



THE COST OF UNTREATED MENTAL ILLNESS IN THE STATE OF INDIANA

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WISE Indiana
wisein@iu.edu

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Primary Expert Contributors

Justin Blackburn, PhD
Associate Professor, Health Policy and Management
Richard M. Fairbanks School of Public Health

Heather Taylor, PhD, MPH, RDH
Visiting Assistant Professor, Health Policy and Management
Richard M. Fairbanks School of Public Health

Additional Contributors

WISE Indiana

Aaron Zych, MPH
Project Management Coordinator

Amber Osterholt, PhD
Assistant Scientist

Dustin Lynch
Visual Design Research Specialist

Richard M. Fairbanks School of Public Health

Nir Menachemi, PhD, MPH
Professor, Health Policy and Management

Marion Greene, PhD
Research Assistant Professor, Health Policy and Management

Irsay Family Research Institute

Bernice Pescosolido, PhD
Director

Brea Perry, PhD
Associate Director

Ashley Railey, PhD
Postdoctoral Research Fellow

Paul H. O'Neill School of Public and Environmental Affairs

Kosali Simon, PhD
Distinguished Professor and Herman B. Wells Endowed Professor

Coady Wing, PhD
Associate Professor

About WISE Indiana

WISE Indiana (Well Being Informed by Science and Evidence in Indiana) is a partnership between the Indiana Clinical and Translational Sciences Institute's Monon Collaborative and the Indiana Family and Social Services Administration to engage Indiana's nationally-recognized academic experts to evaluate and inform Indiana practices, programs, and policies. This partnership aligns with and furthers the visions of both organizations by facilitating timely, high-quality evidence-informed research, evaluation and analysis to the benefit of all Hoosiers.

WISE Indiana
Indiana CTSI
410 W. 10th St
Suite 2000

Indianapolis, IN 46202

Email: wisein@iu.edu

Web: <https://indianactsi.org/community/monon-collaborative/>



OVERVIEW

On December 1, 2021, Indiana's Family Social Services Administration (FSSA) Division of Mental Health and Addiction (DMHA) commissioned a cost-analysis of untreated mental illness, in alignment with a 2019 state statute for the Indiana Behavioral Health Commission (Indiana Code 12-21-7).

The substantial burden of mental illnesses on individuals, families, and communities is demonstrated by the following facts:

- Approximately one in five Hoosiers experience mental illness each year.¹
- For every four Hoosiers treated for mental illness, one additional Hoosier is untreated.
- Mental illness is associated with the prevalence and progression of many burdensome and costly chronic diseases, such as diabetes and cardiovascular disease.²
- An estimated 40% of individuals who are incarcerated have a mental illness. One in four who are incarcerated have a serious mental illness.³
- Nearly half (45%) of homeless individuals have a mental illness, particularly among those who are chronically homeless.⁴
- Eighty percent of Hoosiers with a serious mental illness are unemployed.⁵

To estimate the annual economic burden of untreated mental illnesses to the state of Indiana, previous research and evidence was reviewed to identify which societal costs are most likely affected. Based on prior work estimating the economic burden of mental illness, a framework was developed to incorporate both *direct* and *indirect costs*:

- *Direct costs* include disease-related expenditures and consist of both health care costs (i.e., inpatient expenditures, outpatient expenditures, emergency department expenditures, and pharmacy expenditures) and non-healthcare costs (i.e., incarceration costs and homeless shelter costs)
- *Indirect costs* include resources lost due to mental illness and include loss of productivity due to unemployment, workplace productivity loss (i.e., absenteeism, presenteeism), premature mortality costs, and caregiving costs.^{6,7}

Since the prevalence and risks for negative societal outcomes and therefore costs associated with **serious mental illness (SMI)** varies from the prevalence and risks associated with **other mental illnesses (MI)**, we estimated costs for adults separately for each before summing all costs together.

- Consistent with the definition used by Indiana FSSA, **SMI** was defined as conditions resulting in serious functional impairment, including schizophrenia, bipolar disorder, and major depressive disorder, and where possible, conditions encompassing serious emotional disturbance.
- **Other MI** was defined using the Healthcare Cost and Utilization Project Clinical Classification Software Refined Categories of mental, behavioral and neurodevelopmental disorders (e.g., anxiety and stress-related disorders).
- Given differences in the prevalence of and risks associated with mental illness among children relative to adults, where possible we separately estimated **costs for children**.

The total cost was based upon the sum of all estimated annual costs that the state of Indiana incurs based on the population with untreated mental illness, for all cost categories, ages, and definitions of mental illness. All costs are adjusted for inflation using the 2019 Consumer Price Index.

METHODOLOGY TO ESTIMATE DIRECT HEALTHCARE COSTS

Using claims and enrollment data provided by FSSA for Medicaid enrollees, the cost of mental illness was estimated based on individuals with newly diagnosed mental illness were identified using a combination of primary diagnosis codes, mental health-related procedure codes, or the presence of medications used to treat mental illness. Individuals were excluded if they were not continuously enrolled for 24 months in any of Indiana's Medicaid programs between 2018 and 2019 or if they were over age 64 because Medicare incurred costs are not observable in these data. Costs accrued in the year prior to any mental illness diagnosis and costs accrued in the first year of diagnosis were totaled. Differences in costs between the year of diagnosis and the year prior to diagnosis were compared to differences in direct healthcare costs among a group of Hoosiers (frequency matched on sex, age, race, and county of residence) who had no diagnosed mental illness within a similar two-year continuous time period. Total health care expenditures, including inpatient care, outpatient care, emergency departments, and other healthcare services were tabulated and compared across groups. Costs for privately insured individuals were estimated by multiplying the Medicaid costs by a published conversion factor of 1.7.⁸ This estimated excess cost of mental illness was then multiplied by the statewide population estimated to have untreated mental illness so as to estimate the total excess healthcare cost (excluding mental health services) attributable to untreated and undertreated mental illness.

METHODOLOGY TO ESTIMATE DIRECT NON-HEALTHCARE COSTS AND INDIRECT COSTS

Where possible, published direct estimates of excess costs attributable to mental illness were used. When no such estimate was available, an estimate was derived based on an underlying premise that mental illness increases the risk of certain outcomes, some individuals may experience the outcome regardless of mental illness, and thus calculation of the excess risk of each outcome attributable to the population prevalence of mental illness was necessary. Two important parameters needed in this calculation were the prevalence of mental illness within Indiana and proportion of that population with untreated mental illness. According to the 2018-2019 National Survey on Drug Use and Health (NSDUH)¹, the prevalence of mental illness and SMI in Indiana is 22.6% and 5.9%, respectively. Furthermore, NSDUH estimates indicate 26.8% of those with any mental illness and 52.5% of those with SMI did not receive needed treatment within the past year.

Additional parameters were identified from published sources for each category of *direct non-healthcare* and *indirect* costs in order to estimate the expected risk for each outcome in the general population and the risk of the outcome within the population with mental illness. Through subtraction of the risk among the population with any mental illness and the expected risk in the population, the excess risk of each outcome attributable to mental illness was calculated. The estimated population experiencing each outcome as a result of a mental illness was calculated by multiplying the excess risk of each outcome by the relative population with SMI or other MI population. The proportion untreated was assumed to be consistent across the population, regardless of the outcome. Individual annual costs associated with each outcome were multiplied by the estimated number of people with untreated mental illness who experienced the outcome.

SUMMARY OF FINDINGS

Total annual costs

The cost of untreated mental illness in Indiana is estimated to be \$4.2 billion every year. The largest cost attributable to untreated mental illness was premature mortality, which is valued at over \$1.4 billion. Productivity losses were estimated to cost \$885 million each year, and direct healthcare costs \$708 million.

Direct healthcare costs

- Costs of \$708 million annually; \$142 million to Medicaid and \$567 million to private insurers

Direct non-healthcare costs

- Costs of \$106 million to Indiana's criminal justice system
- Costs of \$9.9 million to Indiana through homeless supports

Indirect Costs

- Costs of \$1.5 billion in premature mortality
 - Much of this derived from the excess risk of unintentional death attributable to mental illness in the form of annualized years of life lost
 - Costs of \$431 million due to intentional death
- Costs of \$885 million due to productivity losses, \$750 million of which was lower productivity among workers
- Costs of \$566 million for caregiving, \$546 million of which was lower productivity among caregivers
- Costs of \$407 million in unemployment for those unable to work

IMPLICATIONS/RECOMENDATIONS

Estimation of the economic burden of untreated mental illness in Indiana puts into context the nature and scope of this public health challenge. Although categories of costs represented in this report reflect those most often captured in economic analyses of mental illness, other societal costs attributable to untreated mental illness are likely to be incurred and not captured here. Despite efforts to estimate costs across the lifespan, the lack of data for direct healthcare costs among the Medicare-eligible population is example of costs not included in the overall estimate. Thus, it is likely that the costs estimated in this report are an underestimate of the true economic burden.

At over \$4 billion dollars, the economic burden of untreated mental illness in Indiana represents 1.2% of the state's gross domestic product in 2019 (\$338 billion). For context, corn, the leading agricultural commodity for Indiana representing nearly 30% of agricultural production, had \$3.8 billion in sales in 2018.⁹ Considering the average wage in Indiana, \$4 billion represents approximately 100,000 jobs. Spread across all Hoosiers, this is a loss of over \$600 each year for every person in the state or nearly \$1600 for each family every year.

This report will enable Indiana to prioritize key areas for action regarding mental health services and treatments, as well as provide baseline metrics for tracking progress toward improvement efforts. The human capital costs of mental illness cannot be valued, however quantifying the economic costs puts into perspective the case for action from a financial perspective. Cost savings may be realized through reducing the number of Hoosiers with untreated and undertreated mental illness across the categories provided. This may be achieved by strengthening the mental health provider workforce, improving access to mental health services, ensuring that policies enable providers to use the full range of treatment options, reducing barriers to treatment initiation such as transportation challenges, increasing awareness and reducing stigma around mental illness, and encouraging employers to support mental health initiatives. This report is not a cost-effectiveness analysis, and it is assumed investments will be required to realize financial returns, although the extent of the necessary investments is outside the scope of this report. Additionally, it is not known the extent to which treatment may be fully restorative and therefore able to avert all associated costs. Nevertheless, evidence-based treatment and interventions to improve access to behavioral services should be considered given the economic costs of not treating these disorders.

Table: Annual societal costs attributable to untreated mental illness in Indiana

	Serious mental illness	Other mental illness	Children	Total
Direct non-healthcare costs				
Jail	\$ 3,291,954.63	\$ 2,116,642.39	\$ -	\$ 5,408,597.02
Prison	\$ 61,305,242.29	\$ 37,691,467.56	\$ 2,036,473.26	\$ 101,033,183.12
Homelessness	\$ 4,530,057.18	\$ 3,757,757.00	\$ -	\$ 8,287,814.18
Chronic Homelessness	\$ 904,993.82	\$ 750,707.27	\$ -	\$ 1,655,701.09
Indirect Costs				
Primary Education	\$ -	\$ -	\$ 760,348.70	\$ 760,348.70
Unemployment	\$ 235,812,941.10	\$ 171,057,553.42	\$ -	\$ 406,870,494.53
Absenteeism	\$ 32,092,960.13	\$ 102,476,353.06	\$ -	\$ 134,569,313.19
Presenteeism	\$ 152,393,517.28	\$ 597,778,726.16	\$ -	\$ 750,172,243.44
All-cause Mortality	\$ 563,690,748.00	\$ 403,756,056.00	\$ 27,599,654.88	\$ 967,446,804.00
Suicide	\$ 431,324,037.97	\$ -	\$ 40,446,696.00	\$ 471,770,733.97
Caregiving Productivity Loss	\$ 223,377,237.02	\$ 322,441,199.44	\$ -	\$ 545,818,436.46
Caregiving Direct Healthcare	\$ 7,811,747.31	\$ 12,688,326.43	\$ -	\$ 20,500,073.74
Direct health care costs				
Medicaid healthcare	\$ 56,086,373.04	\$ 59,400,366.69	\$ 26,020,848.91	\$ 141,507,588.64
Private healthcare	\$ 225,088,188.42	\$ 299,039,237.34	\$ 42,815,039.01	\$ 566,942,464.78
Total all costs	\$ 1,997,709,998.19	\$ 2,012,954,392.77	\$ 139,679,060.76	\$ 4,150,343,451.73

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