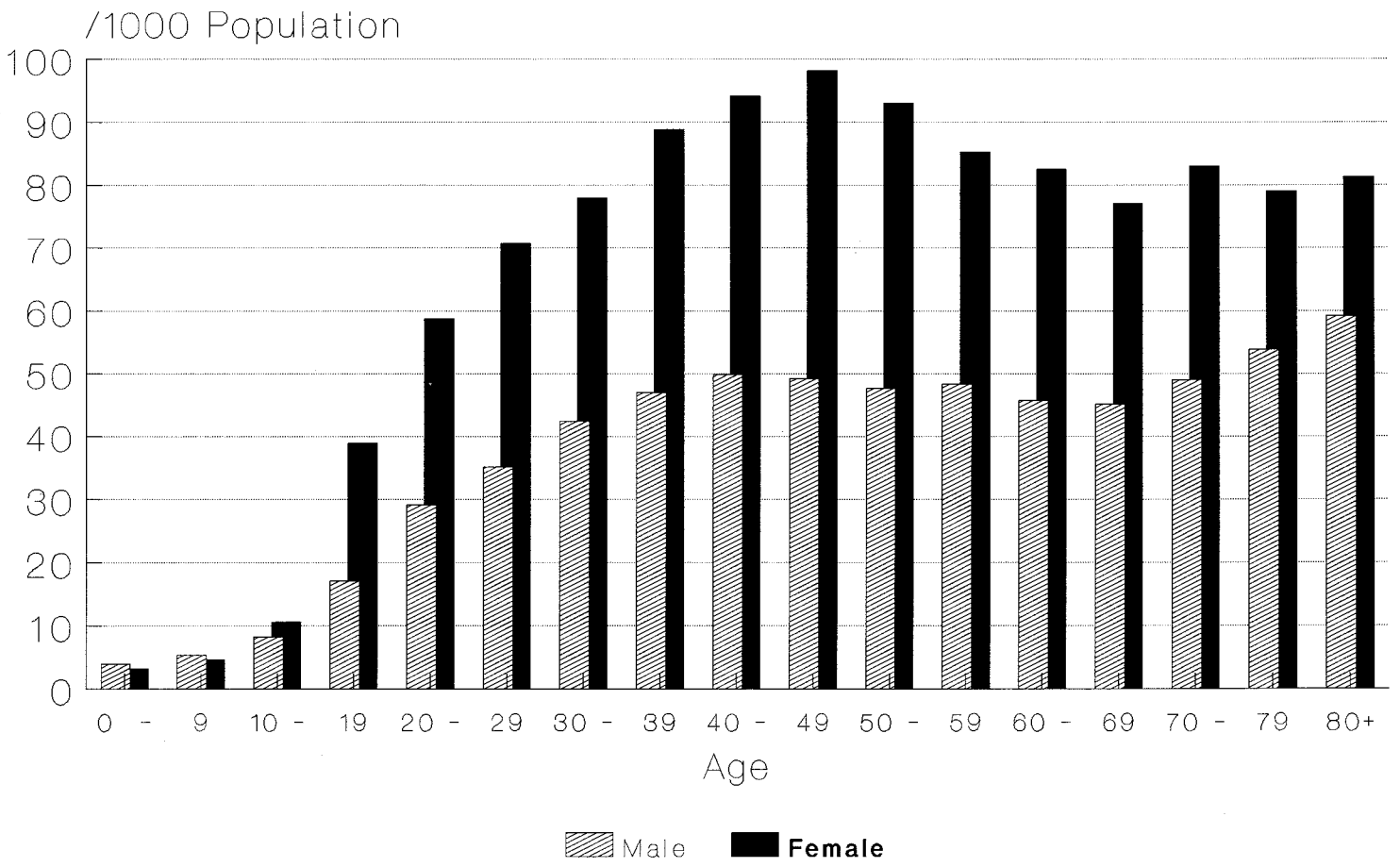


Figure A3
Six Month Treatment Prevalence
Psychotic Mental Health Disorder

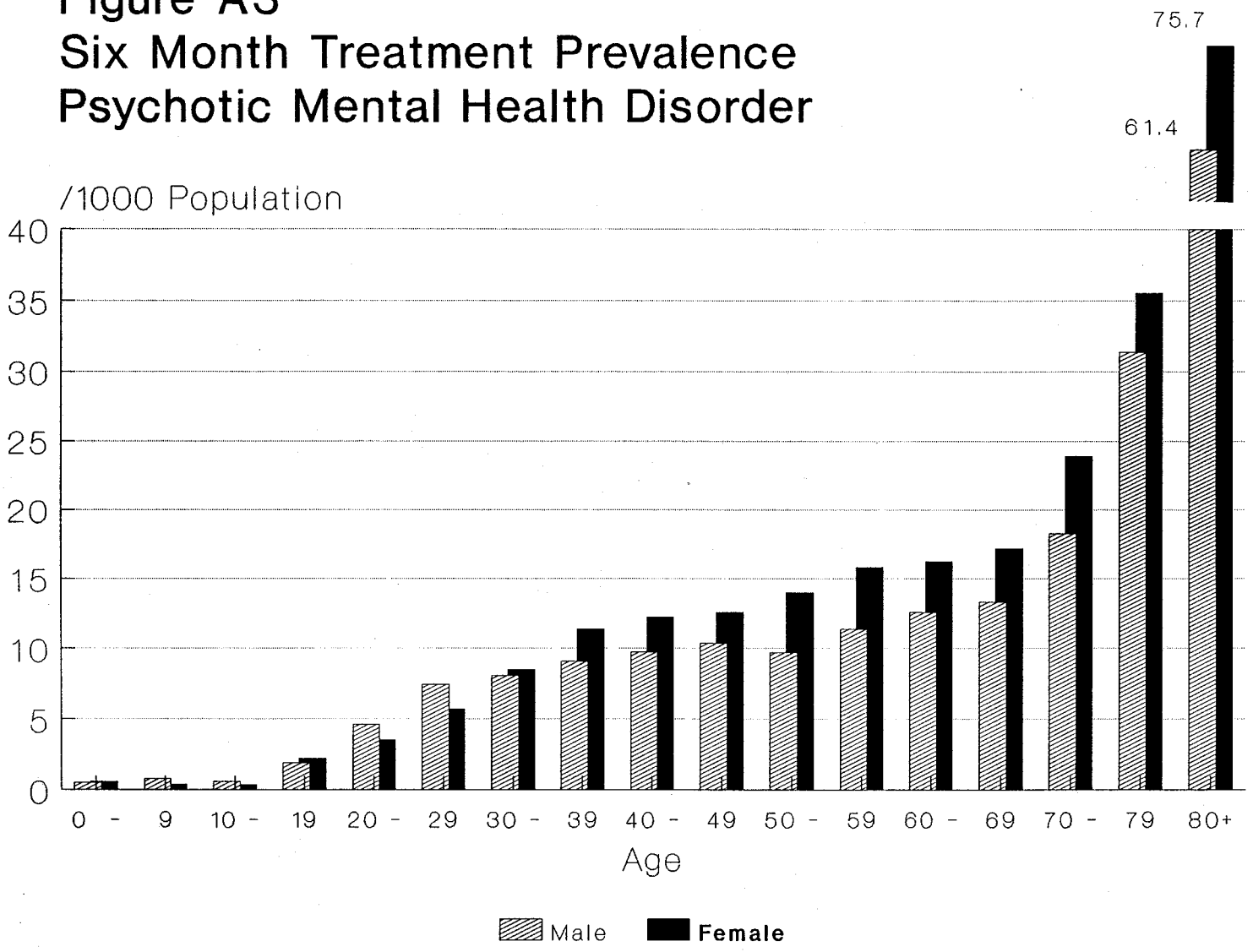
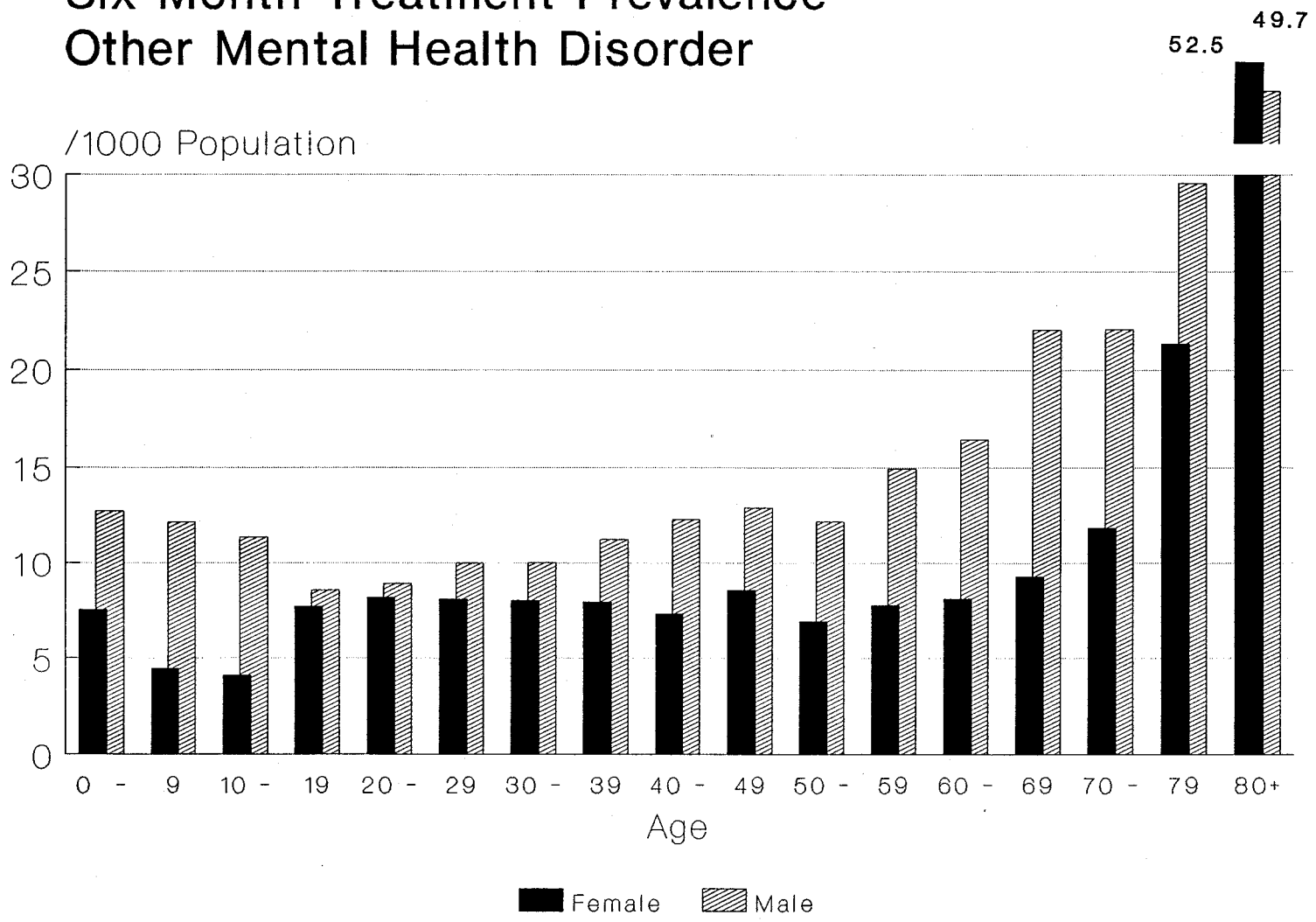


Figure A4
Six Month Treatment Prevalence
Other Mental Health Disorder



prevalence of disorder in the elderly is composed of approximately equivalent rates of psychotic, non-psychotic and other disorders.

The treatment prevalence of mental disorder rises abruptly at adolescence in both males and females. Through adulthood, women experiencing mental health disorders come to treatment at a rate approximately 60% higher than men. This elevated treatment prevalence of disorder is concentrated in the group of non-psychotic disorders. Women continue to experience mental illness more frequently in the elderly age groups, although the differential between men and women narrows (FIGURES A.1-A.4).

Among adults aged 15-65, the treatment prevalence of psychotic mental health disorders is approximately 1% among both men and women (APPENDIX TABLE A.2). This group of disorders is dominated by the conditions of schizophrenia, major depression and bipolar affective disorders. These serious illnesses typically commence in early adulthood and persist for the duration of the life course as chronic mental disorders. The treatment prevalence of psychotic disorder among the elderly increases exponentially, almost exclusively due to increase in the diagnosis of depressive-type psychoses (ICD-9-CM 298).

The dominant morbidities in the category of non-psychotic mental health disorders are the neurotic disorders (anxiety, phobias and neurotic depression) and mild, non-specific depressions (ICD-9-CM 311). Unlike the psychotic mental health disorders, the age-specific treatment prevalence of non-psychotic disorders does not rise with increasing age (APPENDIX TABLE A.3). Instead, the highest treatment prevalence occurs in the age groups 35-54, followed in older age groups by a general decline in the frequency of diagnosis. One exception to this pattern is mild depressive disorder, which continues to rise in treatment prevalence across older age groups. Women experience a much higher frequency of disorder across all specific classes of illness in this category.

Tables reporting the treatment prevalence of other disorders (APPENDIX TABLE A.4) and pediatric disorders (APPENDIX TABLE A.5) are included in the appendix to this report.

Figure A.5
Six Month Treatment Prevalence
Any Mental Health Disorder

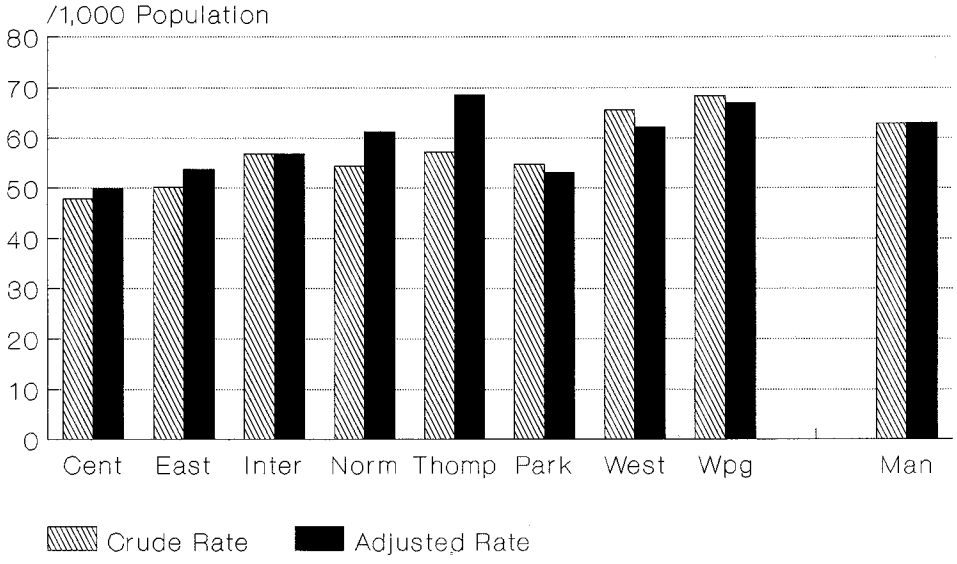


Figure A.6
Six Month Treatment Prevalence
Non-Psychotic Mental Health Disorder

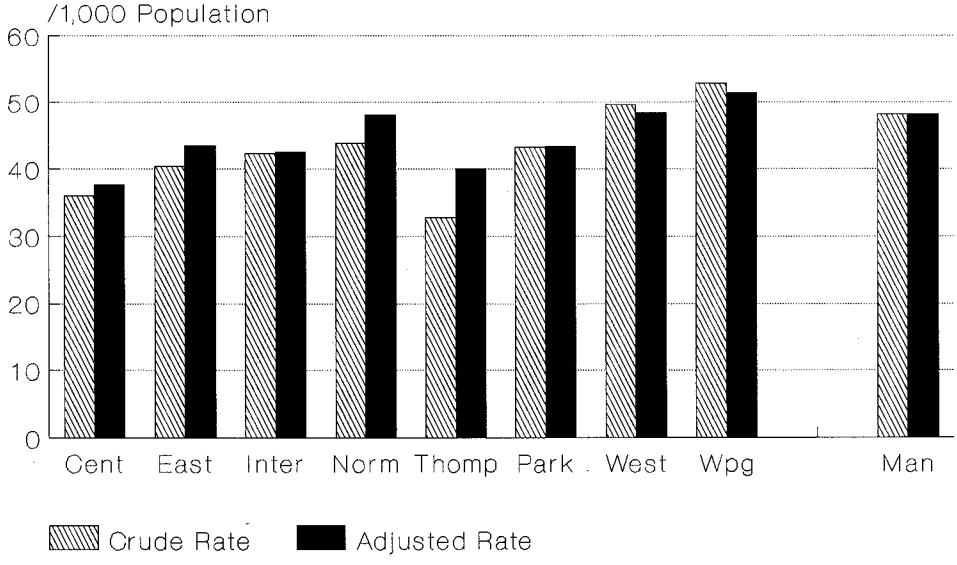


Table A.2

Treatment Prevalence of Mental Health Disorder, By Region
Six and Twelve Month Periods, Manitoba FY91/92

/1000 population, direct standardization for age and sex

Six Month Treatment Prevalence		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
	N	1,139,942	94,456	85,138	71,918	24,944	45,979	44,957	117,689	654,861
Any Disorder	Crude Rate	62.9	47.9	50.1	56.8	54.3	54.7	57.1	65.5	68.4
	Adjusted Rate	62.9	49.1	53.7	56.7	61.2	53.1	68.6	62.2	67.0
Psychotic Disorders	Crude Rate	10.2	10.6	5.6	10.4	5.1	8.1	3.4	13.5	10.9
	Adjusted Rate	10.2	10.5	6.4	10.3	7.2	7.0	5.6	11.4	10.8
Non-psychotic Disorders	Crude Rate	48.2	36.0	40.4	42.3	43.8	43.2	32.7	49.6	53.0
	Adjusted Rate	48.2	37.6	43.4	42.5	48.1	43.3	40.0	48.4	51.4
Other Disorders	Crude Rate	11.5	7.4	7.8	10.1	9.3	8.8	26.5	10.5	12.2
	Adjusted Rate	11.5	7.3	8.2	9.9	10.5	7.7	29.7	9.7	12.4

Twelve Month Treatment Prevalence		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
	N	1,139,942	94,456	85,138	71,918	24,944	45,979	44,957	117,689	654,861
Any Disorder	Crude Rate	101.8	76.0	84.9	90.6	93.9	92.9	99.4	102.8	109.8
	Adjusted Rate	101.8	78.1	90.7	90.8	103.7	90.9	118.6	98.6	107.7
Psychotic Disorders	Crude Rate	14.6	14.2	8.6	13.3	7.8	12.3	4.7	17.9	16.0
	Adjusted Rate	14.6	14.0	9.7	13.3	10.8	10.6	8.0	15.0	15.9
Non-psychotic Disorders	Crude Rate	80.7	59.8	70.6	71.0	77.8	76.2	58.9	82.3	87.8
	Adjusted Rate	80.7	62.2	75.5	71.4	84.5	76.6	71.8	80.7	85.3
Other Disorders	Crude Rate	20.0	12.7	14.1	16.9	17.1	14.9	48.3	17.1	21.3
	Adjusted Rate	20.0	12.5	14.7	16.6	18.8	13.2	54.1	15.9	21.6

Regional Distribution of Mental Health Disorder

Adjusted for the differences in age and sex composition across regions, the estimated six month treatment prevalence of any mental health disorder ranges from 49.1/1000 in Central region to 68.6/1000 in Thompson. The adjusted six month treatment prevalence rates of any mental health disorder in Central, Eastman, Interlake and Parklands were below the overall Manitoba rate of 62.9/1000 (TABLE A.2, FIGURE A.5).

While the differences across regions in the overall treatment prevalence of mental health disorder are not large, the regional distribution of illness within the categories of psychotic, non-psychotic and other disorders is much more variable. The age and sex adjusted treatment prevalence of illness in the other category in Thompson region, 29.7/1000, is 2.6 times greater than the overall Manitoba rate, reflecting a much higher rate of diagnosis of alcohol-related mental illness in this region compared to other areas of the province (FIGURE A.8). In contrast, Thompson, along with Eastman, Norman and Parklands regions, have low treatment prevalence rates of psychotic mental health disorder. While Central region has among the lowest treatment prevalence rates for non-psychotic mental health disorder, it joins Interlake, Westman and Winnipeg as regions with distinctively high treatment prevalence of psychotic mental health disorders (FIGURES A.6-A.7).

Table A.3 demonstrates the contribution of patients receiving care exclusively from the mental health centres in Eden, Brandon and Selkirk on regional treatment prevalence estimates. The effect is most substantial for psychotic mental health disorders. The inclusion of these patients increases the estimated treatment prevalence of any disorder in the province by only 2.7%, from 61.2 to 62.9/1000. The magnitude of effect on the estimated treatment prevalence of psychotic mental health disorder is much larger, raising the provincial treatment prevalence estimate by 11%, from 8.9 to 10.1/1000. On a regional basis, the addition of this information has the largest impact on the estimated treatment prevalence of psychotic disorder in Central (+37.7%), Interlake (+42.3%) and Westman (+27.4%) corresponding to the three regions where the provincial institutions are located.

Table A.3

Treatment Prevalence of Mental Health Disorder,
By Source of Information and Region
Six Month Treatment Prevalences, Manitoba FY91/92

/1000 population

		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
	N	1,139,942	94,456	85,138	71,918	24,944	45,979	44,957	117,689	654,861
Any Disorder	MHSC	61.2	42.7	48.9	50.2	54.1	54.0	56.6	59.4	68.0
	MHSC + MHMIS	62.9	47.9	50.1	56.8	54.3	54.7	57.1	65.5	68.4
	% MHMIS	2.7	10.6	2.4	11.6	0.4	1.3	0.9	9.3	0.6
Psychotic Disorders	MHSC	8.9	6.6	4.7	6.0	4.7	7.5	2.9	9.8	10.6
	MHSC + MHMIS	10.2	10.6	5.6	10.4	5.1	8.1	3.4	13.5	10.9
	% MHMIS	11.0	37.7	16.1	42.3	7.8	7.4	14.7	27.4	2.7
Non-psychotic Disorders	MHSC	47.5	33.6	40.0	39.7	43.7	42.9	32.5	47.2	52.9
	MHSC + MHMIS	48.2	36.0	40.4	42.3	43.8	43.2	32.7	49.6	53.0
	% MHMIS	1.4	6.6	0.0	6.1	0.2	0.7	0.6	4.8	0.2
Other Disorders	MHSC	10.9	5.9	7.6	8.5	9.1	8.4	26.2	7.8	12.2
	MHSC + MHMIS	11.5	7.4	7.8	10.1	9.3	8.8	26.5	10.5	12.2
	% MHMIS	6.0	21.3	2.6	15.8	2.2	4.5	1.2	25.7	0.0

This pattern strongly suggests that these three institutions have functioned as provincial (as opposed to regional) referral centres, inducing inter-regional migration among the population in need of care for serious mental illness. That is, patients appear to be changing their residence in order to receive treatment for psychotic disorder. A different view of the same phenomena is represented in Figure A.10, which describes the age-specific treatment prevalence of psychotic mental health disorder among males aged 18-64 across regions. In the youngest age strata, 18-24, there is no meaningful difference across regions in the treatment prevalence of disorder. Looking at successively older cohorts, however, the age-specific treatment prevalence of psychotic disorder begins to show sharp regional differentials, with the treatment prevalence rising most rapidly in the four regions with the most developed services for the severely mentally ill; Winnipeg, Central, Westman and Interlake. In contrast, the age-specific profile of non-psychotic mental health disorders does not show this regional differentiation with rising cohort age (FIGURE A.9).

Distribution of Mental Health Disorder Across Income Quintiles

In this section, age and sex adjusted rates of mental health disorder are reported for rural and urban residents, classified into population quintiles on the basis of the average household income of residential areas. Among the 770,000 people in the province classified as urban residents the treatment prevalence of mental health disorder increases consistently with declining neighbourhood income rank. This gradient is most pronounced in the category of psychotic mental health disorder, where the relative risk of a major disorder, after adjusting for differences in age and sex distributions, is 3.15 times greater in the poorest income quintile relative to the wealthiest 20% of the urban population (APPENDIX TABLE A.6). The 20% of the population in the poorest urban neighbourhoods are also 1.33 times more likely to be diagnosed with a non-psychotic mental health disorder and 2.73 times more likely to be diagnosed with an illness in the category of other disorder. Among rural residents, the only class of disorder to show a similar pattern of increasing illness treatment prevalence with declining income rank is the category of other disorders.

Figure A.7
Six Month Treatment Prevalence
Psychotic Mental Health Disorder

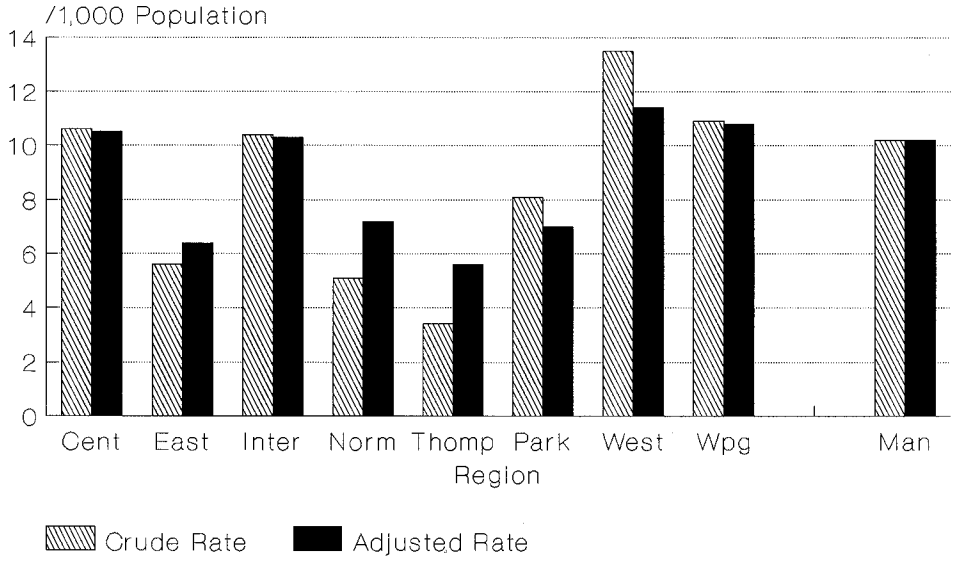


Figure A.8
Six Month Treatment Prevalence
Other Mental Health Disorder

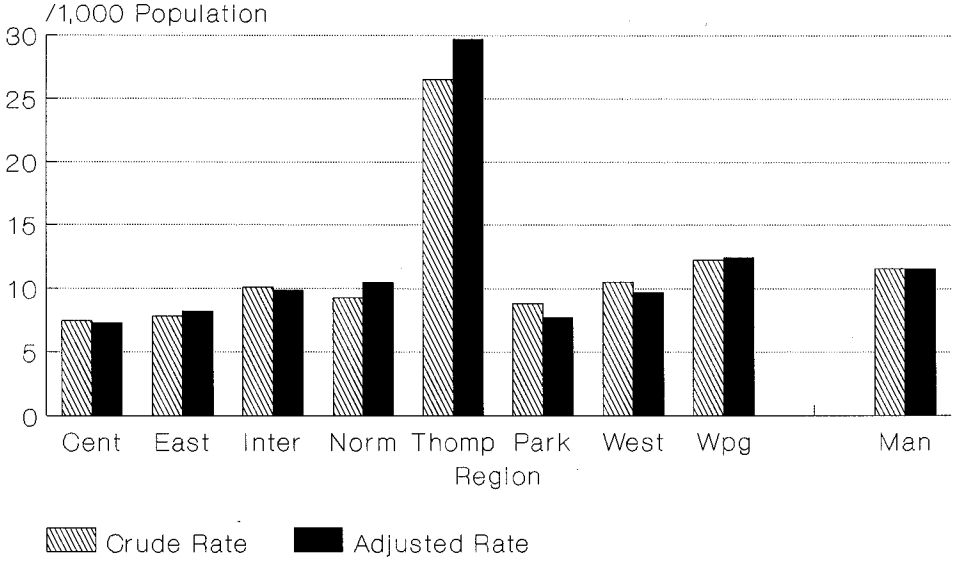


Figure A.9
Six Month Treatment Prevalence
Non-Psychotic Mental Health Disorder

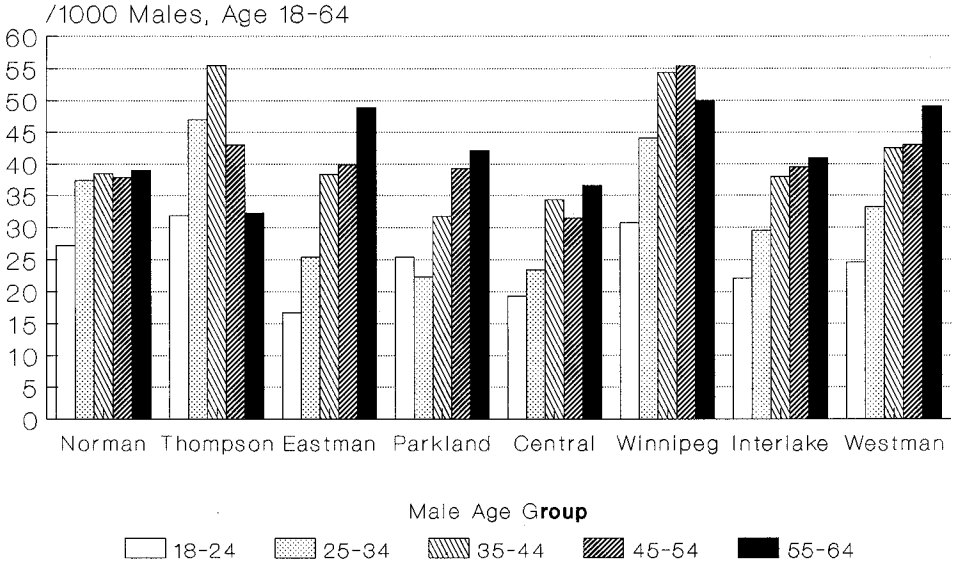


Figure A.10
Six Month Treatment Prevalence
Psychotic Mental Health Disorder

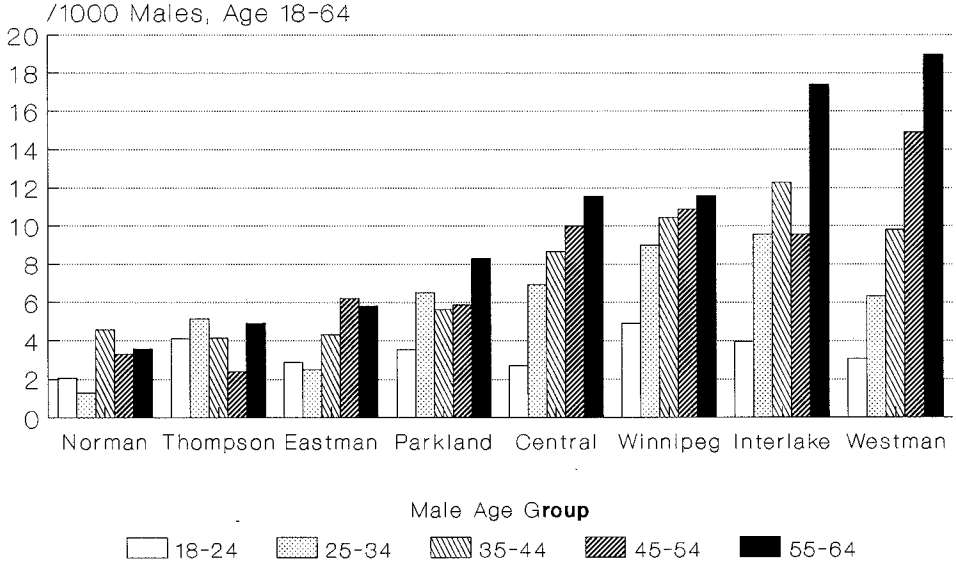


Figure A.11
Male Six Month Treatment Prevalence
Non-Psychotic Mental Health Disorder

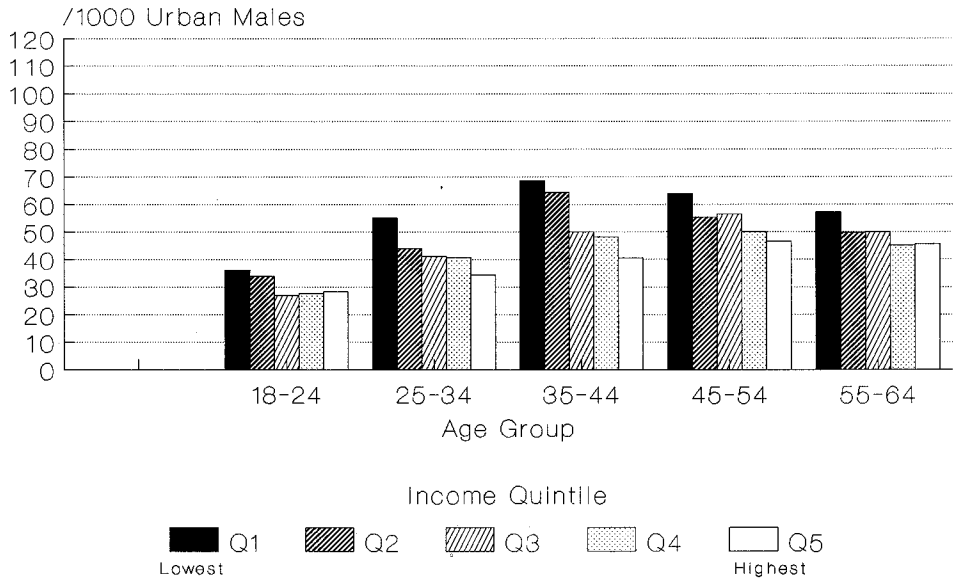
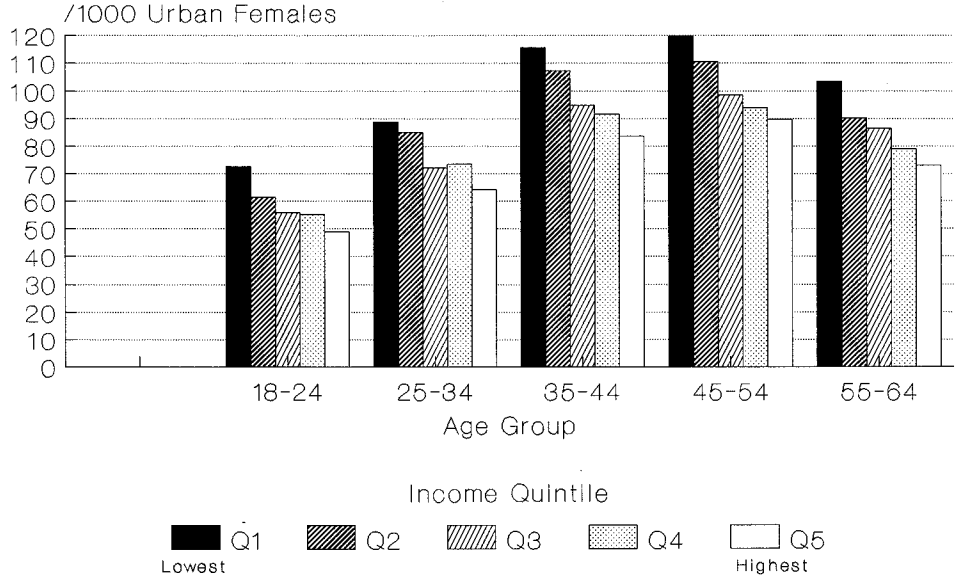


Figure A.12
Female Six Month Treatment Prevalence
Non-Psychotic Mental Health Disorder



Among adult urban residents, the elevated relative risk of a non-psychotic mental health disorder associated with lower income rank is evident in the youngest age group (ages 18-24). For both men and women aged 18-64, this excess risk of non-psychotic disorder persists across all age groups and is of consistent magnitude (APPENDIX TABLE A.7). For example, women aged 18-24 in the poorest 20% of the population have a treatment prevalence of non-psychotic disorder 1.48 times greater than women in the wealthiest 20% of the population. The risk ratio is 1.38 for women aged 25-34 and 35-44, 1.36 for women aged 45-54 and 1.41 for women aged 55-64. The distinctive treatment prevalence profile of the non-psychotic disorders, rising to a peak at ages 45-54 and then declining, is present across all income strata (FIGURES A.11 and A.12).

The profile of psychotic disorders among urban residents is sharply different from that of the non-psychotic disorders. The treatment prevalence of illness rises exponentially with declining income rank and concentrates predominantly in the poorest 20% of the urban population. In addition, the relative risk of a psychotic disorder in relation to income rank rises with age (APPENDIX TABLE A.8). Among both males and females aged 18-24, no difference in the treatment prevalence of disease can be detected across the five income quintiles (Risk Ratio Q5 vs Q1: Males 1.36 95% CI 0.89, 2.07; Females 0.82, 95% CI 0.51, 1.32). With increasing age, however, the income differential widens, from 2.60 for males aged 25-34 to 5.07 for males aged 55-64, and from 1.85 for females aged 25-34 to 2.87 for females aged 55-64 (FIGURES A.13 and A.14).

The increase in age-specific relative risk of psychotic disorder associated with declining income rank described by these cross-sectional data is the consequence of the powerful effect of these disorders on downward social mobility. As individuals become occupationally and socially disabled by these illnesses, many will be found to migrate to the poorest urban neighbourhoods.

The distribution of other disorders across income quintiles among urban residents shows a steep gradient of increasing age-specific treatment prevalence with declining income rank (APPENDIX TABLE A.9, FIGURES A.15 and A.16). The profile of this distribution is similar to the

pattern among psychotic disorders. In contrast to the non-psychotic disorders, where adult women have a higher treatment prevalence, adult men have higher rates of other disorders, especially in the older age cohorts. Despite the lower rates of treatment prevalence among women compared to men, the relative risks of disorder in poorer neighbourhoods are consistently and almost equivalently elevated for both men and women.

Figure A.13
Male Six Month Treatment Prevalence
Psychotic Mental Health Disorder

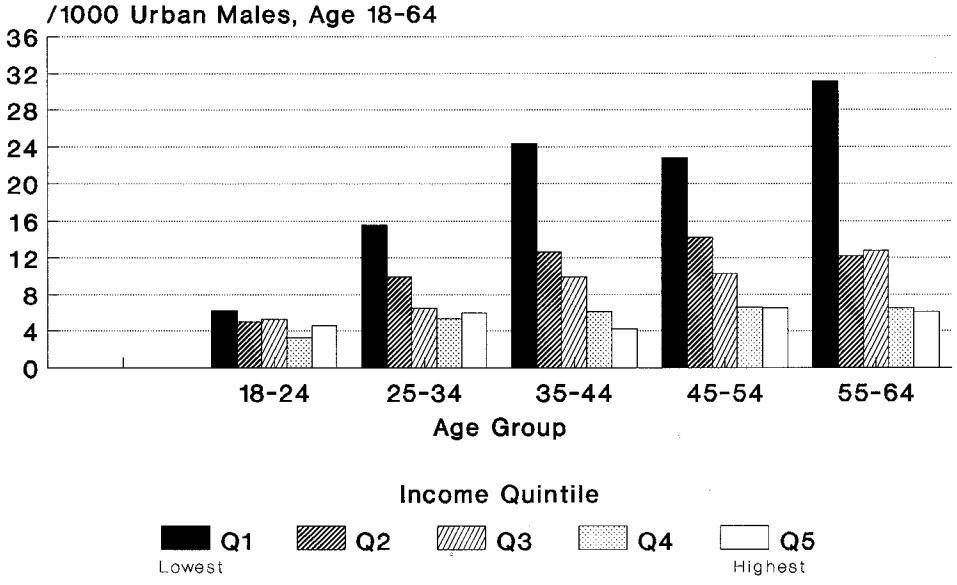


Figure A.14
Female Six Month Treatment Prevalence
Psychotic Mental Health Disorder

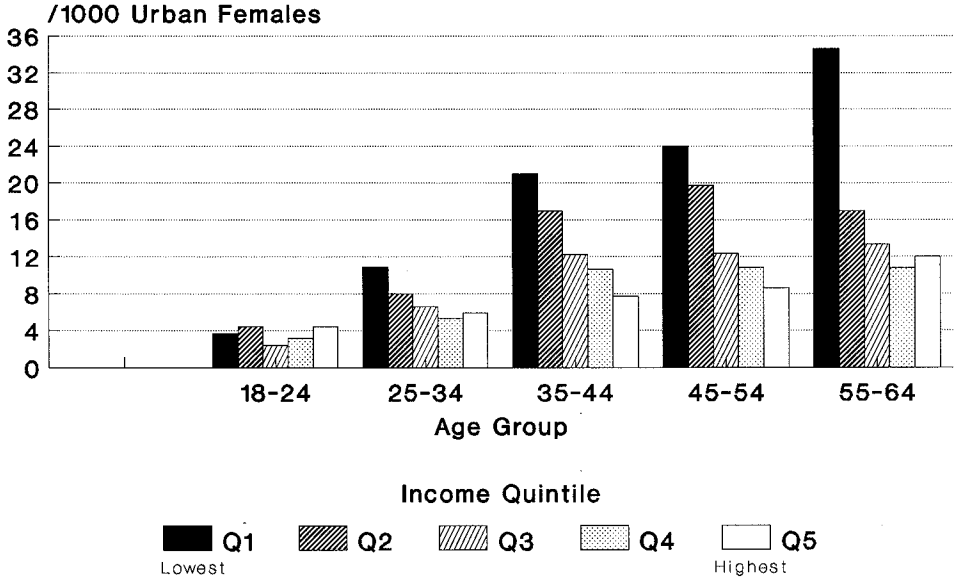


Figure A.15
Male Six Month Treatment Prevalence
Other Mental Health Disorder

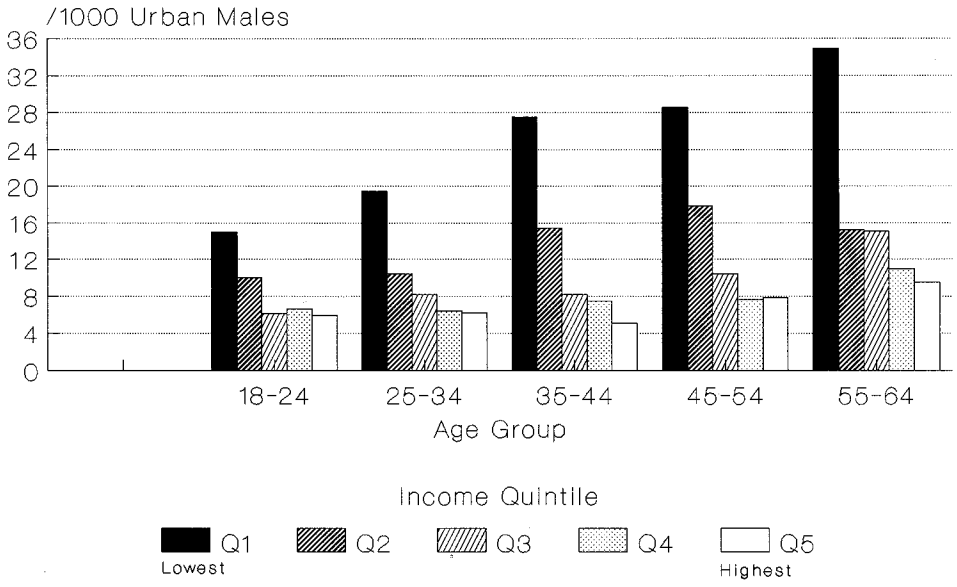
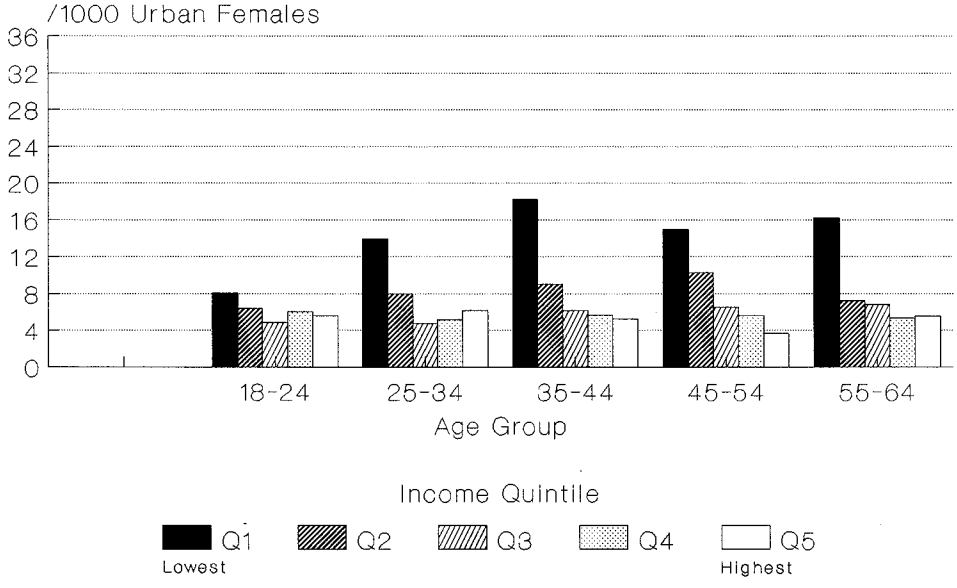


Figure A.16
Female Six Month Treatment Prevalence
Other Mental Health Disorder



Section B:
Utilization of Hospital Services

The acute care hospitalization rate for individuals in treatment for any mental health disorder in FY91/92 was 4.70/100, ranging from 1.65/100 among adults with non-psychotic mental health disorders to 22.4/100 among adults with psychotic disorder (TABLE B.1). In this analysis, the hospitalization rate is formed from a numerator composed of individuals who were in hospital for one or more days in the observation period, divided by the population of individuals receiving ambulatory or inpatient medical treatment for mental health disorder in FY91/92.

In this period, a total of 5,461 individuals were admitted to hospital for acute care (see Methods section for definition) with a primary diagnosis of mental health disorder and used 201,721 days of care. The average length of stay of hospital care was 34.3, ranging from 9.6 days for adults with disorders classified as other, to 68.7 days of care for individuals aged 65 or older with a major psychiatric disorder (TABLE B.1).

Psychotic mental health disorder dominates the utilization of acute care bed days. While 14% of individuals in treatment for any mental health disorder were identified as having a psychotic disorder, 55.6% of all patients in hospital for treatment of a mental health disorder were drawn from this group, and they used 78.8% of all acute hospital days (158,991 days) used in the treatment of any mental health disorder. Among individuals with a psychotic mental health disorder, adults were more likely to be hospitalized than the elderly (22.4/100 vs 14.2/100 persons in treatment, TABLE B.1); however, the average length of stay among the elderly with a psychotic mental health disorder was 68.7 days, much longer than the average adult psychotic disorder stay of 43.7 days.

A total of 21.8% of patients in hospital for treatment of a mental health disorder during this period received care from one of the three mental health centres. Of these 1,332 individuals, 34% were classified as long-term patients of these facilities (TABLE B.2). The 855 patients classified as receiving acute treatment in these facilities represent 15% of all individuals hospitalized in the province over this period for acute care of mental health disorder.

Table B.1
Hospital Utilization for Mental Health Disorders
By Age and Category of Disorder
Manitoba, FY91/92

	Ever-Users of of Mental Health Health Services		Persons Hospitalized (1)		Acute Care Hospital Stays			
			Long Term (2)	Acute Care	Stays /100 Ever Users	Total Days		Average Length of Stay
	N	%	N	N		N	%	
Manitoba	116,088	100.0	722	5,461	4.70	201,721	100.0	34.3
Pediatric (0-17)	9,520	8.2	48	293	3.08	7,567	3.8	25.8
Adult (18-64)								
Psychotic	8,791	7.6	239	1,971	22.42	86,078	42.7	43.7
Non-psychotic	65,502	56.4	16	1,077	1.65	12,498	6.2	11.5
Other	7,526	6.5	28	499	6.56	4,730	2.3	9.6
Elderly (65+)								
Psychotic	7,431	6.4	287	1,061	14.20	72,913	36.1	68.7
Non-psychotic	14,104	12.1	19	368	2.60	8,348	4.1	22.7
Other	3,214	2.8	85	192	6.00	9,687	4.8	50.4

(1) Persons in a provincial mental health facility for one or more days in FY91/92, plus persons discharged from a provincial acute care hospital in FY91/92 with a primary diagnosis of a mental health disorder

(2) Long-term hospitalization for PMHI patients is defined in Table B.2. Long-term category also includes patients admitted to Deer Lodge Center and Muncipal Hospital extended care services (Personal communication, E Shapiro, October 13, 1993)

Table B.2
Criteria for Classification of Acute and Long-Term Inpatients in Provincial Mental Health Institutions

Persons	Bed Days	Average Stay in Days FY91/92	
1,332 (1)	214,829	161	Total number of inpatients in provincial mental health institutions for one or more days in FY91/92
			Patients classified as long-term inpatients
338	117,450	347	Patients in provincial mental health institutions during FY91/92, who remain inpatients up to the summer of 1993 (the end of reporting time for the MHMIS dataset provided to MCHPE)
31	8,127	262	Patients who died in a provincial mental health institution and who had a cumulative inpatient stay of greater than 365 days of which all or part occurred in FY91/92
26	7,930	305	Patients who were discharged to a personal care home and who had a cumulative inpatient stay of greater than 365 days of which all or part ocurred in FY91/92
82	25,349	309	Patients who were admitted to a provincial mental health institution involuntarily and who had a cumulative inpatient stay of greater than 365 days of which all or part occurred in FY91/92
855	55,973	65	Patients classified as acute care inpatients

(1) Includes count of bed days for 157 of 1,332 patients who had diagnoses outside the range ICD-9-CM 290-319, and who are not included in the hospital utilization analysis as either acute or long-term inpatients.

Table B.3

Long-Term Hospitalization in Provincial Mental Health Institutions
By Age and Category of Disorder
Manitoba, FY91/92

	Ever-Users of of Mental Health Health Services		Persons Hospitalized (1)		Long-Term Hospital Stays		
			Long Term	Percent of Total Hospital	Days		Percent of Total Acute and Long Term
	N	%	N	Stays	N	%	Hospital Days
Manitoba	116,088	100.0	722	11.6	199,371	100.0	51.5
Pediatric (0-17)	9,520	8.2	48	14.1	5,369	2.7	41.5
Adult (18-64)							
Psychotic	8,791	7.6	239	10.8	72,080	36.1	45.6
Non-psychotic	65,502	56.4	16	1.4	4,844	2.4	27.9
Other	7,526	6.5	28	5.4	9,626	4.8	67.0
Elderly (65 +)							
Psychotic	7,431	6.4	287	21.2	81,182	40.7	56.9
Non-psychotic	14,104	12.1	19	4.9	2,009	1.0	20.2
Other	3,214	2.8	85	30.6	24,261	12.2	76.7

(1) Persons in a provincial mental health facility for one or more days in FY91/92, plus persons discharged from a provincial acute care hospital in FY91/92 with a primary diagnosis of a mental health disorder

(2) Long-term hospitalization for PMHI patients is defined in Table B.2. Long-term category also includes patients admitted to Deer Lodge Center and Muncipal Hospital extended care services and extended care services of general hospitals (Personal communication, E Shapiro, October 13, 1993)

Analyses of long-term care patients in both PMHI and the general hospital sector will not be extensively presented in this report. While this group constituted 11.6% of the hospitalized patients in these settings in FY91/92, they used 199,371 days of care, 51.5% of all bed days used in the entire provincial hospital system for mental health disorders (TABLE B.3).

Regional Utilization By Category of Mental Health Disorder

Appendix Tables B.1 to B.7 describe characteristics of hospital utilization across regions; these tables report hospitalization and separation rates, the ratio of separations to persons hospitalized, total bed days, estimates of average length of stay, and the rate of hospital bed day utilization per 100 persons with disorder and per 100 population.

For adults aged 18-64, the provincial rate of hospitalization among individuals in treatment for a psychotic mental health disorder was 22.4/100 (APPENDIX TABLE B.1). Of the total of 2,743 hospital separations for this group of patients, approximately 40% were readmissions. Average bed day utilization for hospitalized patients was 43.5; average length of stay per separation was 31.3 days. On a provincial basis, 978 hospital days were used annually for every 100 individuals with a psychotic mental health disorder diagnosis.

Winnipeg, Central and Interlake regions had the lowest rate of hospitalization for patients with this group of disorders. Along with Westman, however, these regions had the longest average lengths of stay. Using a measure which combines these two aspects of care - acute care days in hospital per 100 ever-users - Winnipeg, Central, Norman, Parklands and Eastman regions were median, with Westman and Interlake regions high and Thompson low.

For adults aged 18-64 in treatment for a non-psychotic mental health disorder, the provincial rate of hospitalization was 1.64/100 (APPENDIX TABLE B.2). Of the total of 1,319 hospital separations for this group of patients, approximately 22% were readmissions. The provincial average bed day utilization for hospitalized patients in this category was 11.60, and the average number of days in hospital per 100 persons in treatment for this group of disorders was 19.08.

Table B.4

Acute Care Hospital Utilization, By Hospital Class or Facility, Age Group and Category of Disorder Manitoba FY91/92

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Total Hospital Days	Days /100 Ever-Users	Hospital Class or Service PMHI (1)		Acute Care Hospitals Psychiatric Beds		Acute Care Hospitals Other Beds	
				% Patients	% Days	% Patients	% Days	% Patients	% Days
Total		201,721	173.8	13.0	24.1	36.4	37.8	50.6	37.9
Psychotic Disorders									
Adults 18-64	Winnipeg	52,127	890.8	3.0	5.6	90.5	90.0	6.5	4.6
	Non-Winnipeg	33,851	1151.8	42.3	75.4	20.2	15.7	37.4	8.9
Elderly 65 +	Winnipeg	45,569	1039.0	2.6	2.6	35.0	27.1	62.3	70.3
	Non-Winnipeg	27,344	898.0	25.6	37.0	4.6	3.7	69.8	59.4
Non-psychotic Disorders									
Adults 18-64	Winnipeg	6,622	15.9	1.8	8.0	55.7	69.5	42.5	22.5
	Non-Winnipeg	5,876	24.6	15.7	47.5	18.9	15.7	65.3	36.7
Elderly 65 +	Winnipeg	5,161	65.2	3.0	3.6	24.0	18.7	73.0	77.6
	Non-Winnipeg	3,187	51.5	5.9	17.1	3.0	2.3	91.0	80.6
Other Disorders									
Adults 18-64	Winnipeg	2,673	64.9	1.2	11.4	83.8	82.4	15.0	6.2
	Non-Winnipeg	2,057	60.4	4.2	34.6	5.0	3.7	81.4	61.6
Elderly 65 +	Winnipeg	4,868	235.9	3.6	4.1	2.4	3.0	94.0	92.9
	Non-Winnipeg	4,819	418.7	17.6	33.1	2.8	3.9	79.6	66.5

(1) PMHI: Provincial Mental Health Institutions: Brandon, Eden and Selkirk

Winnipeg region had the lowest rate of hospitalization for patients with non-psychotic disorders (1.06/100 ever-users), with other regions ranging from 2.01 to 3.58/100 ever-users. Winnipeg, along with Westman region, had the longest average length of stay per hospitalized patient. On the basis of the average number of hospital days per 100 ever-users, Winnipeg, Eastman and Thompson regions had the lowest rates, and Norman and Westman had the highest rates. Additional tables presented in the appendix (APPENDIX TABLES B.3-B.7) compare regional utilization of hospital care for mental health disorders in the elderly and pediatric populations.

Hospital Utilization by Class of Facility

Table B.4 compares the use of hospital care for Winnipeg and non-Winnipeg residents across three classes of acute care facilities providing care for mental health disorders: 1) provincial mental health institutions (PMHI), 2) acute care general hospitals with psychiatric services, and 3) acute care general hospitals without specialty psychiatric services.

The 14% of all mental health patients in treatment for a psychotic disorder used 78.8% of total days of acute hospital care for the treatment of mental health disorder. Among non-Winnipeg patients with psychotic disorder, the utilization of hospital days per 100 ever-users was higher among adults than elderly patients (1151.8 vs 898.0, respectively, TABLE B.4). Adult Winnipeg patients in treatment for psychotic disorder had a rate of bed day utilization (890.8/100 ever-users) almost 20% lower than non-Winnipeg adult patients, while elderly residents of Winnipeg had a rate of bed day utilization approximately 15% higher (1039.0/100 ever-users) than non-Winnipeg elderly.

The institutional source of care also differed by residence and age: among adults with psychotic mental health disorders in Winnipeg, more than 90% of hospitalizations and bed days were provided on hospital psychiatric services. In contrast, the majority of hospital care for Winnipeg elderly with psychotic disorder was provided on non-psychiatric services (62.3% of hospitalizations, and 70.3% of bed days). A minority of care was provided on psychiatric services for rural adults and elderly with psychotic mental health disorders.

Table B.5

Acute Care Hospital Utilization For Psychotic Mental Health Disorders By Income Quintile, Adult (18-64) Urban Residents

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Income Quintile				
	Total	Q5 Highest	Q4	Q3	Q2	Q1 Lowest
Males (age 18-64)						
Population	241,745	49,313	52,306	47,063	45,252	47,811
Number of Ever-Users	3,156	395	391	529	650	1,191
Number of Hospitalized Ever-Users	685	63	68	120	155	279
% of Total Hospitalized Ever-Users	100.0	9.2	9.9	17.5	22.6	40.7
Total Hospital Days	33,464	2,980	3,122	5,915	6,552	14,895
% of Total Hospital Days	100.0	8.9	9.3	17.7	19.5	44.5
Average Hospital Days per Person Hospitalized	48.8	47.3	45.9	49.3	42.3	53.4
Hospitalization Rate						
/1000 Population	2.8	1.3	1.3	2.6	3.4	5.8
/1000 Ever-Users	217.0	159.4	173.9	226.8	238.4	234.3
Hospital Days						
/1000 Population	138	60	60	126	145	312
/1000 Ever-Users	10,603	7,544	7,984	11,181	10,080	12,506
Females (age 18-64)						
Population	245,280	50,058	53,477	48,740	46,709	46,296
Number of Ever-Users	3,631	560	607	660	810	994
Number of Hospitalized Ever-Users	870	96	124	135	259	256
% of Total Hospitalized Ever-Users	100.0	11.0	14.2	15.5	29.7	29.4
Total Hospital Days	36,160	3,657	5,026	5,403	8,288	13,786
% of Total Hospital Days	100.0	10.1	13.9	14.9	22.9	38.1
Average Hospital Days per Person Hospitalized	41.6	38.1	40.5	40.0	32.0	53.8
Hospitalization Rate						
/1000 Population	3.5	1.9	2.3	2.8	5.5	5.5
/1000 Ever-Users	239.6	171.4	204.2	204.5	319.7	257.5
Hospital Days						
/1000 Population	147	73	95	111	177	298
/1000 Ever-Users	9,958	6,530	8,280	8,186	10,232	13,869

Among rural adults, 75.4% of bed days for acute care were provided in PMHI, while among the elderly 59.4% of days were provided on general hospital services.

PMHI provided an insignificant amount of acute care to patients with non-psychotic mental health disorders, with the exception of non-Winnipeg adults, where 15.7% of hospitalizations and 47.5% of bed days were provided by PMHI. The general pattern of care for Winnipeg adults with non-psychotic disorder was similar to that for psychotic disorder, with 69.5% of bed days provided by hospital psychiatric services. For non-Winnipeg residents, general hospital services were the sites of a majority of hospitalizations (adults, 65.3%; elderly, 91.0%) and the large majority of bed days used by the elderly (80.6%).

Hospital Utilization by Income Quintile for Urban Residents

Tables B.5 to B.7 examine patterns of acute care hospital utilization for urban adults, stratified by neighbourhood income quintile and gender. Urban males aged 18-64 in treatment for a psychotic disorder had a hospitalization rate of 217/1000 persons in treatment, marginally lower than the female hospitalization rate of 239/1000 (TABLE B.5). When stratified by income quintile, both males and females with psychotic disorder in the poorest 20% of the population had a hospitalization rate approximately 1.5 times greater than persons with psychotic disorder in the wealthiest 20% of the population. The average length of stay for urban males with psychotic disorder was 48.8 days, higher than the female mean length of stay of 41.6 days. There were no substantial differences in lengths of stay for males or females in relation to income quintile, with the exception of hospitalized women in the poorest income quintile.

As reported previously in Section A, psychotic disorder is concentrated in the poorest urban populations. Of the 3,156 adult urban males in treatment for a psychotic disorder, 37.7% were members of the poorest income quintile (TABLE B.5). This group was responsible for 40.7% of all hospitalizations of urban adult males with psychotic disorder, and used 44.5% of all hospital days. The prevalence of psychotic disorder was less concentrated in the poorest income quintile in the case of adult urban women, where 27% of all women in treatment were

Table B.6

Acute Care Hospital Utilization For Non-psychotic Mental Health Disorders By Income Quintile, Adult (18-64) Urban Residents

Long-term admissions to Provincial Mental Health Institutions, admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Income Quintile				
	Total	Q5 Highest	Q4	Q3	Q2	Q1 Lowest
Males (age 18-64)						
Population	241,745	49,313	52,306	47,063	45,252	47,811
Number of Ever-Users	18,974	3,148	3,398	3,334	3,448	5,646
Number of Hospitalized Ever-Users	303	33	32	44	70	124
% of Total Hospitalized Ever-Users	100.0	10.9	10.6	14.5	23.1	40.9
Total Hospital Days	3,298	279	405	483	836	1,295
% of Total Hospital Days	100.0	8.4	12.3	14.6	25.3	39.3
Average Hospital Days per Person Hospitalized	10.9	8.5	12.7	11.0	11.9	10.4
Hospitalization Rate						
/1000 Population	1.3	0.7	0.6	0.9	1.5	2.6
/1000 Ever-Users	15.9	10.4	9.4	13.2	20.3	22.0
Hospital Days						
/1000 Population	13.6	5.7	7.7	10.2	18.5	27.1
/1000 Ever-Users	173.8	88.6	119.1	144.8	242.4	229.4
Females (age 18-64)						
Population	245,280	50,058	53,477	48,740	46,709	46,296
Number of Ever-Users	31,559	5,694	6,276	6,351	6,484	6,754
Number of Hospitalized Ever-Users	343	41	49	68	55	130
% of Total Hospitalized Ever-Users	100.0	11.9	14.3	19.8	16.0	37.9
Total Hospital Days	5,292	645	747	679	867	2,354
% of Total Hospital Days	100.0	12.1	14.1	12.8	16.4	44.5
Average Hospital Days per Person Hospitalized	15.1	15.7	15.2	10.0	15.7	18.1
Hospitalization Rate						
/1000 Population	1.4	0.8	0.9	1.4	1.2	2.8
/1000 Ever-Users	10.8	7.2	7.8	10.7	8.5	19.2
Hospital Days						
/1000 Population	21.6	12.9	14.0	13.9	18.5	50.9
/1000 Ever-Users	167.6	113.2	119.0	106.9	133.7	348.5

members of the poorest income quintile. Women in the poorest income quintile were responsible for 29.4% of hospitalizations and 38.1% of all hospital days.

There was no relationship between income quintile and length of stay among hospitalized males and females with non-psychotic disorder (TABLE B.6). As with psychotic disorder, women were marginally more likely to be hospitalized. In contrast to the psychotic disorder group, however, the average length of stay for women with non-psychotic disorder was longer than for men: 15.1 vs 10.9 days.

Paralleling the pattern among the psychotic disorder group, both men and women in treatment for non-psychotic disorder were more likely to be hospitalized if they resided in the poorest 20% of neighbourhoods. Males with non-psychotic disorder in the poorest quintile utilized approximately 2.5 times the number of hospital days (229 vs 88.6 days per 1,000 persons in treatment), and the poorest women used three times the number of days (348 vs 113 days per 1,000 persons in treatment) compared to males and females in the wealthiest quintile.

These patterns were replicated in the hospital utilization profile of urban adult males and females with other mental health disorders (TABLE B.7).

Table B.7

Acute Care Hospital Utilization For Other Mental Health Disorders By Income Quintile, Adult (18-64) Urban Residents

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Income Quintile				
	Total	Q5 Highest	Q4	Q3	Q2	Q1 Lowest
Males (age 18-64)						
Population	241,745	49,313	52,306	47,063	45,252	47,811
Number of Ever-Users	3,236	429	471	551	692	1,093
Number of Hospitalized Ever-Users	218	16	24	28	45	105
% of Total Hospitalized Ever-Users	100.0	7.3	11.0	12.8	20.6	48.2
Total Hospital Days	2,416	80	268	165	1,012	891
% of Total Hospital Days	100.0	3.3	11.1	6.8	41.9	36.9
Average Hospital Days per Person Hospitalized	11.1	5.0	11.2	5.9	22.5	8.5
Hospitalization Rate						
/1000 Population	0.9	0.3	0.5	0.6	1.0	2.2
/1000 Ever-Users	67.3	37.3	50.9	50.8	65.0	96.1
Hospital Days						
/1000 Population	10.0	1.6	5.1	3.5	22.3	18.7
/1000 Ever-Users	746.6	186.4	569.0	299.4	1,462.4	815.2
Females (age 18-64)						
Population	245,280	50,058	53,477	48,740	46,709	46,296
Number of Ever-Users	1,837	274	333	286	381	563
Number of Hospitalized Ever-Users	93	4	10	15	20	44
% of Total Hospitalized Ever-Users	100.0	4.3	10.7	16.1	21.5	47.3
Total Hospital Days	744	10	114	79	220	321
% of Total Hospital Days	100.0	1.3	15.3	10.6	29.6	43.1
Average Hospital Days per Person Hospitalized	8.0	2.5	11.4	5.3	11.0	7.3
Hospitalization Rate						
/1000 Population	0.4	0.1	0.2	0.3	0.4	0.9
/1000 Ever-Users	50.6	14.6	30.0	52.4	52.5	78.1
Hospital Days						
/1000 Population	3.0	0.2	2.1	1.6	4.7	6.9
/1000 Ever-Users	405.0	36.5	342.3	276.2	577.4	570.0

Section C:
Utilization of Physician Services

This section describes the use of physician services for mental health care during FY91/92, emphasizing differences in patterns of care in relation to patient diagnostic status, region of residence and the location of care (whether ambulatory or inpatient). As in our description of hospital utilization, this section also provides an analysis of the use of physician services by urban adults in treatment for mental health disorder in relation to neighbourhood income rank.

Physician services provided on a fee-for-service basis are described by the specialty of the provider, the type of therapy provided, and the frequency or intensity of therapeutic encounters. Additional analyses of relevance to the understanding of physician services are presented in Section F, which discusses estimates of expenditure on insured mental health services.

This section has excluded services provided by salaried physicians working within the Provincial Mental Health Institutions (PMHIs). Inpatient contacts are not reported in the MHMIS in a form compatible with the units of service available in the MHSIP data. Outpatient contacts provided by staff based in PMHI or community mental health centres are reported in MHMIS, but have been excluded in this report because of incomplete reporting for FY91/92. The effect of these exclusions will be to underestimate physician mental health services in some areas of Manitoba, particularly Central, Interlake and Westman regions. The magnitude of this underestimation is thought to be small. Across disorder categories, estimates of ambulatory contacts for non-Winnipeg residents are only substantially increased among adult psychotics (from 495.4 to 611.0 visits /100 patients, APPENDIX TABLE C.8) and elderly psychotics (from 350.6 to 382.5 visits /100 patients) when MHMIS data is included.

Utilization of Physician Services by Location of Care

Across all categories of disorder, adults had higher rates of ambulatory utilization for mental health care than the elderly. Adults with psychotic and non-psychotic disorder (64% of all persons in treatment for mental health disorder) used approximately 75% of total ambulatory mental health services. Persons in treatment for psychotic disorders in FY91/92 had the

Table C.1
Physician Utilization for Mental Health Disorders (1)
By Mental Health Category
Manitoba, FY91/92

		Ambulatory Care					Inpatient Care				
	N	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents
Ever-Users	116,088	9.34	91.8	3.5	32.5	1,296.30	0.71	6.9	21.6	15.2	302.60
Pediatric (0-17)	9,520	0.75	89.3	2.1	1.6	74.10	0.09	11.1	8.7	0.8	28.00
Adult (18-64)											
Psychotic	8,791	0.69	89.3	9.0	6.2	275.50	0.17	21.5	43.3	7.2	154.80
Non-Psychotic	65,502	5.64	98.2	3.2	18.1	781.60	0.13	2.2	7.9	1.0	30.00
Other	7,526	0.45	68.4	1.8	0.8	25.10	0.04	6.2	4.4	0.2	3.50
Elderly (65+)											
Psychotic	7,431	0.51	78.3	5.2	2.7	66.10	0.18	28.1	27.6	5.0	71.00
Non-Psychotic	14,104	1.15	93.2	2.3	2.6	63.50	0.07	5.4	9.0	0.6	10.70
Other	3,214	0.15	53.3	4.1	0.6	10.30	0.03	11.3	13.1	0.4	4.60

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

highest visit frequencies (nine visits per year for adults and 5.2 per year for the elderly, TABLE C.1).

Among all persons in treatment for mental health disorder, inpatient visits constituted 32% of total mental health utilization (15.2 inpatient visits per 100 residents / 15.2 inpatient + 32.5 ambulatory visits per 100 residents, TABLE C.1) and 19% of total expenditures on physician services. Approximately 75% of all inpatient physician services were provided in the treatment of adult and elderly individuals with psychotic disorders, and the majority of all physician contacts with individuals in the psychotic category occurred during a hospitalization. Of persons admitted to hospital for treatment of psychotic disorder, adults received many more inpatient visits per year (43.3) than the elderly (27.6).

Utilization of Physician Services by Provider Specialty and Therapeutic Treatment

Table C.2 describes the use of physician services classified by provider specialty and type of therapy. While only psychiatrists may bill for services under tariffs indicating psychiatric care, all physicians are eligible to claim for reimbursement of care under a set of psychotherapy tariffs (see Methods section for definition of therapeutic tariffs). In ambulatory settings, general practitioners provided services to approximately 80% of mental health users, and in so doing provided more than one half of all physician visits for mental health care. The large majority of these services were for unspecified therapy. Only 15.8% of persons in outpatient treatment for a mental health disorder received care billed under a psychotherapy tariff and over 80% of these outpatient psychotherapy visits were provided by psychiatrists. Because of the greater encounter frequency in this therapeutic modality, psychiatric psychotherapy represented 51% of total expenditures on ambulatory physician services for mental health care.

Of the 6.9% of persons with mental health disorder who were hospitalized, fewer than 20% received psychotherapy during the inpatient period, although a somewhat larger percentage (24.6%) received psychiatric care (by a psychiatrist) (TABLE C.2). The average number of visits per patient was higher for non-psychotherapy than for psychotherapy contacts,

Table C.2
Physician Utilization for Mental Health Disorders (1)
By Physician Specialty and Billing Tariff
Manitoba, FY91/92

	Ambulatory Care					Inpatient Care				
	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents
Ever-Users	9.34	91.8	3.5	32.5	1,296.30	0.71	6.9	21.6	15.2	302.60
General Practitioners										
Psychotherapy	0.67	6.6	2.5	1.6	67.20	0.01	0.1	5.3	0.0	1.80
Other	7.60	83.3	2.3	17.4	298.10	0.32	3.1	12.8	4.0	37.20
Other										
Psychotherapy	0.06	0.6	3.5	0.2	9.10	0.01	0.0	2.6	0.0	0.40
Other	0.78	7.6	1.3	1.0	37.20	0.20	2.0	6.3	1.3	23.20
Psychiatrists										
Psychotherapy	0.88	8.6	9.1	8.0	664.20	0.12	1.2	7.0	0.9	70.20
Psychiatric Care	0.54	5.3	4.1	2.2	102.30	0.17	1.7	11.3	1.9	81.30
ECT	-	-	-	-	-	0.01	0.1	7.5	0.1	2.00
Other	0.83	8.1	2.6	2.1	118.50	0.27	2.6	26.3	7.0	87.00

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

regardless of physician specialty. Care provided by psychiatrists constituted two-thirds of the total inpatient utilization of mental health services and just less than 80% of total expenditures.

Tables C.3 and C.4 report total physician services for the treatment of mental health disorder. Table C.5 provides further details on the provision of physician services in the ambulatory and inpatient treatment of mental health disorder. In ambulatory settings, general practitioners provide care to a substantial proportion of persons in treatment for mental health disorder, ranging from 45.1% of pediatric patients to 87.4% of adult non-psychotics. In contrast, psychiatrists provided ambulatory care to less than 15% of persons in treatment, with the exception of adult psychotics, of whom 51.6% were in ambulatory contact with a psychiatrist in FY91/92. Psychiatry is distinctive for the higher intensity of care (measured by visits per patient) provided adults relative to the elderly in ambulatory settings.

Inpatient care of adult psychotics was dominated by psychiatrists, who provided care to approximately twice the number of patients in this category as did general practitioners (16.5% of ever-users vs 8.4%, TABLE C.5) and with far greater intensity per patient (51.4 inpatient visits per patient vs 7.6 visits per patient). In contrast, psychiatry played a smaller role in the provision of hospital-based care to the elderly.

Utilization of Physician Services by Patient Diagnostic Status

Child/Adolescent Disorder: Over 89% of the children diagnosed with a mental health disorder received ambulatory mental health care (APPENDIX TABLE C.1). The majority saw a general practitioner or a physician specialist other than a psychiatrist. The 15.2% of children who saw a psychiatrist, however, accounted for 65% ($48.20/$74.10) of ambulatory expenditures. In contrast, psychiatrists provided the large majority of inpatient care for children in treatment for mental health disorder: psychiatrists provided 81% of inpatient pediatric visits (TABLE C.6).

Adult Psychotic Disorder: Over half the physician services provided to adults diagnosed with a psychotic disorder occurred during hospitalization (TABLE C.6, APPENDIX TABLE C.2). As

Table C.3

Total Ambulatory Physician Visits for Mental Health Disorders (1) By Physician Specialty, Type of Therapy and Visit Intensity Group FY91/92

	Child/ Adolescent	Adult: Psychotic	Adult: Non-Psychotic	Adult: Other	Elderly: Psychotic	Elderly: Non-Psychotic	Elderly: Other	Total	Total Ambulatory and Inpatient
Total Visits	18,155	70,414	206,652	9,039	30,242	29,613	7,092	371,207	544,707
(%)	(3)	(13)	(38)	(2)	(6)	(5)	(1)	(68)	(100)
Physician Specialty									
GPs	5,921	28,221	120,575	6,925	24,107	24,221	6,582	216,552	262,993
Other	4,800	764	4,185	895	1,644	1,491	72	13,851	27,114
Psychiatrists	7,434	41,429	81,892	1,219	4,491	3,901	438	140,804	254,600
Type of Therapy									
Psychotherapy	7,764	21,159	78,538	1,260	1,347	2,273	35	112,376	122,773
Psychiatric Care	337	11,772	9,612	165	1,885	1,204	8	24,983	47,004
ECT	-	0	0	-	0	0	-	0	862
Other	10,054	37,483	118,502	7,614	27,010	26,136	7,049	233,848	374,068
Ambulatory Visit Intensity									
0 visits (2)	0	0	0	0	0	0	0	0	28,177
1-7 visits	12,120	15,949	107,273	7,236	11,953	22,269	2,599	179,399	254,959
8-14 visits	2,218	16,471	29,894	698	7,355	4,640	1,657	62,933	95,670
15+ visits	3,817	37,994	69,485	1,105	10,934	2,704	2,836	128,875	165,901
Location of Care									
Out:not Wpg	355	1,348	4,900	521	872	636	235	8,867	11,716
In region	15,647	64,192	188,002	7,765	28,546	27,787	6,755	338,694	496,498
Out:Wpg	2,153	4,874	13,750	753	824	1,190	102	23,646	36,493

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

(2) Ever-users not seen by a physician for treatment of mental health disorders in ambulatory settings have been classified to "0 visits".

Table C.4

Total Inpatient Physician Visits for Mental Health Disorders (1) By Physician Specialty, Type of Therapy and Visit Intensity Group FY91/92

	Child/ Adolescent	Adult: Psychotic	Adult: Non-Psychotic	Adult: Other	Elderly: Psychotic	Elderly: Non-Psychotic	Elderly: Other	Total	Total Ambulatory and Inpatient
Total Visits	9,174	81,786	11,301	2,060	57,623	6,822	4,734	173,500	544,707
(%)	(2)	(15)	(2)	(0)	(11)	(1)	(1)	(32)	(100)
Physician Specialty									
GPs	432	5,620	3,044	1,493	28,590	3,848	3,414	46,441	262,993
Other	1,278	1,422	349	415	9,024	703	72	13,263	27,114
Psychiatrists	7,464	74,744	7,908	152	20,009	2,271	1,248	113,796	254,600
Type of Therapy									
Psychotherapy	1,928	5,544	1,692	72	1,004	156	1	10,397	122,773
Psychiatric Care	910	15,222	1,154	35	4,285	406	9	22,021	47,004
ECT	-	511	9	-	319	23	-	862	862
Other	6,336	60,509	8,446	1,953	52,015	6,237	4,724	140,220	374,068
Ambulatory Visit Intensity									
0 visits (2)	1,252	5,785	1,068	830	13,936	2,232	3,074	28,177	28,177
1-7 visits	4,868	28,559	4,721	1,172	31,682	3,005	1,553	75,560	254,959
8-14 visits	1,807	19,789	2,340	37	7,408	1,260	96	32,737	95,670
15+ visits	1,247	27,653	3,172	21	4,597	325	11	37,026	165,901
Location of Care									
Out:not Wpg	42	446	378	334	1301	265	83	2,849	11,716
In region	7,219	73,749	9,972	1,607	54,649	6,200	4,408	157,804	496,498
Out:Wpg	1,913	7,591	951	119	1,673	357	243	12,847	36,493

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

(2) Ever-users not seen by a physician for treatment of mental health disorders in ambulatory settings have been classified to "0 visits".

Table C.5
Ambulatory and Inpatient Mental Health Services
By Source of Physician Care

% columns do not sum to 100% because patients may see multiple providers.

		Pediatric	Adult Psychotic	Adult Non-Psychotic	Adult Other	Elderly Psychotic	Elderly Non-Psychotic	Elderly Other
Ever-Users	N	9,520	8,791	65,502	7,526	7,431	14,104	3,214
Source of Ambulatory Care								
General Practitioner	% of Ever-Users	45.1	66.8	87.4	59.0	66.7	82.8	45.1
	Visits per Patient	1.4	4.8	2.1	1.6	4.9	2.1	4.5
Other	% of Ever-Users	37.1	4.9	4.0	6.9	12.7	7.6	1.3
	Visits per Patient	1.4	1.8	1.6	1.7	1.7	1.4	1.8
Psychiatrist	% of Ever-Users	15.2	51.6	14.0	4.2	14.3	6.9	7.8
	Visits per Patient	5.1	9.1	9.0	3.8	4.2	4.0	1.7
Source of Inpatient Care								
General Practitioner	% of Ever-Users	1.2	8.4	1.0	4.0	16.2	2.9	5.5
	Visits per Patient	3.7	7.6	4.5	5.0	23.7	9.6	19.2
Other	% of Ever-Users	8.2	2.0	0.3	1.7	10.1	1.0	1.5
	Visits per Patient	1.6	8.1	2.0	3.3	12.1	4.8	1.5
Psychiatrist	% of Ever-Users	2.4	16.5	1.0	0.7	9.0	1.9	4.8
	Visits per Patient	32.3	51.4	11.6	3.0	29.9	8.6	8.0

Table C.6
Ambulatory and Inpatient Mental Health Services by Physician Specialty and Type of Therapy

		Pediatric	Adult Psychotic	Adult Non-Psychotic	Adult Other	Elderly Psychotic	Elderly Non-Psychotic	Elderly Other
Ever-Users N		9,520	8,791	65,502	7,526	7,431	14,104	3,214
		visits	visits	visits	visits	visits	visits	visits
Ambulatory Care								
Psychotherapy	Psychiatrists	6,486	17,489	64,255	884	994	1,301	23
	GP/Other	1,298	3,676	14,404	376	379	975	12
Psychiatric Care	Psychiatrists	337	11,772	9,612	165	1,885	1,204	8
	GP/Other	39	7	3	0	6	0	0
Other Therapy	Psychiatrists	611	12,168	8,024	170	1,612	1,396	41
	GP/Other	9,447	25,331	110,530	7,450	25,409	24,750	7,010
Total	Psychiatrists	7,434	41,429	81,891	1,219	4,491	3,901	72
	GP/Other	10,784	29,014	124,937	7,826	25,794	25,725	7,022
Inpatient Care								
Psychotherapy	Psychiatrists	1,833	5,195	1,605	56	982	152	1
	GP/Other	95	349	88	16	22	4	0
Psychiatric Care	Psychiatrists	910	15,222	1,154	35	4,285	406	9
	GP/Other	0	0	0	0	0	0	0
Other Therapy	Psychiatrists	4,721	54,327	5,150	61	14,742	1,713	62
	GP/Other	1,615	6,693	3,305	1,892	37,592	4,547	4,632
Total	Psychiatrists	7,464	74,744	7,909	152	20,009	2,271	72
	GP/Other	1,710	7,042	3,393	1,908	37,614	4,551	4,632

Figure C.1

Use of Ambulatory and Hospital Care
Adult Psychotic Disorder

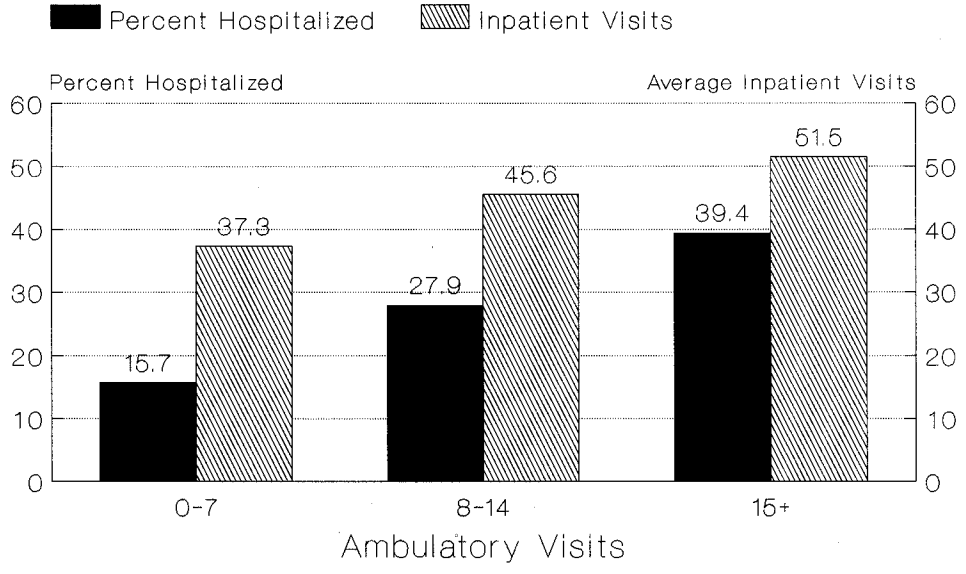
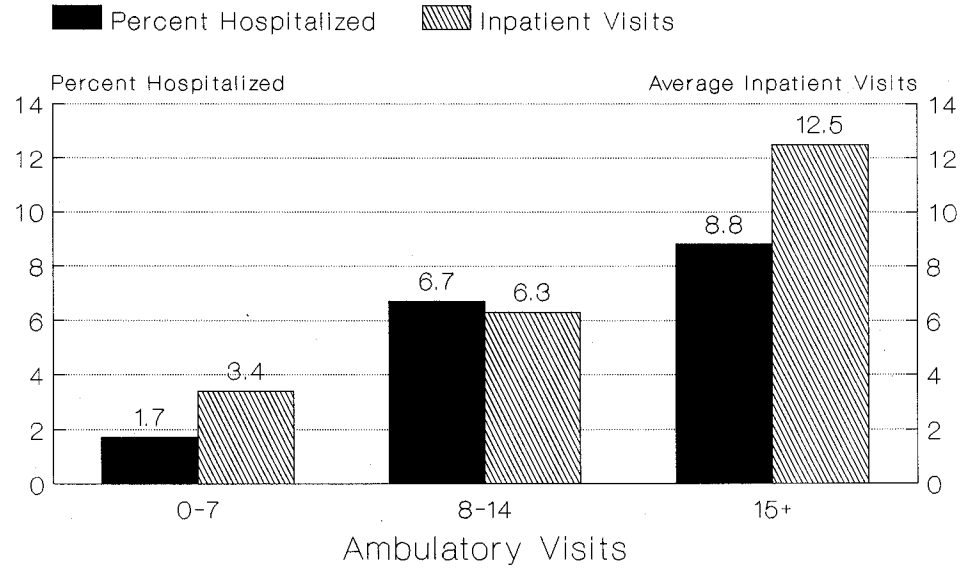


Figure C.2

Use of Ambulatory and Hospital Care
Adult Non-Psychotic Disorder



noted earlier, the majority of care in both ambulatory and inpatient settings was delivered by psychiatrists when measured by volume of visits. At the same time, only 51.6% of adult psychotic patients had one or more ambulatory contacts with a psychiatrist, compared to 66.8% who had one or more contacts with other physicians (TABLE C.5). Among psychotic adults in treatment, the 15.5% who made 15 or more visits per year accounted for 59% of ambulatory expenditures and 38% of inpatient expenditures (APPENDIX TABLE C.2).

Figure C.1 classifies adults in treatment for psychotic disorder by the intensity of ambulatory contact and relates the intensity of ambulatory care to the risk of hospital admission. The probability of hospitalization increases with ambulatory visit intensity, suggesting that measures of the utilization of care also indicate severity of disease.

Adult Non-Psychotic Disorder: In ambulatory settings, over 87% of adults in treatment for non-psychotic mental health disorders were treated by general practitioners, compared to less than 15% treated by psychiatrists (TABLE C.5, APPENDIX TABLE C.3). However, given the higher prevalence of non-psychotic disorder, the average psychiatric case-load had two non-psychotic individuals for every psychotic individual (.802/.397). The majority of the $781.73 ambulatory expenditure per 100 residents for this group was to psychiatrists ($559.60) and for billings under the psychotherapy tariff ($525.10, APPENDIX TABLE C.3). As is described in Table C.6, psychiatrists provided the majority of psychotherapy services to this group of patients. Similar to the adult psychotic group, the risk of hospitalization and inpatient visit intensity increased with ambulatory visit intensity (FIGURE C.2).

Elderly Psychotic and Non-Psychotic Disorders: Physician services to the elderly in treatment for mental health disorder differed substantially from the profile of care provided to adults. Fewer elderly in treatment for psychotic disorder saw a psychiatrist (14% vs 51% of adults), received care under the psychotherapy tariff (5.7% vs 33.8%), or received 15 or more visits per year (5.9% vs 15.5%; APPENDIX TABLES C.5-C.2). In both ambulatory and inpatient settings, most of the care was delivered by general practitioners and ranged between one and seven ambulatory visits a year. This pattern was similar for elderly in treatment for non-psychotic disorder (APPENDIX TABLE C.6).

Table C.7
Utilization of Physician Services for Mental Health Disorders
By Region and Diagnostic Status

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Manitoba
Pediatric										
Visits /100 Ever-users	283.6	219.7	183.3	315.2	254.9	163.5	161.9	337.0	222.2	287.5
Percent Ambulatory	56.2	76.4	84.6	45.8	56.2	62.5	91.6	64.5	68.7	66.6
Adult Psychotic										
Visits /100 Ever-users	591.4	1,429.6	856.9	1090.3	1,005.4	963.5	660.0	2,171.8	858.6	1,738.3
Percent Ambulatory	55.0	44.9	57.5	64.4	63.1	50.0	73.3	43.8	57.6	46.2
Adult Non-Psychotic										
Visits /100 Ever-users	216.1	244.1	263.1	291.5	229.1	312.5	231.5	381.1	247.7	33.25
Percent Ambulatory	95.2	95.1	94.6	95.1	93.8	94.9	93.3	95.0	94.2	94.7
Adult Other										
Visits /100 Ever-users	111.8	185.6	145.7	126.2	173.3	48.8	159.8	175.0	99.7	151.5
Percent Ambulatory	75.0	66.6	75.0	66.6	57.1	73.3	71.4	90.8	71.4	80.0
Elderly Psychotic										
Visits /100 Ever-users	653.9	968.3	648.8	1,142.6	883.6	843.1	957.4	1,404.0	860.6	1,181.7
Percent Ambulatory	38.2	38.2	42.8	34.2	33.3	16.6	44.6	31.9	40.7	35.0
Elderly Non-Psychotic										
Visits /100 Ever-users	226.7	249.1	229.8	312.0	232.5	241.7	258.7	273.0	243.2	258.7
Percent Ambulatory	81.4	78.6	81.5	61.9	78.0	80.0	83.3	81.8	80.6	81.2
Elderly Other										
Visits /100 Ever-users	143.9	453.5	329.9	721.0	460.4	195.5	281.4	381.1	337.3	354.8
Percent Ambulatory	33.3	77.7	40.0	7.7	37.5	0.0	57.1	66.6	49.9	60.0

The very different set of disorders constituting the profiles of adult and elderly psychotics needs to be emphasized when interpreting the finding of the report. In this study, we have reported a treatment prevalence of psychotic disorder in elderly adults (age 65+) of 51.8/1,000, which is 3.5 times greater than the rate reported for adults 18-64 (14.1/1,000, APPENDIX TABLES B.1, B.4). This profile contradicts clinical understanding of these disorders as primarily adult onset illnesses which decline in severity in older age and may frequently present as clinically dormant in the elderly. The high prevalence of elderly psychotic disorder in this report is attributable almost entirely to the reporting of disorder in the category of Other Nonorganic Psychoses (ICD-9-CM 298, APPENDIX TABLE A.2). These diagnoses may be recorded as a condition secondary to dementia and cognitive impairment. Approximately 40% of the elderly individuals in treatment for psychotic disorder were resident in personal care homes, and much of the emphasis on care focuses on resolving behavioral problems associated with intractable cognitive decline.

Regional Utilization of Physician Mental Health Services

This section describes similarities and differences across regions in the use of physician services for mental health care. Detailed regional descriptions of utilization patterns for each disorder category are provided in Appendix Tables C9-C15.

The regional utilization of physician services are summarized in Table C.7. The most significant difference in the use of physician services is the consistently higher utilization of physician mental health services by persons in treatment in the Winnipeg region relative to residents of other regions. While this pattern is consistent across all categories of disorder, the largest differences are seen in the care received by adults and elderly in treatment for psychotic disorder (2171.8 vs 858.6 visits per 100 adult psychotics, 1404 vs 860.6 visits per 100 elderly psychotics). In a following section, the report examines differential access to psychiatric specialists as a factor in the higher utilization among Winnipeg residents in treatment for mental health disorder.

In contrast to the pattern seen in most categories of disorder, there was relatively little variation across regions in the average number of visits received by adult and elderly in treatment for non-psychotic disorder. Disorders in this category are the most prevalent of all

Figure C.3

Providers of Ambulatory Mental Health Care By Diagnostic Status

Ambulatory Visits / 100 Ever-Users

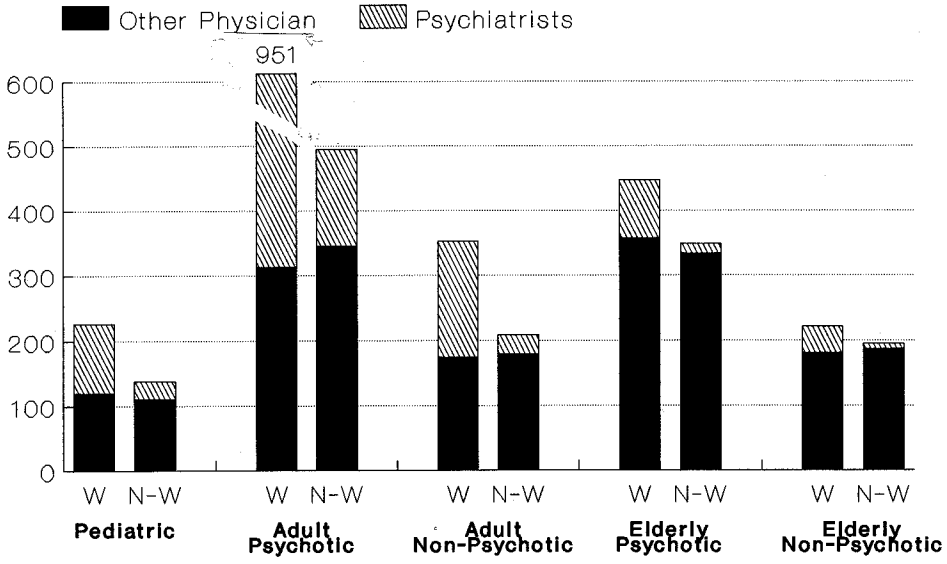
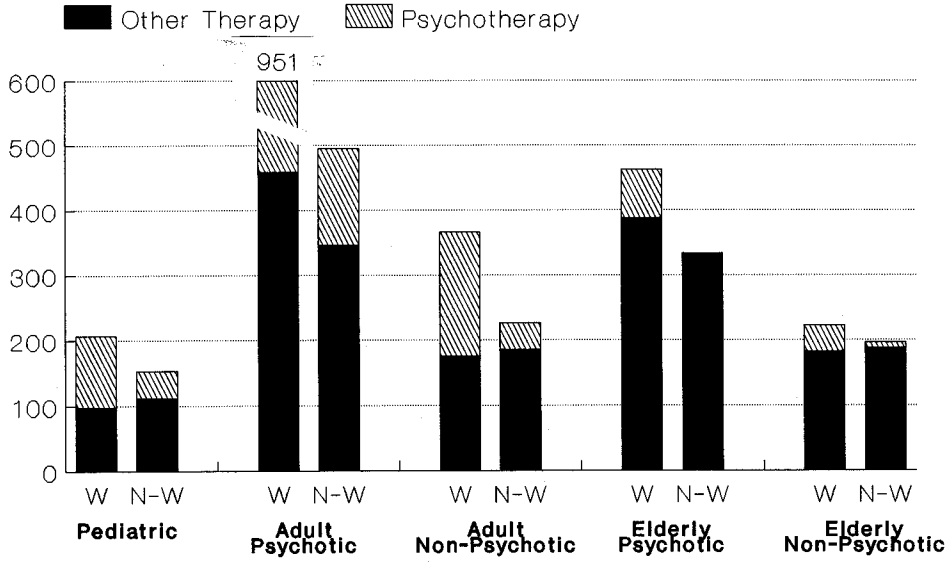


Figure C.4

Type of Mental Health Therapy By Diagnostic Status

Ambulatory Visits / 100 Ever-Users



mental health disorders, and as discussed in Section A, show the least variation in adjusted treatment prevalence across regions.

Physician services provided in the treatment of adult and elderly non-psychotics were predominantly ambulatory (adult: 94.7%, elderly: 81.2%, TABLE C.7), and this pattern was also consistent across regions. The proportion of physician services delivered in ambulatory settings was lower for all other categories of disorder, especially among adult psychotics (46.2%) and elderly psychotics (35.0%).

Among non-Winnipeg regions, persons in treatment in Central region consistently had among the lowest utilization of physician services, and residents of Eastman region had some of the higher utilization rates.

Among the attributes which distinguish mental health care received by Winnipeg residents from that received by residents of other regions are: 1) more frequent provision of psychotherapy, 2) a greater intensity of ambulatory mental health care (which is associated with psychotherapy), and 3) much more intensive physician services provided to both adult and elderly persons in treatment for psychotic disorder. Underlying all of these factors is the practice of psychiatry, which has concentrated the provision of care to residents of the Winnipeg region.

The importance of the behaviour of psychiatrists in explaining the higher utilization of physician services among Winnipeg residents is depicted in Figure C.3. Across the five principal categories of disorder (excluding the two categories of other disorder), the average number of ambulatory visits provided by non-psychiatrists is similar between Winnipeg and non-Winnipeg residents. It is the preferential provision of psychiatric care to Winnipeg residents which accounts for the pattern of substantially higher utilization. These patterns are reflected in Figure C.4, which shows the higher use of psychotherapy, a modality dominated by psychiatrists, among Winnipeg residents.

Table C.8
Physician Utilization
For Non-Psychotic Mental Health Disorders
By Income Quintile, Adult (18-64) Urban Residents

		Income Quintile				
	Total	Q5 Highest	Q4	Q3	Q2	Q1 Lowest
Males (age 18-64)						
Population	241,745	49,313	52,306	47,063	45,252	47,811
Number of Ever-Users	18,974	3,148	3,398	3,334	3,448	5,646
Total Visits	62,573	13,267	11,517	11,326	12,527	13,936
Visits/1000 Population	259	269	220	241	277	291
Visits/1000 Ever-Users	3,298	4,214	3,389	3,397	3,633	2,468
% Distribution of Total Visits						
Inpatient GP/Other	1.2	0.5	0.7	1.0	2.3	1.4
Psychiatrist	2.8	2.7	2.1	3.9	1.3	3.9
Ambulatory GP/Other	53.1	37.8	52.6	52.7	57.7	64.1
Psychiatrist	43.0	58.9	44.7	42.4	38.7	30.6
15+ Visits	25,934	7,467	5,004	4,142	5,025	4,296
Percent of Total Ever-Users	5.0	7.6	5.4	5.0	5.3	3.0
Percent of Total Visits	41.4	56.3	43.4	36.6	40.1	30.8
Females (age 18-64)						
Population	245,280	50,058	53,477	48,740	46,709	46,296
Number of Ever-Users	31,559	5,694	6,276	6,351	6,484	6,754
Total Visits	114,991	24,583	23,419	20,923	23,061	23,005
Visits/1000 Population	469	491	438	429	494	497
Visits/1000 Ever-Users	3,644	4,317	3,732	3,294	3,557	3,406
% Distribution of Total Visits						
Inpatient GP/Other	1.0	0.4	0.8	1.1	1.1	1.6
Psychiatrist	4.6	3.3	5.6	3.3	5.3	5.4
Ambulatory GP/Other	52.0	39.9	48.4	54.8	55.0	62.8
Psychiatrist	42.5	56.5	45.1	40.8	38.6	30.2
15+ Visits	47,986	12,871	10,361	7,669	9,044	8,041
Percent of Total Ever-Users	5.4	7.2	5.2	4.9	5.0	4.7
Percent of Total Visits	41.7	52.4	44.2	36.7	39.2	35.0

Physician Utilization by Income Quintile for Adult Urban Residents

Non-Psychotic Disorder: Table C.8 describes physician utilization by income quintile and gender for urban residents with non-psychotic mental health disorder. Persons residing in areas of the highest income quintile received a greater number of visits per 1000 ever-users than those in the lowest quintile, 71% greater for males and 27% greater for females.

For both men and women in the lowest income quintiles just over 60% of visits were to general practitioners and 30% were to psychiatrists. These proportions were reversed for residents in the highest quintile areas, who received the majority of their care from psychiatrists.

Compared to individuals in the lowest quintiles, over 1.5 as many females and twice as many males in the higher quintile class made 15 or more visits per year. Accordingly there was a tendency for these high visit individuals to account for a greater proportion of total visits in the upper quintiles.

Psychotic Disorder: While the prevalence of psychotic disorder increases with declining income quintile, the number of visits per 1000 ever-users in each quintile was quite constant (TABLE C.9). The proportion of total care received as psychiatric inpatient visits averaged around 51% for both men and women in this category, with little difference across income quintiles. There was a tendency for the proportion of care received as ambulatory psychiatric visits to increase with income, ranging from just under 24% for the lowest quintile to over 35% for the highest quintile for both men and women.

Regardless of income status, approximately 26% of male patients with psychotic disorder made 15 or more visits a year. In contrast, 33% of the women patients in the lowest quintile and 45% of the women patients in the highest quintile made 15 or more visits per year.

Table C.9
Physician Utilization
For Psychotic Mental Health Disorders
By Income Quintile, Adult (18-64) Urban Residents

	Total	Income Quintile Q5 Highest	Q4	Q3	Q2	Q1 Lowest
Males (age 18-64)						
Population	241,745	49,313	52,306	47,063	45,252	47,811
Number of Ever-Users	3,156	395	391	529	650	1,191
Total Visits	57,112	7,727	6,625	10,381	13,030	19,349
Visits/1000 Population	236	157	127	221	288	405
Visits/1000 Ever-Users	18,096	19,562	16,944	19,624	20,046	16,246
% Distribution of Total Visits						
Inpatient GP/Other	4.1	2.7	2.1	5.3	5.5	3.7
Psychiatrist	51.7	49.9	52.7	51.7	50.7	52.7
Ambulatory GP/Other	17.0	12.2	16.5	16.5	16.6	19.8
Psychiatrist	27.2	35.1	28.7	26.4	27.2	23.8
15+ Visits	25,209	3,239	2,949	4,680	6,581	7,760
Percent of Total Ever-Users	26.0	27.3	26.9	28.0	32.5	20.8
Percent of Total Visits	44.1	41.9	44.5	45.1	50.5	40.1
Females (age 18-64)						
Population	245,280	50,058	53,477	48,740	46,709	46,296
Number of Ever-Users	3,631	560	607	660	810	994
Total Visits	76,634	10,862	12,349	14,346	17,011	22,066
Visits/1000 Population	312	217	231	294	364	477
Visits/1000 Ever-Users	21,105	19,396	20,344	21,736	21,001	22,199
% Distribution of Total Visits						
Inpatient GP/Other	3.1	1.8	3.0	2.4	3.7	3.9
Psychiatrist	51.1	43.4	50.4	54.2	50.0	54.0
Ambulatory GP/Other	16.3	15.5	15.0	14.1	17.0	18.4
Psychiatrist	29.5	39.3	31.6	29.3	29.3	23.7
15+ Visits	45,151	8,504	8,083	7,922	8,937	11,705
Percent of Total Ever-Users	36.4	45.0	35.1	33.0	38.1	33.1
Percent of Total Visits	58.9	78.3	65.5	55.2	52.5	53.0

Section D:
Persistence of Intensive Use of Health Services for Mental Health Disorder

Section C included an analysis of the intensity of utilization of physician services in the treatment of mental health disorder. This section extends this analysis, addressing the question of the persistence of intensive use of health services over time among persons in treatment for mental health disorder.

To examine the persistence of mental health care utilization, this section departs from the cross-sectional analysis of a single year of data, by observing individual patient histories of mental health care utilization over a four year period, from April 1988 to March 1992. A cohort of individuals who intensively used health services for the treatment of psychotic or non-psychotic disorder in the first two years of this observation period were followed over the following two year period to determine the proportion of these persons who continued to use services intensively.

A detailed description of the methods of this analysis are presented elsewhere (80). In summary, users of mental health services were identified on the basis of one or more encounters with a physician or one or more hospital admissions which included an ICD-9-CM diagnostic code in the eligible range, and were hierarchically classified as having a psychotic disorder (ICD-9-CM 295-299) or a non-psychotic disorder (ICD-9-CM 300-301, 306-309, 311). Mental health disorders in the categories of organic psychotic conditions, sexual deviations and disorders, alcohol and drug dependence and non-dependent abuse of drugs, disorders due to organic brain damage, pediatric disorders and mental retardation were excluded.

The operational definition of intensive utilization of mental health services combined diagnostic criteria and utilization-based measures of intensity of treatment. Two case definitions were implemented, representing contrasting utilization profiles: frequent therapeutic contact, indicated by 12 or more contact months in the 24 month observation period, and an episode definition, operationalized as a minimum of two episodes of care in the

Table D.1

Comparison of Utilization of Mental Health Services
Intensive vs Non-Intensive Users By Disorder Group
April 1988 - March 1990

	Psychotic Disorders					Non-Psychotic Disorders				
	Intensive Utilization		Non-Intensive Utilization		Total	Intensive Utilization		Non-Intensive Utilization		Total
	N	%	N	%		N	%	N	%	
Persons	5,031	27.4	13,300	72.6	18,331	5,268	4.4	114,644	95.6	119,912
Hospital Care										
Total Hospital Separations(1)	4,625	55.1	3,767	44.9	8,392	801	17.4	3,798	82.6	4,599
Total Hospital Separations(2) Primary DX	3,715	64.7	2,030	35.3	5,745	475	23.6	1,534	76.4	2,009
Annual Separation Rate /1000 persons with Psychotic Disorder (2)	369.2		76.3		156.7	45.1		6.7		16.7
Total Hospital Days(2)	116,861	68.2	54,565	31.8	171,426	7,212	34.1	13,926	65.9	21,138
Average Length of Stay (Days)	31.5		26.8		29.8	15.2		9.1		10.5
Physician Services										
Total Number of Contacts (3)	179,998	70.8	74,090	29.2	254,088	153,372	37.2	259,335	62.8	412,707
Average Annual Contacts	17.8		2.8		13.9	14.5		1.1		3.4
Contacts Provided by Psychiatric Specialists	104,035	78.3	28,781	21.7	132,816	101,552	67.7	48,336	33.3	149,888
Percent of all Physician Contacts By Psychiatric Specialists		57.8		38.8	52.3		66.2		18.6	36.3
Percent of all Physician Contacts During Hospital Stay		46.7		46.9	46.7		7.9		9.0	8.6

(1) Separations with a primary or secondary diagnosis of mental health disorder.
(2) Separations with a primary diagnosis of mental health disorder.
(3) Count of physician services only, excluding diagnostic and laboratory services. Only one contact per physician per day is counted.

24 month period, where an episode was defined as a minimum of three physician contacts in a 60 day period. Episodes were distinguished by a minimum interval of 45 days in which no mental health care was received. Identical utilization criteria were used to define intensive users in both psychotic and non-psychotic disorder groups.

Results

Over the 24 month period April 1, 1988 to March 31, 1990, the prevalence of psychotic and non-psychotic mental health disorder in treatment was 122.1/1000 population. A total of 5,031 persons with a psychotic mental health disorder satisfied one or more of the definitions of intensive user (4.4/1000 population), representing 27.4% of all persons in treatment with psychotic disorder (TABLE D.1). Among persons in treatment for non-psychotic disorder, 5,268 persons were defined as intensive users of medical services (4.6/1000 population), representing 4.4% of all persons in treatment for non-psychotic disorder. An identical pattern of treatment prevalence by disorder and utilization intensity was observed among all users in the second 24 month observation period, April 1990 to March 1992 (data not shown).

Relative to all users of mental health care, intensive users were more likely to be between the ages 25-54. The gender ratio among intensive users was similar to that of all users.

Utilization of Mental Health Services by Persons with Psychotic Disorder: The cohort of intensive users with psychotic disorder had 179,998 physician contacts for mental health care in the initial two year observation period, totalling 70.8% of all contacts (TABLE D.1). Intensive users with psychotic disorder had an average of 17.8 annual physician contacts, compared to an average of 2.8 contacts in the non-intensive group.

The annual hospital admission rate for intensive users with psychotic disorder, 369.2/1000, was 4.8 times greater than the rate observed among non-intensive users, 76.3/1000. Intensive users were responsible for 64.7% of the 5,745 hospital admissions with a primary diagnosis of psychotic or non-psychotic disorder attributed to patients with psychotic disorder, and 68.2% of the bed days provided during these admissions. Intensive users were responsible for 34.3% of the additional 2,647 admissions which had a psychotic or non-psychotic mental

Table D.2
Two Year Follow-up of
Initial Cohort of Mental Health Service Users

	Initial Cohort Status							
	Psychotic Disorders				Non-Psychotic Disorders			
	Intensive Utilization		Non-Intensive Utilization		Intensive Utilization		Non-Intensive Utilization	
	N	%	N	%	N	%	N	%
Number of Cases in Initial Cohort	5,031		13,300		5,268		114,644	
Status of Cohort at Follow-up								
Lost to Follow-up (1)	431	8.6	975	7.3	247	4.7	2,441	2.1
No Mental Health Utilization	448	8.9	5,288	39.7	716	13.6	69,990	61.0
Psychotic Intensive (2)	**2,064**	**41.0**	1,054	7.9	363	6.9	818	0.7
Psychotic Non-Intensive	1,017	20.2	**3,675**	**27.6**	174	3.3	2,388	2.1
Non-Psychotic Intensive	431	8.6	183	1.4	**1,739**	**33.0**	2,160	1.9
Non-Psychotic Non-Intensive	640	12.7	2,125	16.0	2,029	38.5	**36,847**	**32.1**

(1) Category includes members of the initial cohort who died or migrated from the province after April 1, 1990.

(2) Bold entries indicate number of cases which replicate initial utilization status at follow-up

health diagnosis in other than the primary position. The average length of stay for intensive users was 31.5 days, marginally longer than the mean of 26.8 days observed among non-intensive users.

Relative to the non-intensive group, intensive users received a larger proportion of total physician services from psychiatric specialists. Approximately 57.8% of mental health care encounters by intensive users were provided by psychiatrists, compared to 38.8% of contacts among non-intensive users. A large proportion of total physician services were provided during periods of hospitalization among both intensive users (46.7%) and non-intensive users (46.9%).

Utilization of Mental Health Services by Persons with Non-psychotic Disorder: Intensive users with non-psychotic disorder, constituting only 4.4% of all mental health service users in this category, had a total of 153,372 physician contacts for mental health care, representing 37.2% of all encounters (TABLE D.1). Intensive users had an average of 14.5 annual physician contacts, compared to an average of 1.1 contacts in the non-intensive group.

The annual hospital admission rate for intensive users with non-psychotic mental health disorder, 45.1/1000, was 6.7 times the rate observed among non-intensive users. Intensive users were responsible for 23.6% of the 2,009 hospital admissions with a primary diagnosis of non-psychotic disorder attributed to persons with non-psychotic disorder, and 34.1% of the total of 21,138 bed days. Of the additional 2,590 admissions with a non-psychotic disorder diagnosis in other than the primary position, 12.5% were attributed to intensive users. The average length of stay for intensive users, 15.2 days, was approximately 70% longer than the mean stay observed among non-intensive users.

Psychiatrists provided 66.2% of all medical services to intensive users, compared to 18.6% of contacts among non-intensive users. In contrast to users with psychotic disorder, a minority of total physician services were provided to users with non-psychotic disorder during hospital stays among both intensive users (7.9%) and non-intensive users (9.0%).

Table D.3
Four Year Utilization of Mental Health Services
By Initial Cohort of Intensive Users

	Utilization in Initial Two Year Period		Utilization in Follow-up Two Year Period (1)		Total Four Year Utilization	
	N	% of Total	N	% of Total	N	% of Total
Initial Cohort of Intensive Users:						
with Psychotic Disorder	5,031	3.6	4,152	2.9	5,031	2.3
with Non-Psychotic Disorder	5,268	3.8	4,305	3.0	5,268	2.4
Total Users of Mental Health Services	138,583	100.0	141,673	100.0	222,549	100.0
Use of Physician Services						
By Initial Cohort of Intensive Users:						
with Psychotic Disorder	179,998	30.0	119,164	16.8	299,162	21.8
with Non-Psychotic Disorder	153,372	23.0	101,468	14.3	254,840	18.5
Total Use of Physician Services	666,795	100.0	707,614	100.0	1,374,409	100.0
Use of Psychiatric Specialists						
By Initial Cohort of Intensive Users						
with Psychotic Disorder	104,035	36.8	74,969	23.9	179,004	30.0
with Non-Psychotic Disorder	101,552	35.9	71,099	22.7	172,651	28.9
Total Use of Psychiatric Specialist Services	282,704	100.0	313,309	100.0	596,013	100.0
Use of Hospital Days						
By Initial Cohort of Intensive Users						
with Psychotic Disorder	116,861	60.7	69,713	34.4	186,574	47.2
with Non-Psychotic Disorder	7,212	3.7	8,582	4.2	15,794	4.0
Total Use of Hospital Days	192,564	100.0	202,723	100.0	395,287	100.0

(1) All patients in initial cohort of intensive users who used any mental health services in follow-up period.

Persistence of Intensive Use: The utilization profile of the initial cohort of users of mental health services over the second 24 month interval, from April 1990 through March 1992, is reported in Table D.2. The persistence of intensive use was high among both the psychotic and the non-psychotic disorder groups. Including persons who crossed disorder groups, fully 49.6% of the psychotic disorder group and 39.9% of the non-psychotic disorder group who were intensive users in the initial period replicated an intensive use profile in the two year follow-up. Among non-intensive users in the initial period, 39.7% of persons with psychotic disorder and 61% of persons with non-psychotic disorder used no mental health services in the follow-up period. In contrast, among intensive users, all but 8.9% of persons with psychotic disorder and 13.6% of persons with non-psychotic disorder in the initial period used some mental health services in the follow-up period.

Table D.3 summarizes the mental health service utilization of intensive users over the complete 48 month period. Intensive users with psychotic and non-psychotic disorder, 4.7% of all users of mental health services in this period, were responsible for 40.3% of all physician services, 58.9% of services provided by psychiatric specialists and 51.2% of all acute care hospital bed days. While the total mental health service utilization of intensive users in the follow-up period declined relative to the initial observation period, the cohort of intensive users continued to use services in the follow-up period at frequencies four to six times greater than non-intensive users.

Summary

The results of this study demonstrate substantial persistence of intensive mental health service use over a four year period. Of the group of intensive users in the initial two year period, fully 44.6% were found to replicate an intensive use status in the subsequent two year follow-up period (TABLE D.2). The initial cohort of intensive users, comprising less than 5% of all persons in treatment for mental health disorder over the four year period, used a majority of both acute care psychiatric bed days and physician services provided by psychiatric specialists (TABLE D.3).

The significant resources devoted to this group on a recurrent basis argues strongly for detailed investigations of therapeutic options which may simultaneously lead to improved mental health outcomes and reduced expenditures. Furthermore, it is important to recognize that 50% of intensive users had disorders which are typically not included in the definition of severe mental disorders. Reform initiatives focused on the mechanisms of access and structure of mental health services must acknowledge the presence of a group of patients with serious and persistent non-psychotic disorder. This group appears to be equal in size to the population of patients with chronic severe mental illness. These issues will be revisited in the discussion section of this report.

SECTION E:
Monitoring the Impact of Mental Health Reform

Reform of mental health services in the province has been underway for a number of years, focused on a redefinition of the role of the provincial mental health institutions and expanded regional community mental health centres. In FY93/94, a major reduction (25%) in the supply of acute care psychiatric beds in Winnipeg was implemented, in parallel with an expansion of community-based services.

This section of the report describes a number of opportunities for monitoring the impact of the reduction in psychiatric bed supply in Winnipeg using computerized administrative records of the health care system. We present a framework for both anticipating and describing impacts in two domains of interest: a) on the utilization of mental health services in the hospital sector and in the fee-for-service medical sector, and b) briefly, on the health status of persons with mental health disorder.

Monitoring Impacts on Utilization of Mental Health Services

Hypothetically, a 25% reduction in the supply of psychiatric beds in Winnipeg, without adjustment to lengths of stay, would result in a 25% reduction in the number of admissions. It is also conceivable, at the opposite extreme, that the therapeutic response to the reduced bed supply will be to reduce the average length of stay by 25% and maintain the number of admissions at the pre-reduction level.

The reduction in acute care psychiatric beds in Winnipeg will have the greatest impact on the care of Winnipeg adults with psychotic disorder. This group of patients was responsible for 45% of total acute psychiatric bed days used by Winnipeg residents in FY91/92 (TABLE E.1). Approximately 90% of all hospital days of care for this group were in acute psychiatric settings, with an average length of stay of 29.1 days. Assuming an unchanged admission rate and no change in length of stay on mental health admissions to non-psychiatric services, projecting a 25% reduction in average length of stay within acute psychiatric services in response to the reduction in psychiatric beds would lead to a reduction of 13,500 acute bed

Table E.1

Predicted Reduction in Hospital Days for Mental Health Disorder Among Winnipeg Residents Following 25% Reduction in Acute Care Psychiatric Beds

	Total Days 91/92	% (1)	Average Length of Stay 91/92	Predicted Length of Stay (2)	Predicted Total Days (3)	Reduction in Total Days	Percent Reduction
Adult (18-64)							
Psychotic Disorder	52,127	90.0	29.1	21.8	40,397	-11,700	22.4
Non-Psychotic Disorder	6,622	69.5	11.7	8.7	5,470	-1,200	18.1
Other Disorder	2,673	83.8	8.6	6.4	2,113	-600	22.4
Total Adult	61,422		23.0	17.5	47,980	-13,500	21.2
Elderly							
Psychotic Disorder	45,569	27.1	76.5	57.3	42,480	-3.100	6.8
Non-Psychotic Disorder	5,161	18.7	48.2	36.1	4,918	-240	4.6
Other Disorder	4,868	2.4	55.3	41.4	4,838	-30	0.6
Total Elderly	55,598		70.3		52,236	-3,370	
Total	117,020					-16,870	14.0

Table E.2

Hospital Separation Rates for Mental Health Disorders Acute Care Psychiatric Beds vs Other Beds Winnipeg Residents, FY91/92

	Ever Users	Separations / 1,000 Ever-Users			
		Psychiatric Beds		Other Beds	
		/1,000	N	/1,000	N
Adult (18-64)					
Psychotic Disorder	5,852	280.7	1,643	17.6	103
Non-Psychotic Disorder	41,600	7.4	310	5.9	246
Other Disorder	4,119	1.0	4	74.0	305
Elderly (65+)					
Psychotic Disorder	4,386	55.2	242	77.5	340
Non-Psychotic Disorder	7,919	3.2	25	10.0	79
Other Disorder	2,063	1.0	2	40.7	84
Total	65,939	33.8	2,226	17.5	1,157

(1) Percent of total days in acute psychiatric services
(2) Predicted length of stay based on 25% reduction in length of stay on psychiatric services
(3) Total days predicted by a 25% rediction in psychiatric bed length of stay and no reduction in non-psychiatric bed length of stay

days for mental health disorder among adult residents of Winnipeg. Fully 80% of this reduction would be experienced in the care of adults with psychotic disorder.

While the FY91/92 average length of stay of elderly patients (65+) with psychotic disorder was more than 2.5 times greater than adult psychotic admissions (76.5 vs 29.1 days), less than 30% of bed days for the elderly were provided by psychiatric services. Accordingly, projecting a 25% reduction in average length of stay on acute psychiatric services would result in a reduction of less than 7% in total bed days for elderly patients with psychotic disorder.

While unlikely, the reduction in psychiatric bed supply may lead to a displacement of psychiatric admissions to other hospital services, an effect which can be monitored. Table E.2 describes the distribution of admissions of Winnipeg residents to acute care psychiatric and non-psychiatric beds for mental health disorders. In FY91/92, 65% of 3,383 admissions were to psychiatric services. If no reduction in length of stay is accomplished in response to the reduction in bed supply, a 25% reduction in acute care psychiatric beds would predict a decrease of 550 annual admissions to these services, and displacement to non-psychiatric services would be indicated by an increase in admission rates on non-psychiatric services.

Furthermore, in monitoring the impact of psychiatric bed reductions, it may be appropriate to describe changes in the frequency of secondary mental health diagnoses on admissions where the primary diagnosis is for disorder other than mental health. Table E.3 describes all hospital separations in FY91/92 for adult Winnipeg residents (age 18-64), classified by the diagnostic category of the principal diagnosis. Of the 2,586 mental health admissions, 951 (36.8%) had one or more additional mental health diagnoses recorded in a secondary position on the separation abstract. Of the 35,776 separations with disorder other than mental health recorded in the principal position, 1,592 (4.4%) also had one or more mental health diagnoses in a secondary position.

Table E.3

Hospital Utilization for Mental Health Disorder FY91/92
Hospital Separtions by Diagnostic Category and Presence of Secondary Diagnoses
Winnipeg Residents, Adults (18-64)

Acute Care Separations, excluding PMHI and extended care admissions

	Total Separations			No Secondary Mental Health Diagnoses			Secondary Mental Health Diagnoses		
	Separations N	Days In Hospital N	Days In Hospital Mean	Separations N	Days In Hospital N	Days In Hospital Mean	Separations N	Days In Hospital N	Days In Hospital Mean
Total	38,362	284,325	7.41	35,819	232,287	6.49	2,543	52,038	20.46
Diagnostic Category									
Infections	328	3,390	10.34	303	2,981	9.84	25	409	16.36
Neoplasms	2,106	21,033	9.99	2,023	19,772	9.77	83	1,261	15.19
Endocrine	384	4,619	12.03	334	4,100	12.28	50	519	10.38
Mental Health	2,586	57,135	22.09	1,635	35,561	21.75	951	21,574	22.69
Nervous System	726	6,750	9.30	670	4,031	6.02	56	2,719	48.55
Circulatory System	2,596	24,282	9.35	2,367	21,338	9.01	229	2,944	12.86
Respiratory System	1,723	9,405	5.46	1,584	7,891	4.98	139	1,514	10.89
Digestive System	4,283	25,746	6.01	4,067	23,530	5.79	216	2,216	10.26
Genitourinary	2,721	14,612	5.37	2,676	14,120	5.28	45	492	10.93
Complication of Pregnancy	13,062	41,446	3.17	12,913	40,921	3.17	149	525	3.52
Disease of Skin	458	4,405	9.62	431	4,040	9.37	27	365	13.52
Injury and Poison	2,770	23,706	8.56	2,372	18,955	7.99	398	4,751	11.94
Supplemental	1,602	29,124	18.18	1,539	18,226	11.84	63	10,898	172.98
Other	3,017	18,672	6.19	2,905	16,821	5.79	112	1,851	16.53

Monitoring Impacts on Physician Mental Health Services

As seen in Section C and above, the majority of care delivered to individuals identified in the psychotic category occurs in an inpatient setting by psychiatrists; individuals with psychotic disorder constitute about one-third of the clientele of the average psychiatrist. From this perspective, the closure of 25% of the acute care psychiatric beds in Winnipeg could have a significant impact on services provided by psychiatrists to this disorder group. Table E.4 shows that hospitalized individuals with a psychotic disorder average 1.37 inpatient visits per day. If all other factors stayed constant, the net outcome of the bed reductions would be to reduce overall inpatient visits to persons with psychotic disorder from 71,407 to 55,348 visits, a drop of over 16,000 visits or about 22%. This would have a corresponding decrease in inpatient expenditures for physician services of about $640,000.

Another response to the bed closures might be an overall increase in inpatient service intensity, raising the average number of visits from 1.37 to 1.77 visits per hospital day, an increase of 0.4 visits per day. Alternately, the psychiatric bed closures might result in the emergence of "compensatory" ambulatory care for the lost inpatient contacts. Assuming equivalence of visits, this would bring the total ambulatory visits to individuals classed with psychotic disorder from 55,685 visits to 71,744 visits, an increase of 28.8%. All of these latter scenarios suggest a net outcome of no change in either physician visits or expenditures for total physician services, a premise supported by the work of Barer and Evans (81,82).

Emergency Department Utilization

Emergency department use by persons with mental health disorder is proposed as an indicator of the effectiveness and coverage of primary mental health services. Specifically, if the primary services available to persons with disorder are difficult to access, either because of restricted hours of operation or because of limited capacity, patients may turn to emergency departments for crisis care. Mental health reform has significantly increased the supply of community-based resources in Winnipeg, while simultaneously reducing the supply of acute care psychiatric beds by 25%. Independently, these two initiatives may be expected to have opposite impacts on the use of urban emergency departments, with increased community-based resources mitigating the need for emergency department utilization.

Table E.4
Predicting the Effect of 25% Reduction in Acute Care Psychiatric Beds on the Utilization of Physician Services

Winnipeg Residents, Adult Psychotic

		Source
Total Bed Days, FY91/92	52,127	(Table B.4)
Total Inpatient Visits	71,407	(Table C.10)
Average Inpatient Visits per Day	1.37	71,407/52,127
Outcome A: No change in Inpatient Visit Intensity		
Predicted Total Bed Days	40,400	(Table E.1)
Predicted Inpatient Visits	55,348	40,400 x 1.37
Total Change in Visits	- 16,059	71,407 - 55,348
Total Change in Expenditures	- $641,557	16,059 x $39.95/Visit
Percent Change	- 22.5%	
Outcome B: Change Inpatient Visit Intensity		
Predicted Total Bed Days	40,400	(Table E.1)
Total Inpatient Visits	71,407	(Table C.10)
Predicted Inpatient Visits per Day	1.77	71,407/40,400
Outcome C: Compensatory Ambulatory Utilization		
Total Ambulatory Visits	55,685	(Table C.10)
Predicted Ambulatory Visits	71,744	55,685 + 16,059
Percent Change	28.8%	

Table E.5

All Cause Utilization of Outpatient/ER Departments In Teaching Hospitals By Mental Health Disorder And Type of Visit Winnipeg Residents

	N ever-users	% of ever-users	Visits per patient	Total Visits	Dollars per 100 residents
Pediatric (0-17)	6,026				
Mental Health Visit		4.1	3.0	743	8.80
Non-Mental Health Visit		8.5	2.0	1,008	5.40
Adult(18-64)					
Psychotic	5,852				
Mental Health Visit		12.3	6.1	4,382	48.60
Non-Mental Health Visit		12.8	2.2	1,623	8.40
Non-Psychotic	41,600				
Mental Health Visit		2.3	3.0	2,951	31.90
Non-Mental Health Visit		9.2	1.9	7,276	37.30
Other	4,119				
Mental Health Visit		5.0	2.8	579	5.60
Non-Mental Health Visit		13.1	2.1	1,152	5.70
Elderly(65 +)					
Psychotic	4,386				
Mental Health Visit		7.9	3.0	1,027	9.60
Non-Mental Health Visit		15.9	2.2	1,524	8.90
Non-Psychotic	7,919				
Mental Health Visit		1.4	2.0	229	2.30
Non-Mental Health Visit		12.3	2.1	2,044	11.10
Other	2,063				
Mental Health Visit		1.8	1.7	62	.40
Non-Mental Health Visit		14.7	2.1	647	3.90

In FY91/92, only the two largest urban hospital emergency departments, Health Sciences Centre and St. Boniface Hospital, submitted records of individual patient contacts. These records are combined with reporting of services to outpatient clinics and therefore do not represent explicit counts of emergency department use (TABLE E.5). Additionally, the diagnostic information on records of emergency department visits undercounts the true prevalence of mental health disorder in cases presenting to these facilities (83).

Despite these shortcoming, however, these data may be useful as indicators of the impact of mental health reform in Winnipeg. Assuming no substantial change in the provision of outpatient psychiatric services at these facilities, a reduction over time in the mean number of ER/outpatient contacts for all diagnoses would suggest that community-based services have successfully replaced a need formerly met by ER departments and inpatient services.

In Table E.5, the 5,852 adults in Winnipeg in treatment for psychotic disorder made a total of 6,005 visits to emergency departments and outpatient clinics at these two facilities, a rate of 103 visits per 100 persons in treatment for psychotic disorder. In contrast, adults with non-psychotic disorder used these services at a rate of 25 per 100 persons.

Monitoring Impacts on Health Status

While mental health reform in Winnipeg will result in reduced utilization of psychiatric bed days and inpatient physician contacts and may also result in a lower rate of both hospital admission and readmission, these measures of health service use do not describe the health status of persons in treatment for mental health disorder.

Health status indicators in the domain of mental health care include clinical measures of disease course, such as duration and severity of episode and duration of period of remission. Additional indicators include measures of social and occupational disability and global measures of quality of life. Some research has incorporated all-cause and cause-specific mortality (suicide) as indicators of population mental health status. This important area of investigation lies largely outside the scope of this study.

In the absence of directly obtained measures of health status, the secondary data contained in this report will not be useful in monitoring the impact of health reform on mental health status.

Section F:
Summary of the Utilization of Mental Health Services

Using dollars as a common measure, this section of the report will summarize and describe the central patterns in the organization and utilization of mental health services in the province.

Tables F.1 and F.2 summarize expenditures on mental health services by region, combining physician services and acute hospital care. Expenditures on inpatient and outpatient physician services are derived from fee tariffs; no adjustment is made for geographic full time or salaried physicians. Hospital expenditures for MHSC funded facilities are based on multiplying hospital-specific per diem estimates derived from HS1 forms, adjusted to exclude outpatient care and teaching costs, by the number of bed days of care in each facility (APPENDIX TABLE G.1)(84). The estimated expenditure in PMHIs is based on a bed day cost estimate of $210.80, which was obtained by combining the staff and operating budgets for the three facilities ($45,300,000) and dividing by total short and long-term bed days (214,829, TABLE B.2) in FY91/92. The estimated cost of long-term stays in PMHIs are not included in these tabulations, estimated to represent an annual expenditure of approximately $33,487,000. Psychiatric services provided by physicians funded through the geographic full time mechanism ($4,200,000) are also excluded.

Table F.1 reports per capita expenditure by region and mental health disorder. These estimates have not been adjusted for the different proportions of the population in each region in treatment for mental health disorder. The average per capita expenditure in non-Winnipeg regions was $58.03 (range $24.28-93.13), compared to an expenditure of $103.63 in the Winnipeg region. Table F.3 compares crude per capita expenditure estimates with estimates adjusted for regional differences in treatment prevalence. After this adjustment, per capita expenditures in Winnipeg remain approximately 44% greater than the average for non-Winnipeg regions.

Approximately 35% of the difference in expenditure between Winnipeg and non-Winnipeg regions ($15.81 per capita) can be attributed to the concentration of psychiatric specialists in Winnipeg. For example, the mean expenditure for non-psychiatrist physicians per 100 persons in treatment in Winnipeg was $4,273, compared to $4,597 in non-Winnipeg regions (APPENDIX TABLE F.7). In contrast, expenditure on services by psychiatric specialists to the Winnipeg region population was $16,066 per 100 persons in treatment, compared to $3,397 for non-Winnipeg residents.

Most of the difference in expenditure, however, is attributed to the higher costs of hospital care provided to residents of the Winnipeg region. While residents of non-Winnipeg regions used more days of care (191.9 days of care per 100 persons in treatment compared to 162.6 per 100 persons for Winnipeg residents: Table B.4), the substantially higher cost of hospital care in Winnipeg results in an expenditure differential of $30.54 per capita. Tables reporting additional details of regional expenditures are found in the appendix to this report (APPENDIX TABLES F.1 TO F.7).

Table F.1
Per Capita Expenditure on Mental Health Care
By Region and Mental Health Disorder

		Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg	Non-Winnipeg	Manitoba
		$	$	$	$	$	$	$	$	$	$
Pediatric	Hospital	4.88	3.16	6.89	4.98	3.18	3.82	3.49	4.76	4.29	4.56
	Physician	0.53	0.67	0.56	0.70	0.44	0.57	0.46	1.38	0.55	1.02
	Total	5.41	3.83	7.45	5.69	3.62	4.39	3.95	6.14	4.83	5.58
Adult Non-Psychotic	Hospital	1.90	2.24	2.30	3.98	2.47	3.38	5.45	3.64	3.18	3.45
	Physician	2.17	3.72	4.37	4.52	2.50	3.06	3.41	11.68	3.30	8.12
	Total	4.09	5.95	6.67	8.50	4.97	6.44	8.87	15.32	6.48	11.56
Adult Psychotic	Hospital	15.45	13.95	25.83	9.80	14.10	4.98	23.95	32.94	17.40	26.33
	Physician	1.08	2.16	2.07	0.95	1.20	0.76	1.49	6.39	1.49	4.30
	Total	16.54	16.12	27.90	10.75	15.31	5.74	25.45	39.33	18.89	30.63
Adult Other	Hospital	1.09	0.86	0.76	3.10	0.67	3.13	1.51	1.56	1.36	1.48
	Physician	0.12	0.20	0.21	0.19	0.13	0.36	0.16	0.36	0.19	0.29
	Total	1.21	1.06	0.97	3.29	0.79	3.49	1.67	1.92	1.55	1.77
Elderly Non-Psychotic	Hospital	1.19	2.14	1.78	1.25	1.60	0.65	2.57	4.01	1.77	3.06
	Physician	0.51	0.54	0.57	0.36	0.78	0.12	0.95	0.84	0.61	0.74
	Total	1.71	2.69	2.36	1.61	2.38	0.77	3.52	4.85	2.38	3.80
Elderly Psychotic	Hospital	18.43	6.91	13.79	6.52	21.05	2.82	40.30	30.33	19.22	25.61
	Physician	0.72	0.56	0.53	0.49	0.91	0.13	1.64	1.77	0.84	1.37
	Total	19.15	7.48	14.32	7.02	21.96	2.94	41.94	32.10	20.86	26.98
Elderly Other	Hospital	2.50	0.54	1.02	5.12	8.43	0.34	7.14	4.03	3.51	3.81
	Physician	0.04	0.14	0.12	0.08	0.18	0.06	0.11	0.18	0.11	0.15
	Total	2.59	0.68	1.14	5.20	8.61	0.40	7.25	4.21	3.62	3.96
Total		50.72	37.95	60.85	42.33	58.23	24.28	93.13	103.63	58.03	84.23

Table F.2
Total Expenditure on Mental Health Care
By Region and Mental Health Disorder

		Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
		$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
Pediatric	Hospital	461.3	269.0	496.0	124.5	146.4	171.7	411.2	3,118.3	2,080.4	5,198.7
	Physician	50.3	57.2	40.1	17.4	20.3	25.5	54.5	900.8	265.5	1,166.6
	Total	511.6	326.2	536.1	141.9	166.7	197.2	465.7	4,019.1	2,345.9	6,365.3
Adult	Hospital	179.9	190.6	165.6	99.4	113.9	152.0	642.7	2,385.5	1,544.8	3,930.3
Non-Psychotic	Physician	205.4	316.4	314.1	112.8	115.1	137.5	401.8	7,653.7	1,602.9	9,256.7
	Total	385.3	507.0	479.7	212.2	229.0	289.5	1,044.5	10,039.2	3,147.7	13,187.0
Adult	Hospital	1,460.1	1,187.5	1,858.3	244.8	649.4	224.7	2,820.6	21,580.1	8,446.3	30,026.3
Psychotic	Physician	102.4	184.1	149.0	23.7	55.1	34.1	175.1	4,186.9	723.1	4,908.3
	Total	1,562.5	1,371.6	2,007.3	268.5	704.5	258.8	2,995.7	25,767.0	9,169.4	34,934.6
Adult	Hospital	103.5	73.0	54.9	77.4	30.8	140.9	178.3	1,024.9	659.3	1,684.2
Other	Physician	11.2	17.3	15.1	4.8	6.2	16.3	19.1	234.5	89.8	325.0
	Total	114.7	90.3	70.0	82.2	37.0	157.2	197.4	1,259.4	749.1	2,009.2
Elderly	Hospital	112.6	182.7	128.4	31.2	73.5	29.2	302.5	2,628.9	860.1	3,489.0
Non-Psychotic	Physician	48.5	46.2	40.8	8.9	35.8	5.3	112.4	549.0	297.5	847.3
	Total	161.1	228.9	169.2	40.1	109.3	34.5	414.9	3,177.9	1,157.6	4,336.3
Elderly	Hospital	1,741.9	588.9	992.0	162.9	969.1	126.8	4,746.9	19,875.6	9,329.6	29,205.2
Psychotic	Physician	67.7	47.9	38.1	12.3	41.7	5.8	193.5	1,160.9	406.7	1,566.9
	Total	1,809.6	636.8	1,030.1	175.2	1,010.8	132.6	4,940.4	21,036.5	9,736.3	30,772.1
Elderly	Hospital	212.5	46.1	73.5	127.7	388.3	15.5	841.0	2,643.0	1,705.0	4,348.0
Other	Physician	3.9	12.2	8.6	1.9	8.3	2.7	13.1	116.6	51.0	168.8
	Total	216.4	58.3	82.1	129.6	396.6	18.2	854.1	2,759.6	1,756.0	4,516.8
Total Hospital Care		4,271.7	2,538.0	3,768.8	868.1	2,371.5	860.8	9,943.4	53,256.4	24,625.5	77,881.9
Total Physician Services		520.6	693.8	608.4	188.3	309.5	231.3	1,024.7	14,638.6	3,535.3	18,173.5
Grand Total		4,792.3	3,231.8	4,377.2	1,056.4	2,681.0	1,092.1	10,968.1	67,895.0	28,160.8	96,055.4

Table F.3
Crude and Adjusted Per Capita Expenditure on Mental Health Care, Winnipeg vs Non-Winnipeg Regions, By Mental Health Disorder

	Crude Per Capita Expenditure			Adjusted Per Capita Expenditure (1)		
	Winnipeg	Non-Winnipeg	Ratio	Winnipeg	Non-Winnipeg	Ratio
	$	$		$	$	
Pediatric Disorder	6.14	4.83	1.27	5.56	5.60	0.99
Adult Non-Psychotic Disorder	15.32	6.48	2.36	13.85	7.56	1.83
Adult Psychotic Disorder	39.33	18.89	2.08	33.94	24.04	1.41
Adult Other Disorder	1.92	1.55	1.24	2.02	1.45	1.39
Elderly Non-Psychotic Disorder	4.85	2.38	2.04	4.96	2.31	2.14
Elderly Psychotic Disorder	32.10	20.86	1.54	31.25	20.83	1.50
Elderly Other Disorder	4.21	3.62	1.16	3.77	4.29	0.87
Total	103.63	58.03	1.79	95.35	66.08	1.44

(1) Adjusted per capita expenditure estimates based on standardizing treatment prevalence to the Manitoba population

References

1. Holder HD and Blose JO. Changes in health care costs and utilization associated with mental health treatment. *Hosp Community Psychiatry* 1987;38(10):1070-1075.

2. Shapiro S, Skinner EA, Kramer M, Steinwachs DM, Regier DA. Measuring need for mental health services in a general population. *Med Care* 1985;23:1033-1043.

3. Dohrenwend B. Psychiatric disorder in general populations: problems of the untreated case. *Am J Public Health* 1970;60:1052-64.

4. Katon W, Von Korff M, Lin E et al. Distressed high utilizers of medical care: DSM-III-R diagnoses and treatment needs. *General Hospital Psychiatry* 1990;12:355-362.

5. Katon W, Von Korff M, Lin E et al. A randomized trial of psychiatric consultation with distressed high utilizers. *General Hospital Psychiatry* 1992;14:86-98.

6. Klerman GL, Weissman MM. The course, morbidity and costs of depression. *Arch Gen Psychiatry* 1992;49:831-834.

7. Klerman GI, Olfson M, Leon AC, Weismann MM. Measuring the need for mental health care. *Health Affairs* 1992(Fall):23-33.

8. Dohrenwend BP, Dohrenwend BS. *Social status and psychological disorder: a causal inquiry*. New York: John Wiley and Sons Inc., 1969.

9. Kessler RC, Turner JB, House JS. Unemployment and health in a community sample. *Journal of Health and Social Behavior* 1987;28:51-59.

10. Berkman LLS, Berkman CS, Kasl S, Freeman DM et al. Depressive symptoms in relation to physical health and functioning in the elderly. *Am J Epidemiol* 1986;115:684-694.

11. Personal Communication. Income Security Division, Department of Family Services, Government of Manitoba. June 1994.

12. Roos NP, Shapiro E. Monitoring the Winnipeg Hospital System: The First Report. 1990-1992. Manitoba Centre for Health Policy and Evaluation. Winnipeg, Manitoba. July 1994.

13. McGuire TG and Fairbank A. Patterns of mental health utilization over time in a fee-for-service population. *Am J Public Health* 1988; 78(2):134-136.

14. Von Korff M, Ormel J, Katon W et al. Disability and depression among high utilizers of health care. *Arch Gen Psychiatry* 1992;49:91-100.

15. Zook CJ, Moore FD. High-cost users of medical care. *N Engl J Med* 1980;302:996-1002.

16. Coryell W, Endicott J, Keller M. Outcome of patients with chronic affective disorder: a five-year follow-up. *Am J Psychiatry* 1990;147:1627-1633.

17. Fenton FR, Tessier L, Contandriopoulos AP, Nguyen H and Struening EL. A comparative trial of home and hospital psychiatric treatment: Financial costs. *Can J Psychiatry* 1982;27(3):177-187.

18. Muijen M, Marks I, Connolly J, Audini B. Home based care and standard hospital care for patients with severe mental illness: a randomised controlled trial. *BMJ* 1992;304:749-54.

19. Stein LI, Test MA. Alterenative to mental hospital treatment. I. Conceptual model, treatment program and clinical evaluation. *Arch Gen Psychiatry* 1980;37:392-397.

20. Weisbrod BA, Test MA, Stein LI. Alternative to mental hospital treatment. II. Economic cost-benefit analysis. *Arch Gen Psychiatry* 1980;37:400-405.

21. Hoult J, Reynolds I. Schizophrenia: a comparative trial of community oriented and hospital oriented psychiatric care. *Acta Psychiatr Scand* 1984;69:359-372.

22. Burns T, Raftery J, Beadsmoore A, McGuigan S, Dickson M. A controlled trial of home-based acute psychiatric services. II. Treatment patterns and costs. *Br J Psychiatry* 1993;163:55-61.

23. Burns T, Raftery J, Bhat AV, Oliver A, Mathers C. A controlled trial of home-based acute psychiatric services. I. Clinical and Social Outcome. *Br J Psychiatry* 1993;163:49-54.

24. Dean C, Phillips J, Gadd EM, Joseph M, England S. Comparisons of community based service with hospital-based service for people with acute, severe psychiatric illness. *BMJ* 1993;307:473-6.

25. Burns BJ, Wagner HR, Taube JE, Magaziner J, Permutt T and Landerman LR. Mental health service use by the elderly in nursing homes. *Am J Public Health* 1993;83(3):331-337.

26. Waxman HM, Carner EA, Klein M. Underutilization of mental health professionals among the community elderly. *The Gerontologist* 1984; 24:23-30.

27. Alberta Medical Association. Working Paper: Task Force on Physician Resources. Edmonton, Alberta. August 1993.

28. Schappert SM. Office visits to psychiatrists: United States, 1989-90. *Advance Data from Vital and Health Statistics no 237.* Hyattsville, Maryland: National Center for Health Statistics, 1993.

29. Johnson J, Weismann MM, Klerman GL. Service utilization and social moribidity associated with depressive symptoms in the community. *JAMA* 1992;267:1478-1483.

30. Kessler LG, Burns BJ, Shapiro S, Tischler GL, George LK, Hough RL, Bodison D and Miller RH. Psychiatric diagnoses of medical service users: Evidence from the epidemiologic catchment area program. *Am J Public Health* 1987;77(1):18-24.

31. Dohrenwend BS, Dohrenwend BP, Link B and Levav I. Social functioning of psychiatric patients in contrast with community cases in the general population. *Arch Gen Psychiatry* 1983;40:1174-1182.

32. Regier DA, Narrow WE, Rae DS et al. The de facto US mental and addictive disorders service system: epidemiologic catechment area prospective 1-year prevalence rates of disorders and services. *Arch Gen Psychiatry* 1993:50;85-94.

33. Narrow WE, Regier DA, Rae DS et al. Use of services by persons with mental and addictive disorders: findings from the National Institute of Mental Health Epidemiologic Catchment Area Program. *Arch Gen Psychiatry* 1993:50;95-107.

34. Manderscheid RW, Rae DS, Narrow WE et al. Congruence of service utilization estimates from the Epidemiologic Catchment Area project and other sources. *Arch Gen Psychiatry* 1993:50;108-114.

35. Regier DA, Myers JK, Kramer M et al. The NIMH Epidemiologic Catchment Area Program: historical context, major objectives and study population characteristics. *Arch Gen Psychiatry* 1984:41;934-941.

36. Wells KB, Hays RD, Burnam MA, Rogers W, Greenfield S, Ware JE. Detection of depressive disorder for patients receiving prepaid or fee-for-service care. *JAMA* 1989;262:3298-3302.

37. Roberts RE, Kaplan GA, Camacho TC. Psychological distress and mortality: Evidence from the Alameda county study. *Soc Sci Med* 1990;31(5):527-536.

38. Goldberg EL, Comstock GW, Hornstra RK. Depressed mood and subsequent physical illness. *Am J Psychiatry* 1979;136:530.

39. Fredman L, Schoenbach VJ, Kaplan BH et al. The association between depressive symptoms and mortality among older participants in the Epidemiologic Catchment Area - Piedmont Health Survey. *J Gerontology* 1989;44:149.

40. Rorsman B, Hagnell O, Lanke J. Violent death and mental disorders in the Landby Study: accidents and suicides in a total population during a 25 year period. *Neuropsychobiology* 1982b;8:1988.

41. Murphy JM, Monson RR, Olivier DC, Sobol AM, Leighton AH. Affective disorders and mortality. *Arch Gen Psychiatry* 1987;44:473.

42. Bruce ML, Leaf PJ. Psychiatric disorders and 15-month mortality in a community sample of older adults. *Am J Public Health* 1989;79:727.

43. Somervell PD, Kaplan BH, Heiss G et al. Psychological distress as a predictor of mortality. *Am J Epidemiol* 1989;130:1013.

44. Liem R, Liem JH. Psychological effects of unemployment on workers and their families. *Journal of Social Issues* 1988;44:87-105.

45. Cooke DJ, Hole DJ. The aetiological importance of stressful life events. *Br J Psychiatry* 1983;143:397-400.

46. Ormel J, Von Korf M, Van Den Brink W, Katon W, Brilman E and Oldehinkel T. Depression, anxiety, and social disability show synchrony of change in primary care patients. *Am J Public Health* 1993;83(3):385-390.

47. Barker PR, Manderscheid RW, Hendershot GE, Jack SS, Schoenborn CA and Goldstrom I. Serious mental illness and disability in the adult household population: United States, 1989. In *Advance Data from Vital and Health Statistics* Hyattsville, Maryland: National Center for Health Statistics, 1992.

48. Wells KB, Stewart A, Hays RD et al. The functioning and well-being of depressed patients: results from the medical outcomes study. *JAMA* 1989;262:914-919.

49. Wells KB, Burnham MA, Rogers W, Hays R, Camp P. The Course of Depression in Adult Outpatients: results from the Medical Outcomes Study. *Arch Gen Psychiatry* 1992;49:788-794.

50. Broadhead WE, Blazer DG, Geirge LK, Tse CK. Depression, disability days and days lost from work in a prospective epidemiologic survey. *JAMA* 1990;264:2524-2528.

51. Dohrenwend B, Link B. Mental Illness in the United States.

52. Freedman DX. Psychiatric epidemiology counts. *Arch Gen Psychiatry* 1984:41;931-933.

53. Uhlenhuth EH, Balter MB, Mellinger GD, Cisin IH and Clinthorne J. Symptom checklist syndromes in the general population: Correlations with psychotherapeutic drug use. *Arch Gen Psychiatry* 1983;40:1167-1173.

54. Robins JH, Helzer JC Orvaschel H et al. The Diagnostic Interview Schedule. In *Epidemiologic survey methods in psychiatry: the NIMH Epidemiologic Catchment Area Program*, edited by Eaton WW and Kessler LG. New York: Academic Press, 1985.

55. Massad PM, West AN and Friedman MJ. Relationship between utilization of mental health and medical services in a VA hospital. *Am J Psychiatry* 1990;147(4):465-469.

56. Hankin JR, Kessler LG, Goldberg ID, Steinwachs DM and Starfield, BH. A longitudinal study of offset in the use of nonpsychiatric services following specialized mental health care. *Med Care* 1983;21(11):1099-1110.

57. Mechanic D. Policy Forum: Does psychiatric care reduce the demand for medical care services? *Med Care* 1983;21(11):1126-1127.

58. Weissman MM. Advances in psychiatric epidemiology: Rates and risks for major depression. *Am J Public Health* 1987;77(4):445-451.

59. Goldman HH, Gattozzi AA and Taube CA. Defining and counting the chronically mentally ill. *Hosp Community Psychiatry* 1981;32(1):21-27.

60. Bland RC. Long term mental illness in Canada: An epidemiological perspective on schizophrenia and affective disorders. *Can J Psychiatry* 1984;29(3):242-246.

61. American Psychiatric Association, Committee on Nomenclature and Statistics. *Diagnostic and Statistical Manual of Mental Disorders, Third Edition*. Washington DC: American Psychiatric Association, 1980.

62. Sartorius N, Kaelber CT, Cooper JE et al. Progress toward achieving a common language in psychiatry: results from the field trial of the clinical guidelines accompanying the WHO classification of mental and behavioral disorders in ICD-10. *Arch Gen Psychiatry* 1993;50:115-124.

63. Roos LL, Nicol JP, Cageorge SM. Using administrative data for longitudinal research: comparisons with primary data collection. *J Chron Dis* 1987;40:41-49.

64. Roos LL, Roos NP, Cageorge SM, Nicol JP. How good are the data? Reliability of one health care data bank. *Med Care* 1982;20:266-276.

65. D'Arcy C. Personal Communication. July 14, 1994.

66. Mustard CA. Profile of Medication Use Among Manitoba Nursing Home Residents with Dementia. Paper presented at the National Invitational Workshop of the Canadian Study of Health and Aging "The Challenge of Dementia in Canada - from Research to Practice," Ottawa, Ontario, April 1993.

67. Hauch C, Soltys P. Discharge considerations for long term elderly inpatients with schizophrenia or dementia. Presentation to the Annual Meeting of the Canadian Association on Gerontology, October 1993.

68. Krupnick JL, Pincus HA. The cost-effectiveness of psychotherapy: a plan for research. *Am J Psychiatry* 1992;149:1295-1305.

69. McLaughlin CG, Normolle DP, Wolfe RA et al. Small-area variation in hospital discharge rates: do socio-economic variables matter? *Med Care* 1989;27(5):507-521.

70. Anderson G, Grumbach K, Luft H, Roos LL, Mustard C. Use of Coronary Artery Bypass Surgery in the United States and Canada. Influence of Age and Income. *JAMA* 1993;269:1661-1666.

71. Wilkins R, Adams O and Brancker A. Changes in mortality by income in urban Canada from 1971 to 1986. *Health Reports* 1991;1(2):137-174.

72. Wissow LS, Gittelsohn AM, Szklo M, Starfield B and Mussman M. Poverty, Race, and Hospitalization for Childhood Asthma. *Am J Pub Health* 1988;78(7):777-782.

73. Satin MS and Monetti CH. Census tract predictors of physical, psychological, and social functioning for needs assessment. *Health Serv Res* 1985;20(3):341-358.

74. Logue EE and Jarjoura D. Modeling heart disease mortality with census tract rates and social class mixtures. *Soc Sci Med* 1990;31(5):545-550.

75. Krieger, N. Overcoming the absence of socioeconomic data in medical records: Validation and application of a census-based methodology. *Am J Public Health* 1992;82(5):703-710.

76. Mustard CA. The Utilization of prenatal care and relationship to birthweight outcome in Winnipeg, 1987-88. Report 93-01. Manitoba Center for Health Policy and Evaluation, Winnipeg, Manitoba January 1993.

77. Wilkins R. Use of Postal Codes and Addresses in the Analysis of Health Data. *Health Reports* 1993;5(2):157-177.

78. Bland RC, Newman SC, Orn H. Health Care Utilization for Emotional Problems: Results from a Canadian Survey. *Can J Psychiatry* 1990;35:397-400.

79. Murphy JM. Depression in the Community: Findings from the Stirling County Study. *Can J Psychiatry* 1990;35:390-396.

80. Mustard, CA, Derksen S, Tataryn D. Persistence of Intensive Use of Mental Health Care. *Am J Psychiatry* (in press).

81. Barer ML, Evans RG, Labelle RJ. Fee controls as cost control: Tales from the frozen north. *Milbank Mem Fund Q* 1988;66(1):1-64.

82. Barer ML, Evans RG. Riding north on a south-bound horse? Expenditures, prices, utilization and incomes in the Canadian health care system. *Medicare at Maturity: Achievements, Lessons and Challenges*. 1986.

83. Barer ML, Sheps S, Mustard CA, Kasian JP. Emergency Department Utilization in Winnipeg. Unpublished report, April 1994, Winnipeg, Manitoba.

84. Wall R, DeCoster C, Roos N. Estimating Per Diem Costs for Manitoba Hospitals: A First Step. Manitoba Centre for Health Policy and Evaluation, unpublished, February 1994.

Appendix Table A.1
Mental Health Disorders
Six-Month Treatment Prevalence, By Age and Sex
Manitoba, FY91/92

/1000 Population

		Age					
Males		0-14	15-24	25-44	45-64	65-74	75+
	N	127,727	84,990	183,922	103,574	37,636	25,204
Any Disorder	N	2,271	2,665	10,253	6,779	2,804	2,968
	/1000	17.78	31.35	55.74	65.45	74.50	117.75
Psychotic Disorder	N	82	277	1,569	1,131	585	1,167
	/1000	0.64	3.25	8.53	10.91	15.54	46.30
Non-psychotic Disorder	N	747	1,966	7,961	4,958	1,764	1,413
	/1000	5.84	23.13	43.28	47.87	46.87	56.45
Other Mental	N	1,543	742	1,989	1,445	830	997
Health Disorder	/1000	12.08	8.73	10.81	13.95	22.05	39.55
Females							
	N	121,588	82,004	181,912	104,697	46,140	40,548
Any Disorder	N	1,382	4,604	16,648	10,793	4,615	6,033
	/1000	11.36	56.14	91.52	103.09	100.02	148.78
Psychotic Disorder	N	56	238	1,694	1,517	937	2,355
	/1000	0.46	2.90	9.31	14.49	20.31	58.08
Non-psychotic Disorder	N	745	1,694	14,982	9,468	3,688	3,258
	/1000	6.12	20.65	82.36	90.43	79.93	80.34
Other Mental	N	656	653	1,434	826	484	1,574
Health Disorder	/1000	5.39	7.96	7.88	7.89	7.99	38.81

Appendix Table A.2

Psychotic Mental Health Disorders
Six Month Treatment Prevalence, By Age and Sex
Manitoba, FY91/92

/1000 population, ICD-9-CM 295-299

		15-24	25-34	35-44	45-54	55-65	65-69	70-74	75-79	80+
Population	Male	84,990	98,224	85,698	57,559	46,015	20,773	16,863	12,711	12,493
	Female	82,004	96,536	85,376	57,104	47,593	24,632	21,508	17,812	22,736
All Psychotic Disorders ICD-9-CM 295-299	Male	3.25	7.78	9.39	10.08	11.97	13.33	18.26	31.39	61.47
	Female	2.90	7.14	11.77	13.20	16.03	17.17	23.89	35.53	75.74
Schizophrenic Disorders ICD-9-CM 295	Male	1.52	4.88	5.13	4.17	4.65	4.28	3.91	4.79	3.52
	Female	0.63	2.26	3.84	4.66	5.59	6.62	7.48	7.02	4.39
Affective Psychoses ICD-9-CM 296	Male	1.25	2.72	3.99	5.26	5.32	4.62	5.45	7.00	6.08
	Female	1.95	4.90	7.84	8.37	8.82	7.39	8.83	7.97	8.00
Paranoid States ICD-9-CM 297	Male	0.14	0.52	0.49	0.46	0.61	0.48	0.71	1.18	1.92
	Female	0.08	0.20	0.56	0.77	1.18	0.81	1.67	2.47	3.51
Other Nonorganic Psychoses ICD-9-CM 298	Male	0.71	1.09	1.20	0.99	2.45	4.57	9.31	21.08	51.87
	Female	0.48	0.69	1.24	1.26	2.41	4.30	8.41	21.16	63.55
Psychoses with Origin Specific to Childhood ICD-9-CM 299	Male	0.20	0.06	0.01	0.00	0.00	0.00	0.00	0.07	0.24
	Female	0.10	0.03	0.02	0.00	0.02	0.00	0.00	0.05	0.08

Appendix Table A.3

Non-psychotic Mental Health Disorders
Six Month Treatment Prevalence, By Age and Sex
Manitoba, FY91/92

/1000 population, ICD-9-CM 300-301, 306-309, 311

		15-24	25-34	35-44	45-54	55-65	65-69	70-74	75-79	80+
Population	Male	84,990	98,224	85,698	57,559	46,015	20,773	16,863	12,711	12,493
	Female	82,004	96,536	85,376	57,104	47,593	24,632	21,508	17,812	22,736
All Non-psychotic Disorders ICD-9-CM 300-301, 306-309, 311	Male	23.13	38.88	48.33	48.52	47.05	45.15	48.96	53.81	59.15
	Female	49.04	74.40	91.34	95.87	83.89	77.18	83.01	79.10	81.32
Neurotic Disorders ICD-9-CM 300	Male	15.64	26.42	31.34	31.25	31.42	29.20	31.37	32.17	28.81
	Female	30.80	46.73	55.95	58.89	53.49	50.01	51.93	45.64	39.14
Personality Disorders ICD-9-CM 301	Male	1.61	2.91	3.00	2.31	1.63	1.49	0.89	2.36	2.40
	Female	2.31	3.41	4.01	2.89	1.78	1.54	1.76	1.74	2.64
Physiological Malfunction due to Mental Factors ICD-9-CM 306	Male	0.12	0.20	0.12	0.26	0.19	0.24	0.53	0.47	0.08
	Female	0.16	0.30	0.19	0.28	0.29	0.69	0.27	0.33	0.17
Special Symptoms or Syndromes ICD-9-CM 307	Male	1.81	2.90	2.81	2.05	1.93	1.78	2.43	2.52	5.28
	Female	6.12	7.06	6.15	5.09	3.59	3.41	3.81	3.76	7.47
Acute reactions to Stress ICD-9-CM 308	Male	0.51	1.32	1.59	1.54	1.08	0.62	1.00	1.10	0.32
	Female	1.39	2.66	3.23	2.66	2.14	1.70	1.67	1.29	0.83
Adjustment Reaction ICD-9-CM 309	Male	2.52	3.22	4.67	4.39	2.56	2.65	1.95	2.28	2.72
	Female	5.98	7.57	9.54	7.82	5.55	3.73	3.53	2.91	2.15
Depressive Disorder Not Elsewhere Classified ICD-9-CM 311	Male	4.02	9.01	12.95	14.65	13.97	14.49	16.07	20.69	25.85
	Female	9.34	20.39	30.87	35.33	30.29	26.75	32.08	33.90	40.46

Appendix Table A.4

Other Mental Health Disorders
Six Month Treatment Prevalence, By Age and Sex
Manitoba, FY91/92

/1000 population, ICD-9-CM 290-294, 302-305, 310, 317-319
Pediatric Morbidity is reported elsewhere

		15-24	25-34	35-44	45-54	55-65	65-69	70-74	75-79	80+
Population	Male	84,990	98,224	85,698	57,559	46,015	20,773	16,863	12,711	12,493
	Female	82,004	96,536	85,376	57,104	47,593	24,632	21,508	17,812	22,736
All Other Disorders ICD-9-CM 290-294, 302-305, 310, 317-319	Male	8.73	10.00	11.73	12.59	15.66	22.04	22.06	29.58	49.70
	Female	7.96	8.08	7.66	7.82	7.96	9.29	11.85	21.33	52.51
Senile and Presenile Organic Psychoses, ICD-9-CM 290	Male	0.01	0.02	0.01	0.02	0.48	1.49	4.92	10.14	29.29
	Female	0.00	0.01	0.01	0.05	0.36	1.46	4.41	9.76	34.87
Alcoholic Psychoses ICD-9-CM 291	Male	0.22	0.94	1.63	1.79	1.37	2.45	2.07	2.43	1.44
	Female	0.11	0.49	0.79	0.23	0.48	0.65	0.51	0.72	0.65
Drug Psychoses ICD-9-CM 292	Male	0.11	0.14	0.12	0.16	0.14	0.24	0.18	0.15	0.72
	Female	0.48	0.12	0.14	0.19	0.21	0.48	0.23	0.33	0.52
Transient Organic Psychotic Conditions, ICD-9-CM 293	Male	0.07	0.13	0.06	0.19	0.33	0.77	1.12	2.20	4.08
	Female	0.08	0.16	0.15	0.23	0.46	0.64	0.69	1.40	2.46
Other Organic Psychoses ICD-9-CM 294	Male	0.03	0.03	0.07	0.22	0.29	1.10	1.06	2.67	5.60
	Female	0.01	0.04	0.07	0.12	0.29	0.69	0.69	2.69	6.59

Continued

Appendix Table A.4, Continued

Other Mental Health Disorders
Six Month Treatment Prevalence, By Age and Sex
Manitoba, FY91/92

/1000 population, ICD-9-CM 290-294, 302-305, 310, 317-319
Pediatric Morbidity is reported elsewhere

		15-24	25-34	35-44	45-54	55-65	65-69	70-74	75-79	80+
Population	Male	84,990	98,224	85,698	57,559	46,015	20,773	16,863	12,711	12,493
	Female	82,004	96,536	85,376	57,104	47,593	24,632	21,508	17,812	22,736
All Other Disorders ICD-9-CM 290-294, 302-305, 310, 317-319	Male	8.73	10.00	11.73	12.59	15.66	22.04	22.06	29.58	49.70
	Female	7.96	8.08	7.66	7.82	7.96	9.29	11.85	21.33	52.51
Sexual Deviations and Disorders ICD-9-CM 302	Male	0.21	0.81	0.93	1.47	2.50	2.35	1.78	0.79	0.32
	Female	0.11	0.31	0.21	0.26	0.13	0.00	0.13	0.01	0.00
Alcohol Dependence Syndrome ICD-9-CM 303	Male	3.30	3.67	5.21	5.68	6.19	7.70	5.63	5.27	3.52
	Female	1.20	1.73	2.46	2.27	2.18	1.78	1.85	1.51	0.79
Drug Dependence ICD-9-CM 304	Male	0.69	0.93	0.82	0.48	0.52	0.53	0.47	0.23	0.16
	Female	0.35	0.62	0.74	0.59	0.59	0.40	0.32	0.72	0.52
Nondependent Use of Drugs ICD-9-CM 305	Male	5.54	4.10	3.97	3.96	4.22	6.78	5.98	5.34	4.80
	Female	4.89	4.54	3.58	3.30	2.96	2.84	1.99	2.13	1.58
Disorders Due to Organic Brain Damage ICD-9-CM 310	Male	0.07	0.24	0.22	0.31	0.72	1.78	2.31	3.85	6.56
	Female	0.10	0.12	0.10	0.18	0.29	0.97	1.34	3.53	9.76
Mental Retardation ICD-9-CM 317-319	Male	0.51	0.62	0.67	0.76	0.67	1.01	0.83	1.10	0.24
	Female	0.47	0.67	0.71	0.76	0.82	0.56	0.65	0.50	0.35

Appendix Table A.5

Pediatric Mental Health Disorders
Six Month Treatment Prevalence, By Age and Sex
Manitoba, FY91/92

/1000 population, ICD-9-CM 300,307,309,312-315

		0-4	5-9	10-14
Population	Male	42,891	43,360	41,476
	Female	41,112	40,992	39,484
Any Disorder	Male	17.0	17.4	18.9
ICD-9-CM 290-319	Female	11.0	9.1	14.0
Neurotic Disorders	Male	1.3	1.9	3.6
ICD-9-CM 300	Female	0.9	2.2	5.6
Special Symptoms	Male	4.8	2.3	2.4
ICD-9-CM 307	Female	1.8	1.6	2.0
Adjustment Reaction	Male	0.2	0.8	1.9
ICD-9-CM 309	Female	0.2	0.7	2.3
Disturbance of Conduct	Male	5.4	4.8	3.5
ICD-9-CM 312	Female	3.4	2.0	1.5
Disturbance of Emotion	Male	0.0	0.4	0.7
Specific to Childhood	Female	0.1	0.6	0.6
ICD-9-CM 313				
Hyperkinetic Syndrome	Male	1.6	5.7	6.3
ICD-9-CM 314	Female	0.5	1.1	1.1
Specific Delays in	Male	4.5	1.9	1.0
Development	Female	2.3	0.7	0.2
ICD-9-CM 315				

Appendix Table A.6
Mental Health Disorder
By Urban and Rural Income Quintile
Six Month Treatment Prevalence, Manitoba FY91/92

/1000 Population, direct standardization for age and sex

		Income Quintile					
Rural Residents		Q5 Highest	Q4	Q3	Q2	Q1 Lowest	Q5 vs Q1 95% Confidence Interval
	N	70,015	65,889	65,717	68,239	66,994	
Any Disorder	/1000	48.93	50.80	54.15	58.12	52.62	
	Risk Ratio	1.00	1.04	1.11	1.19	1.07	(1.01, 1.13)
Psychotic Disorders	/1000	5.75	7.89	9.79	8.71	6.20	
	Risk Ratio	1.00	1.37	1.70	1.51	1.09	(0.94, 1.26)
Non-psychotic Disorders	/1000	38.94	40.50	42.96	43.09	37.82	
	Risk Ratio	1.00	1.04	1.10	1.11	0.97	(0.91, 1.03)
Other Disorders	/1000	7.87	7.51	7.22	12.38	13.56	
	Risk Ratio	1.00	0.95	0.91	1.57	1.72	(1.54, 1.91)
Urban Residents		Q5 Highest	Q4	Q3	Q2	Q1 Lowest	Q5 vs Q1 95% Confidence Interval
	N	152,270	164,976	152,388	148,683	156,649	
Any Disorder	/1000	54.40	58.32	63.55	72.40	86.80	
	Risk Ratio	1.00	1.07	1.19	1.33	1.59	(1.54, 1.63)
Psychotic Disorders	/1000	6.24	6.89	8.73	11.64	19.67	
	Risk Ratio	1.00	1.10	1.40	1.86	3.15	(2.93, 3.37)
Non-psychotic Disorders	/1000	45.09	47.85	51.29	56.28	60.04	
	Risk Ratio	1.00	1.06	1.18	1.25	1.33	(1.29, 1.37)
Other Disorders	/1000	7.66	8.39	9.63	12.78	20.88	
	Risk Ratio	1.00	1.09	1.26	1.69	2.73	(2.56, 2.91)

Appendix Table A.7

Non-psychotic Mental Health Disorders By Income Quintile, Urban Residents, By Age and Sex Six Month Treatment Prevalence, Manitoba FY91/92

/1000 Population

		Income Quintile					
Males		Q5 Highest	Q4	Q3	Q2	Q1 Lowest	Q5 vs Q1 95% Confidence Interval
18-24	/1000	28.36	27.55	26.99	33.91	36.18	
	Risk Ratio	1.00	0.97	0.95	1.19	1.27	(1.07, 1.51)
25-34	/1000	34.21	40.91	41.22	44.10	55.06	
	Risk Ratio	1.00	1.20	1.20	1.29	1.61	(1.42, 1.82)
35-44	/1000	40.55	48.11	50.17	64.40	68.84	
	Risk Ratio	1.00	1.19	1.24	1.59	1.69	(1.51, 1.89)
45-54	/1000	46.49	50.08	56.56	55.47	64.05	
	Risk Ratio	1.00	1.08	1.22	1.19	1.38	(1.20, 1.57)
55-64	/1000	45.62	45.29	50.18	49.75	57.20	
	Risk Ratio	1.00	0.99	1.10	1.09	1.25	(1.07, 1.47)

Females		Q5 Highest	Q4	Q3	Q2	Q1 Lowest	Q5 vs Q1 95% Confidence Interval
18-24	/1000	48.81	55.22	55.91	61.42	72.57	
	Risk Ratio	1.00	1.13	1.14	1.26	1.48	(1.31, 1.69)
25-34	/1000	64.17	73.48	72.20	85.11	88.86	
	Risk Ratio	1.00	1.14	1.13	1.33	1.38	(1.26, 1.52)
35-44	/1000	83.74	91.60	94.81	107.36	115.64	
	Risk Ratio	1.00	1.09	1.13	1.28	1.38	(1.27, 1.50)
45-54	/1000	89.70	93.79	98.53	110.55	121.89	
	Risk Ratio	1.00	1.04	1.09	1.23	1.36	(1.22, 1.50)
55-64	/1000	73.13	78.95	86.44	90.13	103.36	
	Risk Ratio	1.00	1.07	1.18	1.23	1.41	(1.25, 1.59)

Appendix Table A.8

Psychotic Mental Health Disorders
By Income Quintile, Urban Residents, By Age and Sex
Six Month Treatment Prevalence, Manitoba FY91/92

/1000 Population

		Income Quintile					
Males		Q5 Highest	Q4	Q3	Q2	Q1 Lowest	Q5 vs Q1 95% Confidence Interval
18-24	/1000	4.56	3.28	5.29	5.01	6.23	
	Risk Ratio	1.00	0.72	1.16	1.09	1.36	(0.89, 2.07)
25-34	/1000	5.98	5.34	6.56	9.94	15.55	
	Risk Ratio	1.00	0.89	1.09	1.66	2.60	(1.96, 3.43)
35-44	/1000	4.21	6.11	9.96	12.64	24.32	
	Risk Ratio	1.00	1.45	2.36	3.00	5.76	(4.45, 7.46)
45-54	/1000	6.51	6.63	10.28	14.28	22.83	
	Risk Ratio	1.00	1.01	1.57	2.19	3.50	(2.62, 4.67)
55-64	/1000	6.15	6.53	12.79	12.25	31.17	
	Risk Ratio	1.00	1.06	2.08	1.99	5.07	(3.75, 6.82)

Females		Q5 Highest	Q4	Q3	Q2	Q1 Lowest	Q5 vs Q1 95% Confidence Interval
18-24	/1000	4.48	3.21	2.43	4.44	3.70	
	Risk Ratio	1.00	0.72	0.54	0.99	0.82	(0.51, 1.32)
25-34	/1000	5.90	5.32	6.62	8.02	10.94	
	Risk Ratio	1.00	0.90	1.12	1.36	1.85	(1.39, 2.47)
35-44	/1000	7.69	10.63	12.27	17.00	21.03	
	Risk Ratio	1.00	1.38	1.59	2.21	2.73	(2.19, 3.42)
45-54	/1000	8.62	10.85	12.37	19.75	24.01	
	Risk Ratio	1.00	1.26	1.43	2.29	2.78	(2.17, 3.60)
55-64	/1000	12.04	10.80	13.36	16.96	34.62	
	Risk Ratio	1.00	0.89	1.10	1.41	2.87	(2.45, 3.67)

Appendix Table A.9

Other Mental Health Disorders By Income Quintile, Urban Residents, By Age and Sex Six Month Treatment Prevalence, Manitoba FY91/92

/1000 Population

		Income Quintile					
Males		Q5 Highest	Q4	Q3	Q2	Q1 Lowest	Q5 vs Q1 95% Confidence Interval
18-24	/1000	6.01	6.68	6.22	10.02	15.03	
	Risk Ratio	1.00	1.11	1.03	1.66	2.50	
25-34	/1000	6.27	6.46	8.19	10.45	19.47	
	Risk Ratio	1.00	1.03	1.31	1.66	3.11	
35-44	/1000	5.13	7.51	8.21	15.45	27.53	
	Risk Ratio	1.00	1.46	1.60	3.01	5.36	
45-54	/1000	7.87	7.62	10.42	17.89	28.61	
	Risk Ratio	1.00	0.96	1.32	2.27	3.63	
55-64	/1000	9.51	11.00	15.09	15.26	34.93	
	Risk Ratio	1.00	1.15	1.58	1.60	3.67	

Females		Q5 Highest	Q4	Q3	Q2	Q1 Lowest	Q5 vs Q1 95% Confidence Interval
18-24	/1000	5.63	6.06	4.87	6.37	8.05	
	Risk Ratio	1.00	1.07	0.86	1.13	1.43	
25-34	/1000	6.17	5.18	4.77	8.02	13.90	
	Risk Ratio	1.00	0.92	0.84	1.42	2.46	
35-44	/1000	5.29	5.68	6.22	9.04	18.26	
	Risk Ratio	1.00	1.07	1.17	1.70	3.45	
45-54	/1000	3.66	5.64	6.51	10.26	14.98	
	Risk Ratio	1.00	1.54	1.77	2.80	4.09	
55-64	/1000	5.59	5.32	6.82	7.22	16.22	
	Risk Ratio	1.00	0.95	1.22	1.29	2.90	

Appendix Table B.1

Acute Care Hospital Utilization for Psychotic Mental Health Disorder Adults 18-64, By Region, Manitoba FY91/92

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
Population	N	691,668	52,442	49,901	43,211	15,070	24,975	25,392	66,443	414,234
Ever-Users	N	8,791	639	411	554	103	261	168	803	5,852
Persons Hospitalized	N	1,973	133	104	119	43	91	46	203	1,234
/100 Ever-Users		22.4	20.8	25.3	21.5	41.7	34.8	27.3	25.2	21.1
Hospital Separations	N	2,743	153	156	153	57	131	51	253	1,789
/100 Ever-Users		31.2	23.9	38.0	27.6	55.3	50.2	30.0	31.5	30.6
Ratio of Separations to Persons Hospitalized		1.40	1.15	1.45	1.28	1.32	1.44	1.11	1.25	1.47
Total Days		85,978	6,226	3,491	7,120	861	2,718	771	12,664	52,127
Average Length of Stay										
per Separation		31.3	40.7	22.4	46.5	15.1	20.7	15.1	50.0	29.1
per Person Hospitalized		43.5	46.8	33.5	59.8	20.0	29.8	16.8	62.4	42.2
Days in Hospital										
/100 Population		12.4	11.9	7.0	16.6	5.7	10.9	3.0	19.0	12.6
/100 Ever-Users		978.0	974.3	849.4	1285.2	835.9	1041.0	458.9	1577.0	890.7

Appendix Table B.2

Acute Care Hospital Utilization for Non-psychotic Mental Health Disorder Adults 18-64, By Region, Manitoba FY91/92

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
Population	N	691,668	52,442	49,901	43,211	15,070	24,975	25,392	66,443	414,234
Ever-Users	N	65,502	3,672	4,325	3,609	1,575	2,271	2,288	6,162	41,600
Persons Hospitalized	N	1,077	86	87	85	50	71	82	174	442
/100 Ever-Users		1.64	2.34	2.01	2.35	3.17	3.12	3.58	2.82	1.06
Hospital Separations	N	1,319	95	103	101	57	88	105	206	564
/100 Ever-Users		2.01	2.59	2.38	2.79	3.62	3.87	4.58	3.34	1.36
Ratio of Separations to Persons Hospitalized		1.22	1.10	1.18	1.18	1.14	1.24	1.28	1.18	1.28
Total Days		12,498	709	659	630	342	443	386	2,707	6,622
Average Length of Stay										
per Separation		9.47	7.46	6.93	6.11	6.00	5.03	3.67	13.14	11.74
per Person Hospitalized		11.60	8.24	7.57	7.41	6.84	6.24	4.70	15.50	14.98
Days in Hospital										
/100 Population		1.81	1.35	1.32	1.46	2.27	1.77	1.52	4.07	1.60
/100 Ever-Users		19.08	19.30	15.23	17.45	21.71	19.50	16.87	43.93	15.97

Appendix Table B.3

Acute Care Hospital Utilization for Other Mental Health Disorder Adults 18-64, By Region, Manitoba FY91/92

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
Population	N	691,668	52,442	49,901	43,211	15,070	24,975	25,392	66,443	414,234
Ever-Users	N	7,526	338	413	395	178	186	1,381	516	4,119
Persons Hospitalized	N	499	28	34	37	26	20	48	46	260
/100 Ever-Users		6.64	8.28	8.23	9.36	14.61	10.75	3.47	8.90	6.31
Hospital Separations	N	621	41	53	45	36	24	53	57	312
/100 Ever-Users		8.26	12.13	12.83	11.39	20.22	12.90	3.83	11.05	7.57
Ratio of Separations to Persons Hospitalized		1.24	1.46	1.56	1.22	1.38	1.20	1.10	1.23	1.19
Total Days		4,730	437	229	183	246	112	272	578	2,673
Average Length of Stay										
per Separation		7.6	10.6	4.3	4.1	6.8	4.6	5.1	10.1	8.6
per Person Hospitalized		9.5	15.6	6.7	4.9	9.5	5.6	5.6	12.6	10.3
Days in Hospital										
/100 Population		0.7	0.8	0.5	0.4	1.6	0.4	1.1	0.9	0.6
/100 Ever-Users		62.8	129.3	55.4	46.3	138.2	60.2	19.7	112.0	64.9

Appendix Table B.4

Acute Care Hospital Utilization for Psychotic Mental Health Disorder Elderly 65+, By Region, Manitoba FY91/92

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
Population (65+)	N	149,528	13,535	9,152	9,597	1,924	8,855	1,319	20,569	84,577
Ever-Users	N	7,431	679	299	388	83	297	32	1,267	4,386
Persons Hospitalized	N	1,061	119	48	54	15	60	10	254	502
/100 Ever-Users		14.2	17.5	16.0	13.9	18.1	20.2	31.2	20.0	11.4
Hospital Separations	N	1,269	142	55	61	26	71	11	308	595
/100 Ever-Users		17.0	20.9	18.4	15.7	31.3	23.9	34.3	24.3	13.5
Ratio of Separations to Persons Hospitalized		1.19	1.19	1.15	1.13	1.72	1.18	1.09	1.21	1.18
Total Days		72,913	5,576	1,671	2,762	516	3,008	277	13,591	45,569
Average Length of Stay										
per Separation		57.4	39.2	29.3	45.2	19.8	42.3	25.2	44.1	76.5
per Person Hospitalized		68.7	46.8	33.6	51.1	34.4	50.1	27.7	53.5	90.7
Days in Hospital										
/100 Population		48.7	41.2	18.3	28.8	26.8	34.0	21.1	66.1	53.8
/100 Ever-Users		981.2	821.2	539.8	711.9	621.7	1,012.8	856.0	1,072.7	1,038.9

Appendix Table B.5

Acute Care Hospital Utilization for Non-psychotic Mental Health Disorder Elderly 65+, By Region, Manitoba FY91/92

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
Population (65+)	N	149,528	13,535	9,152	9,597	1,924	8,855	1,319	20,569	84,577
Ever-Users	N	14,104	1,125	957	845	168	812	93	2,185	7,919
Persons Hospitalized	N	368	42	42	25	7	42	8	102	100
/100 Ever-Users		2.6	3.8	4.4	2.8	4.2	5.4	8.6	4.7	1.2
Hospital Separations	N	421	51	45	27	9	47	13	122	107
/100 Ever-Users		3.0	4.6	4.7	3.2	5.4	6.0	13.9	5.6	1.4
Ratio of Separations to Persons Hospitalized		1.19	1.21	1.07	1.14	1.28	1.11	1.62	1.19	1.15
Total Days		8,348	390	613	492	101	253	78	1,260	5,161
Average Length of Stay:										
per Separation		19.8	7.6	13.6	18.2	11.2	5.4	6.0	10.3	48.2
per Person Hospitalized		22.7	9.3	14.6	20.5	14.4	6.0	9.7	12.4	51.6
Days in Hospital										
/100 Population		5.6	2.9	6.7	5.1	5.3	2.9	5.9	6.1	6.1
/100 Ever-Users		59.2	34.7	64.1	58.2	60.1	31.2	83.9	57.6	65.2

Appendix Table B.6

Acute Care Hospital Utilization for Other Mental Health Disorder Elderly 65+, By Region, Manitoba FY91/92

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
Population	N	149,528	13,535	9,152	9,597	1,924	8,855	1,319	20,569	84,577
Ever-Users	N	3,214	197	169	218	45	160	69	293	2,063
Persons Hospitalized	N	192	18	13	17	9	10	9	31	85
/100 Ever-Users		6.0	9.1	7.8	7.8	20.0	6.2	13.0	10.6	4.1
Hospital Separations	N	201	20	14	17	10	11	10	31	88
/100 Ever-Users		6.2	10.1	8.3	7.8	22.2	6.8	14.5	10.6	4.3
Ratio of Separations to Persons Hospitalized		1.02	1.11	1.06	1.00	1.11	1.08	1.15	1.00	1.05
Total Days		9,687	651	147	322	396	1,288	45	2,030	4,868
Average Length of Stay										
per Separation		48.2	32.5	10.5	18.9	39.6	111.6	4.5	65.5	55.3
per Person Hospitalized		50.4	36.1	11.3	18.9	44.0	122.8	5.0	65.5	57.2
Days in Hospital										
/100 Population		6.5	4.8	1.6	3.4	20.6	13.9	3.4	9.9	5.7
/100 Ever-Users		301.4	330.5	86.9	147.7	880.0	767.5	65.2	692.8	235.9

Appendix Table B.7

Acute Care Hospital Utilization for Mental Health Disorder Children 0-17, By Region, Manitoba FY91/92

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

		Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
Population (0-17)	N	310,895	28,479	26,085	19,110	7,950	12,149	30,395	30,677	156,050
Ever-Users	N	9,520	533	659	510	190	289	440	873	6,026
Persons Hospitalized	N	293	21	25	12	20	19	24	48	124
/100 Ever-Users		3.07	3.94	3.79	2.35	10.50	6.57	5.45	5.50	2.05
Hospital Separations	N	314	21	26	12	23	22	25	50	135
/100 Ever-Users		3.30	3.94	3.94	2.35	12.1	7.61	5.68	5.72	2.24
Ratio of Separations to Persons Hospitalized		1.07	1.00	1.04	1.00	1.15	1.16	1.04	1.04	1.09
Total Days		7,567	738	181	112	473	426	276	1,455	4,018
Average Length of Stay										
per Separation		24.1	35.1	6.9	9.3	20.6	19.4	11.0	29.1	29.7
per Person Hospitalized		25.8	35.1	7.2	9.3	23.6	22.4	11.5	30.3	32.4
Days in Hospital										
/100 Population		2.4	2.6	0.7	0.6	5.9	3.5	0.9	4.7	2.6
/100 Ever-Users		79.5	138.5	27.5	22.0	248.9	147.4	62.7	166.7	66.7

Appendix Table B.8

Acute Care Hospital Utilization for Mental Health Disorders By Age and Category of Disorder Manitoba, FY91/92

Long-term admissions to Provincial Mental Health Institutions,
admissions to extended care facilties and extended care admissions to acute care facilties are excluded.

	Persons in Hospital (1)	Hospitalization /1000 persons	Separations /1000 persons	Hospitalization /1000 ever-users	Total Days
Manitoba	5,462	4.70	5.98	47.87	201,721
Pediatric (0-17)	293	0.94	1.01	30.78	7,567
Adult (18-64)	3,547	5.13	6.83	43.45	103,306
Psychotic	1,971	2.85	3.97	224.40	86,078
Non-psychotic	1,077	1.56	1.91	16.44	12,498
Other	499	0.72	0.90	66.30	4,730
Elderly (65+)	1,621	10.80	12.65	65.49	90,948
Psychotic	1,061	7.09	8.50	142.70	72,913
Non-psychotic	368	2.46	2.81	26.04	8,348
Other	192	1.28	1.35	59.71	9,687

(1) Persons in a provincial mental health facility for one or more days in FY91/92, plus persons discharged from a provincial acute care hospital in FY91/92 with a primary diagnosis of a mental health disorder, after excluding long term stays.

Appendix Table C.1

Physician Utilization for Mental Health Disorders (1): Child/Adolescent
By Physician Specialty, Billing Tariff and Visit Intensity Group
Manitoba, FY 91/92

	Ambulatory Care					Inpatient Care				
	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents
Total	0.75	89.3	2.1	1.6	74.10	0.09	11.1	8.7	0.8	28.00
Provider Specialty										
General Practitioners	0.376	45.1	1.38	.5	10.80	0.010	1.2	3.72	.0	.50
Other	0.310	37.1	1.36	.4	15.30	0.068	8.2	1.64	.1	6.30
Psychiatrists	0.127	15.2	5.14	.7	48.20	0.020	2.4	32.31	.7	21.20
Billing Tariff										
Psychotherapy	0.141	16.9	4.84	.7	46.50	0.014	1.6	12.36	.2	12.60
Psychiatric Care	0.014	1.7	2.15	.0	1.40	0.009	1.1	8.43	.1	3.60
ECT	-	-	-	-	-	0	0	0	0	0
Other	0.653	78.2	1.35	.9	26.40	0.091	10.9	6.12	.6	11.90
Ambulatory Visit Intensity										
0 Visits (2)	-	10.7	-	-	-	0.053	6.3	2.08	.1	5.80
1-7 Visits	0.714	85.5	1.49	1.1	39.10	0.035	4.2	12.17	.4	14.20
8-14 Visits	0.019	2.2	10.41	.2	11.30	0.003	0.3	56.47	.2	5.00
15 + Visits	0.013	1.6	25.45	.3	23.80	0.002	0.3	51.96	.1	3.00

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

(2) Ever-users not seen by a physician for treatment of mental health disorders in ambulatory settings have been classified to "0 visits".

Appendix Table C.2

Physician Utilization for Mental Health Disorders (1): Adult Psychotic By Physician Specialty, Billing Tariff and Visit Intensity Group Manitoba, FY 91/92

	Ambulatory Care					Inpatient Care				
	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents
Total	0.69	89.3	9.0	6.2	275.50	0.17	21.5	43.3	7.2	154.80
Provider Specialty										
General Practitioners	0.515	66.8	4.8	2.5	50.70	0.065	8.4	7.6	0.5	7.40
Other	0.037	4.9	1.8	0.1	2.50	0.015	2.0	8.1	0.1	1.90
Psychiatrists	0.397	51.6	9.1	3.6	222.30	0.127	16.5	51.4	6.6	145.60
Billing Tariff										
Psychotherapy	0.260	33.8	7.1	1.9	140.90	0.110	8.7	7.3	0.5	37.20
Psychiatric Care	0.222	28.8	4.7	1.0	46.90	0.002	12.6	13.8	1.3	55.70
ECT	-	-	-	-	-	0.001	0.8	7.4	0.0	1.20
Other	0.608	78.9	5.4	3.3	87.80	0.039	20.7	33.2	5.3	60.80
Ambulatory Visit Intensity										
0 Visits (2)	-	10.7	-	-	-	0.013	1.7	39.09	.5	7.30
1-7 Visits	0.431	55.9	1.5	1.4	52.50	0.068	8.8	37.0	2.5	51.20
8-14 Visits	0.138	17.9	10.4	1.4	59.50	0.038	5.0	45.6	1.7	39.60
15+ Visits	0.119	15.5	25.5	3.3	163.60	0.047	6.1	51.5	2.4	56.90

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

(2) Ever-users not seen by a physician for treatment of mental health disorders in ambulatory settings have been classified to "0 visits".

Appendix Table C.3

Physician Utilization for Mental Health Disorders (1): Adult Non-Psychotic
By Physician Specialty, Billing Tariff and Visit Intensity Group
Manitoba, FY 91/92

	Ambulatory Care					Inpatient Care				
	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents
Ever-Users	5.64	98.2	3.2	18.1	781.73	0.13	2.2	7.9	1.0	30.00
Provider Specialty										
General Practitioners	5.019	87.4	2.1	10.6	209.50	0.060	1.0	4.5	0.3	3.50
Other	0.229	4.0	1.6	0.4	12.60	0.015	0.3	2.0	0.0	1.00
Psychiatrists	0.802	14.0	9.0	7.2	559.60	0.060	1.0	11.6	0.7	25.50
Billing Tariff										
Psychotherapy	0.989	17.2	7.0	6.9	525.10	0.028	0.5	5.2	0.1	12.70
Psychiatric Care	0.225	3.9	3.7	0.8	40.70	0.023	0.4	4.3	0.1	4.60
ECT	-	-	-	-	-	-	0.0	3.0	0.3	.00
Other	5.114	89.0	2.0	10.4	215.90	0.110	1.9	6.7	0.7	12.70
Ambulatory Visit Intensity										
0 Visits (2)	-	1.8	-	-	-	0.028	0.5	3.4	0.1	3.60
1-7 Visits	5.187	90.3	1.8	9.4	243.00	0.065	1.1	3.4	0.4	10.80
8-14 Visits	0.257	4.5	10.2	2.6	116.90	0.016	0.3	6.3	0.2	6.60
15 + Visits	0.196	3.4	31.1	6.1	421.90	0.016	0.3	12.5	0.3	9.00

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

(2) Ever-users not seen by a physician for treatment of mental health disorders in ambulatory settings have been classified to "0 visits".

Appendix Table C.4

Physician Utilization for Mental Health Disorders (1): Adult Other By Physician Specialty, Billing Tariff and Visit Intensity Group Manitoba, FY 91/92

	Ambulatory Care					Inpatient Care				
	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents
Total	0.45	68.4	1.8	0.8	25.10	0.04	6.2	4.4	0.2	3.50
Provider Specialty										
General Practitioners	0.390	59.0	1.56	.6	13.30	0.026	4.0	4.98	.1	1.70
Other	0.045	6.9	1.73	.1	3.20	0.011	1.7	3.29	.0	.90
Psychiatrists	0.028	4.2	3.85	.1	8.50	0.004	0.7	3.04	.0	.90
Billing Tariff										
Psychotherapy	0.026	3.9	4.26	.1	8.10	0.002	0.4	2.57	.0	.40
Psychiatric Care	0.006	0.9	2.50	.0	.60	0.001	0.1	3.89	.0	.10
ECT	-	-	-	-	-	-	-	-	-	-
Other	0.431	65.3	1.55	.7	16.40	0.039	0.0	4.39	.2	3.00
Ambulatory Visit Intensity										
0 Visits (2)	-	31.6	-	-	-	0.020	3.0	3.66	.1	1.70
1-7 Visits	0.442	67.0	1.44	.6	17.80	0.019	2.9	5.33	.1	1.60
8-14 Visits	0.006	0.9	10.26	.1	2.40	0.001	0.2	3.36	.0	.10
15 + Visits	0.004	0.6	25.70	.1	4.90	0.001	0.1	3.50	.0	.10

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

(2) Ever-users not seen by a physician for treatment of mental health disorders in ambulatory settings have been classified to "0 visits".

Appendix Table C.5

Physician Utilization for Mental Health Disorders (1): Elderly Psychotic
By Physician Specialty, Billing Tariff and Visit Intensity Group
Manitoba, FY 91/92

	Ambulatory Care					Inpatient Care				
	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents
Total	0.51	78.3	5.2	2.7	66.10	0.18	28.1	27.6	5.0	71.00
Provider Specialty										
General Practitioners	0.435	66.7	4.86	2.1	34.60	0.106	16.2	23.69	2.5	20.20
Other	0.083	12.7	1.75	.1	7.40	0.066	10.1	12.05	.8	10.50
Psychiatrists	0.093	14.3	4.23	.4	24.20	0.059	9.0	29.95	1.8	40.50
Billing Tariff										
Psychotherapy	0.037	5.7	3.21	.1	8.10	0.016	2.5	5.43	.1	8.20
Psychiatric Care	0.042	6.5	3.90	.2	7.60	0.032	4.9	11.68	.4	15.60
ECT	-	-	-	-	-	0.004	0.6	7.78	.00	.80
Other	0.496	76.2	4.77	2.4	50.50	0.179	27.5	25.45	4.6	46.70
Ambulatory Visit Intensity										
0 Visits (2)	-	21.7	-	-	-	0.063	9.6	19.46	1.2	14.30
1-7 Visits	0.410	62.9	2.56	1.0	31.10	0.093	14.2	30.03	2.8	37.90
8-14 Visits	0.062	9.5	10.39	.6	15.50	0.018	2.7	36.67	.6	10.80
15+ Visits	0.038	5.9	25.1	1.0	19.50	0.010	1.5	40.68	.4	8.30

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

(2) Ever-users not seen by a physician for treatment of mental health disorders in ambulatory settings have been classified to "0 visits".

Appendix Table C.6

Physician Utilization for Mental Health Disorders (1): Elderly Non-Psychotic
By Physician Specialty, Billing Tariff and Visit Intensity Group
Manitoba, FY 91/92

	Ambulatory Care					Inpatient Care				
	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents
Total	1.15	93.2	2.3	2.6	63.50	0.07	5.4	9.0	0.6	10.70
Provider Specialty										
General Practitioners	1.024	82.8	2.07	2.1	38.00	0.035	2.9	9.55	.3	3.40
Other	0.095	7.6	1.38	.1	3.90	0.013	1.0	4.78	.1	1.20
Psychiatrists	0.085	6.9	4.03	.3	21.60	0.023	1.9	8.63	.2	6.20
Billing Tariff										
Psychotherapy	0.079	6.4	2.52	.2	11.70	0.005	0.4	2.52	.0	1.30
Psychiatric Care	0.028	2.3	3.70	.1	5.10	0.008	0.7	4.37	.0	1.60
ECT	-	-	-	-	-	0	0.0	7.67	.0	.10
Other	1.112	89.9	2.06	2.3	46.70	0.064	5.1	8.60	.5	7.80
Ambulatory Visit Intensity										
0 Visits (2)	-	6.8	-	-	-	0.030	2.4	6.55	.2	3.60
1-7 Visits	1.101	89.1	1.77	2.0	44.10	0.029	2.3	9.08	.3	4.40
8-14 Visits	0.040	3.3	10.07	.4	11.50	0.006	0.5	18.00	.1	2.20
15+ Visits	0.010	0.8	22.92	.2	8.00	0.001	0.1	25.00	.0	.50

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

(2) Ever-users not seen by a physician for treatment of mental health disorders in ambulatory settings have been classified to "0 visits".

Appendix Table C.7

Physician Utilization for Mental Health Disorders (1): Elderly Other
By Physician Specialty, Billing Tariff and Visit Intensity Group
Manitoba, FY 91/92

	Ambulatory Care					Inpatient Care				
	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents	% of residents	% of ever-users	Visits per patient	Visits per 100 residents	Dollars per 100 residents
Total	0.15	53.3	4.1	0.6	10.30	0.03	11.3	13.1	0.4	4.60
Provider Specialty										
General Practitioners	0.127	45.1	4.54	.6	8.40	0.016	5.5	19.18	.3	2.30
Other	0.004	1.3	1.76	.0	.60	0.004	1.5	1.53	.0	.50
Psychiatrists	0.022	7.8	1.75	.0	1.40	0.014	4.8	8.05	.1	1.80
Billing Tariff										
Psychotherapy	0.001	0.4	2.69	.0	.20	0.000	0.0	1.00	.0	.00
Psychiatric Care	0.000	0.2	1.60	.0	.00	0.000	0.2	1.80	.0	.00
ECT	-	-	-	-	-	-	-	-	-	-
Other	0.149	53.0	4.14	.6	10.10	0.032	11.2	13.09	.4	4.50
Ambulatory Visit Intensity										
0 Visits (2)	-	46.7	-	-	-	0.022	7.7	12.35	.3	3.20
1-7 Visits	0.126	44.7	1.81	.2	5.20	0.009	3.1	15.38	.1	1.20
8-14 Visits	0.014	4.9	10.49	.1	1.90	0.001	0.2	13.71	.0	.10
15 + Visits	0.010	3.7	24.03	.2	3.20	0.000	0.2	2.20	.0	.00

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

(2) Ever-users not seen by a physician for treatment of mental health disorders in ambulatory settings have been classified to "0 visits".

Appendix Table C.8
Physician Utilization for Mental Health Disorders
Ambulatory Visits
MHSIP versus MHMIS

	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
Visits per 100 ever-users										
Adult Non-Psychotic										
MHSIP	205.8	232.3	249.1	277.3	214.9	296.8	216.0	362.2	233.5	315.1
MHSIP+MHMIS	226.4	234.3	253.1	277.3	214.9	298.8	219.8	362.2	239.6	316.8
Percent increase	10.0	0.9	1.6	0.0	0.0	0.7	1.8	0.0	2.6	0.5
Adult Psychotic										
MHSIP	325.3	642.3	493.4	702.6	635.0	481.8	484.0	951.6	495.4	804.3
MHSIP+MHMIS	621.0	683.7	584.3	702.6	652.6	508.6	572.0	962.8	611.0	843.2
Percent increase	90.9	6.4	18.4	0.0	2.8	5.6	18.2	1.2	23.3	4.8
Adult Other										
MHSIP	83.9	123.7	109.3	84.1	99.0	35.8	114.1	159.0	71.2	121.2
MHSIP+MHMIS	111.9	123.7	109.3	84.1	99.0	35.8	114.1	159.0	71.2	121.2
Percent increase	33.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elderly Non-Psychotic										
MHSIP	184.7	195.8	187.3	193.1	181.4	193.4	215.6	223.4	196.2	210.2
MHSIP+MHMIS	193.1	195.8	187.3	193.1	181.4	193.4	221.0	223.4	196.2	210.2
Percent increase	4.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0
Elderly Psychotic										
MHSIP	250.4	370.2	278.1	390.9	294.5	140.5	427.6	448.1	350.6	414.4
MHSIP+MHMIS	347.8	398.7	296.6	390.9	294.5	140.5	436.9	448.1	382.5	429.7
Percent increase	38.9	7.7	6.7	0.0	0.0	0.0	2.2	0.0	9.1	3.7
Elderly Other										
MHSIP	48.0	352.7	132.0	55.5	172.6	0.0	160.8	254.0	168.6	212.9
MHSIP+MHMIS	48.0	352.7	132.0	55.5	172.6	0.0	160.8	254.0	168.6	212.9
Percent increase	0.0	0.0	0.0	0.0	0.0	??	0.0	0.0	0.0	0.0

March 1, 1994

Appendix Table C.9

Physician Utilization for Mental Health Disorders (1): Child/Adolescent
Total, Inpatient, Ambulatory, and Ambulatory Breakdowns
FY91/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
Population	94,474	85,152	71,929	24,956	46,038	44,965	117,774	655,118	485,288	1,140,406
Number of Ever-users	533	659	510	190	289	440	873	6,026	3,494	9,520
Total Visits/100	1.6	1.7	1.3	2.4	1.6	1.6	1.2	3.1	1.6	2.4
Visits/100 e-u	283.6	219.7	183.3	315.2	254.9	163.5	161.9	337.0	222.2	287.5
Inpatient Visits/100	0.7	0.4	0.2	1.3	0.7	0.6	0.1	1.1	0.5	0.8
Visits/100 e-u	124.1	51.7	28.2	170.8	111.5	61.3	13.5	119.6	69.4	95.8
Ambulatory Visits/100	0.9	1.3	1.1	1.1	0.9	1.0	1.1	2.0	1.1	1.6
Visits/100 e-u	159.5	168.0	155.1	144.5	143.4	102.2	148.4	217.4	152.8	191.7
Ambulatory Visits per 100 ever-users										
Physician Specialty										
GPs	88.6	77.5	56.4	105.1	111.5	71.5	80.9	54.4	83.3	59.9
Other	35.4	38.8	56.4	13.1	15.9	10.2	40.5	65.2	27.8	47.9
Psychiatrists	35.4	51.7	42.3	26.3	15.9	10.2	27.0	108.7	27.8	83.9
Billing Tariff										
Psychotherapy	35.4	51.7	56.4	26.3	15.9	10.2	40.5	108.7	41.7	83.9
Psychiatric Care	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ECT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	124.1	103.4	98.7	118.2	127.4	92.0	121.4	97.8	111.1	107.8
Visit Intensity Group										
1-7 visits	124.1	129.2	126.9	131.3	127.4	92.0	121.4	130.5	125.0	131.8
8-14 visits	17.7	25.8	14.1	0.0	15.9	0.0	13.5	32.6	13.9	24.0
15 + visits	17.7	12.9	28.2	13.1	15.9	0.0	13.5	54.4	13.9	35.9
Location of Care										
Out of region: not Wpg	0.0	0.0	0.0	0.0	15.9	20.4	0.0	0.0	3.9	0.0
In region of residence	88.6	51.7	42.3	91.9	95.6	30.7	134.9	217.4	83.3	167.7
Out of region: Wpg	70.9	103.4	112.8	39.4	31.9	51.1	13.5	0.0	65.6	24.0

(1) Mental Health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

Appendix Table C.10

Physician Utilization for Mental Health Disorders (1): Adult Psychotic
Total, Inpatient, Ambulatory, and Ambulatory Breakdowns
FY91/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
Population	94,474	85,152	71,929	24,956	46,038	44,965	117,774	655,118	485,288	1,140,406
Number of Ever-users	639	411	554	103	261	168	803	5,852	2,939	8,791
Total Visits/100	4.0	6.9	6.6	4.5	5.7	3.6	4.5	19.4	5.2	13.4
Visits/100 e-u	591.4	1,429.6	856.9	1,090.3	1,005.4	963.5	660.0	2,171.8	858.6	1,738.3
Inpatient Visits/100	1.8	3.8	2.8	1.6	2.1	1.8	1.2	10.9	2.2	7.2
Visits/100 e-u	266.1	787.3	363.5	387.7	370.4	481.8	176.0	1,220.2	363.3	934.0
Ambulatory Visits/100	2.2	3.1	3.8	2.9	3.6	1.8	3.3	8.5	3.0	6.2
Visits/100 e-u	325.3	642.3	493.4	702.6	635.0	481.8	484.0	951.6	495.4	804.3
Ambulatory Visits per 100 ever-users										
Physician Specialty										
GPs	236.6	331.5	272.7	654.2	599.7	428.2	337.3	313.5	346.8	324.3
Other	0.0	0.0	0.0	0.0	0.0	0.0	14.7	11.2	0.0	13.0
Psychiatrists	88.7	290.1	220.7	48.5	35.3	53.5	132.0	638.1	148.6	467.0
Billing Tariff										
Psychotherapy	59.1	186.5	103.9	72.7	52.9	26.8	117.3	313.5	99.1	246.5
Psychiatric Care	29.6	62.2	90.9	0.0	17.6	26.8	44.0	179.1	49.5	129.7
ECT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	236.6	393.6	298.6	605.7	582.1	428.2	322.7	459.0	346.8	428.1
Visit Intensity Group										
1-7 visits	147.8	186.5	155.8	218.1	176.4	214.1	161.3	190.3	165.1	181.6
8-14 visits	88.7	124.3	129.8	193.8	211.7	107.1	161.3	212.7	132.1	181.6
15 + visits	88.7	310.8	194.8	290.7	246.9	160.6	176.0	559.7	181.6	428.1
Location of Care										
Out of region: not Wpg	29.6	20.7	26.0	0.0	52.9	107.1	14.7	11.2	33.0	13.0
In region of residence	177.4	186.5	142.8	630.0	546.8	267.6	440.0	940.4	297.2	726.5
Out of region: Wpg	118.3	435.1	311.6	72.7	52.9	107.1	29.3	0.0	165.1	51.9

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

Appendix Table C.11

Physician Utilization for Mental Health Disorders (1): Adult Non-Psychotic Total, Inpatient, Ambulatory, and Ambulatory Breakdowns FY91/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
Population	94,474	85,152	71,929	24,956	46,038	44,965	117,774	655,118	485,288	1,140,406
Number of Ever-users	3,672	4,325	3,609	1,575	2,271	2,288	6,162	41,600	23,902	65,502
Total Visits/100	8.4	12.4	13.2	18.4	11.3	15.9	12.1	24.2	12.2	19.1
Visits/100 e-u	216.1	244.1	263.1	291.5	229.1	312.5	231.3	381.1	247.7	332.5
Inpatient Visits/100	0.4	0.6	0.7	0.9	0.7	0.8	0.8	1.2	0.7	1.0
Visits/100 e-u	10.3	11.8	14.0	14.3	14.2	15.7	15.3	18.9	14.2	17.4
Ambulatory Visits/100	8.0	11.8	12.5	17.5	10.6	15.1	11.3	23.0	11.5	18.1
Visits/100 e-u	205.8	232.3	249.1	277.3	214.9	296.8	216.0	362.2	233.5	315.1
Ambulatory Visits per 100 ever-users										
Physician Specialty										
GPs	177.5	187.0	179.4	261.4	202.7	290.9	181.6	174.8	199.0	184.5
Other	2.6	2.0	6.0	0.0	2.0	2.0	7.6	7.9	4.1	7.0
Psychiatrists	25.7	41.3	63.8	14.3	10.1	3.9	28.7	179.5	30.5	125.4
Billing Tariff										
Psychotherapy	28.3	51.2	61.8	33.3	22.3	5.9	38.2	166.9	36.5	120.1
Psychiatric Care	2.6	5.9	15.9	0.0	0.0	0.0	9.6	18.9	6.1	13.9
ECT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	175.0	175.2	171.4	242.4	190.6	290.9	170.1	174.8	190.9	181.1
Visit Intensity Group										
1-7 visits	154.4	167.4	167.4	171.1	166.2	159.2	164.4	163.8	164.5	163.7
8-14 visits	30.9	27.6	39.9	46.0	28.4	51.1	30.6	52.0	34.5	45.3
15 + visits	18.0	35.4	41.9	60.2	20.3	86.5	22.9	146.5	36.5	106.2
Location of Care										
Out of region: not Wpg	15.4	5.9	6.0	20.6	18.2	39.3	7.6	4.7	12.2	7.0
In region of residence	131.2	118.1	109.6	232.9	176.4	228.0	200.7	357.5	164.5	287.3
Out of region: Wpg	59.2	108.3	135.5	23.8	18.2	29.5	9.6	0.0	56.8	20.9

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

Appendix Table C.12

Physician Utilization for Mental Health Disorders (1): Adult Other
Total, Inpatient, Ambulatory, and Ambulatory Breakdowns
FY91/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
Population	94,474	85,152	71,929	24,956	46,038	44,965	117,774	655,118	485,288	1,140,406
Number of Ever-users	338	413	395	178	186	1,381	516	4,119	3,407	7,526
Total Visits/100	0.4	0.9	0.8	0.9	0.7	1.5	0.7	1.1	0.7	1.0
Visits/100 e-u	111.8	185.6	145.7	126.2	173.3	48.8	159.8	175.0	99.7	151.5
Inpatient Visits/100	0.1	0.3	0.2	0.3	0.3	0.4	0.2	0.1	0.2	0.2
Visits/100 e-u	28.0	61.9	36.4	42.1	74.3	13.0	45.6	15.9	28.5	30.3
Ambulatory Visits/100	0.3	0.6	0.6	0.6	0.4	1.1	0.5	1.0	0.5	0.8
Visits/100 e-u	83.9	123.7	109.3	84.1	99.0	35.8	114.1	159.0	71.2	121.2
Ambulatory Visits per 100 ever-users										
Physician Specialty										
GPs	83.9	103.1	91.0	84.1	99.0	35.8	91.3	111.3	71.2	90.9
Other	0.0	0.0	18.2	0.0	0.0	0.0	22.8	15.9	0.0	15.2
Psychiatrists	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.8	0.0	15.2
Billing Tariff										
Psychotherapy	0.0	0.0	18.2	0.0	0.0	0.0	0.0	31.8	0.0	15.2
Psychiatric Care	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ECT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	83.9	123.7	91.0	84.1	99.0	35.8	114.1	127.2	71.2	106.1
Visit Intensity Group										
1-7 visits	83.9	103.1	109.3	84.1	99.0	35.8	91.3	111.3	71.2	90.9
8-14 visits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.9	0.0	15.2
15 + visits	0.0	20.6	0.0	0.0	0.0	0.0	0.0	31.8	0.0	15.2
Location of Care										
Out of region: not Wpg	0.0	0.0	0.0	14.0	24.8	9.8	22.8	0.0	9.5	0.0
In region of residence	55.9	61.9	54.6	70.1	74.3	13.0	91.3	143.1	42.7	106.1
Out of region: Wpg	28.0	41.2	54.6	14.0	0.0	13.0	0.0	15.9	19.0	15.2

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

Appendix Table C.13

Physician Utilization for Mental Health Disorders (1): Elderly Psychotic
Total, Inpatient, Ambulatory, and Ambulatory Breakdowns
FY91/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
Population	94,474	85,152	71,929	24,956	46,038	44,965	117,774	655,118	485,288	1,140,406
Number of Ever-users	679	299	388	83	297	32	1,267	4,386	3,045	7,431
Total Visits/100	4.7	3.4	3.5	3.8	5.7	0.6	10.3	9.4	5.4	7.7
Visits/100 e-u	653.9	968.3	648.8	1,142.6	883.6	843.1	957.4	1,404.0	860.6	1,181.7
Inpatient Visits/100	2.9	2.1	2.0	2.5	3.8	0.5	5.7	6.4	3.2	5.0
Visits/100 e-u	403.5	598.1	370.8	751.7	589.0	702.6	529.8	955.9	510.0	767.3
Ambulatory Visits/100	1.8	1.3	1.5	1.3	1.9	0.1	4.6	3.0	2.2	2.7
Visits/100 e-u	250.4	370.2	278.1	390.9	294.5	140.5	427.6	448.1	350.6	414.4
Ambulatory Visits per 100 ever-users										
Physician Specialty										
GPs	236.5	313.3	241.0	390.9	263.5	140.5	371.8	343.5	302.8	322.3
Other	13.9	0.0	0.0	0.0	31.0	0.0	46.5	14.9	31.9	15.3
Psychiatrists	13.9	57.0	18.5	0.0	0.0	0.0	9.3	89.6	15.9	61.4
Billing Tariff										
Psychotherapy	0.0	28.5	0.0	0.0	0.0	0.0	9.3	29.9	6.7	15.3
Psychiatric Care	0.0	28.5	18.5	0.0	0.0	0.0	9.3	44.8	9.0	30.7
ECT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	250.4	313.3	241.0	390.9	294.5	140.5	418.3	388.4	334.7	368.3
Visit Intensity Group										
1-7 visits	153.1	142.4	111.2	150.3	170.5	140.5	158.0	164.3	159.4	153.5
8-14 visits	55.7	113.9	55.6	210.5	46.5	0.0	93.0	119.5	79.7	92.1
15 + visits	41.7	113.9	111.2	30.1	77.5	0.0	176.6	164.3	111.6	153.5
Location of Care										
Out of region: not Wpg	27.8	0.0	0.0	0.0	46.5	0.0	9.3	14.9	15.9	15.3
In region of residence	208.7	256.3	203.9	390.9	248.0	0.0	418.3	433.2	302.8	383.7
Out of region: Wpg	27.8	113.9	74.2	0.0	0.0	0.0	9.3	0.0	31.9	15.3

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

Appendix Table C.14

Physician Utilization for Mental Health Disorders (1): Elderly Non-Psychotic Total, Inpatient, Ambulatory, and Ambulatory Breakdowns FY91/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
Population	94,474	85,152	71,929	24,956	46,038	44,965	117,774	655,118	485,288	1,140,406
Number of Ever-users	1,125	957	845	168	812	93	2,185	7,919	6,185	14,104
Total Visits/100	2.7	2.8	2.7	2.1	4.1	0.5	4.8	3.3	3.1	3.2
Visits/100 e-u	226.7	249.1	229.8	312.0	232.5	241.7	258.7	273.0	243.2	258.7
Inpatient Visits/100	0.5	0.6	0.5	0.8	0.9	0.1	0.8	0.6	0.6	0.6
Visits/100 e-u	42.0	53.4	42.6	118.8	51.0	48.3	43.1	49.6	47.1	48.5
Ambulatory Visits/100	2.2	2.2	2.2	1.3	3.2	0.4	4.0	2.7	2.5	2.6
Visits/100 e-u	184.7	195.8	187.3	193.1	181.4	193.4	215.6	223.4	196.2	210.2
Ambulatory Visits per 100 ever-users										
Physician Specialty										
GPs	168.0	195.8	170.2	193.1	175.8	193.4	194.0	165.5	180.5	169.8
Other	8.4	0.0	8.5	0.0	5.7	0.0	10.8	16.5	7.8	8.1
Psychiatrists	8.4	8.9	8.5	0.0	0.0	0.0	5.4	41.4	7.8	24.3
Billing Tariff										
Psychotherapy	8.4	8.9	8.5	0.0	5.7	0.0	10.8	24.8	7.8	16.2
Psychiatric Care	0.0	0.0	8.5	0.0	0.0	0.0	5.4	16.5	0.0	8.1
ECT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	176.4	186.9	170.2	178.3	170.1	193.4	204.8	182.0	188.3	186.0
Visit Intensity Group										
1-7 visits	151.2	151.3	153.2	148.5	147.4	145.0	161.7	157.2	156.9	161.7
8-14 visits	25.2	26.7	17.0	14.9	17.0	0.0	32.3	41.4	23.5	32.3
15 + visits	8.4	26.7	17.0	14.9	11.3	48.3	21.6	24.8	15.7	16.2
Location of Care										
Out of region: not Wpg	16.8	0.0	0.0	0.0	17.0	0.0	5.4	0.0	7.8	8.1
In region of residence	134.4	160.2	136.2	178.3	158.8	145.0	204.8	215.1	172.6	194.1
Out of region: Wpg	25.2	35.6	42.6	0.0	5.7	48.3	0.0	0.0	15.7	8.1

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

Appendix Table C.15

Physician Utilization for Mental Health Disorders (1): Elderly Other Total, Inpatient, Ambulatory, and Ambulatory Breakdowns FY91/92

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
Population	94,474	85,152	71,929	24,956	46,038	44,965	117,774	655,118	485,288	1,140,406
Number of Ever-users	197	169	218	45	160	69	293	2,063	1,151	3,214
Total Visits/100	0.3	0.9	1.0	1.3	1.6	0.3	0.7	1.2	0.8	1.0
Visits/100 e-u	143.9	453.5	329.9	721.0	460.4	195.5	281.4	381.1	337.3	354.8
Inpatient Visits/100	0.2	0.2	0.6	1.2	1.0	0.3	0.3	0.4	0.4	0.4
Visits/100 e-u	95.9	100.8	198.0	665.5	287.7	195.5	120.6	127.0	168.6	141.9
Ambulatory Visits/100	0.1	0.7	0.4	0.1	0.6	0.0	0.4	0.8	0.4	0.6
Visits/100 e-u	48.0	352.7	132.0	55.5	172.6	0.0	160.8	254.0	168.6	212.9
Ambulatory Visits per 100 ever-users										
Physician Specialty										
GPs	48.0	352.7	132.0	55.5	172.6	0.0	120.6	222.2	158.4	212.9
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Psychiatrists	0.0	0.0	0.0	0.0	0.0	0.0	40.2	31.8	10.2	0.0
Billing Tariff										
Psychotherapy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Psychiatric Care	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ECT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	48.0	352.7	132.0	55.5	172.6	0.0	160.8	254.0	168.6	212.9
Visit Intensity Group										
1-7 visits	48.0	100.8	66.0	55.5	86.3	0.0	80.4	95.3	84.3	87.9
8-14 visits	0.0	100.8	0.0	0.0	57.5	0.0	0.0	63.5	42.2	52.3
15+ visits	0.0	151.2	66.0	0.0	57.5	0.0	80.4	95.3	42.2	72.8
Location of Care										
Out of region: not Wpg	0.0	0.0	0.0	0.0	28.8	0.0	0.0	0.0	0.0	0.0
In region of residence	48.0	352.7	99.0	55.5	143.9	0.0	160.8	254.0	162.3	212.9
Out of region: Wpg	0.0	0.0	33.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0

(1) Mental health visits are defined as physician visits for any mental health reason, regardless of the mental health category of the individual.

Appendix Table F.1
Hospital Expenditure on Mental Health Care
Adult (18-64) Mental Health Disorder

	Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
	$000	$000	$000	$000	$000	$000	$000	$000	$000
Psychotic Disorders									
MHMIS Institutions	5,977.9	1,112.8	307.9	1,057.8	107.5	324.2	109.8	2,341.1	616.7
Acute Psychiatric Bed	21,450.6	217.4	686.4	736.7	20.1	149.0	76.2	320.3	19,244.2
Acute Non-Psychiatric Bed	1,551.9	103.9	124.3	63.8	103.7	176.3	38.7	159.4	781.6
Long-Term Bed	1,046.1	25.9	69.0	0.0	13.5	0.0	0.0	0.0	937.6
Total	30,026.5	1,460.0	1,187.6	1,858.3	244.8	649.5	224.7	2,820.8	21,580.1
Non-Psychotic Disorders									
MHMIS Institutions	697.8	64.6	39.9	41.5	12.4	40.3	17.2	370.4	111.3
Acute Psychiatric Bed	2,026.6	12.9	44.7	29.7	0.0	2.9	23.9	163.3	1,749.1
Acute Non-Psychiatric Bed	1,166.8	102.4	106.1	94.5	87.0	70.8	110.9	109.0	486.1
Long-Term Bed	39.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.1
Total	3,930.3	179.9	190.7	165.7	99.4	114.0	152.0	642.7	2,385.6
Other Disorders									
MHMIS Institutions	213.3	66.5	1.6	0.0	0.0	0.6	0.0	80.6	63.8
Acute Psychiatric Bed	70.6	0.0	1.5	0.0	1.5	0.0	18.2	2.6	46.7
Acute Non-Psychiatric Bed	1,342.8	37.0	69.9	54.9	75.9	30.2	122.7	37.6	914.4
Long-Term Bed	57.5	0.0	0.0	0.0	0.0	0.0	0.0	57.5	0.0
Total	1,684.2	103.5	73.0	54.9	77.4	30.8	140.9	178.3	1,024.9
Total	35,641.0	1,743.4	1,451.3	2,078.9	421.6	794.3	517.6	3,641.8	24,990.6

Appendix Table F.2
Hospital Expenditure on Mental Health Care
Elderly (65+) Mental Health Disorder

	Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
	$000	$000	$000	$000	$000	$000	$000	$000	$000
Psychotic Disorders									
MHMIS Institutions	2,372.1	512.2	21.6	183.7	3.1	129.9	7.5	1,264.8	249.0
Acute Psychiatric Bed	5,147.9	39.8	99.0	59.4	0.0	2.9	92.1	85.7	4,768.9
Acute Non-Psychiatric Bed	16,143.3	787.9	396.4	503.6	159.8	697.9	27.2	1,916.5	11,653.8
Long-Term Bed	5,541.9	402.0	71.9	245.3	0.0	138.4	0.0	1,479.9	3,203.9
Total	29,205.2	1,741.9	588.9	992.0	162.9	969.1	126.8	4,746.9	19,875.6
Non-Psychotic Disorders									
MHMIS Institutions	153.9	2.1	0.0	40.3	0.0	3.4	0.4	68.2	39.4
Acute Psychiatric Bed	384.6	0.0	9.0	10.9	0.0	0.0	1.2	8.7	354.7
Acute Non-Psychiatric Bed	2,114.0	104.9	173.7	77.2	31.2	67.6	27.6	225.6	2,114.0
Long-Term Bed	120.8	5.6	0.0	0.0	0.0	2.5	0.0	0.0	120.8
Total	2,773.3	112.6	182.7	128.4	31.2	73.5	29.2	302.5	2,628.9
Other Disorders									
MHMIS Institutions	376.7	21.4	0.0	45.1	0.0	0.0	0.0	268.3	41.8
Acute Psychiatric Bed	53.4	0.0	0.0	0.0	0.0	0.0	4.3	1.6	47.5
Acute Non-Psychiatric Bed	2,683.4	168.5	46.1	28.4	127.7	328.4	11.2	193.6	1,779.2
Long-Term Bed	1,234.5	22.6	0.0	0.0	0.0	59.9	0.0	377.5	774.5
Total	4,348.0	212.5	46.1	73.5	127.7	388.3	15.5	841.0	2,643.0
Total	36,326.5	2,067.0	817.7	1,193.9	321.8	1,430.9	171.5	5,890.4	25,147.5

Appendix Table F.3
Hospital Expenditure on Mental Health Care
Pediatric (0-17) Mental Health Disorder

	Manitoba	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg
	$000	$000	$000	$000	$000	$000	$000	$000	$000
Pediatric Disorders									
MHMIS Institutions	435.5	58.6	0.0	9.9	29.6	49.6	8.4	279.5	0.0
Acute Psychiatric Bed	1,952.1	180.0	71.9	24.7	81.4	19.9	92.9	3.3	1,477.9
Acute Non-Psychiatric Bed	492.6	17.2	9.1	3.9	13.7	54.8	16.9	47.9	328.9
Long-Term Bed	2,318.5	205.5	188.0	457.5	0.0	22.0	53.5	80.5	1,311.5
Total	5,198.7	461.3	269.0	496.0	124.7	146.3	171.7	411.2	3,118.3

Appendix Table F.4

Consolidated Mental Health Care Expenditure per User
By Region and Mental Health Disorder

in dollars

	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg	Non-Winnipeg	Manitoba
Pediatric Disorder										
Hospital Expenditure	865.4	480.1	972.5	655.2	506.5	390.2	471.0	517.4	595.4	546.1
Physician Expenditure	94.0	86.7	78.6	91.5	70.2	57.9	62.4	149.4	75.9	122.5
Total Average Expenditure	959.4	566.8	1,051.1	746.7	576.7	448.1	533.4	666.8	671.3	668.6
Adult Psychotic										
Hospital Expenditure	2,284.9	2,889.2	3,354.3	2,376.6	2,488.1	1,337.5	3,512.5	3,687.6	2,873.8	3,415.6
Physician Expenditure	160.0	447.9	268.9	230.1	211.1	202.9	218.0	715.5	246.0	558.3
Total Average Expenditure	2,444.9	3,337.1	3,623.2	2,606.7	2,699.2	1,540.4	3,730.5	4,403.1	3,119.8	3,973.9
Adult Non-Psychotic										
Hospital Expenditure	48.9	44.1	45.9	63.1	50.1	66.4	104.3	57.3	64.6	60.2
Physician Expenditure	55.9	73.1	87.0	71.6	50.7	60.0	65.2	183.9	67.0	141.3
Total Average Expenditure	104.8	117.2	132.9	134.7	100.8	126.4	169.5	241.2	131.6	201.5
Adult Other Disorder										
Hospital Expenditure	306.2	176.7	138.9	434.8	165.6	102.0	345.5	248.8	193.5	233.8
Physician Expenditure	33.1	41.9	38.2	26.9	33.3	11.8	37.0	56.9	26.3	43.0
Total Average Expenditure	339.3	218.6	177.1	461.7	198.9	113.8	382.5	305.7	219.8	276.8
Elderly Psychotic Disorder										
Hospital Expenditure	2,565.4	1,969.6	2,556.0	1,962.6	3,262.9	3,962.5	3,746.5	4,531.6	3,063.9	3,930.2
Physician Expenditure	99.7	160.2	98.1	148.2	140.4	181.2	152.7	264.7	133.6	210.8
Total Average Expenditure	2,665.1	2,129.8	2,654.1	2,110.8	3,403.3	4,143.7	3,899.2	4,796.3	3,197.5	4,141.0
Elderly Non-Psychotic Disorder										
Hospital Expenditure	100.0	190.9	151.9	185.7	90.5	313.9	138.4	331.9	139.1	247.4
Physician Expenditure	43.1	48.2	48.3	52.9	44.1	56.9	51.4	69.3	48.1	60.0
Total Average Expenditure	143.1	239.1	200.2	238.6	134.6	370.8	189.8	401.2	187.2	307.4
Elderly Other Disorder										
Hospital Expenditure	1078.6	272.8	337.1	2,837.8	2,426.8	224.6	2,870.3	1,281.0	1,481.3	1,352.8
Physician Expenditure	19.7	72.2	39.4	42.2	51.8	39.1	44.7	56.5	44.3	52.5
Total Average Expenditure	1,098.3	345.0	376.5	2,880.0	2,478.6	263.7	2,915.0	1,337.5	1,525.6	1,405.3

Appendix Table F.5

Expenditure on Physician Services for Mental Health Care by Physician Specialty, Region and Mental Health Disorder

	Central	Eastman	Interlake	Norman	Parklands	Thompson	Westman	Winnipeg	Non-Winnipeg	Province
	$	$	$	$	$	$	$	$	$	$
Pediatric										
Psychiatrists	30,515	32,102	20,427	9,633	8,102	11,600	22,965	655,773	135,395	791,441
GPs and other	19,745	25,119	19,708	7,811	12,154	13,939	31,563	245,014	130,057	375,193
Total	50,260	57,222	40,136	17,444	20,256	25,540	54,529	900,787	265,452	1,166,635
Adult non-psychotic										
Psychiatrists	76,523	141,863	173,780	21,636	21,223	10,881	148,984	6,078,184	594,963	6,672,515
GPs and other	128,862	174,561	140,333	91,139	93,917	126,576	252,860	1,575,558	1,007,943	2,584,160
Total	205,386	316,424	314,113	112,776	115,141	137,458	401,844	7,653,743	1,602,906	9,256,675
Adult psychotic										
Psychiatrists	63,203	146,291	111,489	5,665	18,461	16,277	104,465	3,730,897	465,391	4,195,553
GPs and other	39,206	37,807	37,475	18,043	36,646	17,806	70,664	455,962	257,687	712,753
Total	102,409	184,098	148,964	23,708	55,107	34,083	175,129	4,186,859	723,079	4,908,307
Adult other										
Psychiatrists	2,078	2,043	863	174	368	1,978	2,708	96,957	10,191	107,198
GPs and other	9,163	15,242	14,241	4,591	5,800	14,343	16,370	137,574	79,587	217,817
Total	11,242	17,285	15,105	4,766	6,169	16,322	19,079	234,532	89,778	325,015
Elderly non-psychotic										
Psychiatrists	7,368	4,768	12,084	224	2,946	134	10,364	279,080	37,852	317,032
GPs and other	41,096	41,469	28,699	8,684	32,825	5,126	101,992	269,908	259,629	530,288
Total	48,465	46,237	40,783	8,909	35,771	5,260	112,356	548,988	297,481	847,321
Elderly psychotic										
Psychiatrists	6,329	17,796	9,350	0	414	3,956	14,015	686,563	51,925	737,842
GPs and other	61,408	30,143	28,771	12,278	41,296	1,798	179,487	474,305	354,745	829,075
Total	67,733	47,940	38,122	12,278	41,710	5,755	193,502	1,160,869	406,671	1,566,917
Elderly other										
Psychiatrists	472	681	503	74	322	359	942	5,896	3,882	10,263
GPs and other	3,401	11,495	8,056	1,846	7,964	2,293	12,130	110,714	47,072	158,516
Total	3,873	12,176	8,559	1,921	8,286	2,652	13,070	116,611	50,955	168,780
GP and Other Total	302,882	315,317	261,029	144,394	230,604	181,882	638,334	3,075,778	2,032,871	5,110,159
Psychiatrists Total	217,761	378,499	347,344	43,946	78,862	49,371	386,416	11,562,832	1,502,450	13,063,350

Appendix Table F.6

Expenditure on Physician Services for Mental Health Care
By Physician Specialty, Region and Location of Care

	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg	Non-Winnipeg	Manitoba
	$	$	$	$	$	$	$	$	$	$
Ambulatory										
GPs and Other	251,678	275,637	228,014	124,904	189,170	166,145	530,925	2,670,916	1,725,684	4,396,265
Psychiatrists	169,580	278,872	290,377	32,467	57,225	25,135	342,840	9,129,069	1,196,234	10,324,095
Ambulatory Total	421,258	554,509	518,391	157,371	246,395	191,280	873,765	11,799,985	2,921,918	14,720,360
Inpatient										
GPs and Other	51,204	39,680	33,015	19,490	41,434	15,737	107,409	404,862	307,187	713,894
Psychiatrists	48,181	99,627	56,967	11,479	21,637	24,236	43,576	2,433,763	306,216	2,739,255
Inpatient Total	99,385	139,307	89,982	30,969	63,071	39,973	150,985	2,838,625	613,403	3,453,149
GP and Other Total	302,882	315,317	261,029	144,394	230,604	181,882	638,334	3,075,778	2,032,871	5,110,159
Psychiatrists Total	217,761	378,499	347,344	43,946	78,862	49,371	386,416	11,562,832	1,502,450	13,063,350

Appendix Table F.7

Per User Expenditure on Physician Services for Mental Health Care
By Physician Specialty, Region and Location of Care

	Central	Eastman	Interlake	Norman	Parkland	Thompson	Westman	Winnipeg	Non-Winnipeg	Manitoba
Persons in Treatment	7,183	7,233	6,519	2,432	4,276	4,471	12,099	71,965	44,213	116,178
	$	$	$	$	$	$	$	$	$	$
GPs and Other										
Ambulatory	35.03	38.11	34.97	51.35	44.23	37.16	43.88	37.11	39.03	37.84
Inpatient	7.13	5.48	5.06	8.01	9.69	3.52	8.88	5.62	6.94	6.14
Total GPs and Others	42.16	43.59	40.03	59.36	53.92	40.68	52.76	42.73	45.97	43.98
Psychiatrists										
Ambulatory	23.61	38.55	44.54	13.34	13.38	5.62	28.33	126.85	27.05	88.86
Inpatient	6.70	13.77	8.73	4.72	5.06	5.42	3.60	33.81	6.92	23.57
Total Psychiatrists	30.31	52.32	53.27	18.06	18.44	11.04	31.93	160.66	33.97	112.43

Appendix Table G.1
Adjusted Hospital Per Diem Costs

	Adjusted Inpatient Total $	Total Patient Days	Per Diem $	Average Group Per diem $	Weighted Group Average $
Teaching hospitals					
St. Boniface Hospital	110,571,713	242,490	456	474	476
Health Sciences Centre	157,690,016	320,677	492		
Urban Community Hospitals					
Misericordia	39,013,081	113,062	345	317	321
Seven Oaks	31,426,356	105,103	299		
Concordia	13,219,886	49,338	268		
Grace	32,441,865	107,853	301		
Victoria	25,705,148	76,194	337		
Brandon General	34,361,787	97,550	352		
Large Rural Hospitals					
Winkler	3,917,217	12,792	306	318	309
Steinbach	4,783,446	21,880	219		
Selkirk	5,761,081	18,078	319		
The Pas	7,224,913	15,273	473		
Swan River	5,666,915	24,912	227		
Flin Flon	7,921,015	23,275	340		
Dauphin	9,296,579	29,646	314		
Portage La Prairie	7,825,699	33,135	236		
Morden	5,041,633	16,979	297		
Thompson	9,804,842	21,995	446		
Intermediate Rural Hospitals					
Altona	1,497,459	6,788	221	257	250
St. Rose	3,340,179	13,599	246		
Churchill	2,473,053	5,651	438		
Beausejour	1,781,560	9,112	196		
Gimli	1,707,917	7,216	237		
Virden	1,687,148	6,199	272		
Carman	1,947,958	7,930	246		
Souris	1,728,138	8,279	209		
Minnedosa	2,021,983	7,302	277		
Neepawa	2,098,656	9,194	228		
Small Rural Hospitals					
St. Claude	722,191	1,856	389	265	252
St. Pierre	848,538	4,289	198		
Shoal Lake	1,067,054	4,013	266		
St. Anne	1,343,091	6,300	213		
Rivers	801,188	4,397	182		
Roblin	1,258,585	6,629	190		
Russell	1,761,359	8,293	212		
Vita	505,194	3,476	145		
Wawanesa	677,069	2,088	324		
Winnipegosis	1,025,994	4,638	221		

Appendix Table G.1 Continued
Adjusted Hospital Per Diem Costs

	Adjusted Inpatient Total $	Total Patient Days	Per Diem $	Average Group Per diem $	Weighted Group Average $
Small Rural Hospitals					
Treherne	1,113,989	4,919	226		
Stonewall	1,046,390	5,354	195		
Swan Lake	1,164,728	5,217	223		
Teulon	1,291,466	4,893	264		
Pine Falls	1,823,807	6,296	290		
Arborg	900,076	3,140	287		
Ashern	658,239	2,995	220		
Emerson	732,902	2,130	344		
Eriksdale	767,756	3,158	243		
Erickson	710,578	3,932	181		
Baldur	667,900	2,337	286		
Crystal City	933,873	3,722	251		
Deloraine	986,365	4,020	245		
Carberry	1,196,881	4,405	272		
Birtle	976,988	4,222	231		
Boissevain	878,454	2,903	303		
Melita	731,293	2,972	246		
McGregor	810,394	3,082	263		
Morris	1,742,417	6,306	276		
Pinawa	880,049	3,275	269		
Notre Dame	845,867	2,180	388		
Killarney	1,652,654	6,878	240		
Glenboro	818,007	2,202	371		
Gladstone	1,411,999	4,355	324		
Grandview	959,208	3,778	254		
Hodgson	1,868,684	3,182	587		
Hamiota	1,296,548	6,572	197		
Multi Use Hospitals					
Reston	758,121	3,535	214	326	298
Rossburn	440,157	1,629	270		
Manitou	569,943	1,238	460		
Benito	372,114	1,352	275		
MacGregor	422,702	1,106	382		
Whitemouth	510,633	1,453	351		
Northern Isolated Hospitals					
Norway House	2,040,900	2,207	925	911	793
Lynn Lake	1,154,231	2,379	485		
Snow Lake	482,572	360	1,340		
Gillam	1,118,694	1,100	1,017		
Leaf Rapids	666,116	845	788		

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