USC Schaeffer

Leonard D. Schaeffer Center
for Health Policy & Economics

# THE COST OF MENTAL ILLNESS:
# MASSACHUSETTS FACTS AND FIGURES

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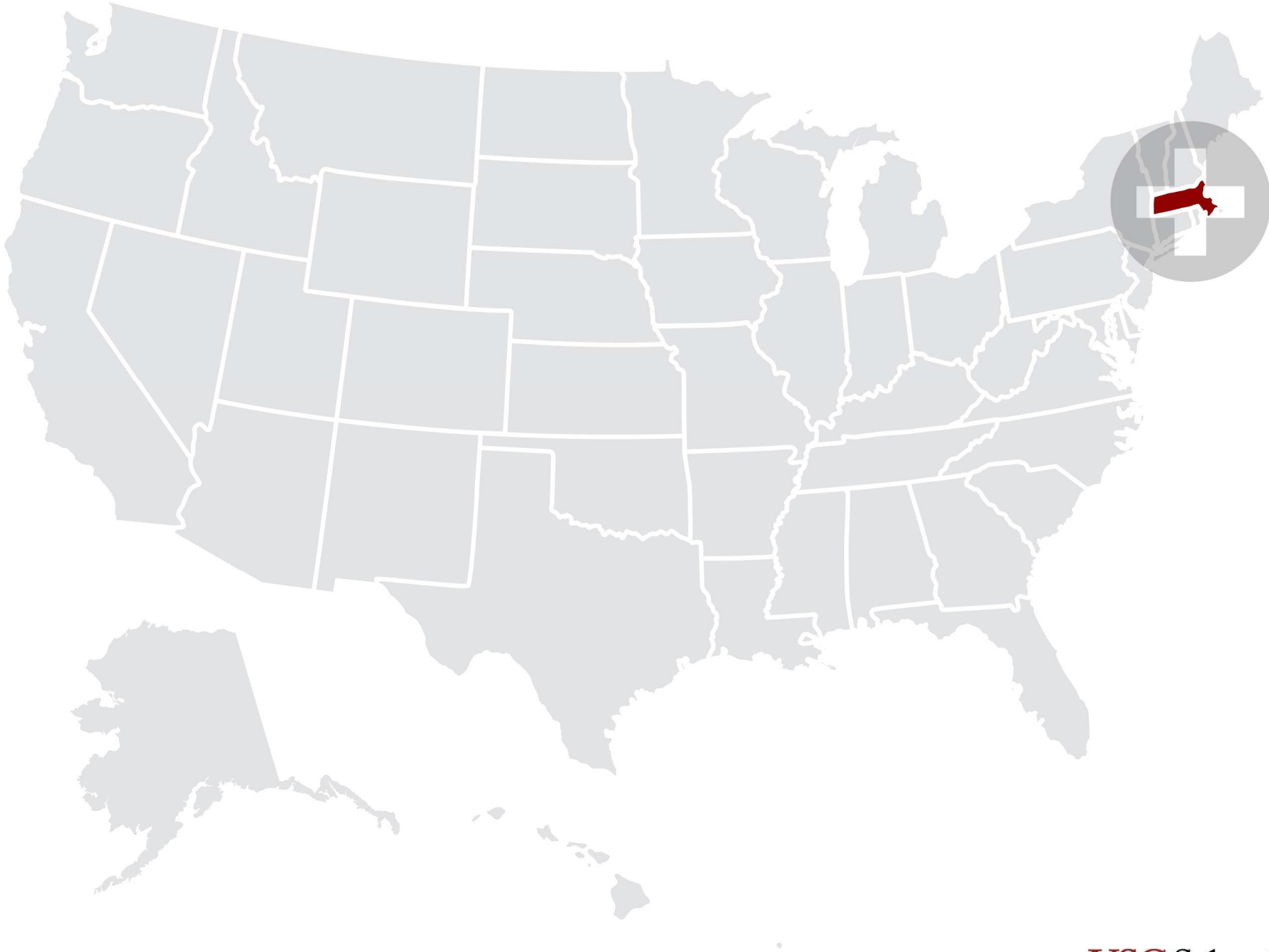
# MASSACHUSETTS



# INTRODUCTION

Improving access to high-quality medical care for patients with behavioral health conditions remains one of the most vexing problems facing the healthcare system in the United States. While Massachusetts' health care system is considered to be among the nation's top regarding access to health care, patients with serious mental health and substance use conditions may find themselves struggling to access care in a fragmented and underfunded system.

This chartbook attempts to quantify the magnitude of the challenges facing Massachusetts in terms of the economic burden associated with mental illness. We describe the size and characteristics of the population with behavioral health challenges and show the impact on the healthcare system based on high rates of hospitalization. We also note the unmet need in terms of mental health care providers, the rates of opioid misuse and overdoses, and discuss the implications for the criminal justice system in Massachusetts.

# INTRODUCTION

**Key findings include:**

- In Massachusetts, patients with hospitalizations for serious mental illness have a relatively long hospital stay duration, which imposes a large cost on the health care system.
- Massachusetts' per capita state mental health agency spending on community-based treatment programs is low relative to the U.S. average.
- Whereas Massachusetts has the highest per capita number of mental health providers, shortages still exist in certain areas and facilities, particularly in correctional facilities.
- People living with mental illness are more likely to encounter the criminal justice system, resulting in a large number of arrests and incarcerations. The overall annual cost of incarcerating people with serious mental illness in state prisons in Massachusetts exceeds $300 million.
- During the past decades, opioid misuse and dependency have increased steadily in the U.S., and even more so in Massachusetts, despite a recent reduction in prescription opioid sales. The increase in substance misuse and dependency has resulted in a large increase in fatal overdoses from opioids and heroin in the last several years.

The data presented in this chartbook are all publicly available and represent the most recent numbers to which we had access.

The data and methods are described in more detail in the appendix that can be found at: http://healthpolicy.usc.edu/Keck_Schaeffer_Initiative.aspx

# CONTENTS

# QUANTIFYING THE POPULATION LIVING WITH MENTAL ILLNESS IN MASSACHSETTS AND THE U.S.

# KEY POPULATIONS OF INTEREST

## SERIOUS PSYCHOLOGICAL DISTRESS (SPD)

When someone experiences Serious Psychological Distress, he or she may have a diagnosed or undiagnosed mental health condition, such as major depressive disorder, bipolar disorder, or schizophrenia (described below). Serious Psychological Distress is determined by six questions on the Kessler-6 screening instrument, which measures the frequency of symptoms of depression, anxiety, and emotional distress during a specific time period

### MAJOR DEPRESSIVE DISORDER

A mental illness that severely impairs a person's ability to function, characterized by the presence of depressed mood, feelings of worthlessness, guilt, or helplessness, reduced concentration, ability to think, sleep problems, loss of interest or pleasure in activities, and/or recurrent thoughts of suicide

### BIPOLAR DISORDER

A mental illness characterized by extreme shifts in mood and energy levels. During manic episodes, a patient has abnormally high energy and activity levels that lead to impairment in daily functioning or requires hospitalization to prevent harm to self or others. Delusions or hallucinations can also occur. Manic episodes may be alternated with major depressive episodes

### SCHIZOPHRENIA

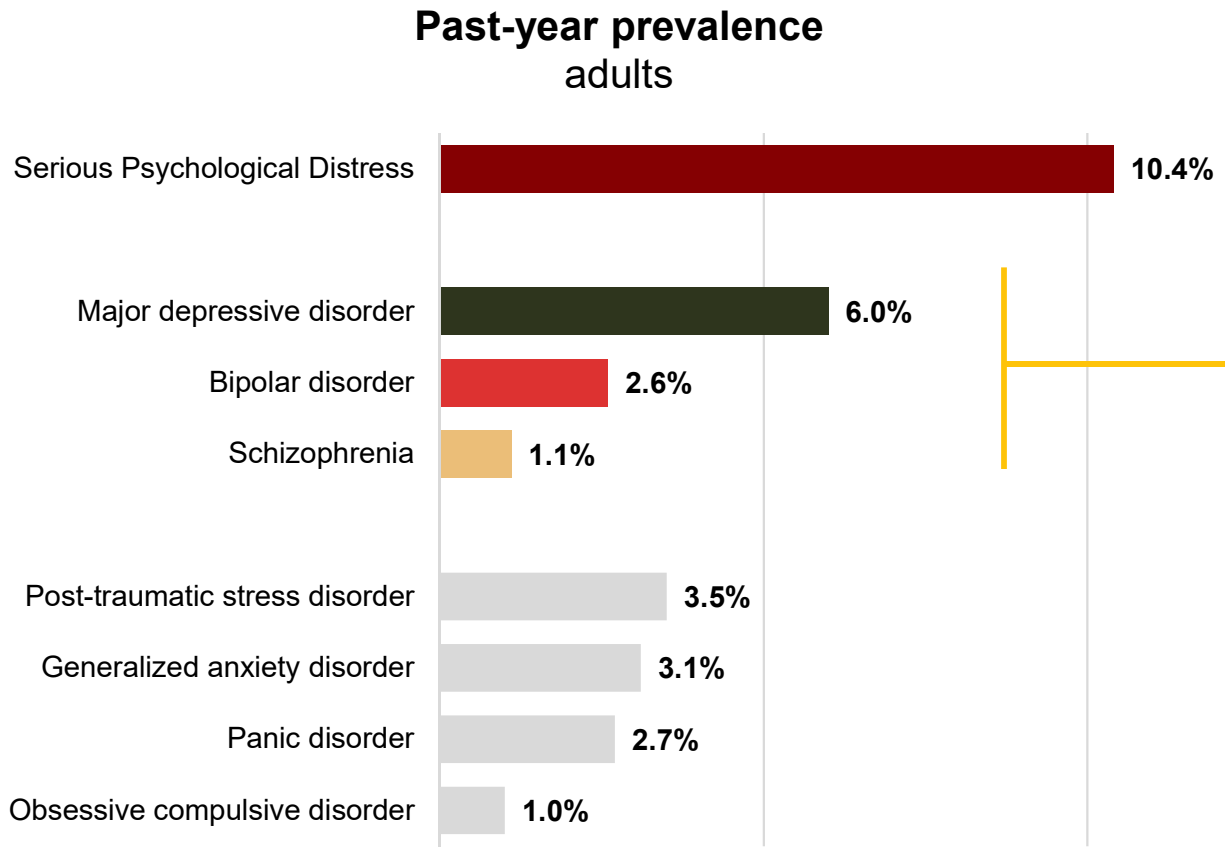
A debilitating mental illness that distorts a patient's sense of reality. Symptoms of schizophrenia include hallucinations, delusions, confusion, cognitive and mood impairments, and extremely disorganized thinking

## RISK FACTORS: GENETIC & EXTERNAL FACTORS

Many different genetic factors may increase risk, but no single genetic variation causes a mental illness by itself; Specific interactions between the individual's genes and environment are necessary for a mental illness to develop

# Prevalence of mental illness

## UNITED STATES 2015




*Many mental health conditions are fairly common in the general population.*

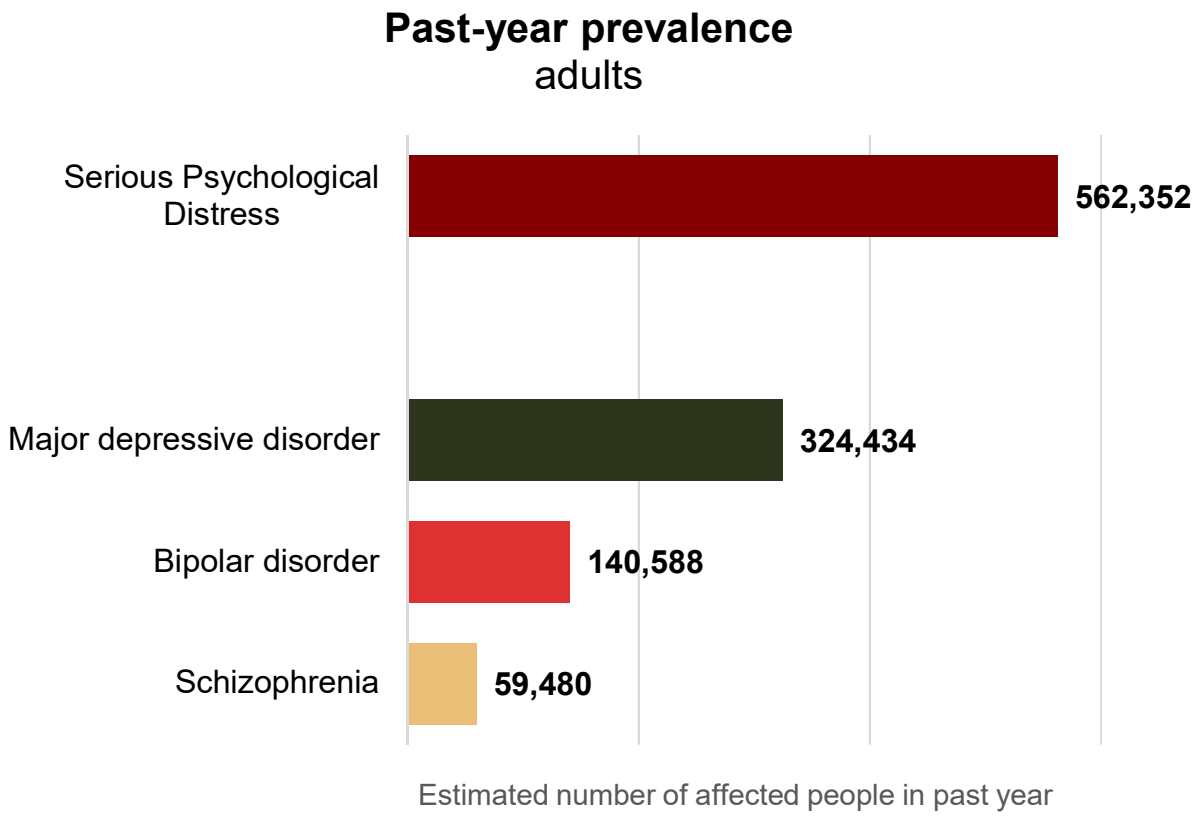
*Whereas any of these conditions can severely limit someone's normal daily activities, three disorders are often labeled as* ***Serious Mental Illness:*** ***major depressive disorder, bipolar disorder*** *and* ***schizophrenia****. These three disorders will be the focus of this chartbook*

*NB: Due to symptom overlap, diagnoses of mental illnesses are not mutually exclusive*

*Source: National Survey on Drug Use and Health (NSDUH) 2015 (SPD), NSDUH Mental Health Surveillance Study 2008-2012 (major depressive disorder) and National Institutes of Mental Health (other conditions – see appendix for original sources)*

# Estimated number of people living with mental illness

## MASSACHUSETTS 2015




*We estimate that more than half a million adults in Massachusetts experienced Serious Psychological Distress in the past 12 months.*

*Note that a patient can receive multiple serious mental illness diagnoses due to a high degree of overlap between mental health conditions.*

*Source: National Institutes of Mental Health, National Survey on Drug Use and Health (NSDUH) 2015, and NSDUH-MHSS 2008-2012.*

*Estimate of # of people affected using total state population of 5,407,228 adults (18 years and over), Census Bureau data (2015)*

# MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

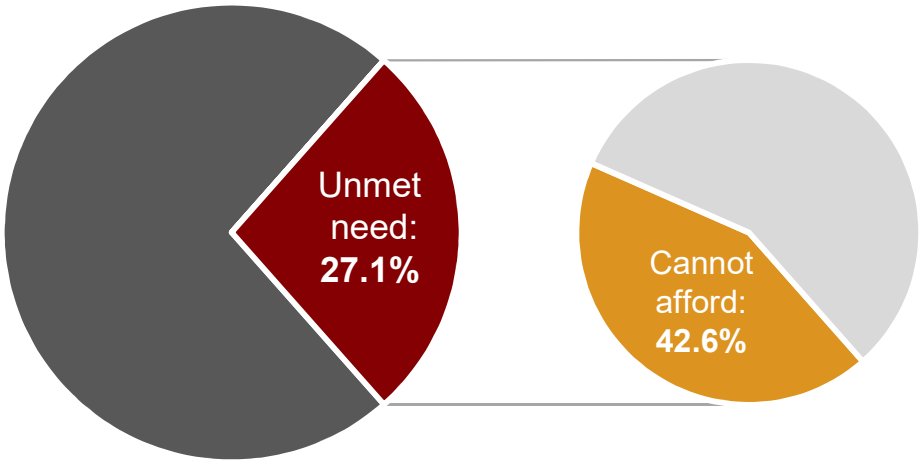
## Unmet mental health care needs

*More than a quarter of adults with Serious Psychological Distress in the past year reported an unmet need for mental health care. A common reason for not receiving care was the inability to afford mental health treatment, especially for people who do not have health insurance.*

# There is significant unmet need for mental health care in the U.S.

## UNITED STATES 2015

Among adults who experienced **Serious Psychological Distress** during the past year:




27.1% indicates an **unmet need of mental health treatment**

And 42.6% of these people did not receive mental health treatment, **because they could not afford it**

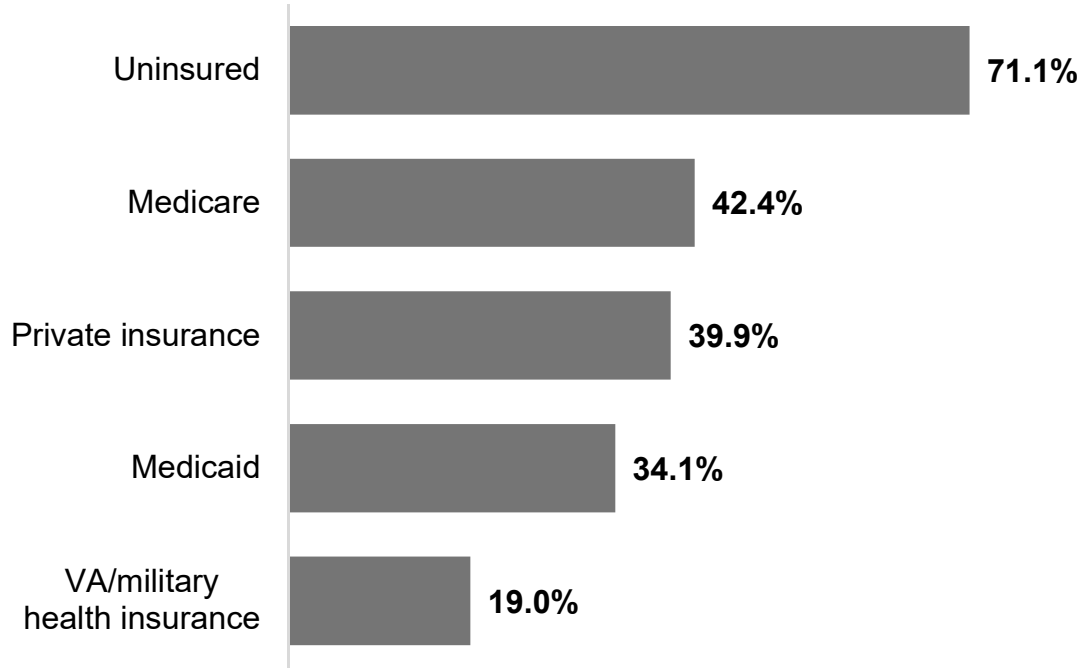
*More than a quarter of adults who experienced Serious Psychological Distress in the previous year in the U.S. reported an unmet need for mental health care. Almost half of the people with a perceived unmet need reported that they did not receive treatment because they could not afford it.*

*Source: National Survey on Drug Use and Health (NSDUH) 2015*

# Unmet need of mental health treatment due to costs

## UNITED STATES 2015

Percentage of adults with past-year Serious Psychological Distress and unmet need of treatment, **who could not afford mental health care**




*The extent to which cost was a factor in driving unmet need for mental health care varied by insurance status. People without health insurance were most affected by the inability to afford mental health treatment (71.1%), while those with VA/military health insurance coverage were least affected (19.0%).*

*Source: National Survey on Drug Use and Health (NSDUH) 2015*

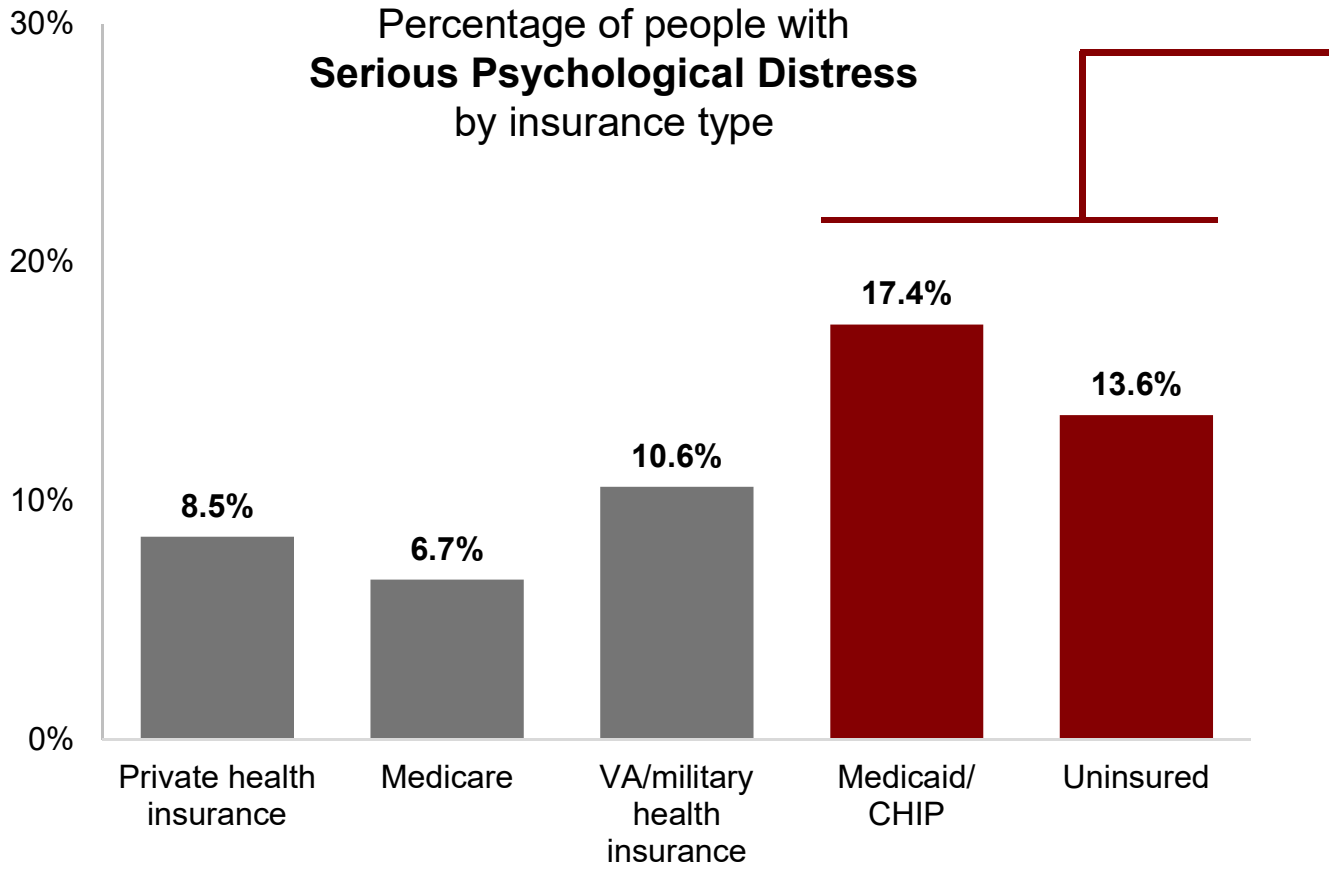
# MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

## Medicaid & mental health care needs

*Medicaid provides a safety-net for people who are living in poverty or have qualifying disabilities, and a large percentage of people with Medicaid coverage experience mental illness. However, it is often a financial burden for physicians to accept Medicaid patients since reimbursement rates are often lower than for other patients. This can lead to access barriers for patients with Medicaid coverage that prevent them from receiving the mental health care they need.*

# People with mental illness have greater reliance on the safety net

## UNITED STATES 2015

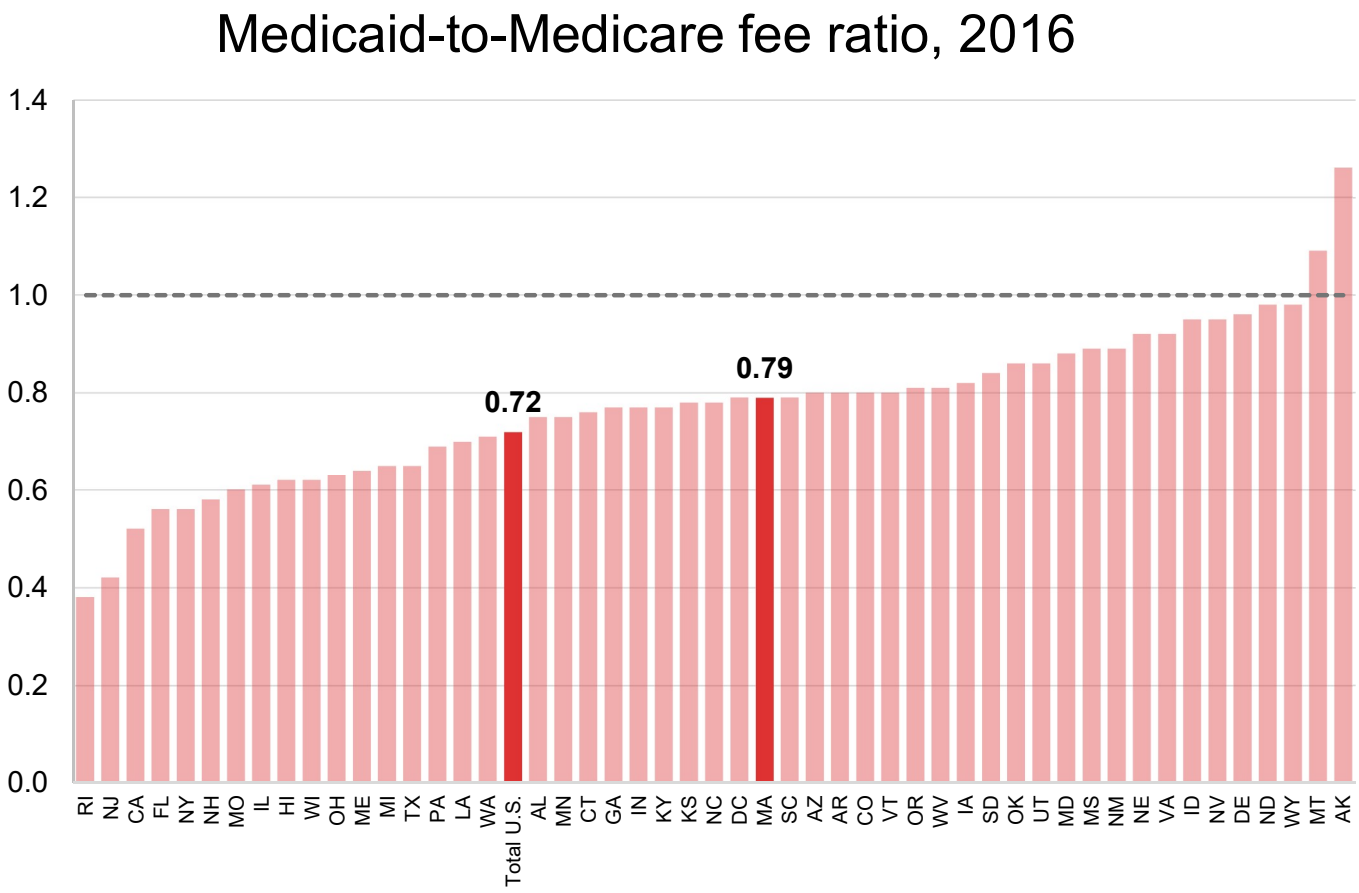



*In the **Medicaid and uninsured population**, a higher percentage of people reported Serious Psychological Distress (SPD) during the past year compared to people with Medicare, VA/military, or private health insurance coverage.*

*Source: National Survey on Drug Use and Health (NSDUH) 2015*

# Medicaid reimbursement rates to physicians are low

## MASSACHUSETTS AND UNITED STATES 2016




***Low reimbursement rates*** *are a disincentive for individual physicians to accept patients with Medicaid coverage and mental health problems. Compared to Medicare fee levels, Medicaid reimbursement rates are low in most states.*

*Although Massachusetts' fee ratio is higher than the U.S. average, Medicaid fees are still below Medicare fees.*

***This can be a barrier for these patients to obtain access to mental health care.***

*Source, Kaiser Family Foundation, Medicaid-to-Medicare Fee Index, FY 2016*

# MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

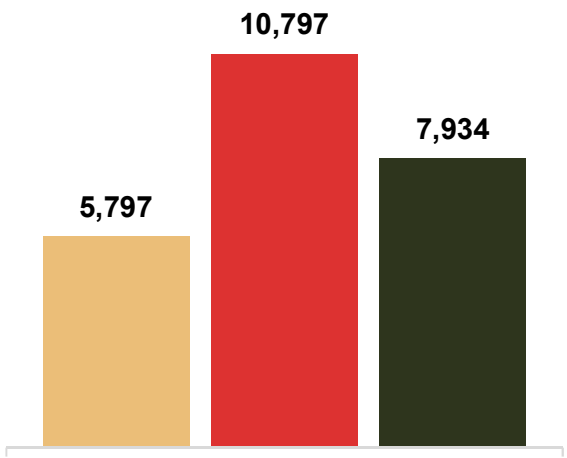
## Hospital utilization & costs

*For every 100 patients with a serious mental illness, there were approximately 18 hospitalizations in the US and 20 hospitalizations in Massachusetts in 2014. The average length of stay for these hospitalizations is long compared to other hospital stays. Relatively little progress has been made in reducing the length of stay for a serious mental illness over the last decade. This imposes a large financial cost on the health care system and potentially diverts resources away from other sites of care.*

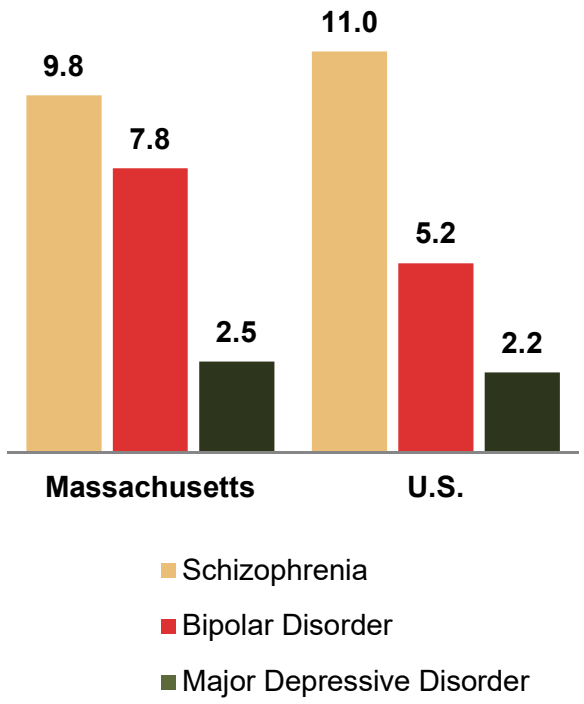
# Hospitalizations for mental illness

## MASSACHUSETTS AND UNITED STATES 2014

**Hospitalizations**
Massachusetts - adults




**Hospitalization rate**
per 100 patients - adults




*In Massachusetts, the number of hospitalizations is highest for adult patients with a principle diagnosis of bipolar disorder. However, patients with schizophrenia have a higher rate of hospitalizations.*

*The hospitalization rates in Massachusetts for adults with serious mental illness are similar compared to the U.S. average.*

*3.6 % of all hospitalizations in Massachusetts are due to SMI*

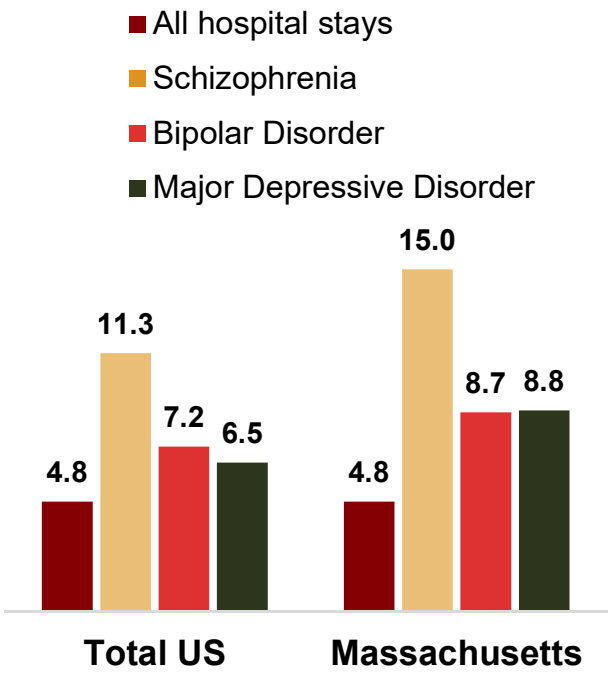
*Source: Healthcare Cost and Utilization Project (HCUPnet) 2014*

*Estimate of hospitalization rate: based on total state population (Census bureau data, 2014) and prevalence estimates reported previously*

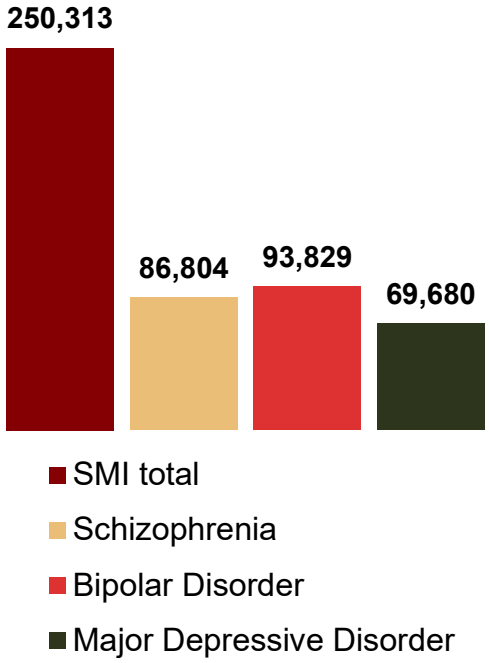
# Length of stay for mental illness hospitalizations

## MASSACHUSETTS AND UNITED STATES 2014

**Average length of hospital stays (days)**
adults




**Total number of hospital days in 2014**
Massachusetts - adults




*The average hospital stay duration for adult patients with serious mental illness is relatively high in Massachusetts, and compared to all hospital stays, especially for patients diagnosed with schizophrenia.*

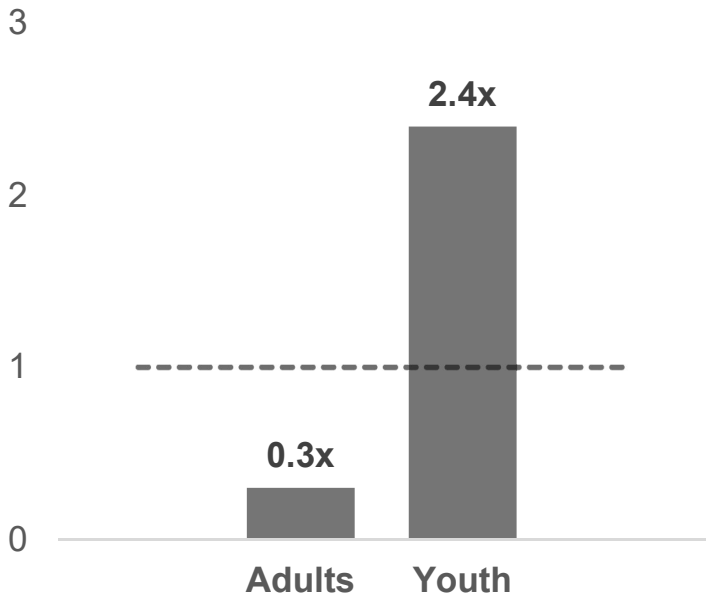
*The total time spent in the hospital by adults with a primary diagnosis of schizophrenia, bipolar disorder or major depressive disorder exceeds a quarter million days each year in Massachusetts.*

*Source: Healthcare Cost and Utilization Project (HCUPnet) 2014*

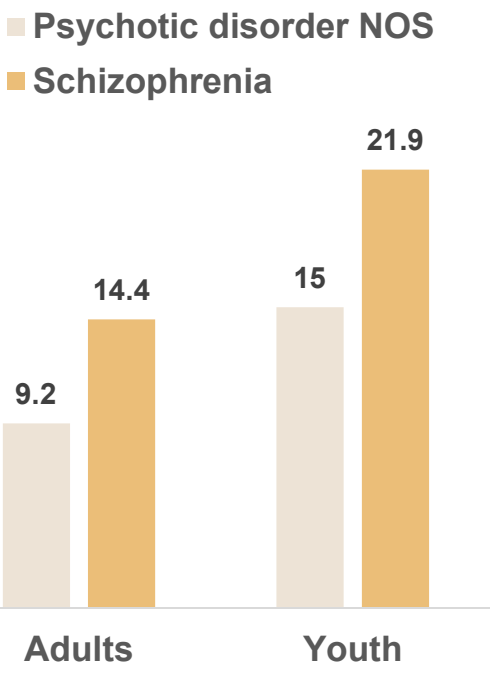
# Hospitalizations of young patients with psychosis

## MASSACHUSETTS 2014

Number of hospitalizations for **psychotic disorder NOS** relative to **schizophrenia**




**Average length of hospital stay (days)**



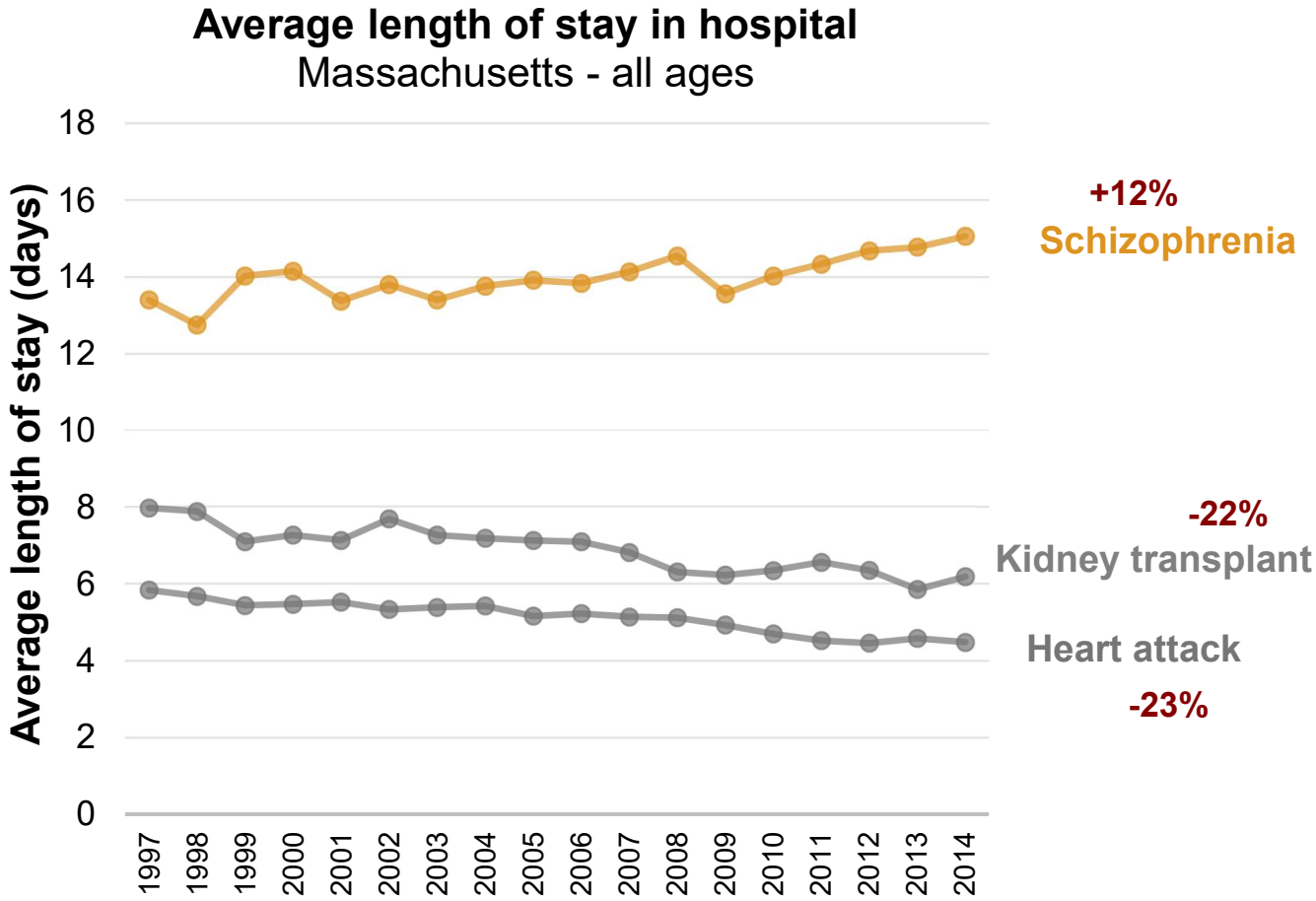

*In contrast to in adults, "psychotic disorder, not otherwise specified (NOS)" is diagnosed more often than schizophrenia in the younger population (1-17 years) during hospitalizations, possibly to prevent stigmatization.*

*Regardless of the primary reason for a hospitalization, the average length of stay for younger people in Massachusetts is approximately one week longer than for adults, illustrating the challenges in treating and establishing an environment with appropriate follow-up care for this especially vulnerable population.*

*Source: Healthcare Cost and Utilization Project (HCUPnet) 2014*

# Trends in length of stay for schizophrenia hospitalizations

## MASSACHUSETTS 1997-2014

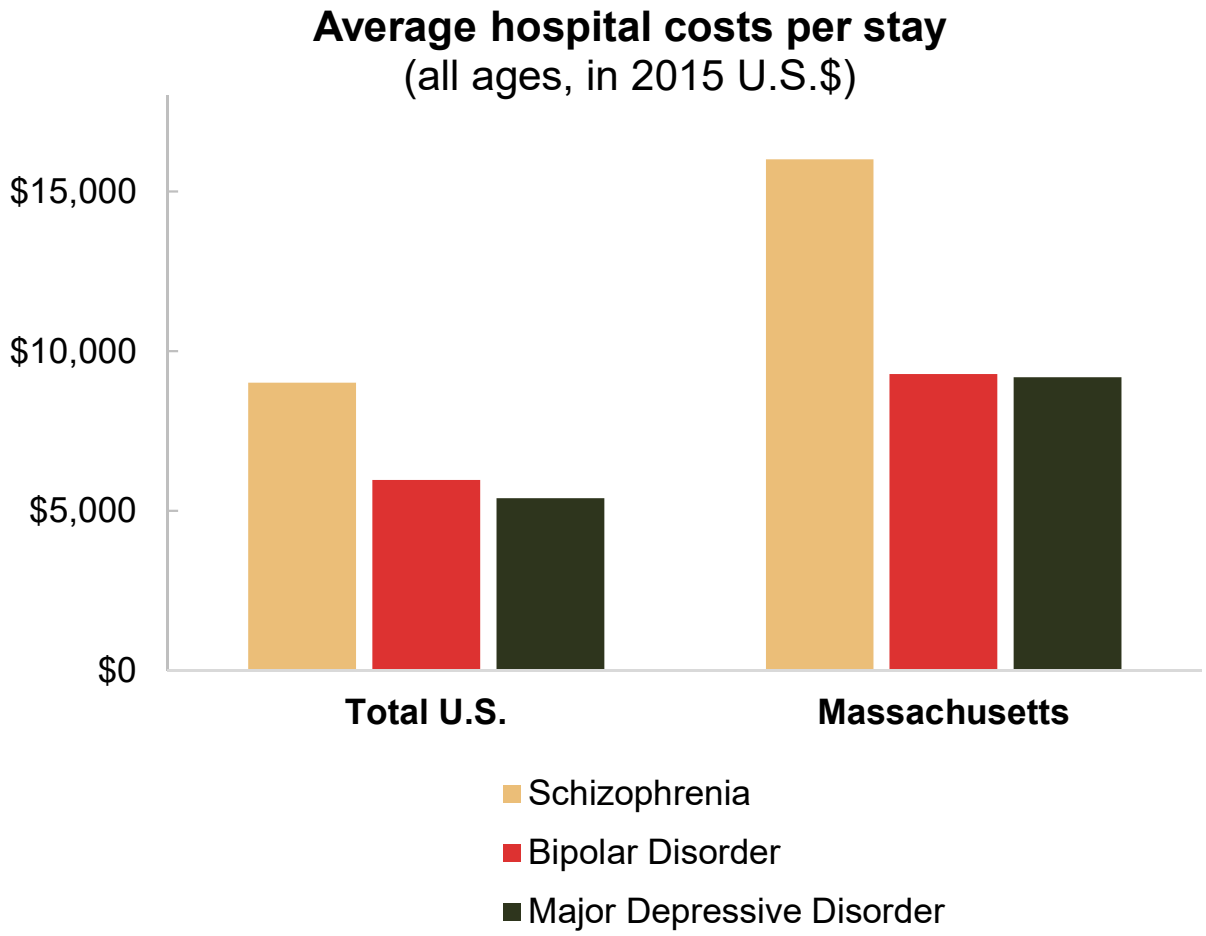



*The average length of stay for a schizophrenia hospitalization in Massachusetts was longer than those for kidney transplants and heart attacks. Moreover, the average duration for these two other conditions declined by 22% and 23%, respectively, during the last two decades, while for schizophrenia the duration increased by 12%.*

*Source: Healthcare Cost and Utilization Project (HCUPnet) 2014*

# Average hospital costs for mental illness hospitalizations

## MASSACHUSETTS AND UNITED STATES 2014

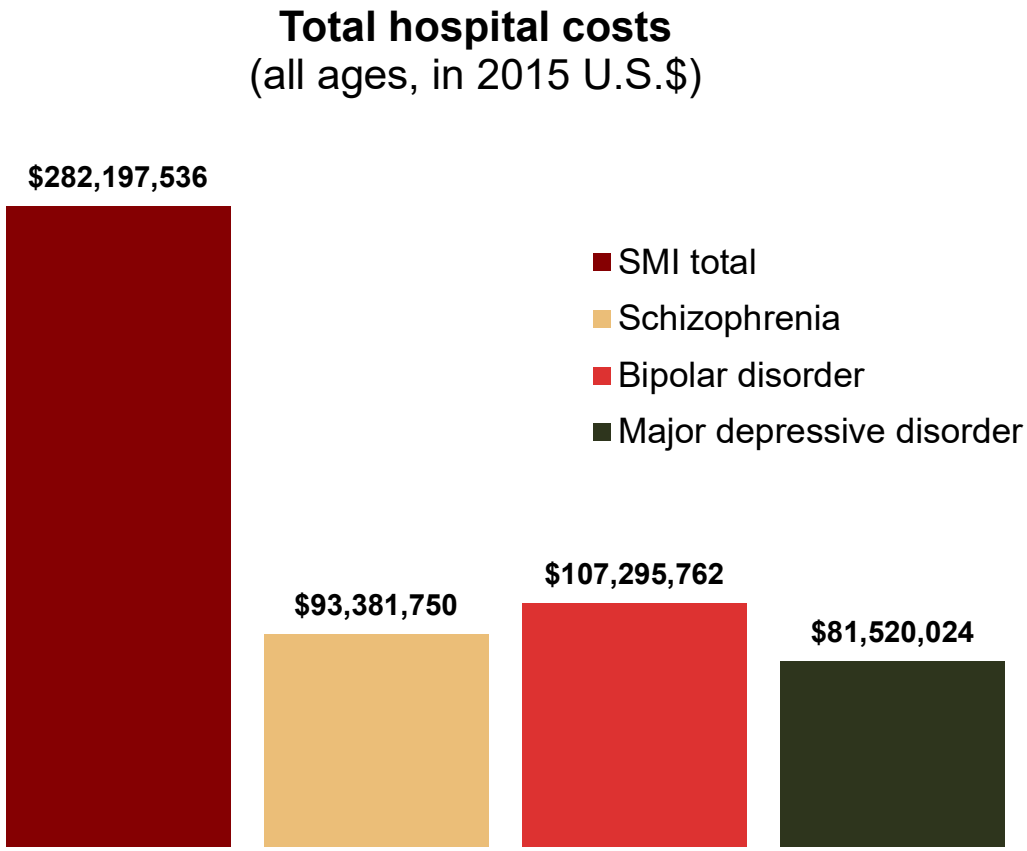



*Hospital costs in the U.S. and Massachusetts ranged from $5,000 to $16,000 per stay for patients with serious mental illness. This is despite* ***a general absence of procedures or surgeries*** *during a hospitalization for symptoms of serious mental illness.*

*Source: Healthcare Cost and Utilization Project (HCUPnet) 2014*

# Total hospital costs for mental illness hospitalizations

## MASSACHUSETTS 2014




*The total hospital costs in Massachusetts for hospitalizations for serious mental illness exceeded $250 million in 2014.*

*Source: Healthcare Cost and Utilization Project (HCUPnet) 2014*

# MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

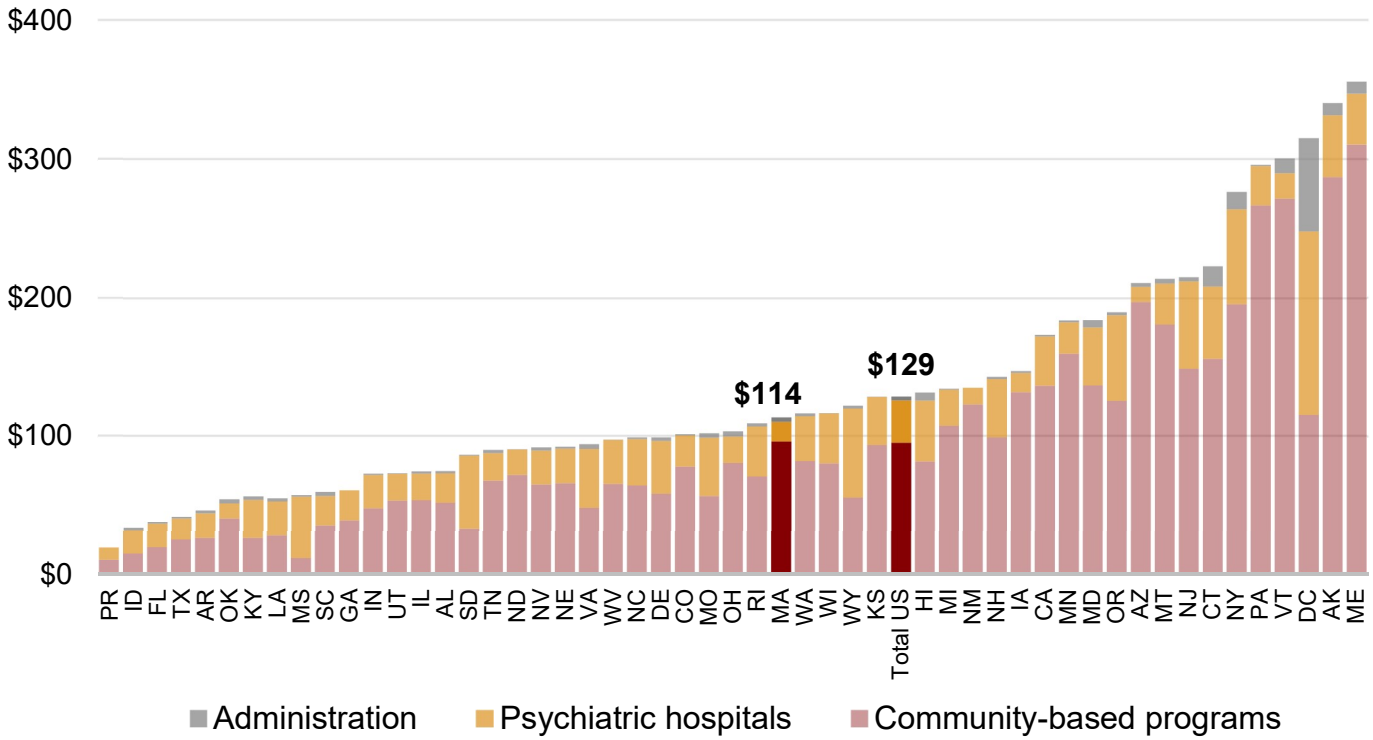
## Investment in community-based programs

*For several decades, a shift from hospital inpatient care towards community-based clinic outpatient treatment has taken place, as is exemplified by the budget trends of state mental health agencies. On average, approximately 72% of their budgets is now spent on community-based programs, compared to 33% in the early 1980s. Compared to the U.S. average, the Massachusetts' state mental health agency spends a lower total amount per capita, but the amount of spending on community-based programs per capita is similar to the U.S. average.*

# State Mental Health Agency spending

## MASSACHUSETTS AND UNITED STATES 2013

**Per capita**
**State Mental Health Agency expenditures**
(in 2015 U.S. $)




*Massachusetts' state mental health agency spends a slightly lower per capita amount on mental health services compared to the U.S. average. However, the amount spent on community-based mental health programs is similar to the U.S. average.*

*Expenditures include (on average):*

- *72% Community-based mental health programs funded and/or operated by state mental health agencies*
- *26% Mental health services in state psychiatric hospitals*
- *2% Administration/training/ research/evaluation to support these services*

*Source: State Mental Health Agency-Controlled Expenditures for Mental Health Services, FY 2013*
*National Association of State Mental Health program Directors Research Institute, Inc (NRI)*

# AVAILABILITY OF MENTAL HEALTH CARE PROVIDERS

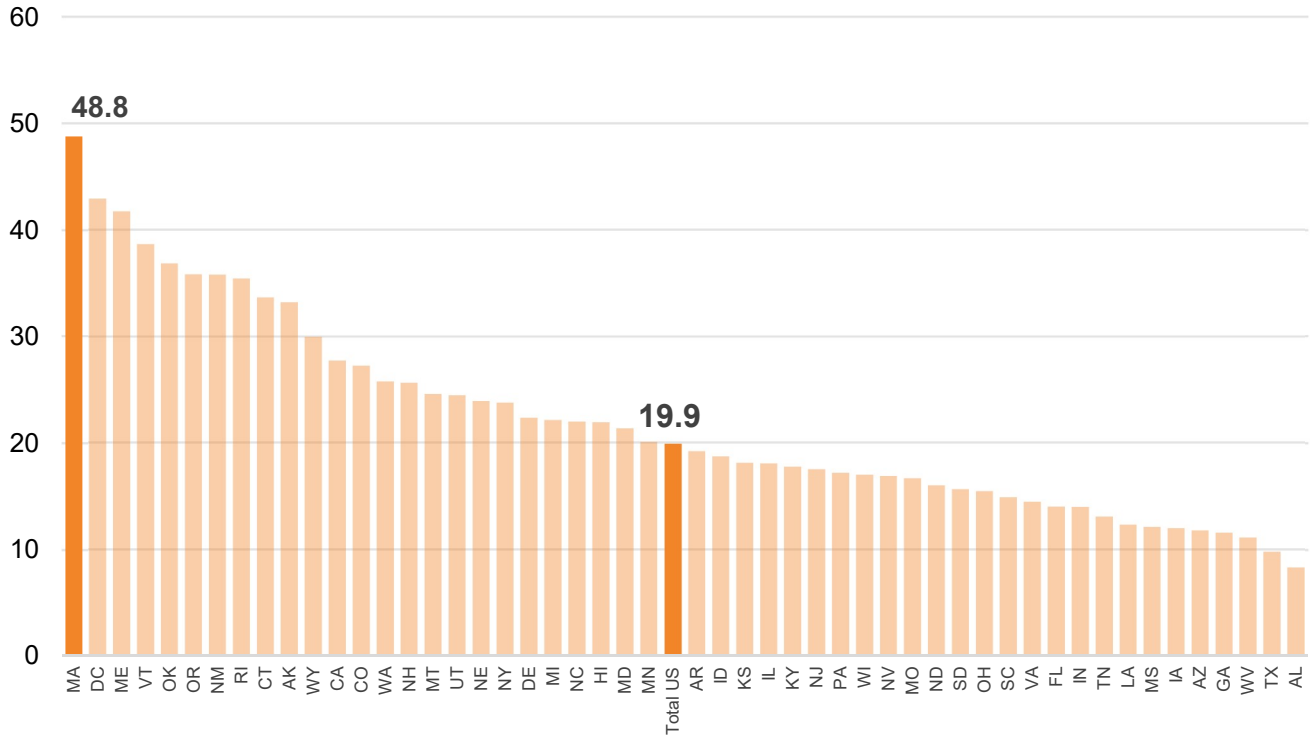
*Massachusetts has the largest number of mental health care providers and hospital beds per capita in the U.S. However, to fully serve the population with mental health needs, there are still areas and facilities in Massachusetts that have a shortage of mental health care providers; 20 full-time providers are needed in addition to the current workforce in these designated "shortage areas" to reach an acceptable provider-to-patient ratio.*

*This shortage is particularly acute in the criminal justice system, where many people are in need of mental health treatment.*

# Availability of mental health care providers

## MASSACHUSETTS AND UNITED STATES 2016

**Number of mental health care providers**
per 10,000 residents



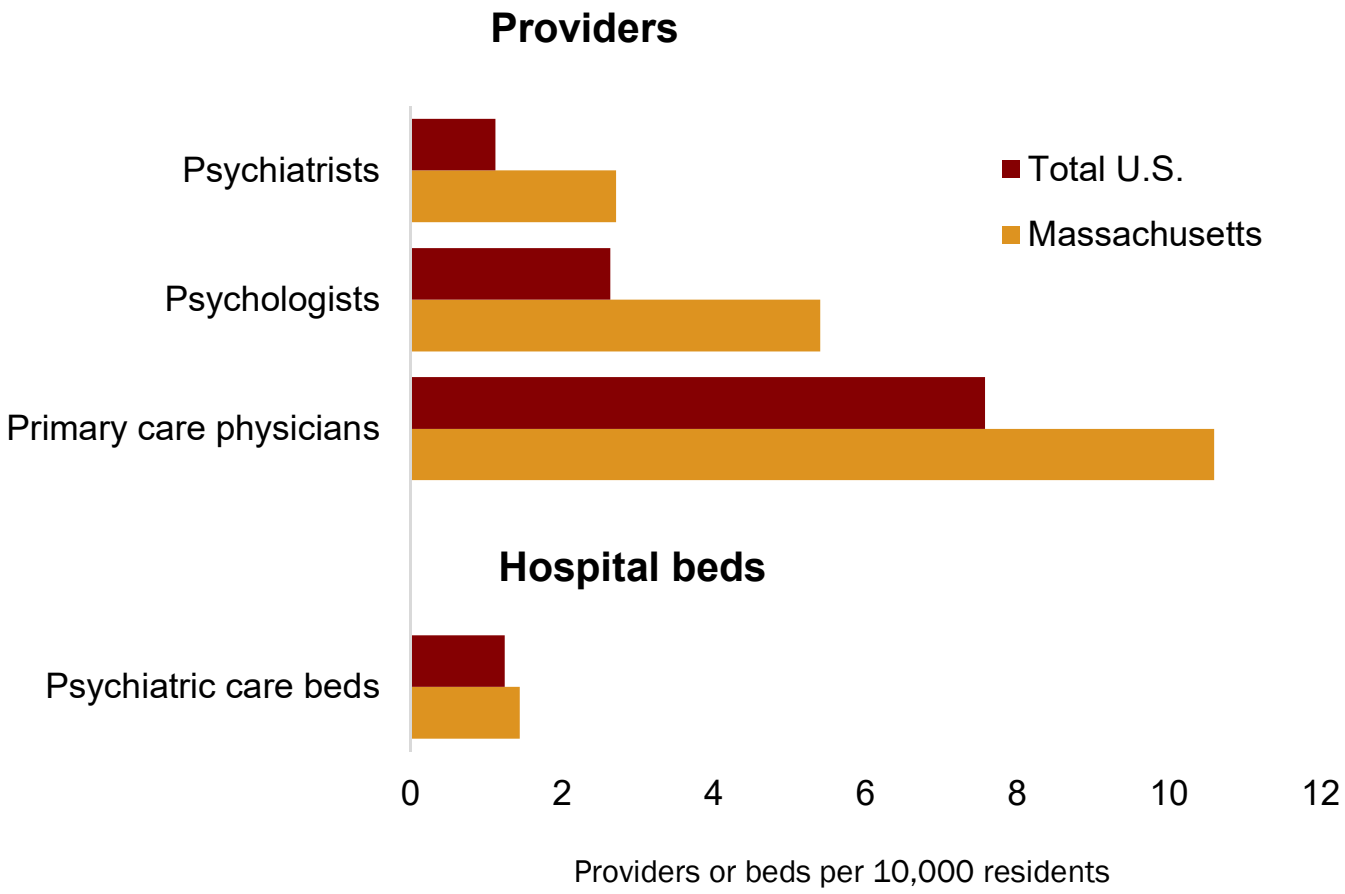

*There are approximately 49 mental health care providers for every 10,000 residents in Massachusetts. This is the highest number in the U.S.*

***Mental health care providers include**: psychiatrists, psychologists, licensed clinical social workers, counselors, marriage and family therapists, and advanced practice nurses specializing in mental health care*

*Source: County Health Rankings & Roadmaps, by the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute.*

# Availability of mental health care providers and hospital beds

## MASSACHUSETTS AND UNITED STATES 2013

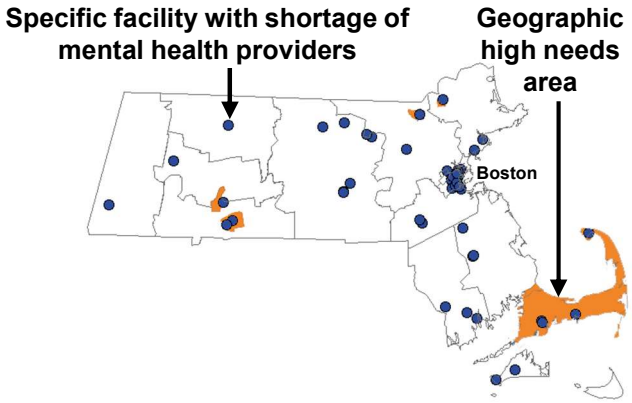



*Per resident, Massachusetts has more psychiatrists, psychologists, and primary care physicians compared to the US average, as well as a higher number of hospital beds dedicated to psychiatric care.*

*Source: Area Health Resource Files 2013 (psychiatrists, physicians and psychiatric care beds), and 2005-2013 Demographics of the U.S. Psychology Workforce, American Psychological Association (psychologists)*

# Shortage of mental health care providers

## MASSACHUSETTS 2016


**Mental health care providers:**
psychiatrists, clinical psychologists, clinical social workers, psychiatric nurse specialists, and marriage & family therapists

**Facilities:**
Federal & state correctional institutions, state & county mental hospitals, community mental health centers, and other public or nonprofit private facilities

**Geographic high needs area** based on population-to-provider ratio, poverty levels, elderly and youth ratio, alcohol and substance abuse prevalence, and travel time to nearest source of care outside area

*Currently, Massachusetts has 22 full-time equivalent mental health providers in designated shortage areas. In order to address the shortage issue, 20 more full-time providers are needed in these areas, 15 of whom are needed in correctional facilities. 7.3% of the total population of Massachusetts resides in designated shortage areas (497,676 people)*

*Source: Health Professional Shortage Areas (HSPA), HRSA Data Warehouse data as of 1/1/2017*

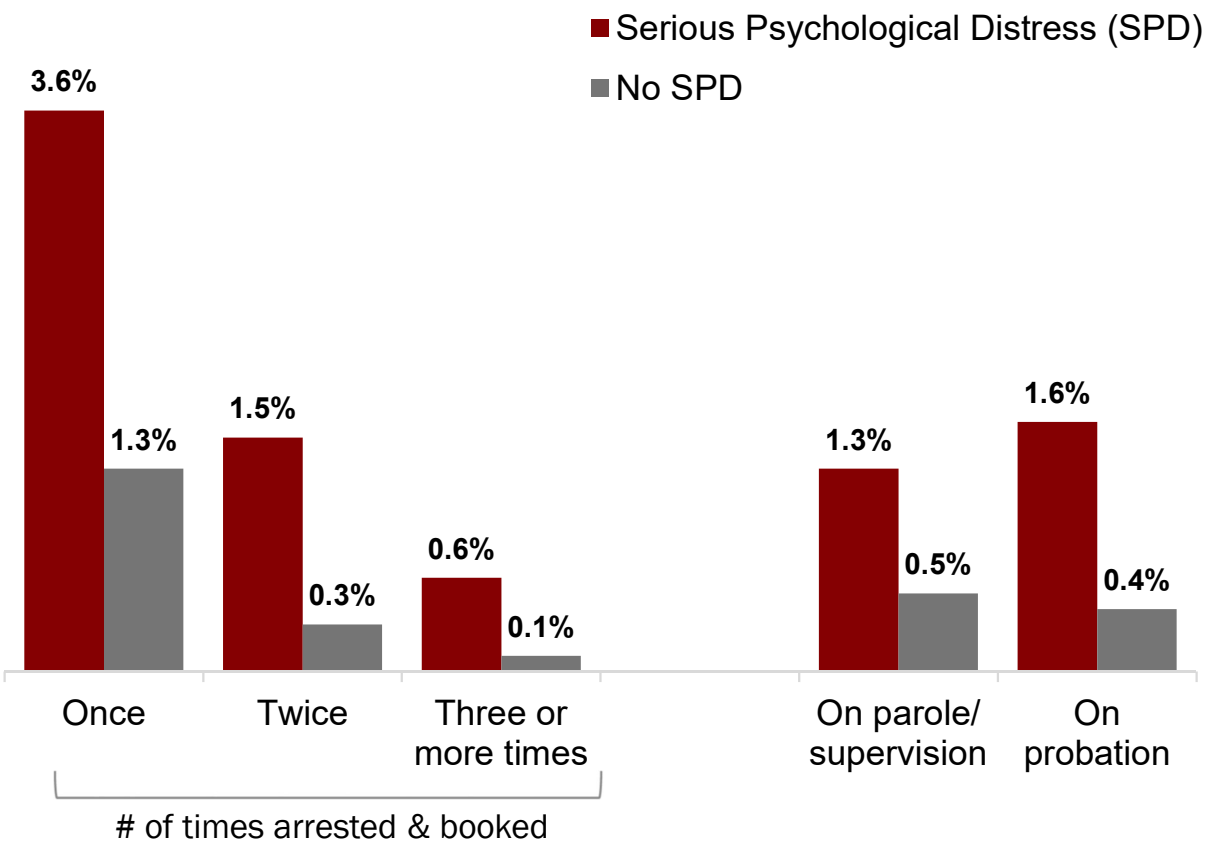
# MENTAL HEALTH CONDITIONS & THE CRIMINAL JUSTICE SYSTEM

*People living with mental illness are more likely to encounter the criminal justice system and to be arrested, suggesting that mental illness is a factor in incarceration risk. Whereas state and federal prisons have resources to provide mental health care to prisoners who were not receiving this before incarceration, local jails appear particularly unable to meet the health care needs of people with mental illness.*

*The overall cost of incarceration of the 2,000+ prisoners with serious mental illness in the state of Massachusetts exceeds $300 million per year.*

# Contact with Criminal Justice System

## UNITED STATES 2015

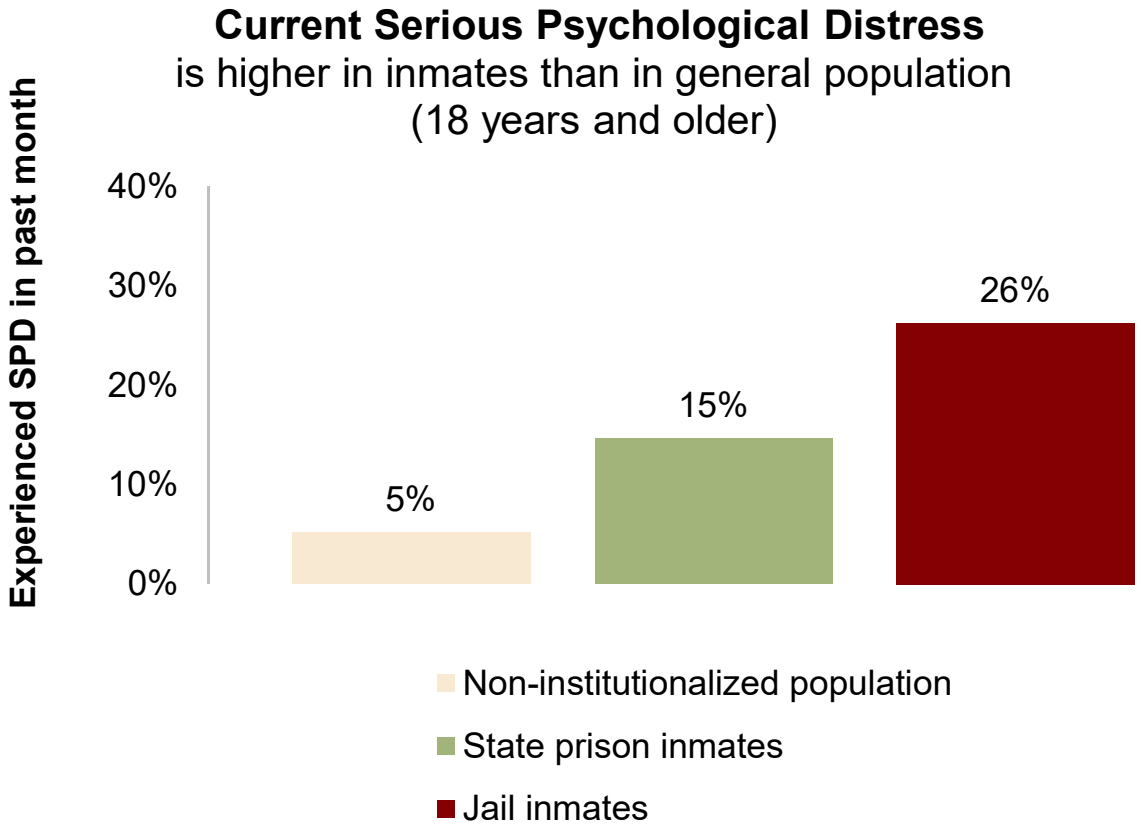



*People who experienced Serious Psychological Distress (SPD) are more likely to have been arrested or be on parole or probation in the past year.*

*Source: National Survey of Drug Use and Health (NSDUH) 2015*
*Survey does not include current institutionalized population*

# Mental health issues in prison and jail populations

## UNITED STATES



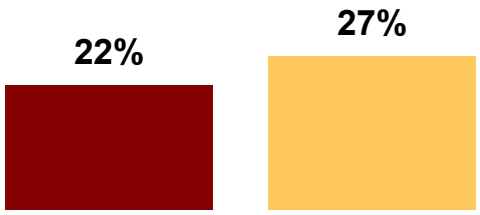

*A large percentage of the U.S. adult prison and jail inmate population currently experiences Serious Psychological Distress compared to the non-institutionalized population.*

*Additionally, these mental health issues are observed at higher rates in local jails than in prisons.*

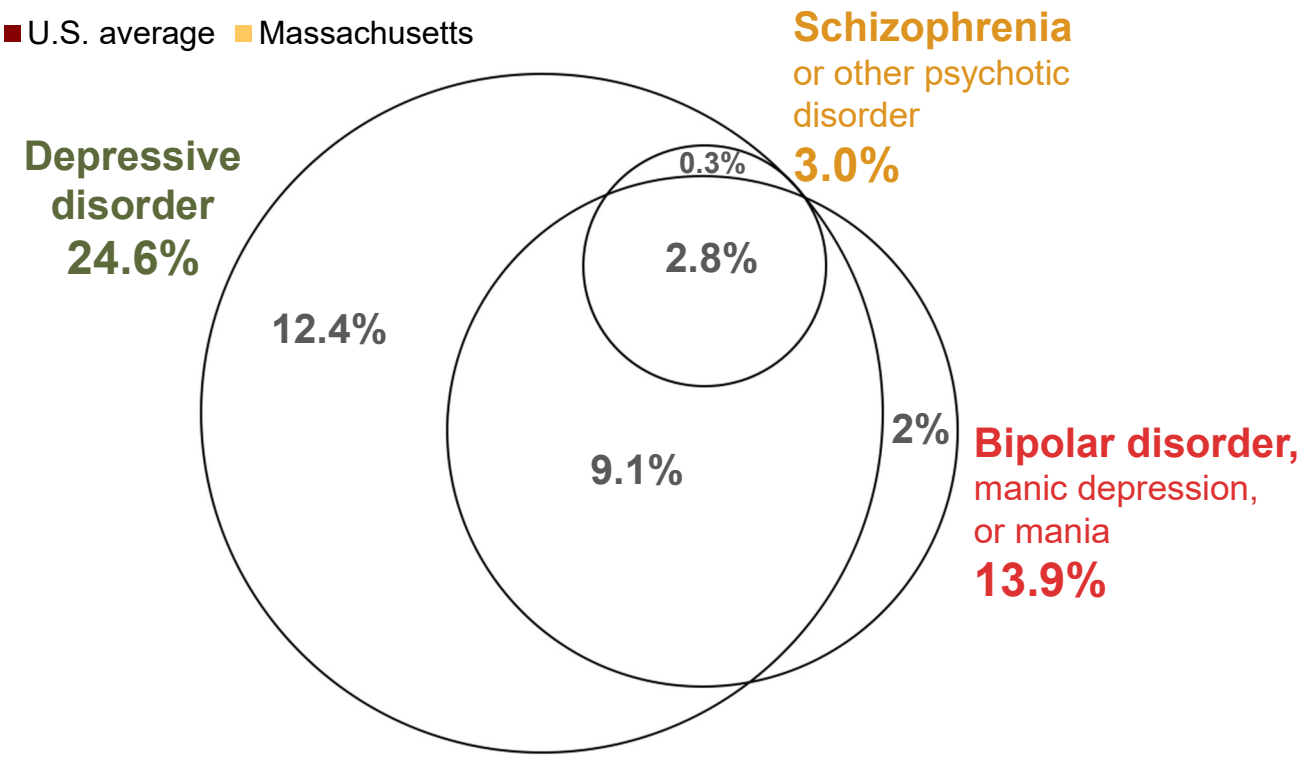
*Source: National Survey of Drug Use and Health (NSDUH) 2015*
*Bureau of Justice report: Sexual Victimization in Prisons and Jails Reported by Inmates, 2011-12, based on data from the National Inmate Survey*

# State prison population with Serious Mental Illness

## MASSACHUSETTS




**Massachusetts state prison inmates** previously diagnosed with a serious mental illness:




*In Massachusetts state prisons, approximately 27% of prison inmates have previously been diagnosed with a serious mental illness, which is high compared to the overall U.S. prison population. Many patients have been diagnosed with two or three mental illnesses, confirming the presence of overlap in symptoms in this population.*

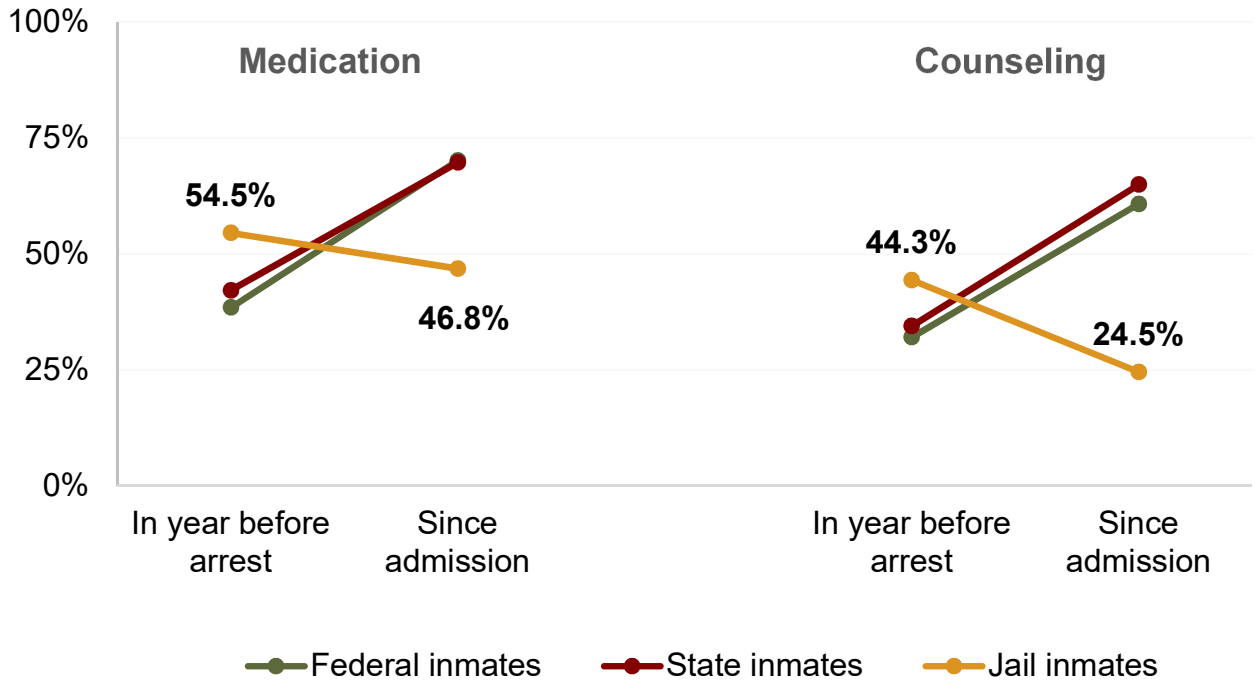
*Source: Survey of Inmates in State Correctional facilities, BJS, 2004. Includes juveniles*
*Due to rounding, percentages of separate parts may not add up to the total percentage*

# Change in treatment before and during incarceration in prison and jails

## UNITED STATES

### Lack of access to mental health treatment in local jails

Among inmates with a previously diagnosed serious mental illness and who have ever received respective treatment before incarceration




*The increase in mental health care treatment in federal and state prisons after admission to prison suggests that these institutions are making up for the gaps in mental health treatment in the general health care system.*

*At the same time, local jail inmates do not have the same access to medication and counseling while incarcerated as federal and state prisoners.*

Mental health conditions include prior diagnosis of depressive disorder, bipolar disorder, and/or schizophrenia. Medication and counseling data includes treatment for any mental illness.

*Source: SISFCF (Survey of inmates in states and federal correctional facilities) 2004 & SILJ (Survey of inmates in local jails) 2002*

Number of **Massachusetts state prison inmates** previously diagnosed with serious mental illness:

# 2,876

## Overall annual costs:

# $ 323,428,110

(in 2015 U.S.$)

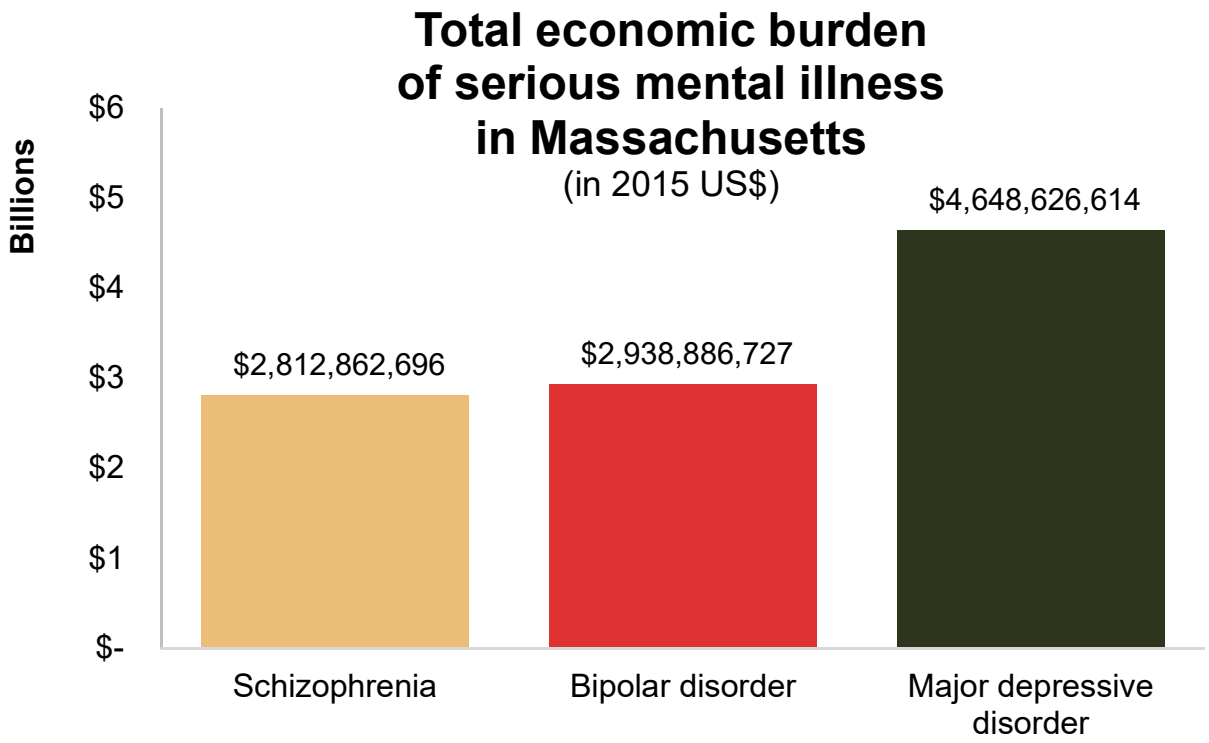
*Overall annual costs based on 2014 average of all state prison inmates in Massachusetts*
*Source: Annual Survey of State Government Finances 2014*
*Survey of Inmates in State/Federal Correctional facilities, BJS, 2004*
*Massachusetts Department of Correction 2014 Annual Report*

# TOTAL ECONOMIC BURDEN OF SERIOUS MENTAL ILLNESS

*The economic burden of each serious mental illness in adults is estimated to be at least $127 billion for the U.S. and $2.8 billion for Massachusetts per year*

# Economic burden of serious mental illness

## MASSACHUSETTS 2015



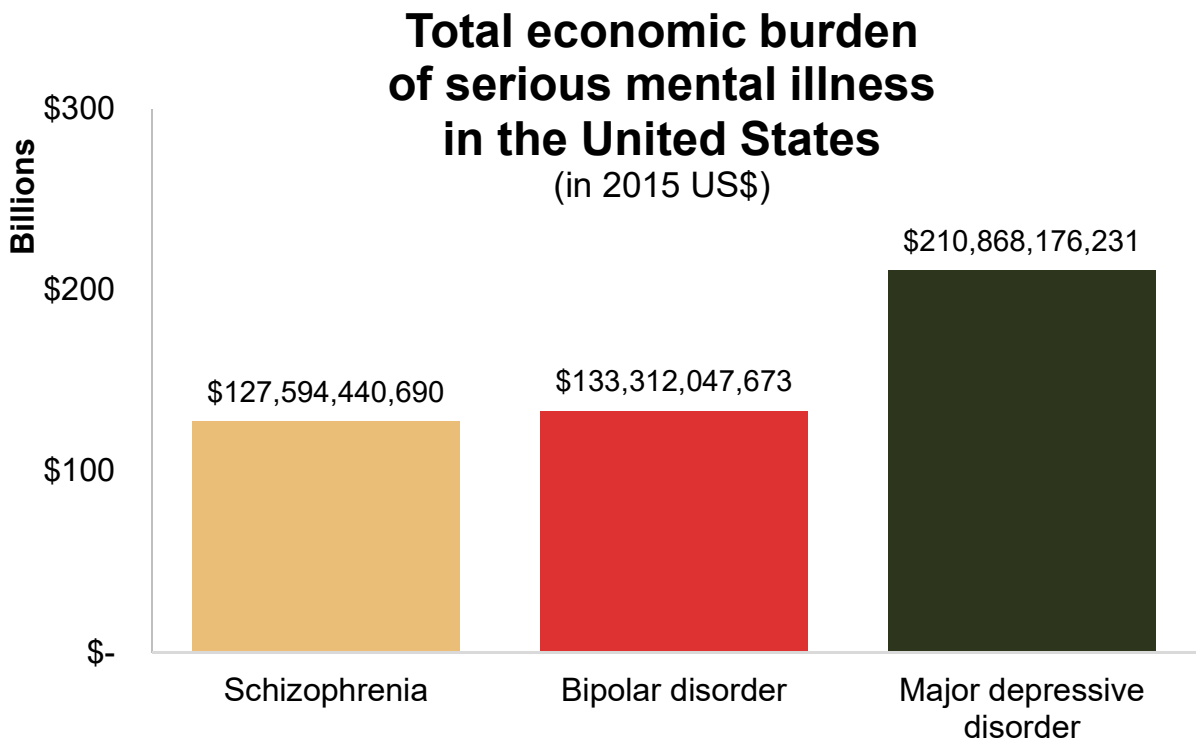

*The economic burden of schizophrenia, bipolar disorder, and major depressive disorder in adults in Massachusetts is estimated to be at* ***least $2.8 billion for each serious mental illness***

Due to symptom overlap, diagnoses of mental illnesses are not mutually exclusive, therefore, patients with two or more diagnoses may be represented in multiple categories.

*Source: MacEwan JP, Seabury S, et al. Pharmaceutical innovation in the treatment of schizophrenia and mental disorders compared with other diseases. Innov Clin Neurosci. 2016 Aug 1;13(7-8):17-25. See appendix for original sources*

# Economic burden of serious mental illness

## UNITED STATES 2015




*The economic burden of schizophrenia, bipolar disorder, and major depressive disorder in adults in the U.S. is estimated to be at least* ***$127 billion for each serious mental illness***

Due to symptom overlap, diagnoses of mental illnesses are not mutually exclusive, therefore, patients with two or more diagnoses may be represented in multiple categories.

*Source: MacEwan JP, Seabury S, et al. Pharmaceutical innovation in the treatment of schizophrenia and mental disorders compared with other diseases. Innov Clin Neurosci. 2016 Aug 1;13(7-8):17-25. See appendix for original sources*

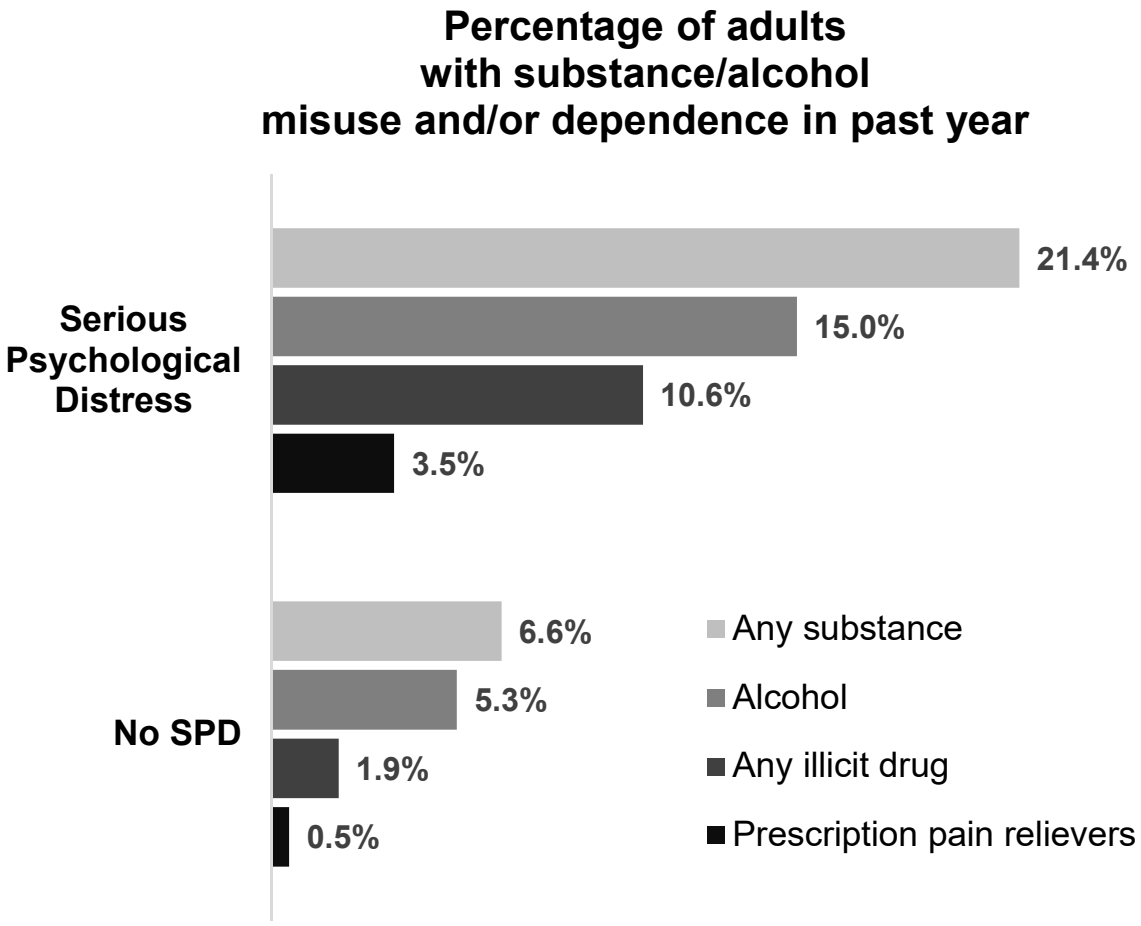
# OPIOID MISUSE AND FATAL OVERDOSES

*People who experience serious psychological distress are more likely to misuse or be dependent on alcohol, prescription opioids, and illicit drugs. During the past decades, the rates of opioid-related hospitalizations and emergency department visits have increased steadily in the U.S. and Massachusetts, despite a recent reduction in prescription opioid sales.*

*The increase in misuse and dependency has resulted in a large increase in fatal overdoses from opioids in the last several years.*

# Substance misuse in people with Serious Psychological Distress

## UNITED STATES 2015

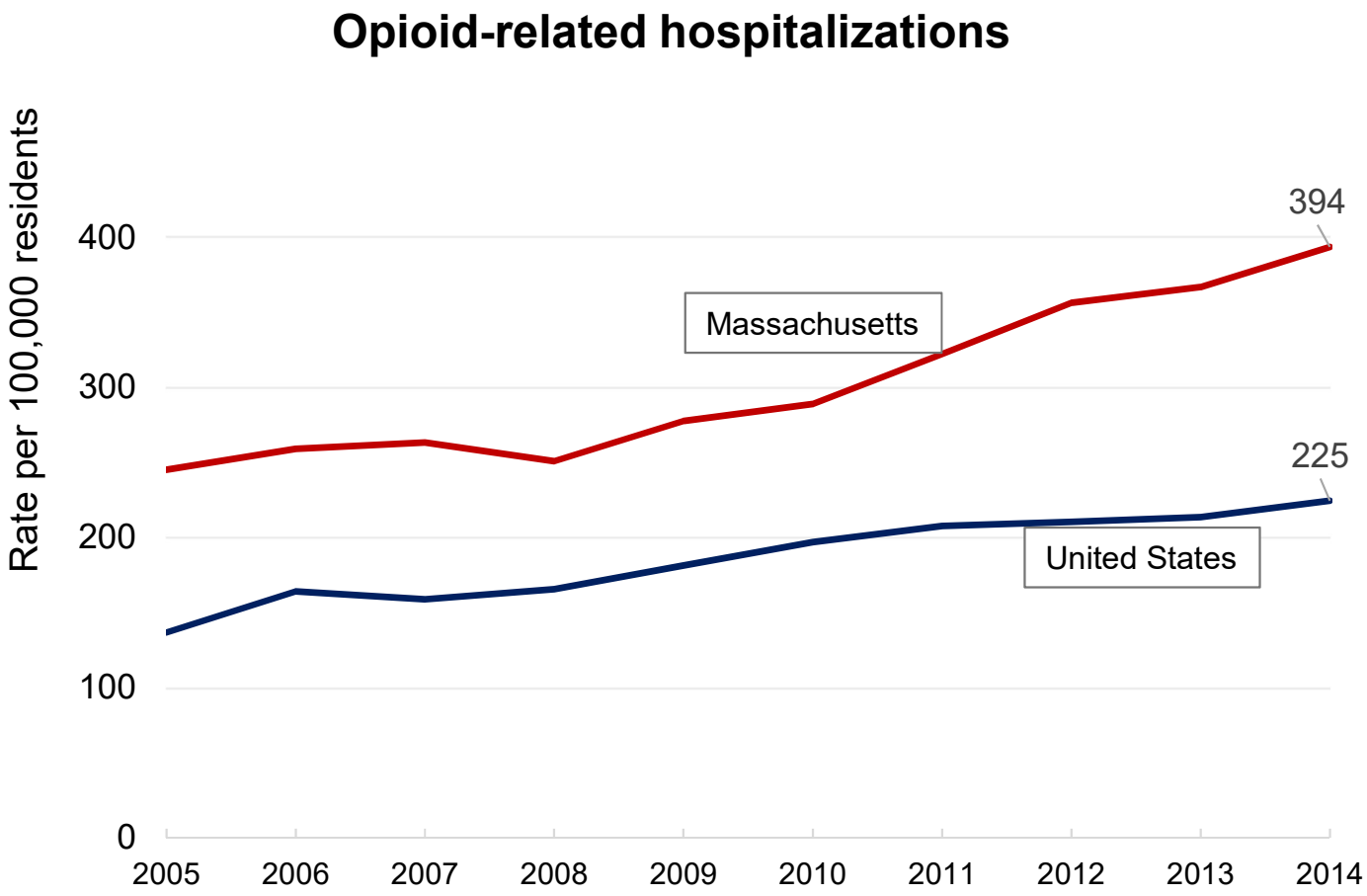



*People who experienced Serious Psychological Distress in the past 12 months are more likely to misuse or be dependent on alcohol or illicit drugs during that same time period*

*Source: National Survey on Drug Use and Health (2015)*

# Opioid-related hospitalizations are on the rise

## MASSACHUSETTS AND UNITED STATES 2005-2014



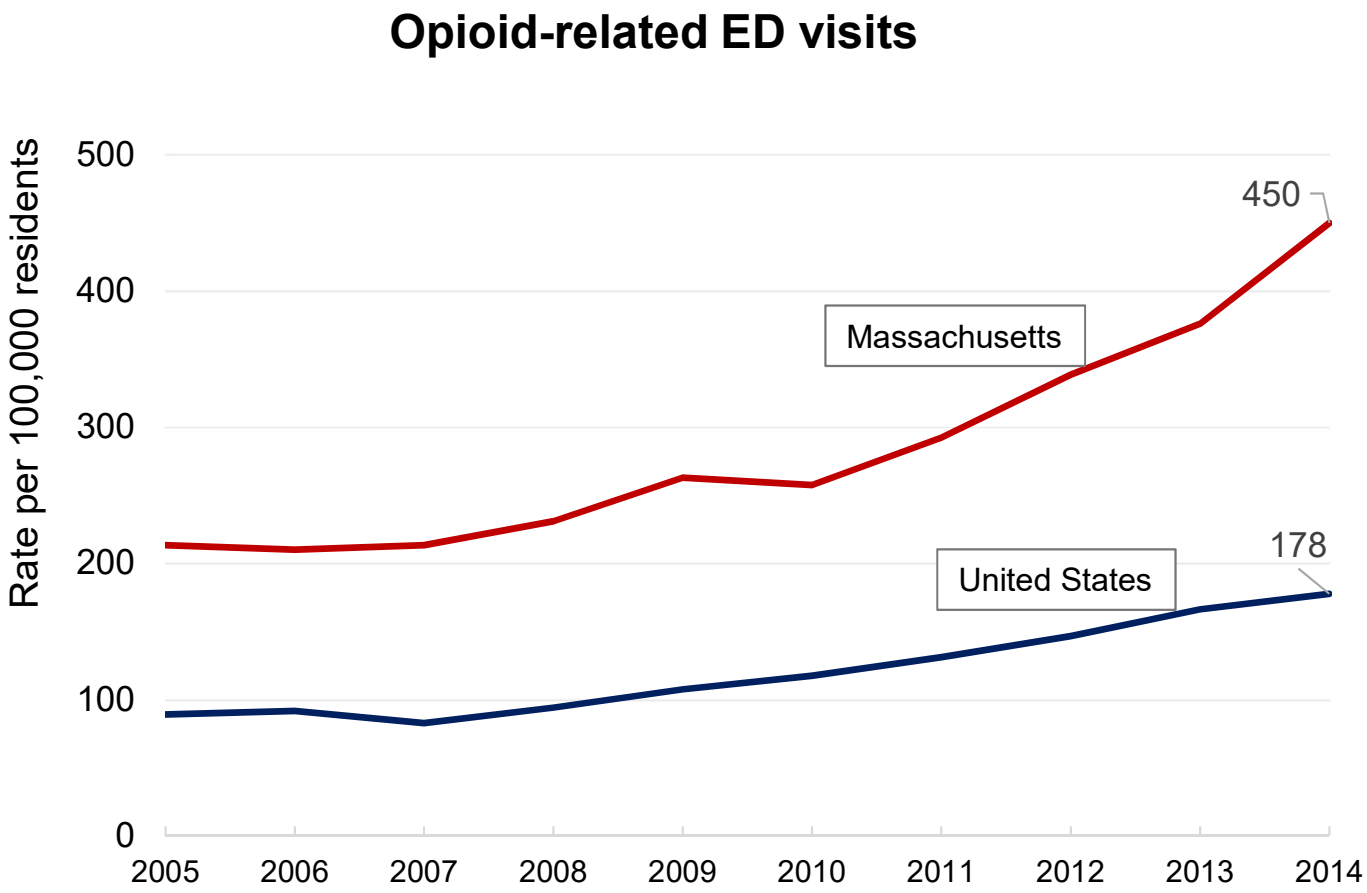

*The rate of opioid*-related hospitalizations has been rising steadily over the last decade. In Massachusetts, the hospitalization rate in 2014 was 75% higher than the U.S. average.*

*Source: Healthcare Cost and Utilization Project (HCUP Fast Stats - Opioid-Related Hospital Use)*

** Opioid refers to both opioids and opiates in this chartbook*

# Opioid-related emergency department visits are on the rise

## MASSACHUSETTS AND UNITED STATES 2005-2014

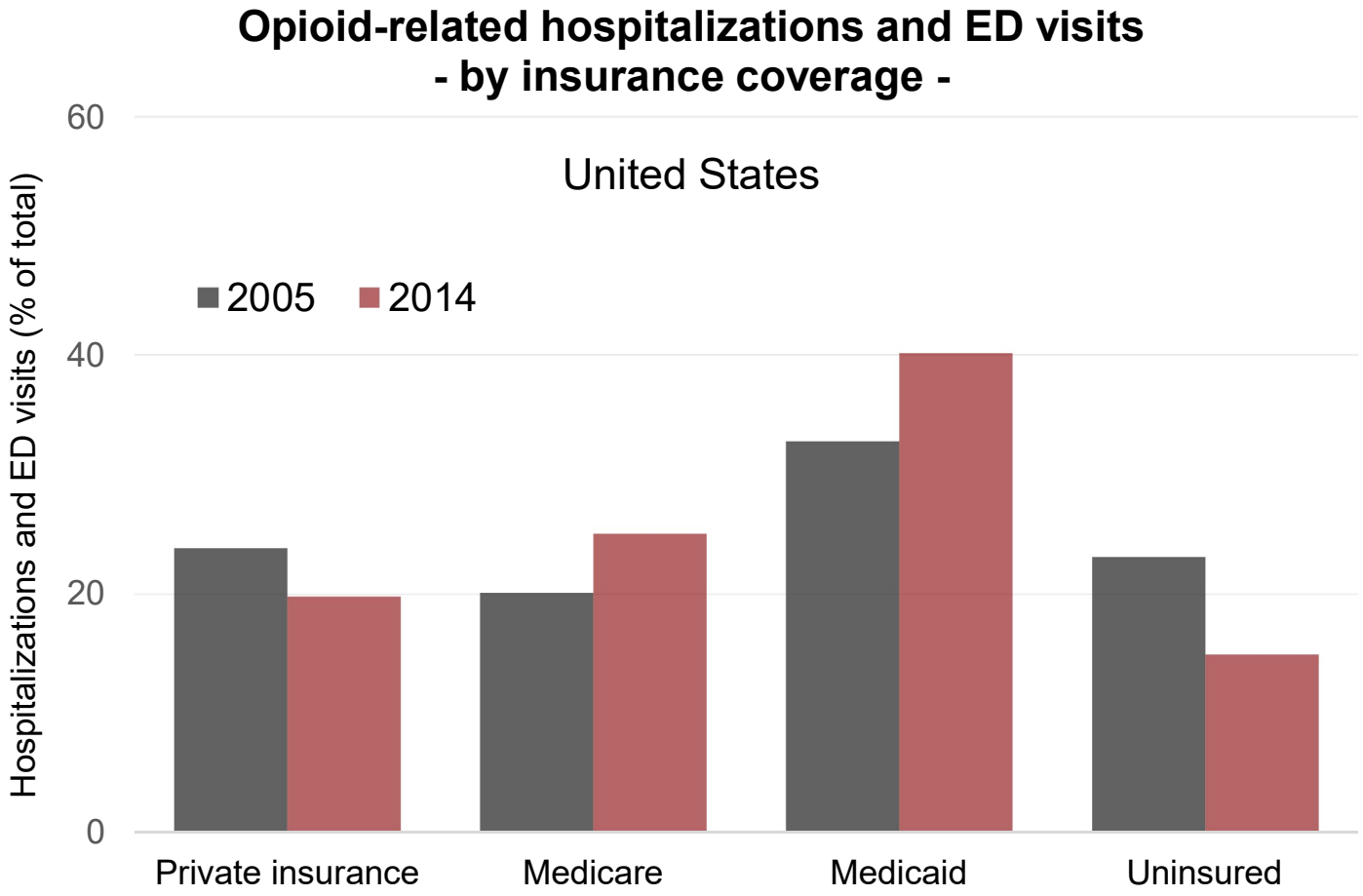



*The rate of opioid-related emergency department (ED) visits doubled between 2005 and 2014 in Massachusetts, and is 2.5 times greater than the average rate in the U.S.*

*Source: Healthcare Cost and Utilization Project (HCUP Fast Stats - Opioid-Related Hospital Use)*

# Insurance coverage for opioid-related hospitalizations and ED visits

## UNITED STATES 2005-2014

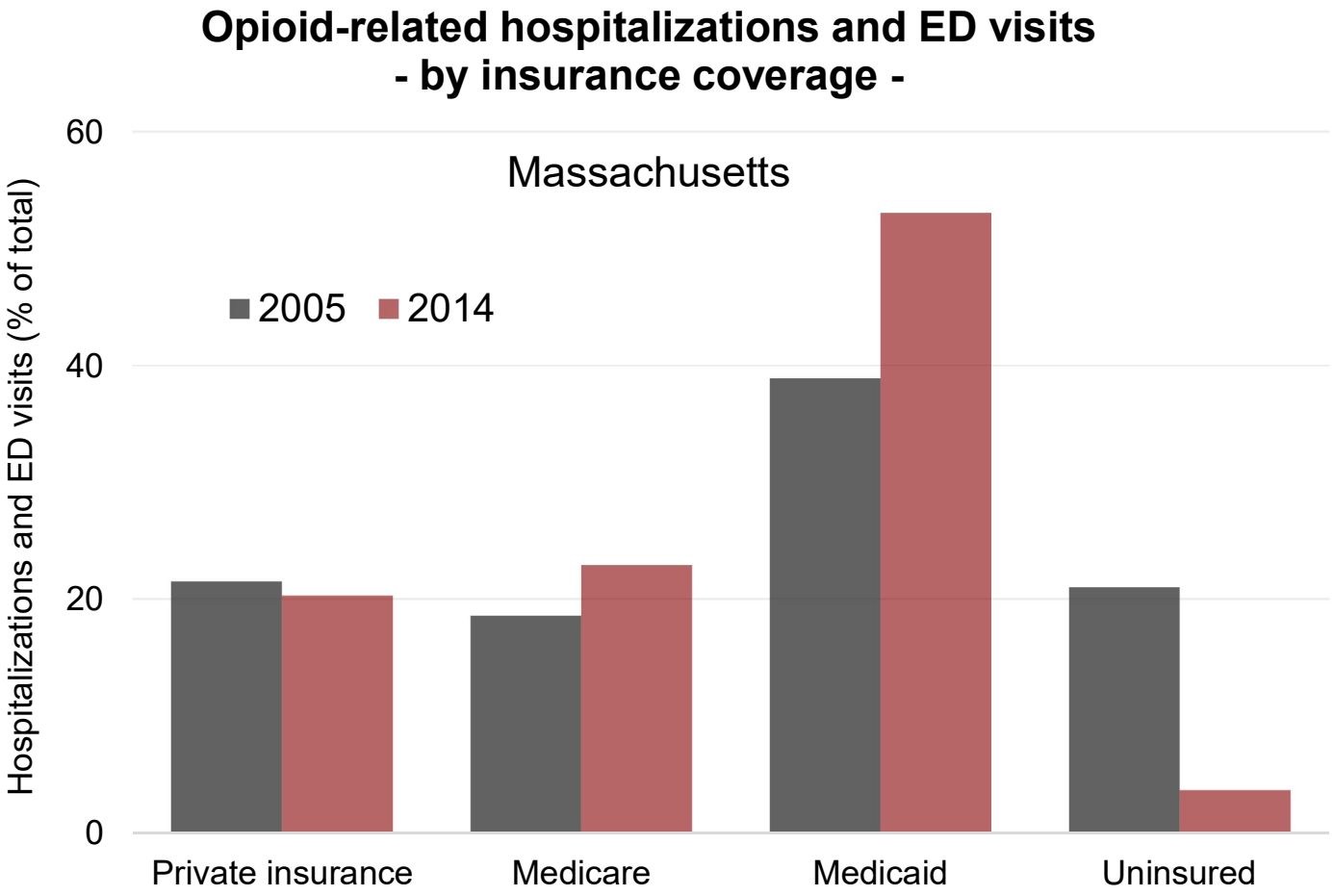



*Most opioid-related hospitalizations and ED visits in the U.S. are by patients with Medicaid coverage, although a large percentage of patients are not covered by any health insurance.*

*Source: Healthcare Cost and Utilization Project (HCUP Fast Stats - Opioid-Related Hospital Use)*

# Change in insurance coverage for opioid-related hospitalizations and ED visits

## MASSACHUSETTS 2005-2014



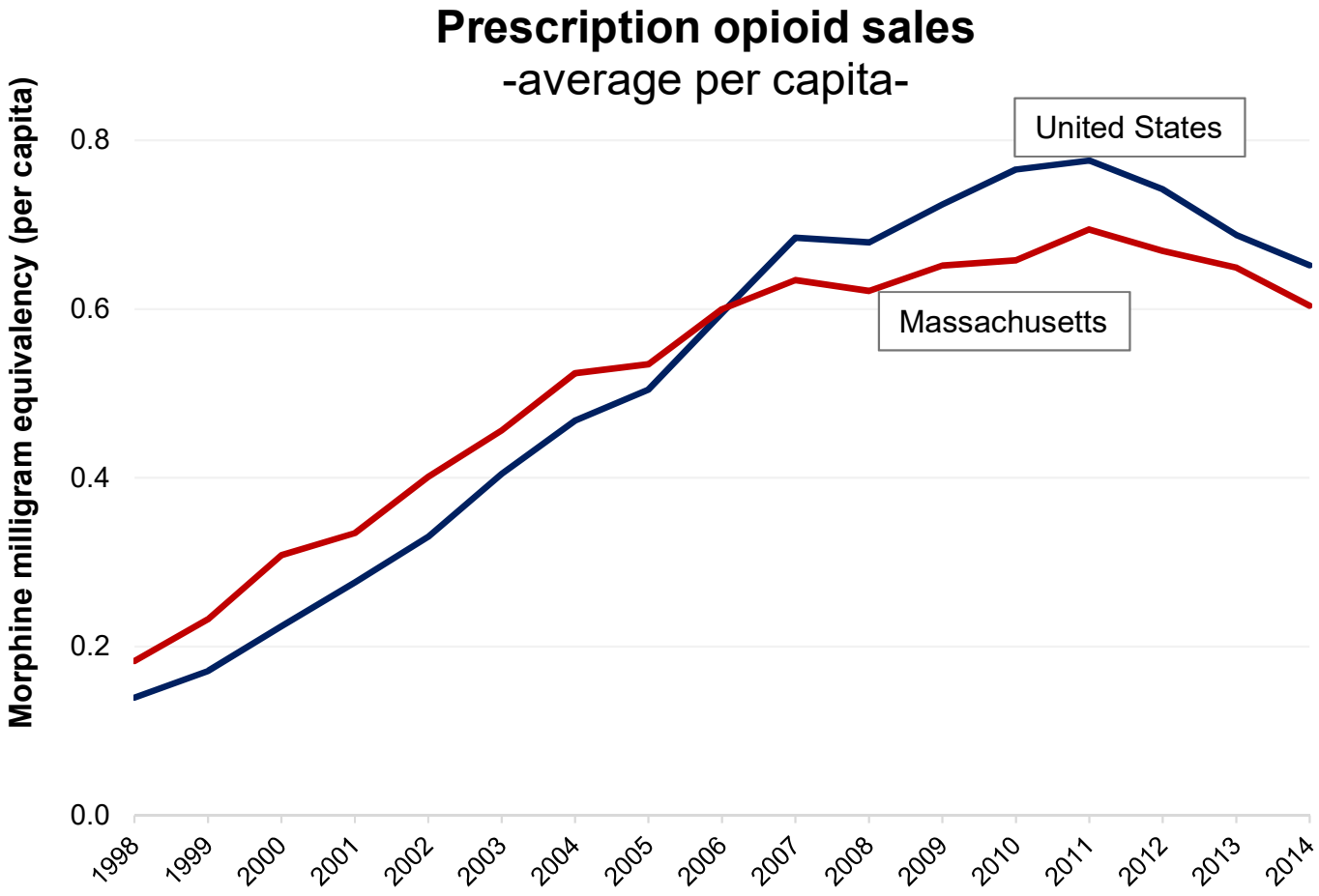

*In 2005, 21% of opioid-related hospitalizations and ED visits in Massachusetts were by patients without health insurance.*

*Since then, the health insurance situation has changed significantly, and this is exemplified by a change in payer type; In 2014, only 4% of opioid-related hospitalizations and ED visits were by patients without health insurance.*

*Source: Healthcare Cost and Utilization Project (HCUP Fast Stats - Opioid-Related Hospital Use)*

# Prescribing of opioids started to decrease in 2011

## MASSACHUSETTS AND UNITED STATES 1998-2014



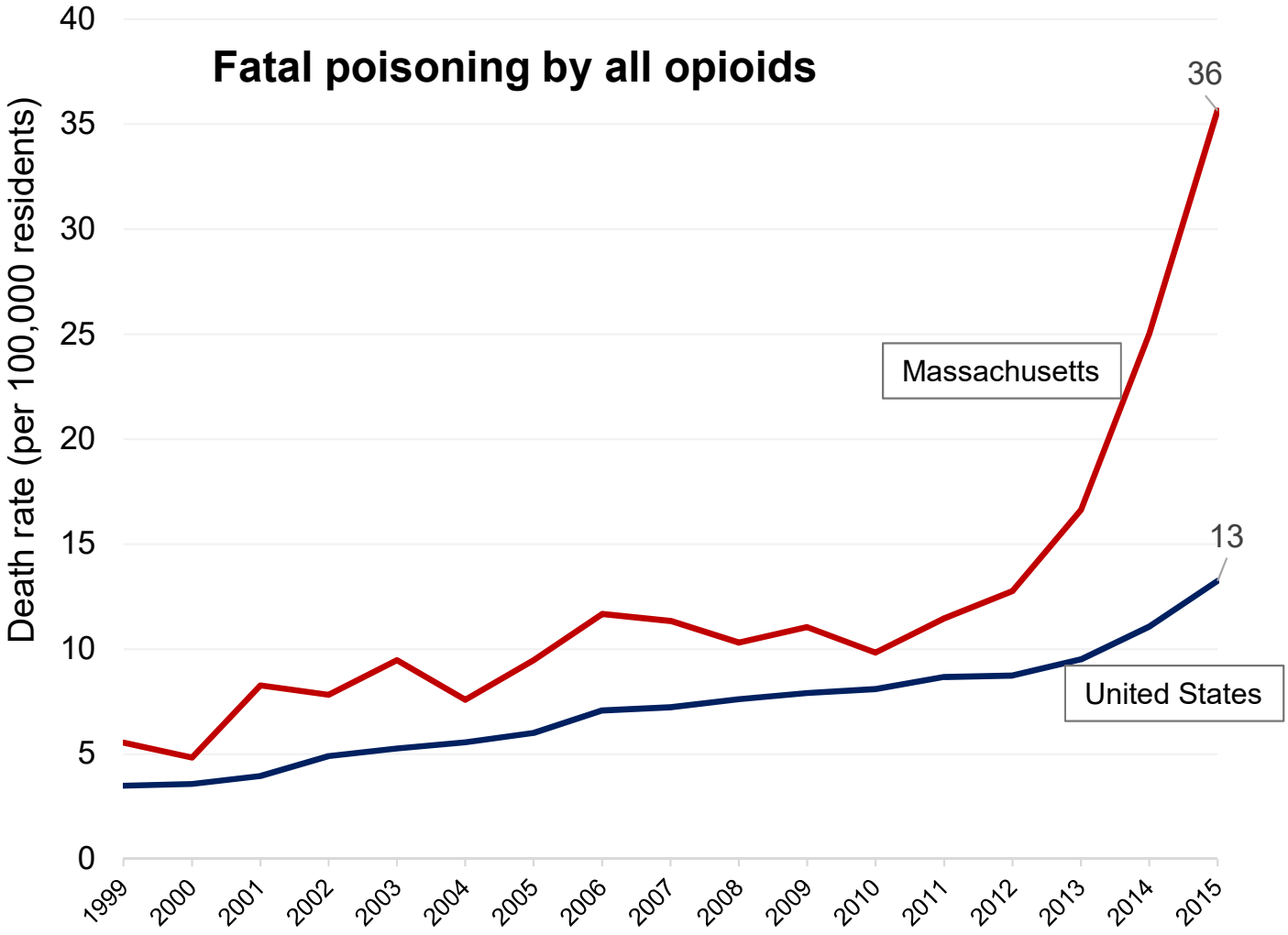

*Source: Automation of Reports and Consolidated Orders System (ARCOS), Drug Enforcement Administration. United States data includes all states except DE, MO and PA*

*Between 1998 and 2011, average prescription opioid sales in the U.S. increased more than five-fold, followed by a decline in the last several years.*

*Prescription opioid sales in Massachusetts have followed the same trend, and have been slightly below the national average since 2007.*

# Fatal overdoses by opioids are on the rise

## MASSACHUSETTS AND UNITED STATES 1999-2015

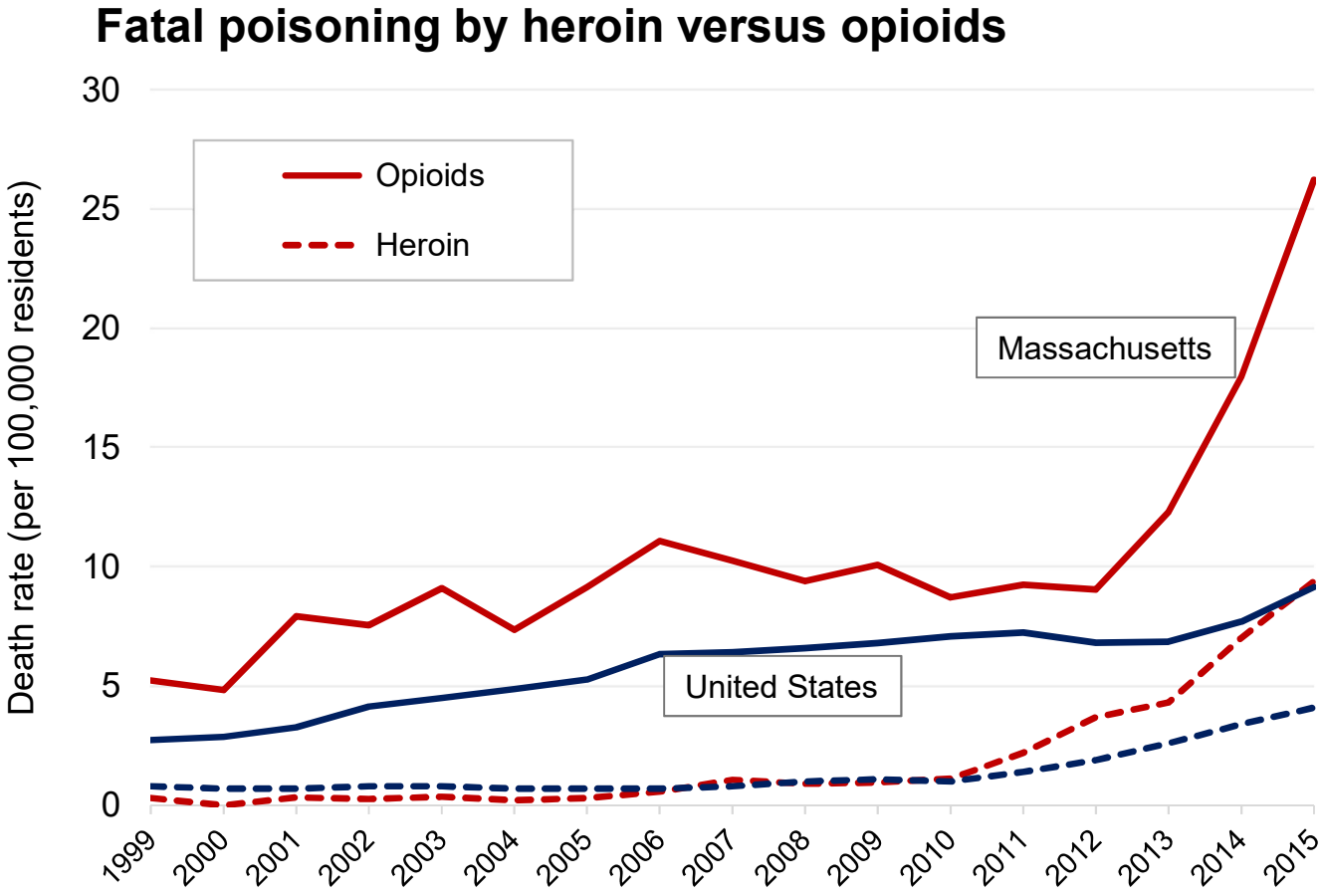



*Source: Centers for Disease Control and Prevention, CDC Wonder – Multiple Cause of Death Data*

*Despite the moderate decline in opioid drug prescriptions in recent years, there has been an increase in the number of opioid overdose deaths in the United States. In Massachusetts, this recent increase in overdose deaths is even more pronounced than for the US as a whole.*

# Disproportionate increase in fatal heroin overdose deaths

## MASSACHUSETTS AND UNITED STATES 1999-2015




*Whereas the absolute number of fatal overdoses by heroin is still lower than overdoses by opioids in Massachusetts, the relative increase in the heroin overdose death rate between 2010 and 2015 is much higher (844%) than the increase in death rate due to opioids (301%).*

*Source: Centers for Disease Control and Prevention, CDC Wonder – Multiple Cause of Death Data*

# ACKNOWLEDGMENTS

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References, data sources and methods are described in more detail in the online appendix.
This chartbook and the appendix can be downloaded at:
http://healthpolicy.usc.edu/Keck_Schaeffer_Initiative.aspx

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