Mental Health Commission of Canada

Commission de la santé mentale du Canada

Making the Case for Investing in Mental Health in Canada

1 in 5 people in Canada lives with a mental illness each year



Contents

Snapshot 1

Introduction 3

Defining Mental Health, Mental Health Problems and Illnesses, and Recovery 3

Data Sources 4

Findings from the Life and Economic Impact of Major Mental Illnesses in Canada Study 5

About the Study 5

Overview of Findings 7

Prevalence – the estimated number of people living with a mental illness in Canada in any given year 7

Differences across conditions, ages, and between sexes 9

Prevalence in early years 11

Prevalence in Canada's working population 13

Prevalence in older years 14

Cost Of Mental Illness 15

Direct Costs (Health Care And Social Services) 15

Indirect Costs (Productivity) 17

Total Costs 18

The Case For Taking Action 20

Illustrative Evidence of the Potential to Reduce Costs 21

Child and Youth Mental Health 22

Mental Health Services 23

Workplace Mental Health 24

Conclusion 25

Appendix 1 – Conditions Modeled 26

Appendix 2 – Estimated Number of People in Canada With Any Mental Illness, 2011 & 2041, by Age & Sex 26

Appendix 3 – Estimated Annual Prevalence Rates of Any Mental Illness In Canada, 2011 & 2041, by Age & Sex 26

Notes 27

Snapshot

In 2010 the Mental Health Commission of Canada commissioned a study to fill a gap in pan-Canadian information about the number of people living with mental health problems and illness today and the associated costs. The study built a unique model based on a wide range of existing studies in Canada and internationally. Its findings, combined with existing evidence of effective interventions, offer some key reasons for why it is important to invest smartly in mental health.

The total cost from mental health problems and illnesses to the Canadian economy is significant.

- The study commissioned by the MHCC makes it clear that the economic cost to Canada is at least $50 billion per year. This represents 2.8% of Canada's 2011 gross domestic product.
- Health care, social services and income support costs make up the biggest proportion of these costs. But it also cost business more than $6 billion in lost productivity (from absenteeism, presenteeism and turnover) in 2011.
- Over the next 30 years the total cost to the economy will have added up to more than 2.5 trillion.

In any given year, one in five people in Canada experiences a mental health problem or illness and it affects almost everyone in some way.

- More than 6.7 million people in Canada are living with a mental health problem or illness today. By comparison 2.2 million people in Canada have type 2 diabetes.
- Mental health problems and illnesses hit early in people's lives. More than 28% of people aged 20-29 experience a mental illness in a given year. By the time people reach 40 years of age, 1 in 2 people in Canada will have had or have a mental illness.
- If we include families and caregivers, mental health problems and illnesses impact almost everyone in some way.

The impact of mental health problems and illnesses is especially felt in workplaces and among working aged people.

- People in their early and prime working years are among the hardest hit by mental health problems and illnesses.
- About 21.4% of the working population in Canada currently experience mental health problems and illnesses, which can affect their productivity.
- Mental health problems and illnesses account for approximately 30% of short – and long-term disability claims and are rated one of the top three drivers of such claims by more than 80% of Canadian employers.

There is strong evidence that investing in effective programs can make a difference to the economy and to the health of the population.

- *Changing Directions, Changing Lives: The Mental Health Strategy for Canada* offers a range of proven and promising practices that can make a difference to the bottom line and to people impacted by mental health problems and illnesses in Canada.
- We cannot eliminate all costs associated with mental illnesses but we can do a better job of delivering programs that create better mental health outcomes and see cost benefits in the process.
- If we just reduced the number of people experiencing a new mental illness in a given year by 10% – something that is very feasible in many illnesses among young people, after 10 years we could be saving the economy at least $4 billion a year.
- We know this is possible because we know that promotion, prevention and early intervention targeted at children and families can produce significant net cost benefits, such as through parent education and family support.
- We also know that programs that help people access treatment early, or help them stay out of hospital or the criminal justice system can generate cost savings.
- Improved management of mental health in the workplace including prevention, early action to combat stress and identify problems could decrease losses to productivity significantly.

Introduction

The publication in May 2012 of *Changing Directions, Changing Lives: The Mental Health Strategy for Canada*[1] (*Strategy)* by the Mental Health Commission of Canada (MHCC) represented a major milestone for mental health in Canada. The *Strategy* offers the first pan-Canadian blueprint for improving mental health and well-being for everyone in Canada. It sets out a pathway for creating a mental health system that will better meet the needs of people living with or at risk of mental health problems and illnesses, and their families, over the coming decades.

To achieve a shared vision for change for mental health care in Canada, and to correct its historical neglect, the *Strategy* signals the need for significant new investments in mental health through government health and social spending and by the private sector.

The Case for Investing in Mental Health in Canada:

- Reinforces why governments, business, labour, health care leaders and civil society must act and set priorities for investing in mental health. It does not prescribe specific investments that need to be made: rather, it illustrates the direction of change that should be followed. It is *Changing Directions, Changing Lives: The Mental Health Strategy for Canada* that offers the recommended blueprint for future investments in mental health.
- Offers several key economic and population impact arguments for investing in mental health. There are, of course, other important reasons for investing in mental health, including a social justice rationale that is based on the recognition that Canadians living with mental health problems or illnesses have the same rights to health care, services, and citizenship as those living with other health conditions. These are important policy considerations as well, but they are not the focus of this document.
- Presents a picture of the number of people living with mental health problems and illnesses in Canada and outlines the substantial costs governments and the private sector will incur over the next thirty years if sufficient resources are not committed to mental health. Lastly, it offers a few illustrative examples of the evidence on how new investments in the recommendations outlined in the *Mental Health Strategy for Canada* can make a difference.

DEFINING MENTAL HEALTH, MENTAL HEALTH PROBLEMS AND ILLNESSES, AND RECOVERY

Mental health is integral to our overall health. It is a state of well-being in which the individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his own community. Mental health is different from the absence of mental health problems and illnesses.[2]

Good mental health buffers us from the stresses and hardships that are part of life for everyone, and can help reduce the risk of developing mental health problems and illnesses. Even when someone develops a mental health problem or illness, he or she can experience good mental health, which can contribute to their journey of recovery.[3]

The phrase 'mental health problems and illnesses' represents the range of behaviours, thoughts and emotions that can result in some level of distress or impairment in areas such as school, work, social and family interactions and the ability to live independently. There are many different kinds of mental health problems and illnesses. They range from anxiety and depressive disorders through to schizophrenia and bipolar disorder, and are often associated with a formal medical diagnosis. The type, intensity, recurrence, and duration of symptoms of mental health problems and illnesses can vary widely from person to person, as well as by type of problem or illness.

There is no single known cause for most mental health problems and illnesses. They are thought to be the result of a complex interaction among social, economic, psychological, biological and genetic factors. The factors that play a role in the development of mental health problems and illnesses are very similar to those that influence our overall health and well-being. The relative roles of the factors will vary amongst individuals and across the stages of life. For some people, for example, depression is mostly the result of exposure to stressful life events, whereas for others genetic predisposition plays a stronger role. Mental health problems co-existing with certain physical illnesses can contribute to poorer overall health outcomes.[4]

The concept of 'recovery' refers to living a satisfying, hopeful and meaningful life, even when there are ongoing limitations caused by mental health problems and illnesses. While recovery does not generally imply a 'cure,' it does acknowledge that the full remission of symptoms is possible for some people. With the right combination of services, treatments and supports, many people who are living with even the most severe mental illnesses can experience significant improvements in symptoms and quality of life, and engage in a life of meaning and purpose.[5]

The MHCC includes the concept of well-being in the definition of recovery so that the principles of recovery can apply appropriately to everyone. For example, with infants, children, and youth, the focus for mental health prevention and promotion is on becoming resilient and attaining the best mental health possible as they grow and develop. For seniors, the additional challenges associated with aging need to be addressed. Good mental health and well-being are important for all of us, regardless of age, and whether or not we experience mental health problems or illnesses[6].

DATA SOURCES

This document provides an overview of the results of the study, *Life and Economic Impact of Major Mental Illnesses in Canada,* that was conducted by Risk Analytica[7] on behalf of the MHCC. This document also supplements the findings of Risk Analytica's study by providing examples of potential cost savings and the return on investment from action. These examples draw on evidence in the Canadian and international studies that informed the recommendations in the *Strategy.*

Findings From The Life And Economic Impact Of Major Mental Illnesses In Canada Study

ABOUT THE STUDY

During the early stages in the development of the *Strategy,* the MHCC identified the need for a made-in-Canada, pan-Canadian picture of the prevalence and cost of mental illnesses, today and over the next three decades. RiskAnalytica was retained to adapt its Life at Risk® simulation technology to develop a modeling platform for this purpose. The study drew on Canadian and international literature in developing a model that can provide a profile of the prevalence and the cost of mental health problems and illnesses and how this changes over time. Evidence from peer reviewed models (e.g. clinical trials) and available empirical data sets (e.g. administrative and surveillance data)[8] was incorporated in the Life at Risk® technology to build the mental health model.

Approximately 220 articles and data sets were reviewed during the course of building the simulation model for the project. More than 30 Canadian and international mental health experts guided RiskAnalytica on methods and assumptions, provided the best available data sources, and reviewed results to ensure that the model was consistent with observed reality.

The most significant outcomes of this study are its estimates of current, short and long term life and economic impacts of a range of mental illnesses in Canada. Specifically, it provides life impact estimates in terms of incidence[9], prevalence[10], and mortality for males and females in Canada aged nine years and up for a range of conditions. It also estimates the economic impact in terms of direct costs (largely made up health care utilization costs) and indirect costs (GDP, wage based productivity, federal and provincial taxation revenues).

The study provides estimates for two mental illnesses that affect all ages (mood and anxiety), one illness that affects only adolescents and adults (substance use disorder – SUD), two adult-only illnesses (schizophrenia and dementia), three child/adolescent-only illnesses (attention deficit hyperactivity disorder – ADHD, oppositional defiant disorder – ODD, and conduct disorder), and two chronic disease co-morbidities (type 2 diabetes and heart disease). {See Appendix 1 for an overview}.

The model also incorporates the relative likelihood of individuals transitioning from certain childhood mental illnesses to certain adolescent mental illnesses, and from certain adolescent mental illnesses to certain adult mental illness. For example, the study estimates the increased likelihood for an adolescent to be diagnosed with one disorder if they had previously been diagnosed with that or another disorder in childhood.

The model derives prevalence from what is known about incidence and remission, and from expected changes in the population as driven by births, deaths and immigration. The prevalence projections are also adjusted to reflect the impact of some known risk factors for mental health problems and illnesses (e.g. diabetes and heart disease). Prevalence was then projected over the next thirty years, using standard population databases.

The economic impact estimates in this study include direct costs of mental health problems and illnesses as well as indirect costs, which consist of lost productivity, lost workdays, under-performance, and workplace disability.

The final phase of the study modeled in a preliminary and high level manner, the impact certain hypothetical changes might have on prevalence and costs, relative to the baseline results. These did not include any specific interventions, but rather tested the model for the potential relative impact of hypothetical interventions across broad target areas.

The high level hypothetical areas that were run through the model were the:

- reduction of all causes of incidence;
- reduction of risks associated with prior mental illness in childhood or adolescence;
- increase in remission rates;
- reduction of workplace disability; and,
- combined impact of all four.

The full reports from each of the three phases of the study are available:

1. *Life at Risk® Mental Health Application: Data Review and Modeling Strategy, Final Report, 2010 (The Model);*
2. *The Life and Economic Impact of Major Mental Illnesses in Canada, 2011 (The Base Case Impact Study);*
3. *Life and Economic Impact of Hypothetical Intervention Scenarios on Major Mental Illnesses in Canada: 2011-2041, 2012* (Scenarios).

Having undertaken the foundational work of building the baseline model, the MHCC anticipates and hopes that researchers, governments and other stakeholders will find opportunities to build on this contribution. A number of peer review journal articles are awaiting publication, or are under development by the subject matter experts involved in the study. In addition, a number of stakeholders and researchers are looking at expanding the platform to further explore specific mental health problem and illness areas.

An overview of the findings of this study with a focus on the base case results follows.

OVERVIEW OF FINDINGS

PREVALENCE – THE ESTIMATED NUMBER OF PEOPLE LIVING WITH A MENTAL ILLNESS IN CANADA IN ANY GIVEN YEAR



More than **6.7 million** people in Canada were living with a mental illness in 2011. This translates into one in five people in Canada who are living with a mental illness in any given year.

Of these, more than **1 million** were children and adolescents between the ages of 9 and 19 years of age.



With nearly **4 million** people living with either a mood or an anxiety disorder in 2011, these are the most common mental illnesses in Canada. By 2041 this will increase to nearly 4.9 million people.



By age 40 nearly **50%** of the population will have or have had a mental illness.

If people reach 90 years of age and older, about 65% of men and almost 70% of women will have or have had a mental illness in their lifetime.

If we include the impact on families and caregivers, almost everyone in Canada is impacted by mental health problems and illnesses.



6.7 million people in Canada with mental illness.

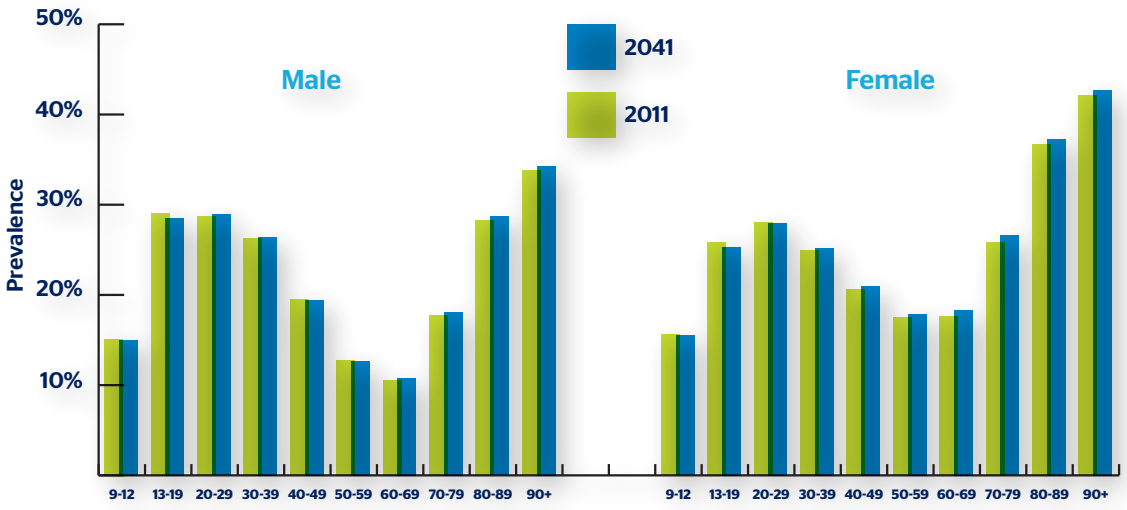
2.2 million people in Canada with type 2 diabetes.

1.4 million people in Canada with heart disease.

To place the **6.7 million** or 1 in 5 people in Canada living with mental illness today in the context of how many people are living with other major illnesses in a given year, there are an estimated **1.4 million** or 1 in 25 people in Canada living with heart disease, and **2.2 million** or 1 in 15 with type 2 diabetes.

Mental illness affects people at all stages of their lives but one of the most significant characteristics of the onset of mental health problems and illnesses is that, unlike many other illnesses, they are more likely to first emerge and affect people early in their lives. It is especially striking to note how prevalence peaks during early adulthood. There is a similar and slightly higher peak in 12 month prevalence among those over 80 years of age.

FIGURE 1 – ESTIMATED 12 MONTH PREVALENCE OF ANY* MENTAL ILLNESS IN CANADA FOR SELECT YEARS 2011 TO 2041



The study projects annual prevalence over the coming thirty years, based on demographic changes only. If nothing else changes, by 2041 there will be 8.9 million people in Canada living with a mental health problem or illness that year, representing a slight increase to 20.5% of the projected population. This means that 2.2 million more people in Canada will be living with mental health problems and illnesses in thirty years compared to today. This represents a 31% increase compared to a 26% projected growth in the population[11] and is a significant number in terms of planning future services.

The changes modeled in this part of the study do not take into account other factors that may either exacerbate (such as significant adverse or economic events) or mitigate (such as changes in knowledge about prevention and treatment) mental health problems and illness.

TABLE 1 – ESTIMATED 12-MONTH PREVALENCE OF ANY* MENTAL ILLNESSES IN CANADA

	2011	2021	2031	2041
Males (% of population)	3,178,446 (18.7%)	3,415,276 (18.3%)	3,736,764 (18.6%)	4,044,688 (18.9%)
Females (% of population)	3,619,181 (20.9 %)	3,994,881 (21.0%)	4,448,014 (21.6%)	4,866,402 (22.2%)
Total (% of population)	6,797,627 (19.8%)	7,410,157 (19.7%)	8,184,778 (20.1%)	8,911,090 (20.5%)

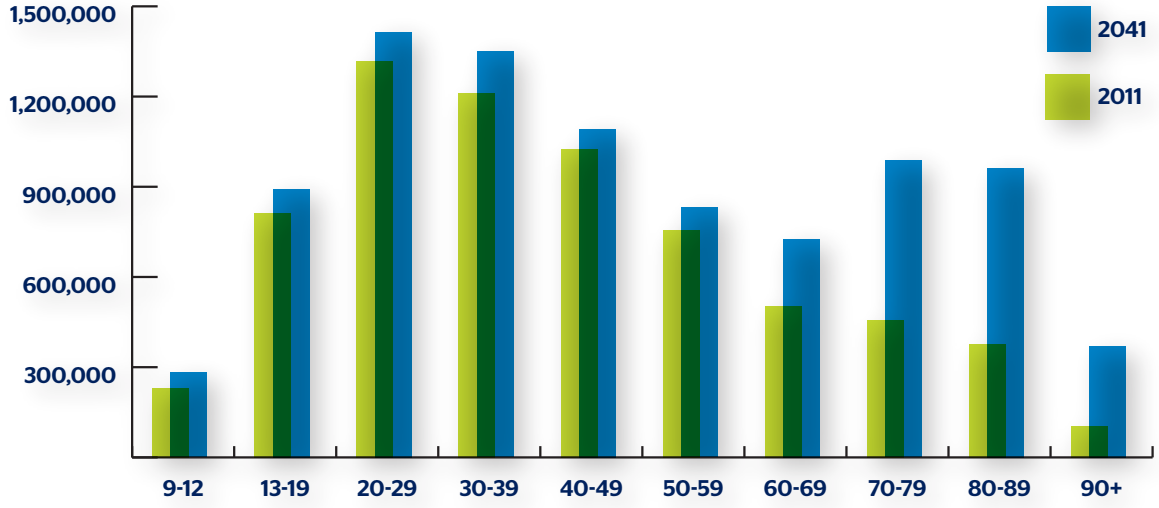
Throughout the text, *Any – refers to mood and anxiety disorders, schizophrenia, SUD, ADHD, ODD, conduct disorders, and dementia (cognitive Impairment including dementia)

In addition to estimating 12-month prevalence of mental illness (i.e. how many people have a given condition in a given year), the Risk Analytica study also projected lifetime risk (the number of individuals who have had, or will have had, the reported condition at some point in their lives). The estimated lifetime risk for mental illness captures both active cases and those in remission. The study estimates that by age 40, about 50% of the population will have or have had a mental illness. Of people 90 years of age and older, about 65% of men and almost 70% of women will have or have had a mental illness in their lifetime.

DIFFERENCES ACROSS CONDITIONS, AGES, AND BETWEEN SEXES

The annual number of people living with a mental illness is highest among young adults ages 20-30, the ages that also have the highest rates mood and anxiety disorders.

FIGURE 2 – NUMBER OF PEOPLE IN CANADA WITH MENTAL ILLNESS BY AGE GROUP

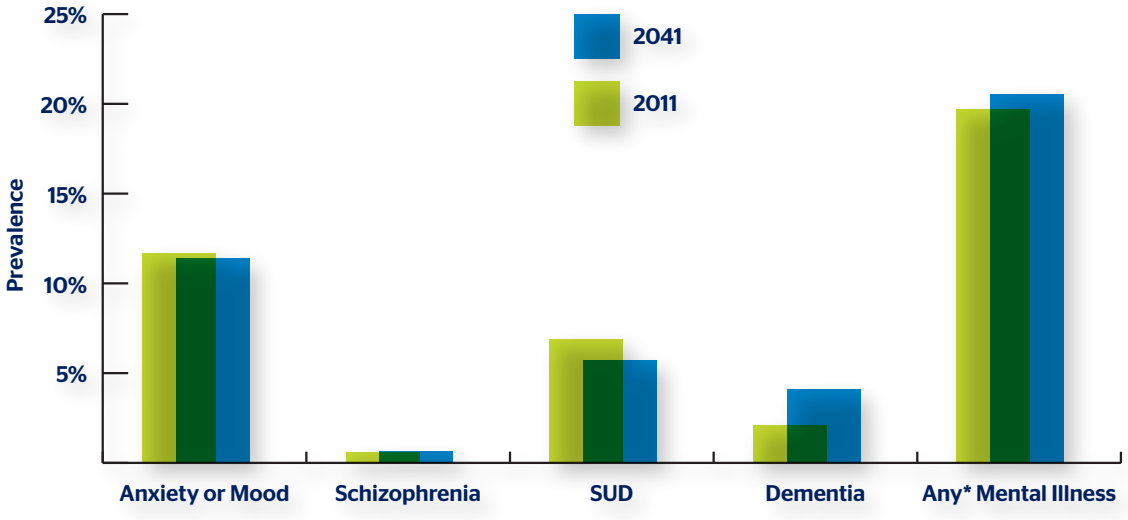


Mood and anxiety disorders are the most prevalent conditions for all ages, affecting 11.75% of the population or over 4 million people. This will grow to 4.9 million people by 2041. More than 12% of young people between 9-19 years of age were living with these disorders in 2011.

TABLE 2 – PREVALENCE OF MOST COMMON MENTAL ILLNESSES IN CANADA, ALL AGES & 9-19 YEARS, 2011

	Number of People (% of population)	
	all ages	9-19
Mood and anxiety disorders	4,016,700 (11.7%)	537,048 (12.1%)
Substance use disorder	2,029,200 (5.9%)	302,410 (6.8%)
Cognitive impairment, dementias	747,100 (2.17%)	n.a.

FIGURE 3 - ESTIMATED 12-MONTH PREVALENCE OF SPECIFIC MENTAL ILLNESSES IN CANADA

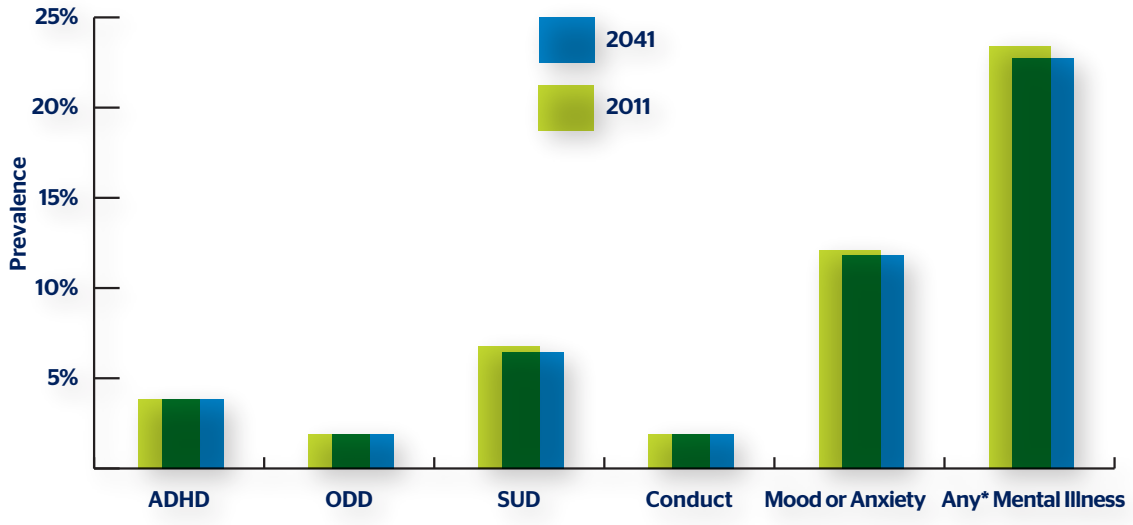


There are some differences of note in prevalence of certain mental illnesses among men and women and in age characteristics across some of the illnesses. The prevalence of mood disorders and anxiety is more than double for women than for men. Prevalence of mood and anxiety disorders peaks while women are in their 20s and peaks while men are their 30s. The prevalence of substance use disorders among males is more than 2.6 times than for females and peaks between 20-29 years of age. Prevalence of schizophrenia does not vary much between males and females, but for both sexes, its prevalence increases with age. Prevalence of dementia and cognitive impairment is higher for females than it is for males and increases with age. Its prevalence as a proportion of the total of all disorders is expected to nearly double over the next thirty years from 11% to 20%.

PREVALENCE IN EARLY YEARS

In 2011, an estimated 1.04 million young people aged 9-19 were living with a mental illness. This represents 23.4% or nearly one in four young people. Children and youth who experience a mental illness are at much higher risk of experiencing a mental illness as adults. The prevalence of childhood-associated mental illnesses (attention deficit hyperactivity disorder, oppositional defiant disorder, and conduct disorder) is much higher for males than females. Of the 170,000 children and youth in Canada with ADHD in 2011, 87% were male.

FIGURE 4 - ESTIMATED 12-MONTH PREVALENCE OF MENTAL ILLNESSES AMONG PEOPLE AGED 9-19 IN CANADA



The Risk Analytica study provides relative risk ratios of adolescent mental illness if there was a prior childhood illness (Table 3) and of adult mental illness given prior adolescent illness (Table 4). Children with conduct disorders are eight times more likely to develop ADHD as teenagers. Teens with ADHD are twice as likely as other children to develop anxiety or a substance use disorder as adults. A child with ADHD is five times more likely to experience Oppositional Defiant Disorder (ODD) in adolescence than a child who did not have ADHD. An adult who experienced ODD during adolescence is about twice as likely to develop either a mood disorder or a substance use disorder in adulthood as a youth without this prior illness. The last section of this report offers illustrative evidence of where investments in evidence-based early intervention and prevention can generate cost savings.



TABLE 3 - RELATIVE RISK OF ADOLESCENT MENTAL ILLNESSES GIVEN PRIOR CHILDHOOD ILLNESS

	Increase in Likelihood of Adolescent Illness					
Prior Childhood Illness	**ADHD**	**Anxiety**	**Conduct Disorders**	**Mood Disorders**	**ODD**	**SUD**
			Male			
ADHD	–	1.66	1.89	1.99	4.99	2.88
Anxiety	4.14	–	2.22	2.93	2.47	1.34
Conduct Disorders	6.54	1.09	–	1.23	3.50	3.38
Mood Disorders	4.28	3.33	3.31	–	4.09	2.45
ODD	4.06	2.33	3.18	2.30	–	3.09
			Female			
ADHD	–	1.60	1.92	1.92	4.98	3.17
Anxiety	5.10	–	2.27	2.78	2.50	1.37
Conduct Disorders	9.46	1.08	–	1.22	3.53	3.92
Mood Disorders	5.39	3.00	3.45	–	4.17	2.71
ODD	5.01	2.17	3.30	2.20	–	3.54



TABLE 4 - RELATIVE RISK OF ADULT MENTAL ILLNESSES GIVEN PRIOR ADOLESCENT ILLNESS

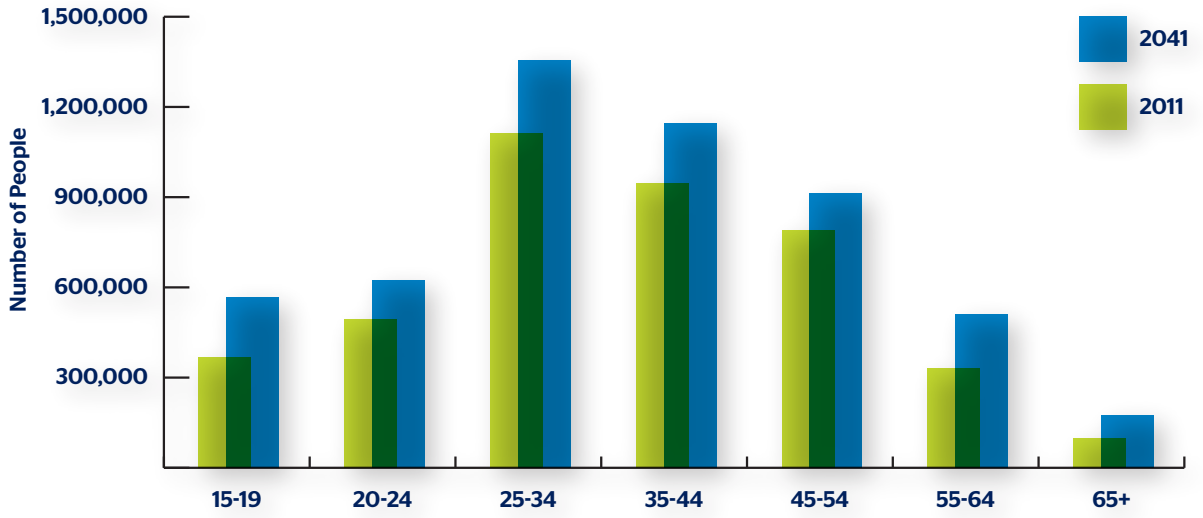
	Increase in Likelihood of Adult Illness					
	Male			**Female**		
Prior Adolescent Illness	**Anxiety**	**Mood Disorders**	**SUD**	**Anxiety**	**Mood Disorders**	**SUD**
ADHD	2.21	1.23	2.23	2.00	1.22	2.52
Anxiety	–	2.43	1.04	–	2.33	1.05
Conduct Disorders	1.78	1.74	2.81	1.67	1.69	3.46
Mood Disorders	3.05	–	1.38	2.70	–	1.44
ODD	2.74	2.08	1.84	2.40	1.99	2.03
SUD	2.59	1.88	–	2.31	1.81	–

PREVALENCE IN CANADA'S WORKING POPULATION

The study reports that about 21.4% of the working-age population (20-64 years of age) was living with a mental health problem or illness in 2011 with prevalence peaking at 20-29 years of age among both males and females. This is at the time when young people are about to enter post-secondary education or the workforce, and often before they have completed their education. In 2011, among working aged males, the peak prevalence was 28.9% at 20-29 years of age; among the same age cohort for females, the prevalence was 28.1%.

In addition to the impact on individual lives, whether due to lost income, delayed careers, personal and family distress, this high prevalence of mental illness during the early adult years has an impact on productivity. While most people with any type of mental illness are able to continue or return to work or complete their education successfully, the impact on the small but significant percentage of the population who encounter a serious form of mental illness can mean lifelong exclusion from meaningful work and social engagement.

FIGURE 5 – ESTIMATED NUMBER OF PEOPLE WITH MENTAL ILLNESSES IN THE EMPLOYED POPULATION IN CANADA



PREVALENCE IN OLDER YEARS

The likelihood of experiencing a mental illness in a given year begins to increase after 69 years of age, and by 90 years of age there is a 42% chance that they will be living with a mental illness (See Figure 1 on page 8).

The findings of this study reinforce a growing concern among mental health service planners: as people live longer, there will be an accompanying increase in the number of people 70 years of age and older living with mental health problems and illnesses.

While dementia is typically considered the mental health condition that most often accompanies old age, for many older people in Canada, other mental illnesses are also prevalent, especially anxiety and mood disorders. Mood and anxiety disorders often accompany chronic physical illnesses which are also more likely to impact people later in life.



TABLE 5 - NUMBER OF OLDER PEOPLE IN CANADA (60 - 90+) WITH MENTAL ILLNESSES, 2011

	Women	Men	Total
Mood and Anxiety	546,675	155,574	702,249
Schizophrenia	41,030	26,861	67,891
Substance Use	11,640	60,182	71,822
Dementia	452,710	294,413	747,123
TOTAL	1,052,055	537,030	1,589,175

COST OF MENTAL ILLNESS

SUMMARY



$50,000,000,000

Mental health problems and illnesses cost the Canadian economy at least **$50 billion** per year.[12] This represents **2.8 %** of Canada's 2011 gross domestic product.

In 2011, about **$42.3 billion** were spent in Canada providing treatment, care and support services for people with mental health problems and illnesses.

The cumulative cost of providing treatment, care, and support services over the next 30 years in Canada is expected to exceed **$2.5 trillion** in current dollars.

DIRECT COSTS (HEALTH CARE AND SOCIAL SERVICES)

The Risk Analytica study drew on two primary sources of data for the costs of health and social care, along with income support to model direct cost on a per case basis. Because no one study was available to help estimate direct costs for all the illnesses included in the study, two different per case cost factors were used – one for those individuals with cognitive impairment, including dementia[13], and another for all other mental illnesses considered in the study[14].

The cost per case for the population with cognitive impairment includes long term care, physician and hospital care, medication and out-of-pocket expenses. The cost per case for all other mental illnesses includes physician and hospital care, medication, community and social services, and income support.

The study conservatively estimates that in 2011 annual direct costs (healthcare, certain social services and income support) attributable to mental illness reached over $42.3 billion, increasing to some $290.9 billion in 2041. The cumulative economic impact of direct costs alone over the next 30 years is expected to reach more than $2.3 trillion. (Table 6)



TABLE 6 – ESTIMATED TOTAL DIRECT COSTS FOR ALL* MENTAL ILLNESSES

	Total Annual Direct Costs (Billions)	Cumulative Direct Costs (Billions)
2011	$ 42.3	$ 42
2021	$ 79.9	$ 553
2031	$ 156.1	$1,288
2041	$ 291.0	$2,334

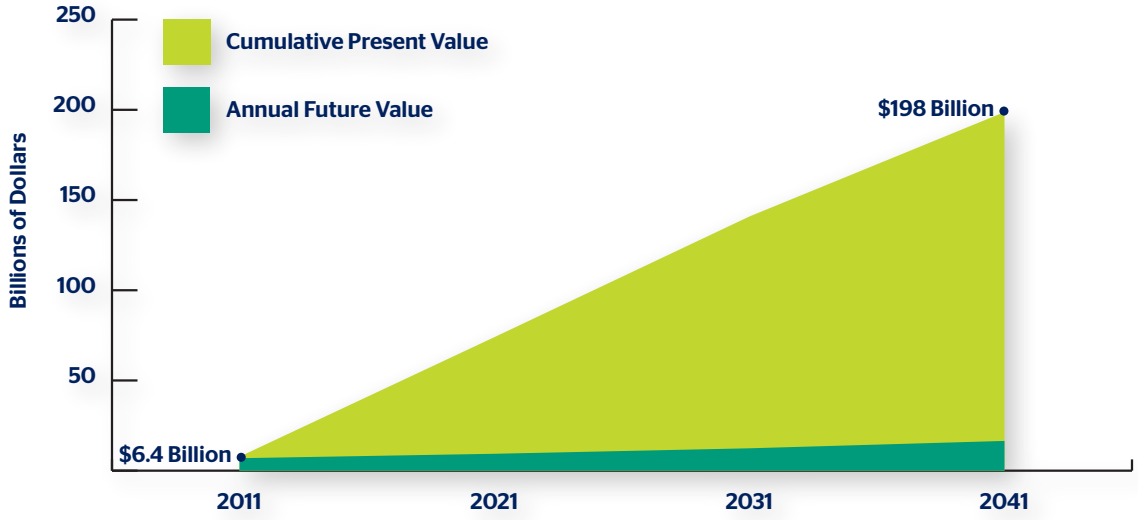
There are significant differences in service utilization rates among those experiencing different mental health problems and illnesses, with accompanying differences in direct costs. For example, average service costs per case of schizophrenia are about six times that of anxiety or mood disorders, while service costs for people with substance use disorders[15] are about five times that of anxiety or mood disorders.[16]

The direct costs estimated by this study are conservative because a number of cost elements were not included in the model. For instance, the scope of this study did not include caregiving and most other costs incurred outside of the mental health support and health care systems, such as those in the justice system.

INDIRECT COSTS (PRODUCTIVITY)

The Risk Analytica study estimates that approximately 21.4% of the working population experienced a mental illness in 2011. The potential impact of mental illness on productivity includes absenteeism, presenteeism or leaving the workforce altogether. The annual productivity impact of mental illness in the workplace is estimated to be over $6.4 billion in 2011, increasing to $16.0 billion in 2041. The present value of the cumulative 30-year productivity impact is expected to be $198 billion.

FIGURE 6 - ESTIMATED WAGE-BASED PRODUCTIVITY IMPACT FOR MENTAL ILLNESSES IN CANADA



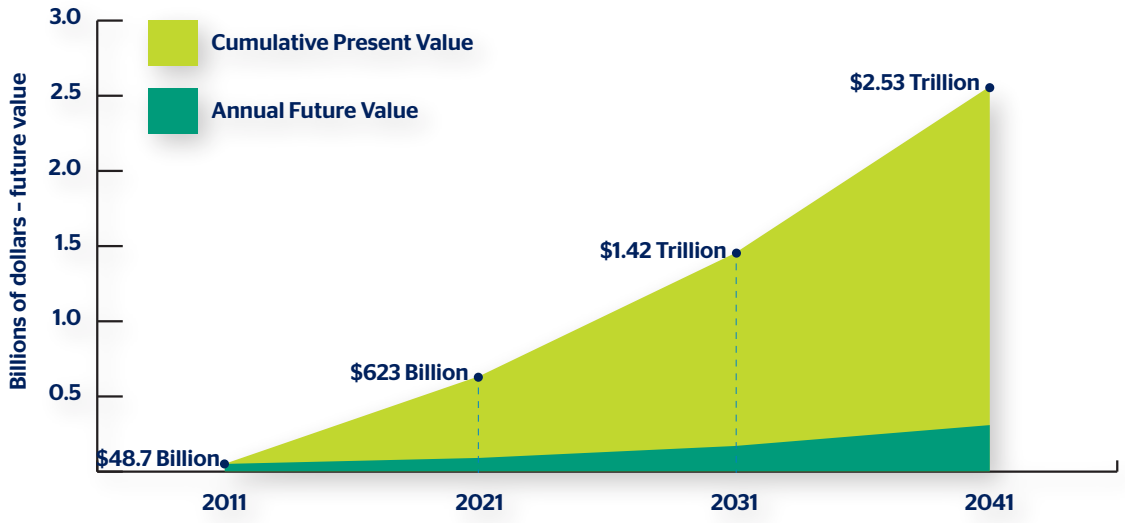
The study estimated the impact on the economy of reduced productivity associated with mental illness using lost workdays (absenteeism) and lower productivity or under-performance (presenteeism) due to illness as a way of measuring the impact of workplace disability.[17] There are several ways of measuring the indirect cost of illness. One is the human capital approach which counts an hour not worked as an hour lost. Another is the friction-cost method, which is more conservative and only counts those hours not worked until another employee takes over from the absent employee. The friction-cost method was used to estimate the indirect cost of mental illness in this study.

The study design does not capture personal opportunity costs, such as lost income.[18] A recent U.S.-based report estimated that the total lifetime economic cost of childhood mental health problems and illnesses alone (loss of income, etc) to be $2.1 trillion, which, with our smaller population, would roughly translate to $200 billion in Canada.[19]

TOTAL COSTS

The Risk Analytica study estimates the total current annual cost of mental illness at nearly $50 billion. In ten years, this annual cost will rise to $88.8 billion and the cumulative cost over the same period will be $623.3 billion. By 2041, these annual costs are expected to be $307 billion. Figure 7 shows how the cumulative cost over the next 30 years will exceed $2.53 trillion.

FIGURE 7 – ESTIMATED TOTAL COST OF MENTAL ILLNESSES IN CANADA



However, these enormous costs are likely an underestimate. The more likely current combined economic impact of direct cost and lost productivity is well in excess of $50 billion per year. This is not only because the Risk Analytica study uses a conservative approach for estimating the indirect costs (productivity loss), but also because a number of costs were outside the scope of the study. Some examples of these additional cost considerations include:

- The impact on health-related quality of life. One study estimated the impact of mental health problems and illnesses on health-related quality of life (HRQOL) to have an economic value of $28.2 billion. [20]
- Costs associated with mental illness in children under the age of nine. The Risk Analytica study estimates prevalence and costs for the population nine years of age and older.
- Direct costs of services provided in the educational system and the criminal justice systems as well as additional police and criminal justice system costs incurred because people with mental health problems and illness are not getting timely or appropriate mental health services.
- Costs incurred by families caring for a family member with a serious mental illness. Caregiver costs can include cash outlays by families to meet the basic needs of family members as well as the opportunity cost associated with interrupting caregivers' careers to care for family members. Drawing on the Risk Analytica study commissioned by the MHCC, the Alzheimer's Society of Canada recently estimated that in 2011, family caregivers incurred in excess of 444 million unpaid hours looking after someone with dementia. This represented $11 billion in lost income and 227,720 full-time equivalent employees in the workforce [21]. An older study estimated the cost of caregiving

for people with mental illnesses at $3.9 billion[22], which brings what we already know about the caregiver opportunity costs to at least $14.9 billion.

- The cost of meeting the additional health care needs of caregivers incurred as a result of the impact of caregiving.
- Indirect costs such as reduced income and taxation associated with diminished career options arising from leaving school prematurely, and costs of undiagnosed mental illness where this has an effect on productivity.
- And finally, while the Risk Analytica Life at Risk® model uses the friction cost approach and calculates current lost productivity at $6.4 billion, one study using another method estimated the dollar value of work loss at nearly three times that amount, closer to approximately $18 billion.[23]

It is acknowledged that further work is required to incorporate at least some of these cost areas or ranges in the study model. Attribution of any additional costs would be in addition to the $48.7 billion estimated in the Risk Analytica study.

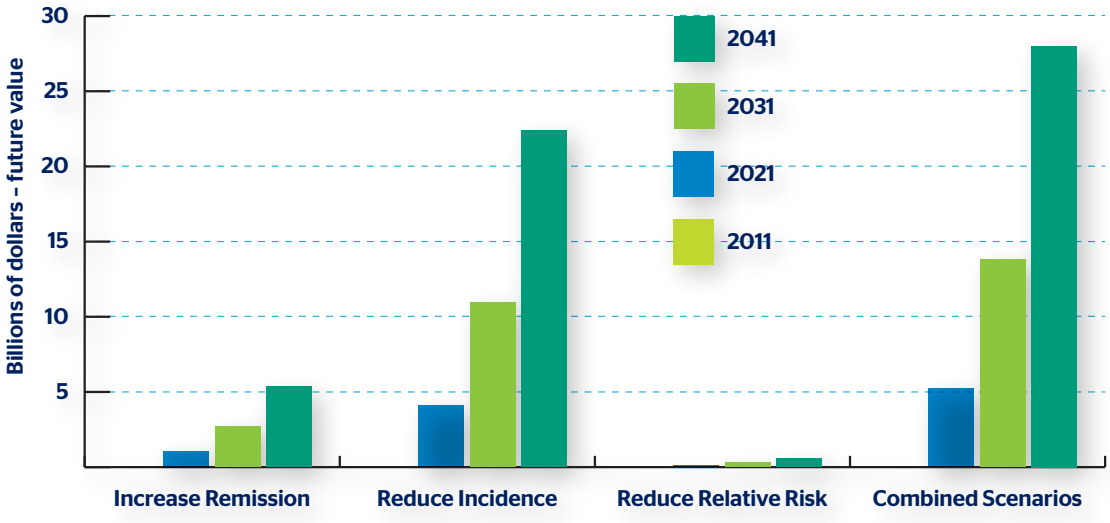
Notwithstanding all of the costs ***not*** included in the Risk Analytica study estimate, $48.7 represents 2.8% of Canada's gross domestic product in 2011.

THE CASE FOR TAKING ACTION

The final part of the Risk Analytica study modeled the potential impact of five hypothetical scenarios on prevalence and costs. While it was not possible to model specific interventions, five high-level hypothetical scenarios were run through the model to give an indication how better interventions might improve health outcomes and yield economic benefits. These scenarios were: reducing all causes of incidence; reducing risks associated with prior mental illness in childhood or adolescence; increasing remission rates; reducing workplace disability; and the combined impact of all four.

As illustrated in Figure 8, the model shows significant potential for cost savings. It estimates that if policy initiatives could reduce incidence by an average of 10%, we can expect an annual savings of $4 billion on direct (health and social care) costs for mental health problems and illnesses after 10 years.[24] After 30 years the cost savings increases to $22.4 billion each year. If we were able to increase remission rates by 10%, we would save another $5.3 billion each year on direct costs alone after 30 years.[25]

FIGURE 8 – ESTIMATED REDUCTION IN TOTAL DIRECT COSTS FOR MENTAL ILLNESSES IN ANNUAL FUTURE VALUE TERMS, FOUR SCENARIOS



It is clear that while the target of 10% for reducing incidence is achievable in some instances because there is ample evidence that this is achievable in certain childhood mental health problems and illnesses, it may be less realistic with respect to some other conditions, such as for schizophrenia.

The model also provides estimates of the impact on prevalence and costs of a hypothetical increase in remission and reduced disability. These results are available in the full report.

Because these were hypothetical scenarios rather than specific interventions based on the evidence, the results only illustrate that change could yield significant improvements in health outcomes and important cost savings.

Additional work would be needed to specify evidence-based scenarios, which the model could test. Some examples of the evidence that could be the basis for such future work are offered in the next section. These examples also illustrate the range and strength of evidence about what works to prevent and mitigate the impact of mental health problems and illnesses.

Illustrative Evidence of the Potential to Reduce Costs

Mental health problems and illnesses will continue to cost the economy at least $50 billion per year if Canada does not begin to invest more aggressively to improve mental health outcomes and generate the cost savings. So how can this be achieved? *Changing Directions, Changing Lives: The Mental Health Strategy for Canada* offers a range of proven and promising strategic policy actions to guide needed change and offers illustrative examples of where the applications of these recommendations are already showing an impact. In the next section a few examples are provided of the measurable impact that investing in some of these policy recommendations can have and which can help achieve the cost savings and health improvements to help us to reach the targets modeled in the Risk Analytica study.

There is ample and increasing evidence that investing in the right programs can contribute to helping prevent mental illnesses, to delaying their onset, and to reducing associated ill health and disability. Strategic investments to strengthen the overall mental health system will also enhance the ability of people living with mental health problems and illnesses to recover and enable them to participate as fully as possible in all aspects of social and economic life.

CHILD AND YOUTH MENTAL HEALTH

There is strong evidence that promotion, prevention and early intervention targeted at children and families can produce significant net cost benefits.[26,27] A few notable examples follow.

In the United Kingdom, preventing conduct disorders in a single child through early intervention programming has been found to result in lifetime savings – from the criminal justice system, health system, and increases in lifetime earnings – of £230,000 ($ 365,000).[28] With 85,000 children in Canada currently estimated to experience a conduct disorder, if proven programs were to prevent just 10% of this incidence (8,500 conduct disorder cases) as much as $3.1 billion in potential lifetime savings could be realized.

Another UK study estimates that improving a single child's mental health from moderate to high has been found to result in lifetime savings of $140,000.[29]

An Australian study has estimated that Triple P parenting, a program that aims to break dysfunctional patterns of parent child interaction, can reduce the number of conduct disorder cases by 25-48%[30]. A study funded by the Public Health Agency of Canada modeled the net benefit of implementing the Triple P parenting program in Alberta. The cost of implementing the program in Alberta is estimated at $3.7 million. If the program was to divert 25% of the cases in Alberta, which is on the low end of the Australia's study's range, the net savings would be $7.6 million (costs avoided minus the cost of implementing the program). The authors estimate that it would actually only take 1.6% of cases to be diverted for the program to pay for itself.[31]

Parent education and family support programs, such as home visits combined with early childhood education have been demonstrated to result in better outcomes for people living with mental health problems and illnesses such as depression and anxiety, with return on investment ratios ranging from $1.80 to $17.07 for every dollar invested.[32]

MENTAL HEALTH SERVICES

Programs that help people access treatment early, or help them stay out of hospital or out of the criminal justice system, can be very cost effective.

One example comes from a study of early psychosis intervention which found that its participants were much more likely to be in paid employment than their peers who had not received this service, and that the health care costs to treat each person were about $6,300 less per year ($3,566 for those in early psychosis program compared to $9,836 for those not in the program).[33] Another example is studies that report how prevention programs for juvenile offenders have been demonstrated to produce net cost benefits ranging from $1,900 to $31,200 per youth.[34]

A research study in southwestern Ontario on outcomes following a long-term hospital stay evaluated the impact of transitional discharge planning combined with peer support. Individuals in the group receiving peer support were discharged on average 116 days sooner from hospital than the control group who did not have access to this program resulting in an estimated saving of $12 million.[35]

A 2011 United Kingdom Department of Health study found that providing supported housing after discharge from hospital for people with moderate mental health needs generated estimated savings of £22 000 ($35,000) for each person per year across the wider health and social care system.[36]

An Ontario study of its Assertive Community Treatment (ACT) programs (a highly specialized form of intensive case management in the community) reports an 82% decline in hospitalizations in four years among these program participants.[37] While this study was not designed to measure cost savings per se, other studies have concluded that ACT teams increase client days in the community and decrease hospital use with no difference in cost. They further conclude that ACT becomes cost effective when the program serves the very ill who are heavy users of hospital services.[38]



WORKPLACE MENTAL HEALTH

There is growing evidence of the size of potential returns from undertaking workplace and employment support initiatives.

The UK National Institute for Health and Clinical Excellence estimates that improving the management of mental health in the workplace including prevention, early action to combat stress and early identification of problems could decrease losses to productivity by as much as 30% and result in annual savings of £250,607 ($397,713) in an organization of 1000 employees.[39]

People with serious mental health problems and illnesses who receive individualized support to find employment are nearly three times more likely to be in competitive employment than those who did not receive this support. This is particularly significant in light of the fact that as many as 90% of people with serious mental health problems and illnesses have traditionally been excluded from the labour force.[40]

Conclusion

The evidence offers at least three compelling reasons to invest more in mental health as recommended in the *Strategy:* the needs are substantial and will continue to remain substantial over the coming thirty years; current costs are very high; and, while some costs are necessary and cannot be avoided, not acting on the strong evidence for what works will cost even more.

Mental illness currently costs the economy at least $50 billion. If nothing changes in public programs, policies and investment, business practices, and health care practices to better apply the evidence we have, the number of people with mental health problems and illnesses and the cost to the Canadian economy will continue to remain large relative to the population and rise in absolute numbers. If nothing changes, by 2041 there will be over 8.9 million people in Canada living with a mental illness; which represents a 31% increase from 2011, while the total population will only grow by 26% over the next thirty years. At the same time, the costs of mental health problems and illness will grow over six-fold over the next thirty years to $306 billion. The present value of the cumulative total cost over the next thirty years will exceed $2.5 trillion.

The increasing attention to mental health in Canada provides poignant examples on a daily basis of how too many people in Canada are not receiving the services and programs that we know can improve the quality of their lives, reduce the limitations imposed by their illnesses, or even help prevent certain mental health problems and illnesses from developing into larger problems.

But change requires government at all levels, business, labour, civil society, health care leaders and individual citizens to work together to implement the priority areas identified in *Changing Directions, Changing Lives: The Mental Health Strategy for Canada*.

While the gaps in services and programs will take time to close, a place to start, as the *Strategy* recommends, is to increase mental health expenditures in health services as well as social spending directed at mental health by two percentage points. Not only will this move Canada closer toward the average levels of funding provided to mental health by other developed countries, there is good evidence that additional investment will yield significant economic benefits.

APPENDIX 1

CONDITIONS MODELED

Childhood Conditions	Adolescent Conditions	Adult Conditions
Mood Disorders (Active, Remission, Never)	Mood Disorders (Active, Remission, Never)	Mood Disorders (Active, Remission, Never)
Anxiety Disorders (Active, Remission, Never)	Anxiety Disorders (Active, Remission, Never)	Anxiety Disorders (Active, Remission, Never)
	SUD (Active, Remission, Never)	SUD (Active, Remission, Never)
		Psychotic Disorders (Active, Remission, Never)
ADHD (Active, Remission, Never)	ADHD (Active, Remission, Never)	
ODD (Active, Remission, Never)	ODD (Active, Remission, Never)	Previous Youth Disorder (Remission, Never)
Conduct Disorders (Active, Remission, Never)	Conduct Disorders (Active, Remission, Never)	
		Dementia (Active, Never)
		Heart Disease (Active, Never)
		Type 2 Diabetes (Active, Never)

APPENDIX 2

ESTIMATED NUMBER OF PEOPLE IN CANADA WITH ANY MENTAL ILLNESS, 2011 & 2041, BY AGE & SEX

Yr/age group	9-12	13-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+	Total
2011 # females	114,091	372,579	642,202	586,624	526,672	440,233	320,899	287,696	250,325	77,860	3,619,181
2011 # males	115,604	439,235	677,127	624,268	500,210	316,293	183,732	169,316	126,623	26,040	3,178,448
Total	229,695	811,814	1,319,329	1,210,892	1,026,882	756,526	504,631	457,012	376,948	103,900	6,797,629
2041 # females	139,798	408,710	687,821	656,920	565,463	486,258	459,558	606,621	602,621	252,358	4,866,128
2041 # males	142,512	484,419	728,123	692,627	526,179	344,680	267,066	380,423	360,522	118,138	4,044,688
Total	282,310	893,129	1,415,944	1,349,547	1,091,642	830,938	726,624	987,044	963,143	370,496	8,910,816

APPENDIX 3

ESTIMATED ANNUAL PREVALENCE RATES OF ANY MENTAL ILLNESS IN CANADA, 2011 & 2041, BY AGE AND SEX

Yr/age group	9 - 12	13-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+	Total
2011 % females	15.60	25.90	28.10	25.00	20.60	17.50	17.60	25.90	36.70	42.10	20.90
2011 % males	15.10	29.10	28.70	26.30	19.50	12.80	10.60	17.80	28.30	33.80	18.70
2041 % females	15.50	25.30	28.00	25.20	21.00	17.90	18.30	26.60	37.30	42.70	22.20
2041 % males	15.00	28.50	28.90	26.40	19.40	12.70	10.80	18.10	28.70	34.30	18.90

Notes

1. Mental Health Commission of Canada (2012). *Changing Directions, Changing Lives: The Mental Health Strategy for Canada.* Retrieved from http://www.mentalhealthcommission.ca/english/pages/default.aspx.

2. World Health Organization (2001). *Strengthening mental health promotion.* (Fact sheet, No. 220). Retrieved from https://apps.who.int/inf-fs/en/fact220html.

3. Mental Health Commission of Canada. (2009). *Toward recovery & well-being: A framework for a mental health strategy for Canada.* Retrieved from http://www.mentalhealthcommission.ca.

4. P.A. Kurdyak et al. (2008). "The Relationship between Depressive Symptoms, Health Service Consumption, and Prognosis of Acute Myocardial Infarction: A Prospective Cohort Study" *BMC Health Services Research,* 8:200.

5. Mental Health Commission of Canada (2009) op. cit.

6. While the MHCC generally uses the term mental health problems and illnesses broadly and inclusively, the modelling work in the study conducted by Risk Analytica for the MHCC covered a number of specific illnesses. The specific disorders modeled in this study included mood and anxiety disorders, schizophrenia, cognitive impairment including dementia, substance use disorders, the childhood and adolescent disorders of attention deficit hyperactivity disorders, oppositional defiant disorders and conduct disorders. When the terms "mental illness/es" are used in this paper, we are referring to data from the study.

7. The study comprises three reports:
    1. Risk Analytica (2010) *Life at Risk® Mental Health Application: Data Review and Modeling Strategy, Final Report.*
    2. Smetanin, P., Stiff, D., Briante, C., Adair, C.E., Ahmad, S. & Khan, M. (2011). *The life and economic impact of major mental illnesses in Canada: 2011 to 2041.* RiskAnalytica on behalf of the Mental Health Commission of Canada.
    3. Smetanin, P., Stiff, D., Briante, C., and Khan, M. (2012). *Life and Economic Impact of Hypothetical Intervention Scenarios on Major Mental Illnesses in Canada: 2011 to 2041.* RiskAnalytica, on behalf of the Mental Health Commission of Canada.

8. For a detailed explanation of the Life at Risk@ model a report is available from Risk Analytica (June 2009), *Life at Risk Economic Modelling Framework.* Toronto.

9. The number of people who are expected to have a given illness within a certain period of time, e.g. in a 12-month period.

10. The number of new cases expected in a given year.

11. By 2041, the Canadian population is expected to increase from 34.5 million in 2011 to 43.4 million in 2041, a 26% increase.

12. Canadian studies estimate annual direct and indirect costs to range between
    a. $48.7 B per year (Smetanin, P., et. al. (2011, op. cit.); and
    b. $51B per year (Lim, K., Jacobs, P., Ohinmaa, A., Schopflocher, D., & Dewa, C.S. (2008a). A new population based measure of the economic burden of mental illness in Canada. *Chronic Diseases in Canada, 28* (3), 92–98).

13. Smetanin, P., et. al. (2011) op. cit. pp 75

14. Jacobs, P., Dewa, C., Lesage, A., Vasiliadis, H.M., Escober, C., Mulvale G., Yim, R., (2010) *The Cost of Mental Health Services in Canada: A report of the Mental Health Commission of Canada.* Institute of Health Economics. See Smetanin, P., et. al. (2011) op. cit. pp. 62 & 73.

15. Costs associated with private residential care, detoxification centres or community-based addiction programs are not captured in the model, nor are any pharmaceuticals associated with the treatment of substance use disorders

16. Smetanin, P., et. al. (2011) op. cit. p. 77

17. Biron, C., Brun, J-P., Ivers, H, Cooper C.L. (2006) ."At work but ill: psychosocial work environment and well-being determinants of presenteeism propensity," *Journal of Public Mental Health, 5(4), 26-37.*

18. Sareen, J., Afifi, T. O., McMillan, K.A., Asmundson, G.J.G. (2011). Relationship Between Household Income and Mental Disorders: Findings From a Population-Based Longitudinal Study, *Arch Gen Psychiatry,* 68 (4).

19. Smith, J.P., Smith, G.C. (2010). Long-term economic costs of psychological problems during childhood. *Social Science & Medicine,* 71 (1), 110–115.

20. Lim, K.(2008)a op. cit.

The Lim Study calculated HQOL by assigning a value of $50,000 per lost quality-adjusted life year, (QALY) a standard measure of quality of life. The authors concede that there is some controversy as to an appropriate value to use as the basis of the calculation. They argue that, even if only $20,000 per QALY were used, the total value would still be over $11 million and, therefore, despite its arbitrariness, HRQOL is a major component of the economic burden of mental illness. The subject matter experts guiding the Risk Analytica study considered HRQOL, but decided that, for all its merits, it would not be used, because of its arbitrary nature.

21. Alzheimer Society of Canada & Risk Analytica. (2012) *Dementia: Revised Dementia Statistics (Rising Tide 2.0)* .

22. Lim, K.L., Jacobs, P., Dewa, C., (2008) *How much should we spend on Mental Health?* Institute of Health Economics. p. 15-16

23. Lim, K. et al. (2008a) op. cit.

24. Savings related to public expenditures in health care, social services and income support.

25. Smetanin, P. et.al. (2012). Op. cit. Table 23.

26. Roberts, G., & Grimes, K. (2011). *Return on investment: Mental health promotion and mental illness prevention.* Canadian Policy Network at the University of Western Ontario and the Canadian Institute for Health Information. Retrieved from https://secure.cihi.ca/free_products/roi_mental_health_report_en.pdf.

27. Knapp, M., McDaid, D., & Parsonage, M. (2011). *Mental health promotion and prevention: the economic case.* London, U.K: Department of Health. Retrieved from: http://www2.lse.ac.uk/businessAndConsultancy/LSEEnterprise/pdf/PSSRUfeb2011.pdf

28. Friedli, L., & Parsonage, M. (2007). *Mental health promotion: Building an economic case.* Belfast: Northern Ireland Association for Mental Health. Retrieved from http://www.chex.org.uk/media/resources/mental_health/Mental%20Health%20Promotion%20-%20Building%20an%20Economic%20Case.pdf.

29. Smith, J.P., & Smith, G.C. (2010). Long-term economic costs of psychological problems during childhood. *Social Science & Medicine,* 71 (1), 110–115.

30. Mihalopoulos, C. (2007). Does the triple P-positive parenting program provide value for money? *Australian and New Zealand Journal of Psychiatry,* 41(3), 239-246.

31. Doran, C.E., Jacobs, P., & Dewa, C. (2011, unpublished). *An economic model of early mental health investment: Promoting mental health and well being across the lifespan.* Alberta: Institute of Health Economics.

32. Karoly, L.A. (2010). Working Paper: *Toward Standardization of Benefit Cost Analyses of Early Childhood Interventions*. Rand Corporation. Cited in Roberts, G., et. al. (2011) op. cit.

33. Mihalopoulos, C., & Harris, M. (2009). Is early intervention in psychosis cost effective over the long term? *Schizophrenia Bulletin, 35* (5), 909–918,

34. Aos, S., et. al. (2004). *Benefits and Costs of Prevention and Early Intervention Programs for Youth.* Washington State institute for Public Policy. Cited in Roberts, G., et. al. (2011) op. cit.

35. Forchuk, C., Martin, M.L., Chan, Y.L., & Jensen, E. (2005). Therapeutic relationships: From psychiatric hospital to community. *Journal of Psychiatric and Mental Health Nursing, 12,* 556–564.

36. UK Department of Health. (2011). As cited in Community Support and Research Unit, Centre for Addiction and Mental Health & Canadian Council on Social Development. (2011). *Turning the key: Assessing housing and related supports for persons living with mental health problems and illnesses.* Calgary, AB: Mental Health Commission of Canada. Retrieved from http://www.mentalhealthcommission.ca.

37. Ontario, Ministry of Health and Long-Term Care, Ontario Technical Advisory Panel. (2008) *2006/07 Ontario ACT data outcome monitoring report* [Power Point presentation].

38. Essock, S.M., Frisman, L.K., Kontos, N.J. (1998). Cost effectiveness of assertive community treatment teams. *American Journal of Orthopsychiatry,* 68(2) 179-190.

39. National Institute for Health and Clinical Excellence. (2009). *Promoting mental health at work: Business case.* London, U.K.: Author. Retrieved from http://www.nice.org.uk/nicemedia/live/12331/46023/46023.PDF.

40. Latimer, E.A., Lecomte, T., Becker, D.R., Drake, R.E., Duclos, I., Piat, M., ... & Xie, H. (2006). Generalisability of the individual placement and support model of supported employment: Results of a Canadian randomised controlled trial. *British Journal of Psychiatry, 189,* 65–73.