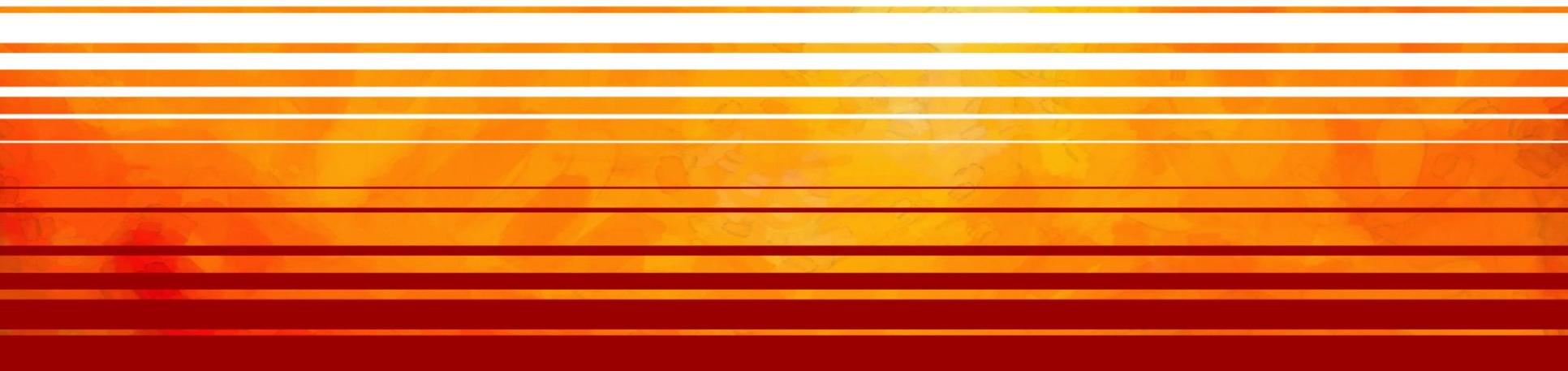


**USC** Schaeffer

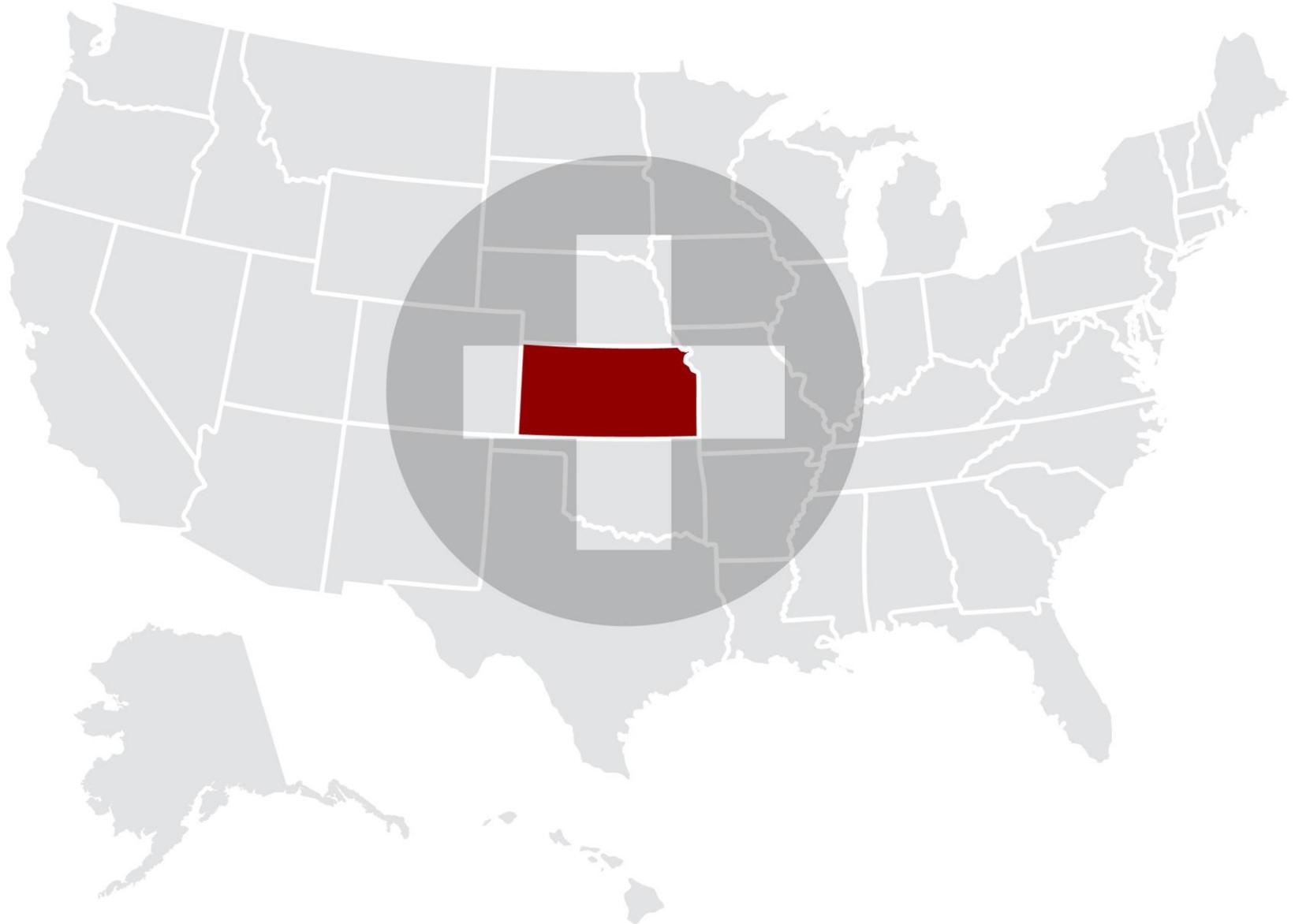
Leonard D. Schaeffer Center  
for Health Policy & Economics

**THE COST OF MENTAL ILLNESS:  
KANSAS FACTS AND FIGURES**

*Hanke Heun-Johnson, Michael Menchine, Dana Goldman, Seth Seabury*  
*March 2018*



# KANSAS



# INTRODUCTION

Improving access to high-quality medical and behavioral health care for patients with mental illness remains one of the most vexing problems facing the healthcare system in the United States. In Kansas, there is concern that access to affordable mental health care has been hampered by the state's fiscal issues and policy decisions.

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

# INTRODUCTION

## Key findings include:

- In the U.S., the hospitalization rate of patients with serious mental illness is very high compared to other hospitalizations, which imposes a large cost on the health care system due to the relatively long length of stay, despite the general absence of procedures.
- Kansas has a lower number of behavioral health care professionals per capita compared to the rest of the U.S., and shortages are particularly evident in rural areas.
- 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 Kansas exceeds \$100 million.

The data presented in this chartbook are publicly available and represent the most recent numbers to which we had access. The term “behavioral health” is used to describe data related to mental illness and substance abuse, whereas “mental health” does not include substance abuse.

The data and methods are described in more detail in the appendix:

[http://healthpolicy.usc.edu/Keck\\_Schaeffer\\_Initiative.aspx](http://healthpolicy.usc.edu/Keck_Schaeffer_Initiative.aspx)

# CONTENTS

- 6 QUANTIFYING THE POPULATION LIVING WITH MENTAL ILLNESS IN KANSAS AND THE U.S.**
- 11 MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS**
  - 12 Unmet mental health care needs
  - 14 Medicaid & behavioral health care needs
  - 16 Hospital utilization & costs
  - 23 Investment in community-based programs
- 25 AVAILABILITY OF BEHAVIORAL HEALTH CARE PROFESSIONALS**
- 31 MENTAL HEALTH CONDITIONS & THE CRIMINAL JUSTICE SYSTEM**
- 37 TOTAL ECONOMIC BURDEN OF SERIOUS MENTAL ILLNESS**

# **QUANTIFYING THE POPULATION LIVING WITH MENTAL ILLNESS IN KANSAS 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

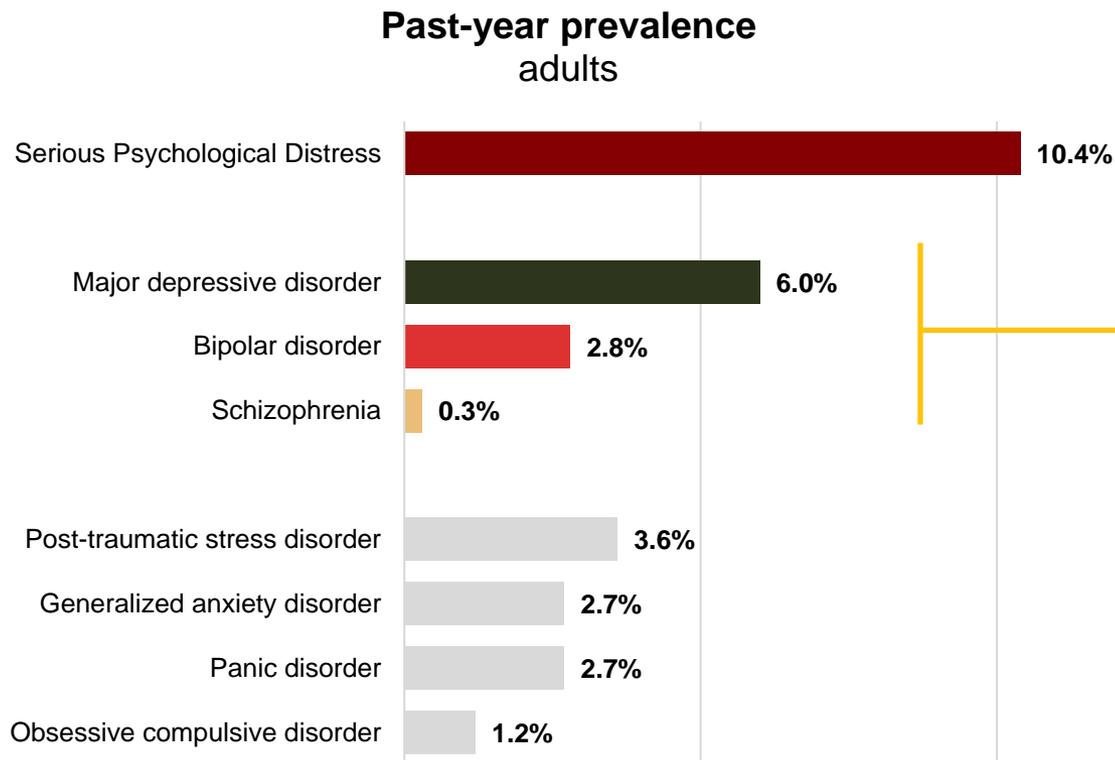
---

## 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.*

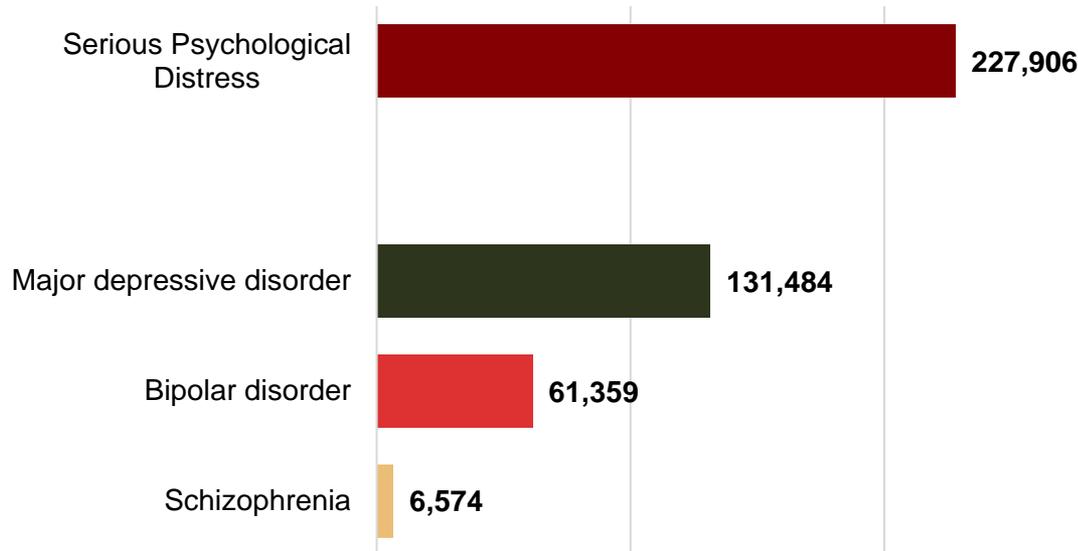
*Whereas any of these conditions can severely limit someone's normal daily activities, three disorders are often labeled as **Serious Mental Illness: major depressive disorder, bipolar disorder and schizophrenia.** These three disorders will be the focus of this chartbook.*

*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

KANSAS 2015

## Past-year prevalence adults



Estimated number of affected people in past year

*We estimate that more than a quarter million adults in Kansas experienced serious psychological distress in the past 12 months.*

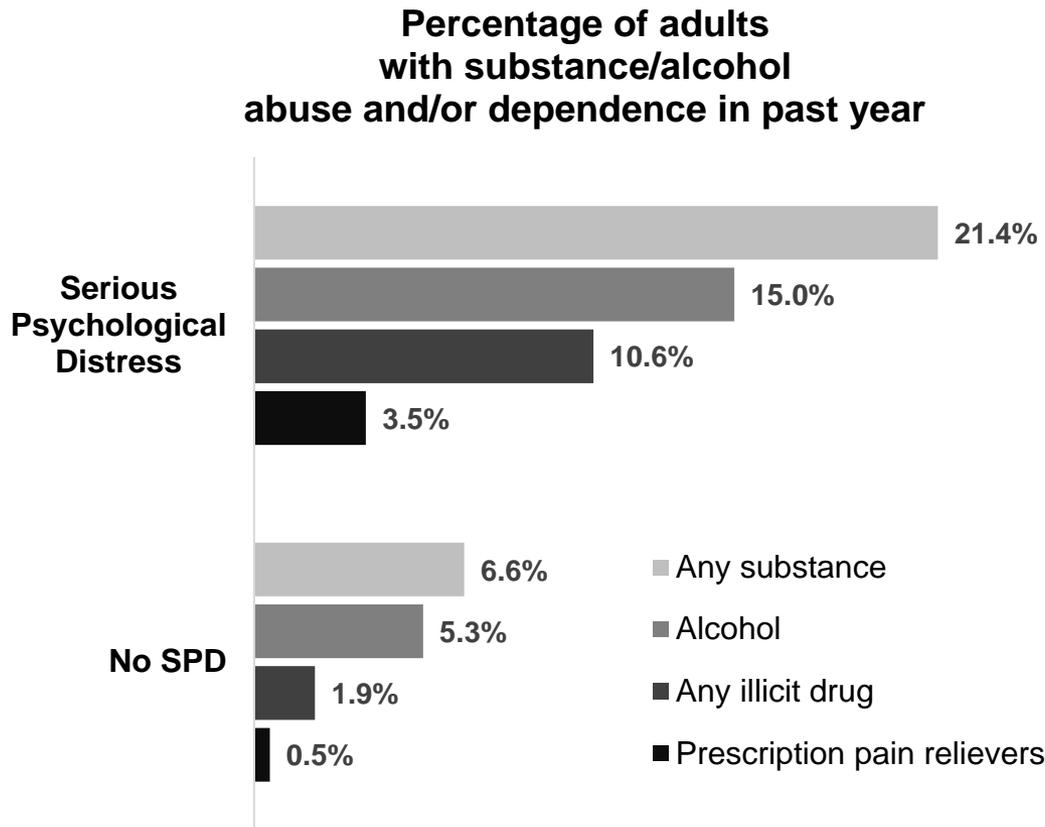
*Note that a patient can receive multiple diagnoses of a serious mental illness due to a high degree of overlap between the mental health conditions.*

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 2,191,407 (18 years and over), Census Bureau data (2015)

# Substance abuse in people with serious psychological distress

UNITED STATES 2015



*People who experienced serious psychological distress in the past 12 months are more likely to abuse or be dependent on alcohol or illicit drugs during that same time period.*

# MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

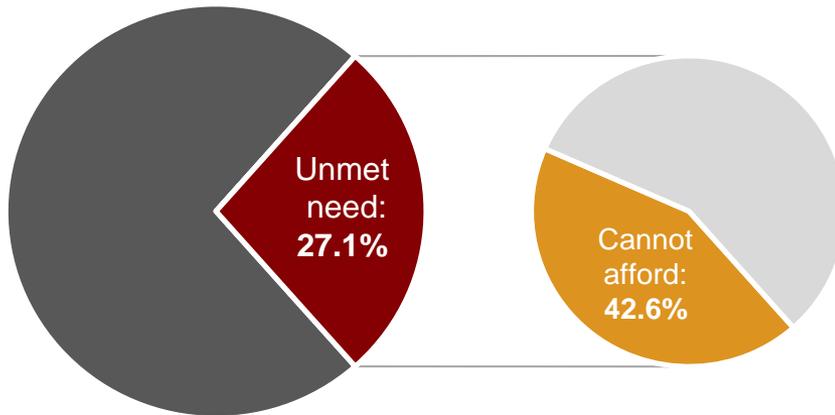
## Unmet mental health care needs

*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**

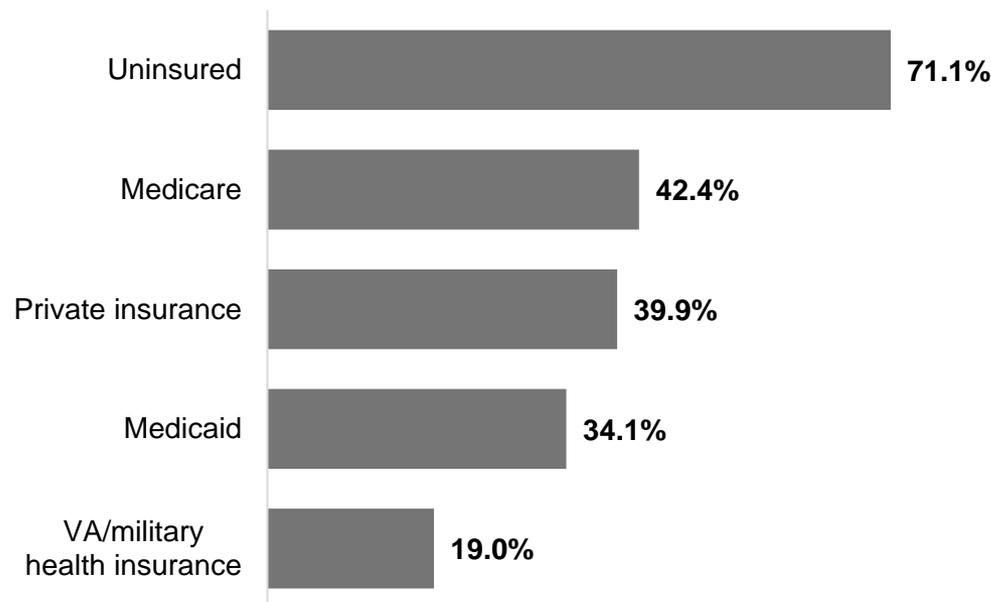
And 42.6% of these people did not receive mental health treatment, **because they could not afford it**

*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.*

# 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%).*

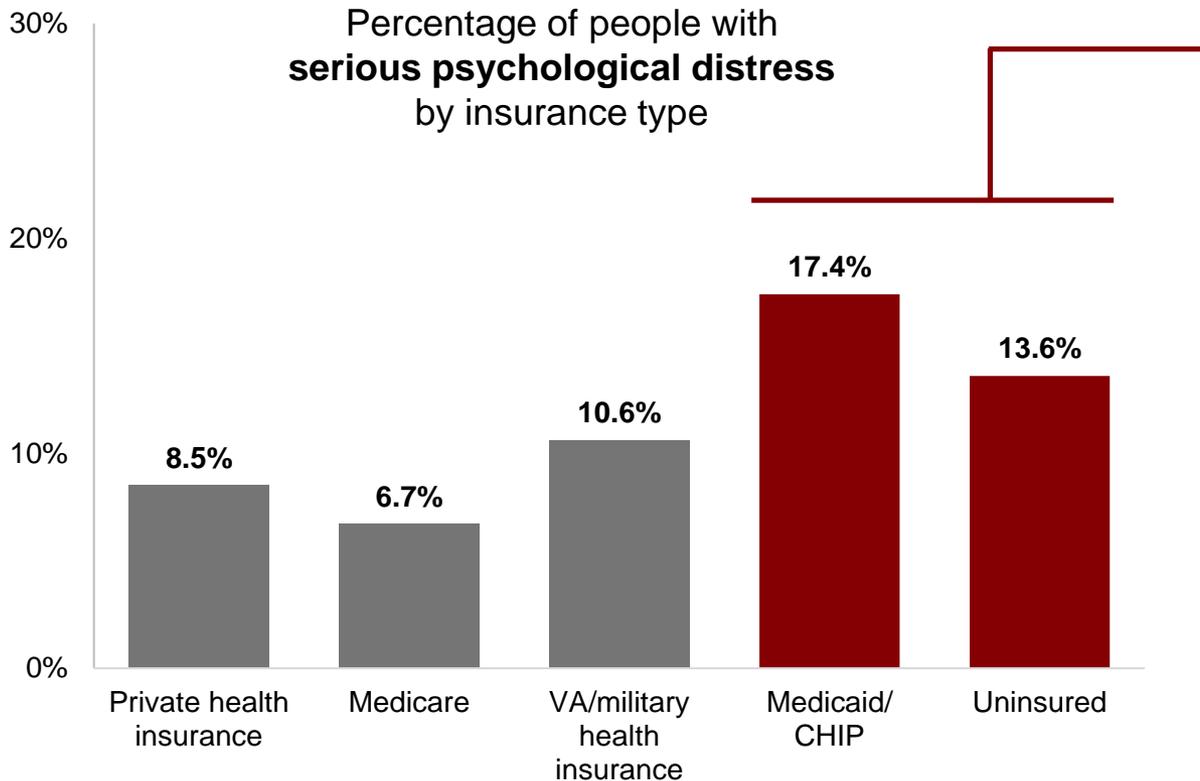
# MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

## Medicaid & behavioral health care needs

*Medicaid provides a safety-net for people with low income or qualifying disabilities, and a large percentage of people with Medicaid coverage experience behavioral health issues.*

# 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.*

# MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

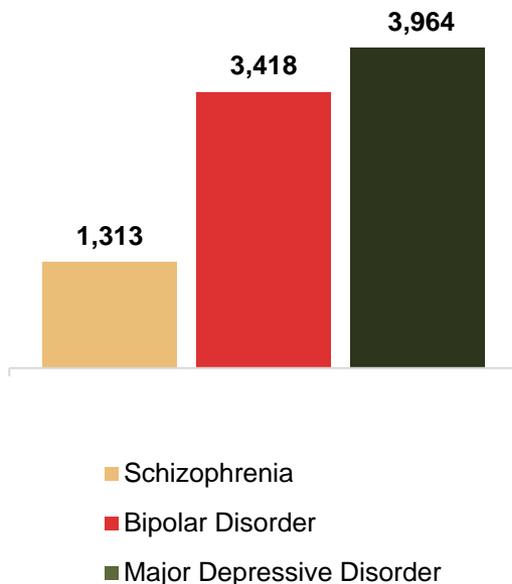
## Hospital utilization & costs

*For every 100 patients with a serious mental illness, there were approximately 47 hospitalizations in the U.S. and 29 hospitalizations in Kansas in 2014. The average length of stay for these hospitalizations is long compared to other hospital stays, and 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.*

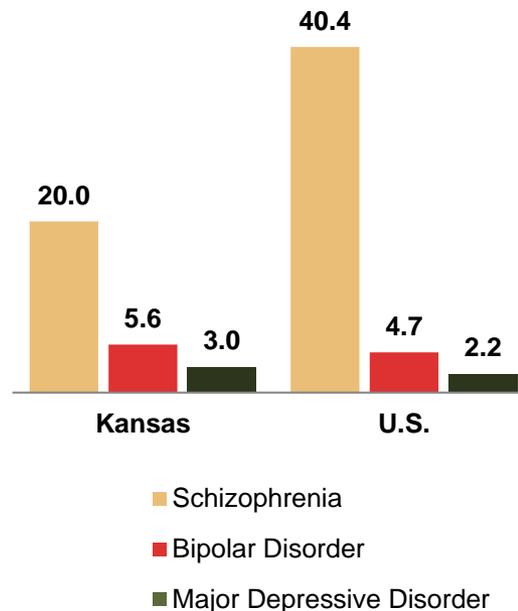
# Hospitalizations for mental illness

## KANSAS AND UNITED STATES 2014

**Hospitalizations**  
Kansas - adults



**Hospitalization rate**  
per 100 patients - adults



*In Kansas, the total number of hospitalizations is highest for adult patients with a principal diagnosis of major depressive disorder, whereas patients with schizophrenia disorder have a much higher rate of hospitalizations.*

*Compared to rest of the U.S., hospitalization rates in Kansas are slightly higher for patients with major depressive or bipolar disorder, but much lower for those with a diagnosis of schizophrenia.*

3.4% of all hospitalizations in Kansas are due to SMI

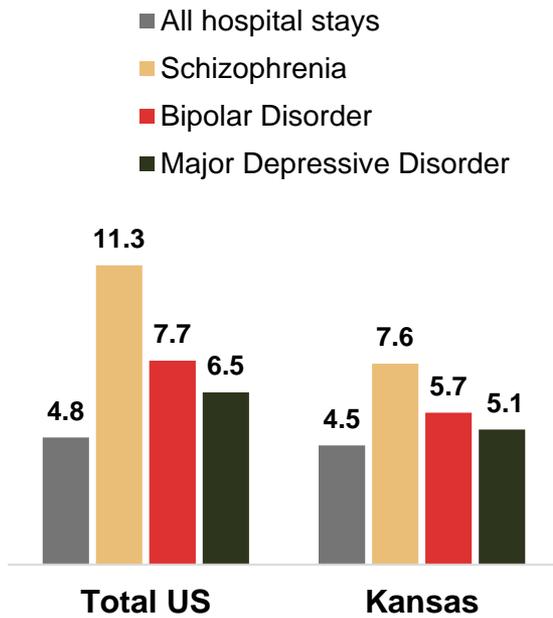
Source: Healthcare Cost and Utilization Project (HCUPnet) 2014

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

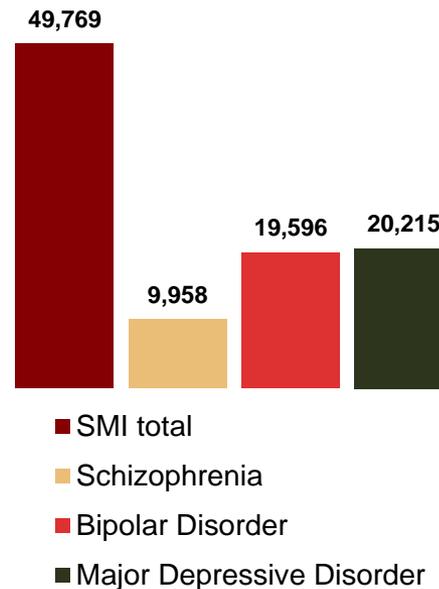
# Length of stay for mental illness hospitalizations

## KANSAS AND UNITED STATES 2014

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



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



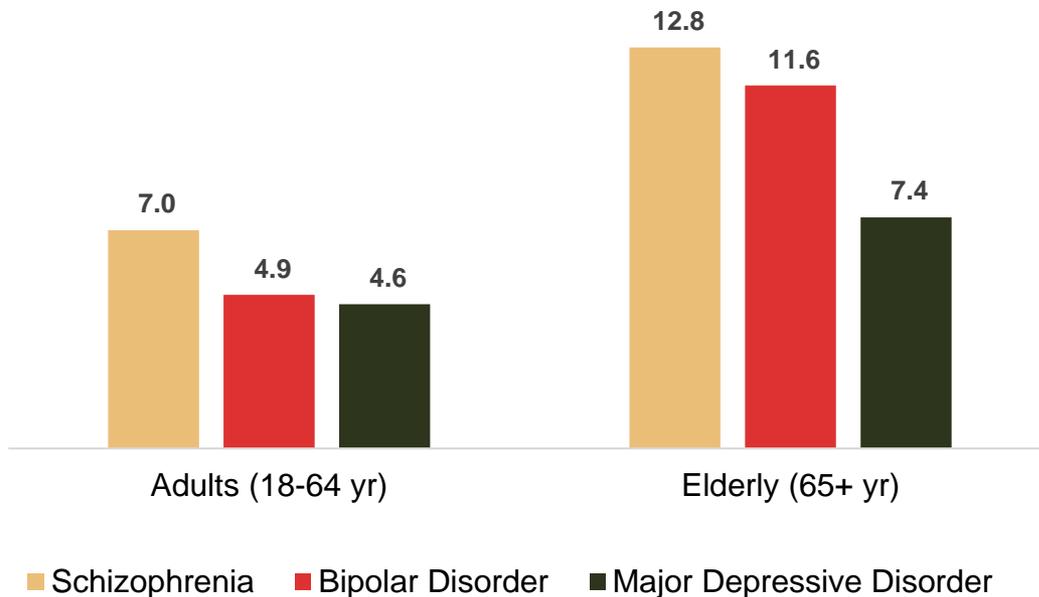
*The average hospital stay duration for adult patients with serious mental illness is relatively low in Kansas compared to the rest of the U.S., but remains higher than the average stay in a hospital for any diagnosis.*

*The total time spent in the hospital by adults with a primary diagnosis of serious mental illness is approximately 50,000 days each year in Kansas.*

# Hospitalizations of elderly patients with serious mental illness

KANSAS 2014

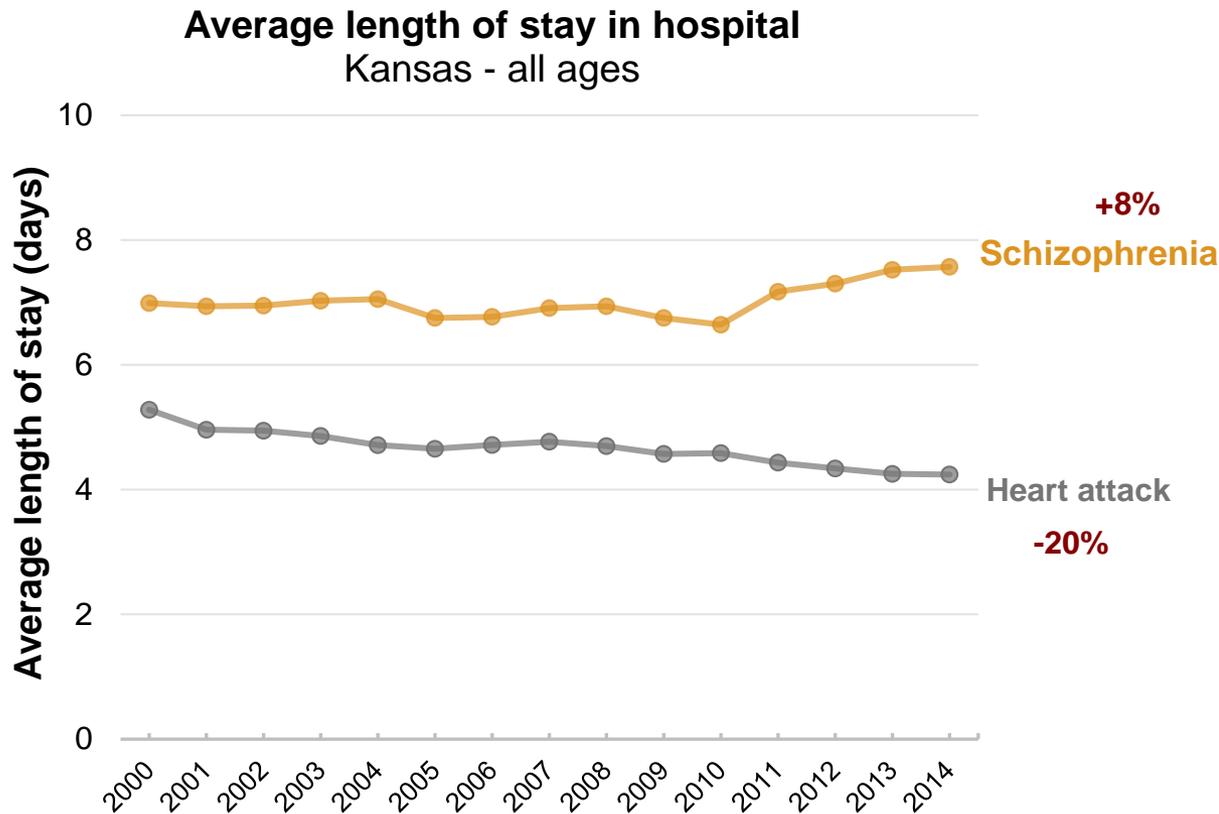
**Average duration of hospital stays (days)**  
Elderly (65+ yr)



*The length of stay in the hospital for serious mental illness in elderly patients is at least 60% higher on average than for younger adults with a similar diagnosis. Treatment of medical comorbidities due to aging, as well as difficulty finding long-term care environments may be at the root of this disparity.*

# Trends in length of stay for schizophrenia hospitalizations

KANSAS 2000-2014



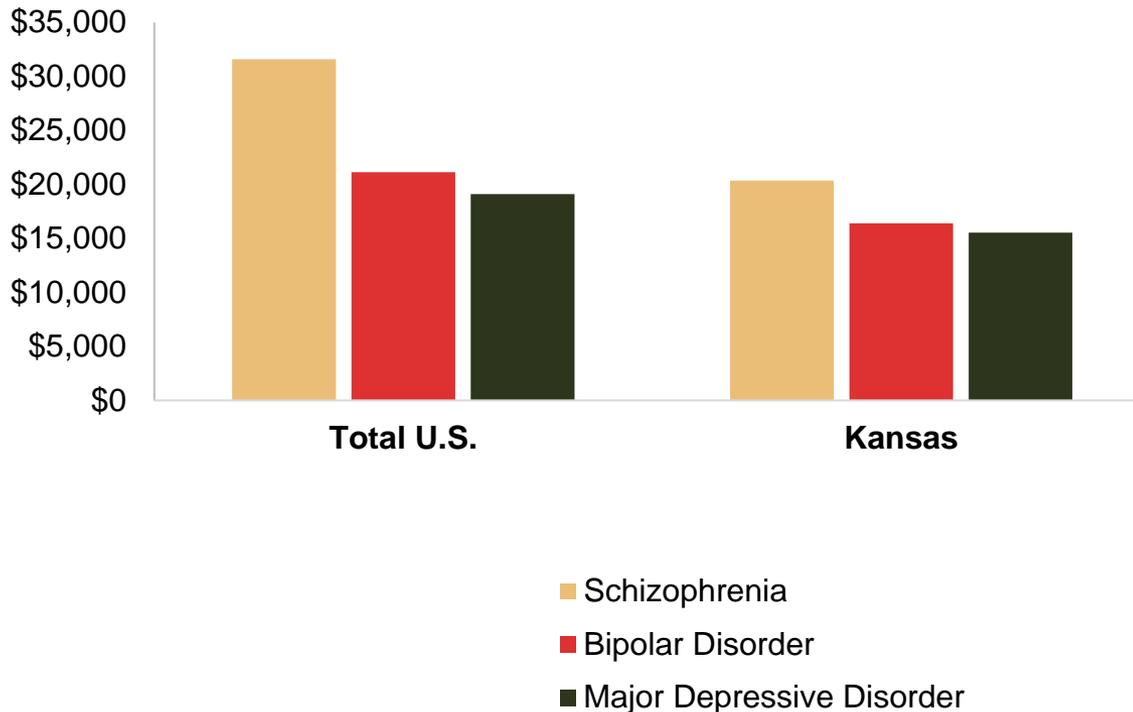
*The average stay for a schizophrenia hospitalization in Kansas was several days longer than for a hospitalization as a result of a heart attack.*

*Moreover, the latter has declined steadily by 20% since 2000, while for schizophrenia the length of stay increased with 8%.*

# Average hospital charges for mental illness hospitalizations

## KANSAS AND UNITED STATES 2014

Average hospital charges per stay  
(all ages, in 2015 U.S. \$)

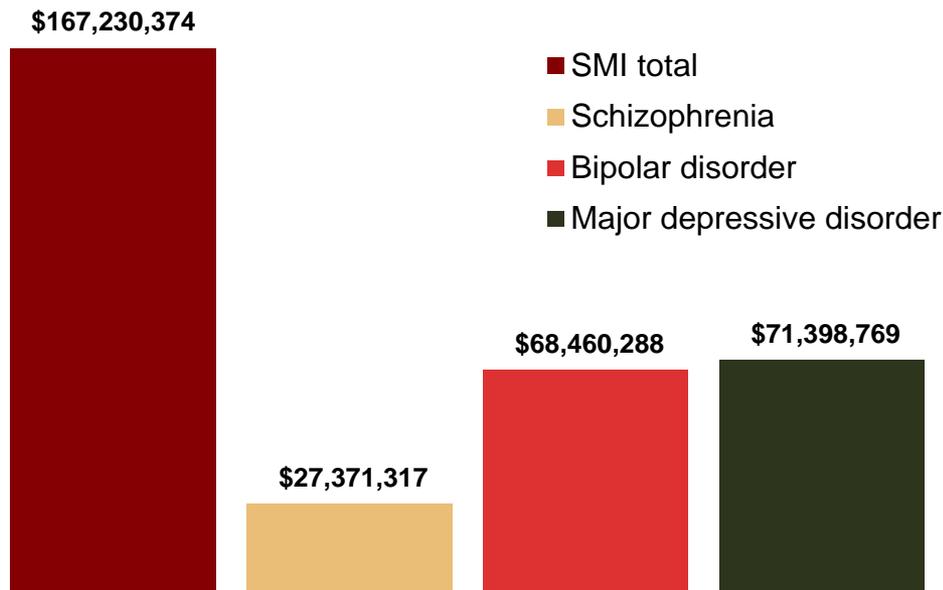


*Hospital charges in the U.S. and Kansas ranged from \$15,000 to \$31,000 per stay for patients with serious mental illness. This is despite a general absence of procedures or surgeries during a hospitalization for symptoms of serious mental illness.*

# Total hospital charges for mental illness hospitalizations

KANSAS 2014

**Total hospital charges**  
(all ages, in 2015 U.S. \$)



*Total hospital charges in Kansas for hospitalizations for serious mental illness together exceeded \$167 million in 2014.*

# MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

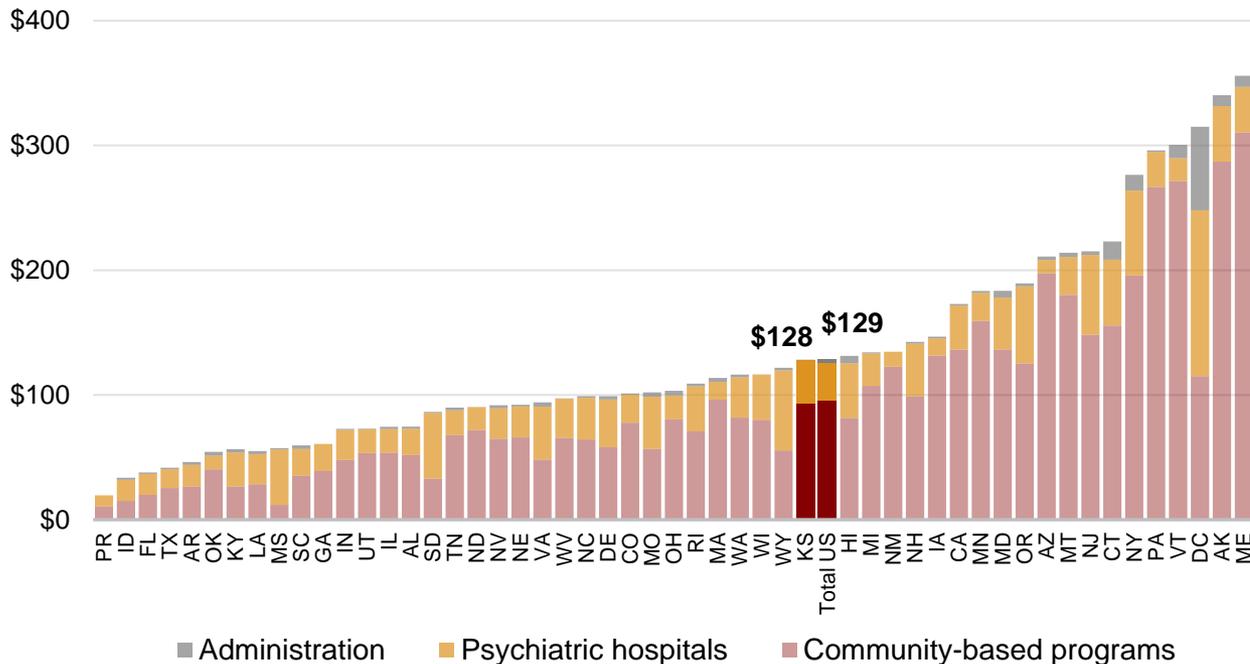
## Investment in community-based programs

*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 Kansas state mental health agency spends a similar total amount per capita.*

# State Mental Health Agency spending

## KANSAS AND UNITED STATES 2013

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



*Kansas' state mental health agency spending on mental health services per capita is very similar compared 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 BEHAVIORAL HEALTH CARE PROFESSIONALS

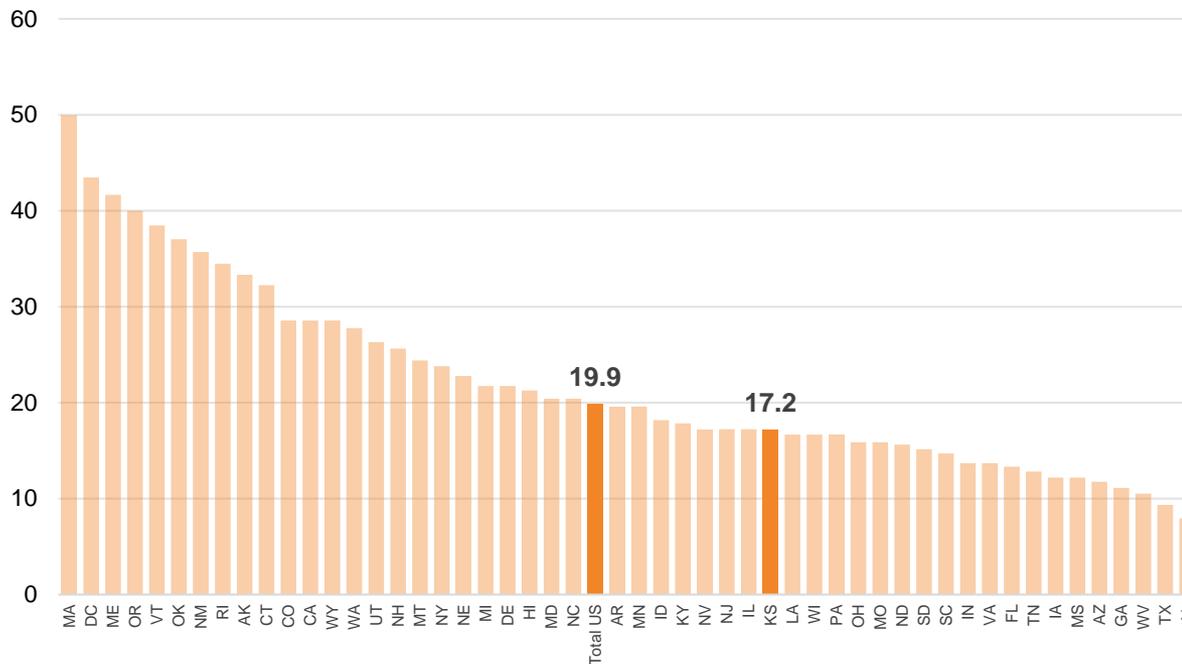
*Kansas has a smaller number of overall behavioral health care professionals and hospital beds per capita than the national average in the U.S. To fully serve the population with behavioral health needs, there are many areas and facilities in Kansas that have a shortage of behavioral health care professionals; 38 full-time professionals are needed in addition to the current workforce in designated “shortage areas” to reach an acceptable provider-to-patient ratio.*

*This shortage is also present in the criminal justice system, where many people are in need of behavioral health treatment.*

# Availability of behavioral health care professionals

## KANSAS AND UNITED STATES 2017

**Number of behavioral health care professionals per 10,000 residents**



*There are approximately 17 behavioral health care professionals for every 10,000 residents in Kansas, which is slightly lower than the average in the U.S.*

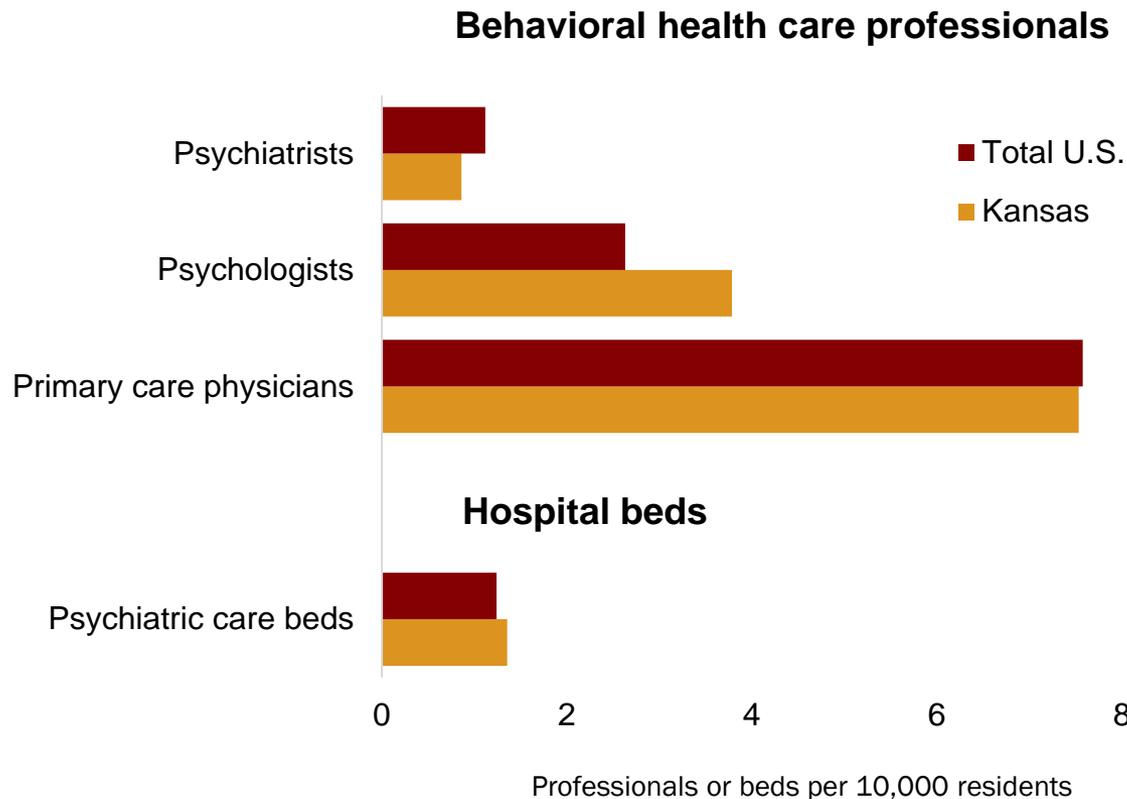
*Note that the U.S. average does not represent the optimal number of behavioral health care professionals.*

**Behavioral health care professionals include:** psychiatrists, psychologists, licensed clinical social workers, counselors, marriage and family therapists, and advanced practice nurses specializing in behavioral health care

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

# Availability of behavioral health care professionals and hospital beds

## KANSAS AND UNITED STATES 2013

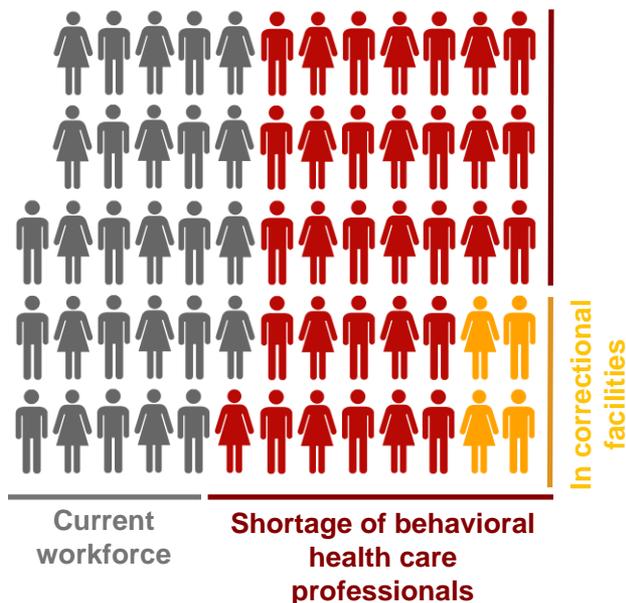


*Per resident, Kansas has slightly fewer psychiatrists, but more psychologists, compared to the U.S. average. The number of primary care physicians and hospital beds dedicated to psychiatric care are very similar in comparison to the average in the U.S.*

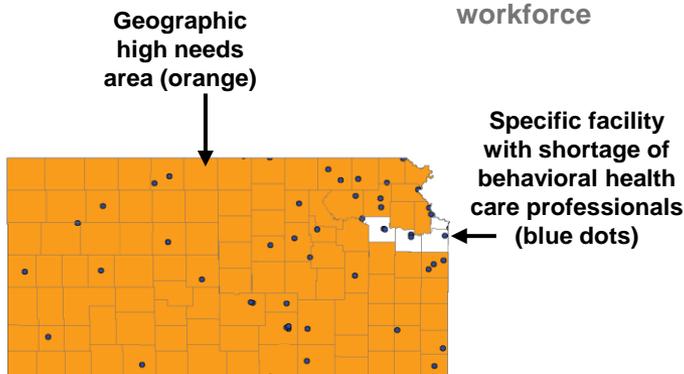
Source: Area Health Resource Files 2013 (psychiatrists, physicians and psychiatric care beds), and 2005-2013 Demographics of the U.S. Psychology Workforce, American Psychological Association (psychologists)

# Shortage of behavioral health care professionals

KANSAS 2018



Currently, Kansas has 27 full-time equivalent behavioral health care professionals in designated shortage areas. In order to address the shortage issue, 36 more full-time professionals are needed in these areas, 4 of whom are needed in correctional facilities.



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

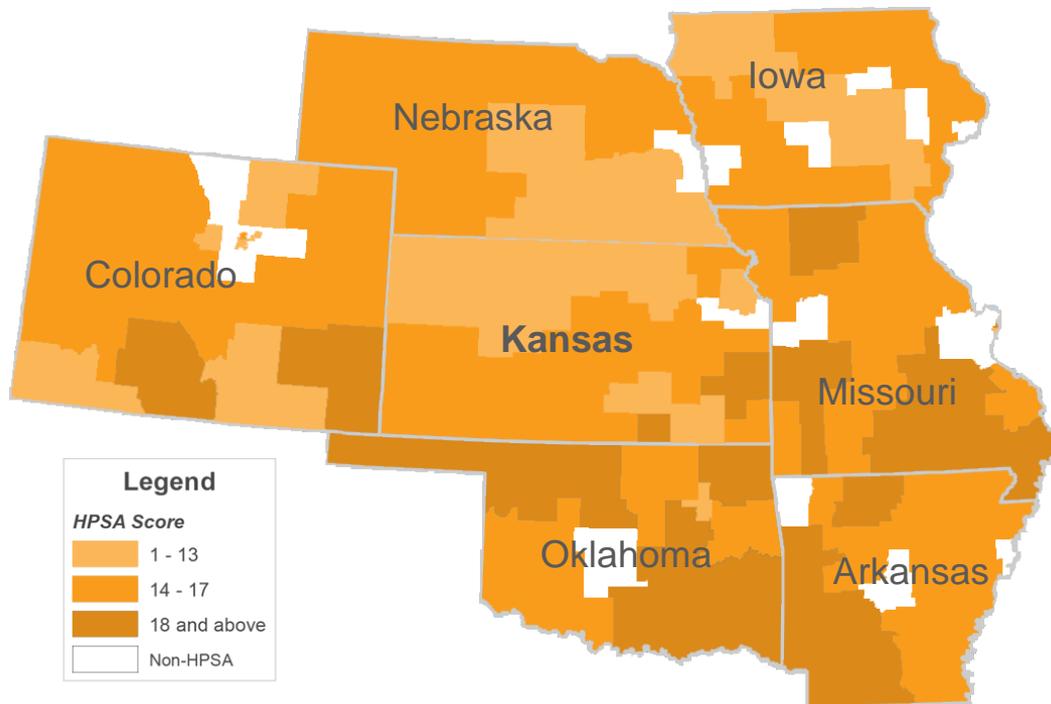
**Facilities:** Federal & state correctional institutions, state & county mental hospitals, community mental health centers, and other public or nonprofit private facilities

**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

Source: Health Professional Shortage Areas (HPSA), HRSA Data Warehouse, 03/16/2018

# Shortage of behavioral health care professionals in the Kansas region

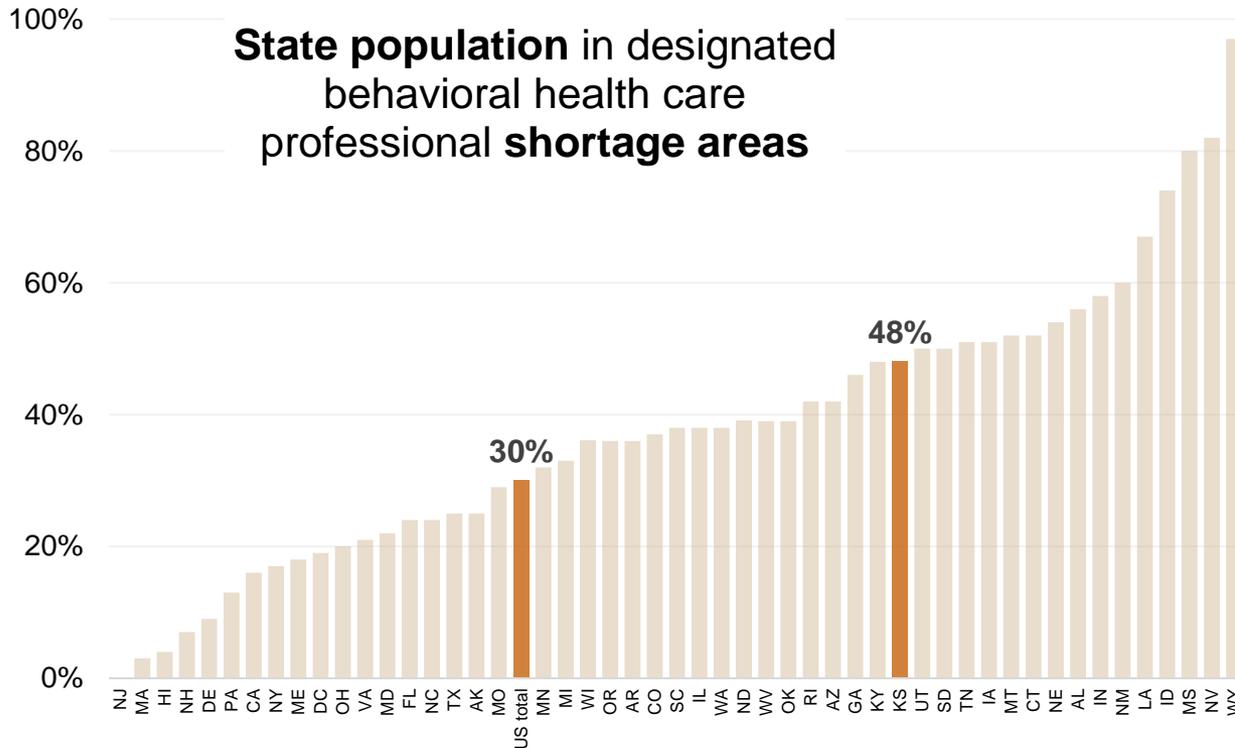
KANSAS 2018



*This map shows widespread shortages of behavioral health care professionals in Kansas and bordering states, especially in rural areas. The severity of the shortage is measured on a Health Professional Shortage Area scale from 0 to 25, with 0 indicating no shortage, and 18 and above a severe shortage.*

# State population in behavioral health care professional shortage areas

## KANSAS AND UNITED STATES 2018



*1,388,836 people in Kansas (48% of the state population) reside in designated shortage areas and/or are served by a facility with shortages of behavioral health care professionals. This is higher than the U.S. average of 30%.*

Source: Health Professional Shortage Areas (HPSA), HRSA Data Warehouse, 03/16/2018, and Census Bureau data (2017)

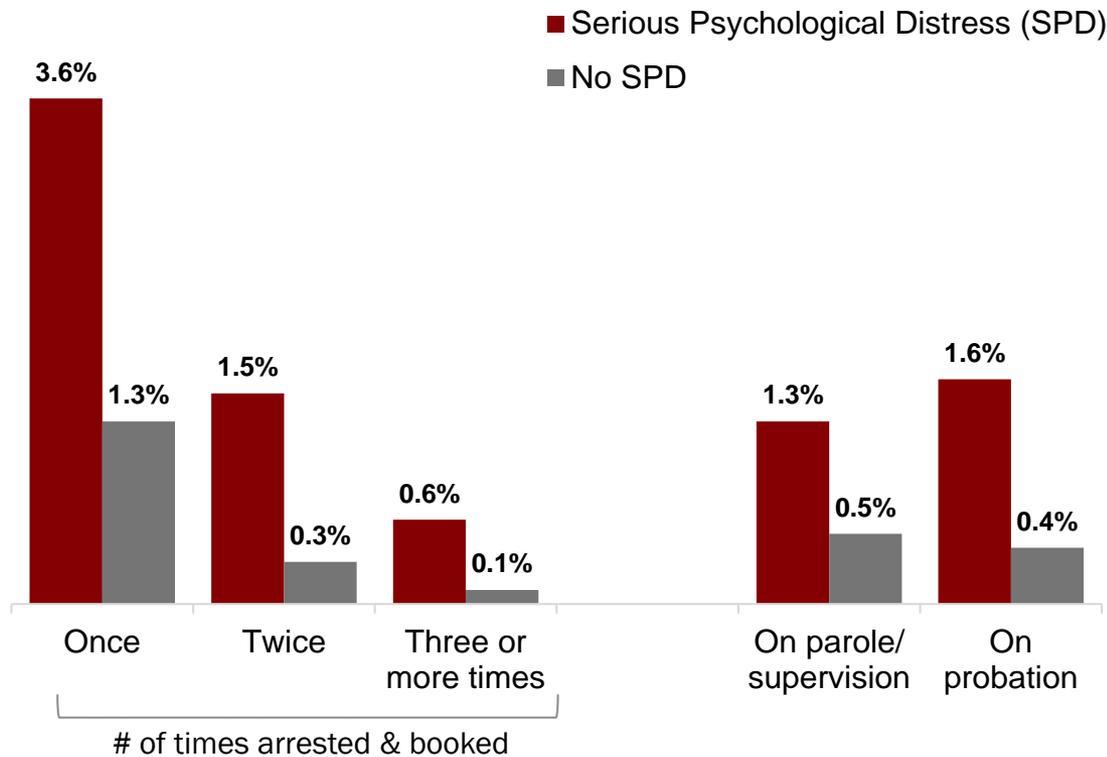
# MENTAL HEALTH CONDITIONS & THE CRIMINAL JUSTICE SYSTEM

*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.*

*In Kansas, the prevalence of serious mental illness is relatively high compared to the U.S. average. The overall cost of incarceration of the 3,000 prisoners with serious mental illness in the state of Kansas exceeds \$100 million per year.*

# Contact with criminal justice system

UNITED STATES 2015

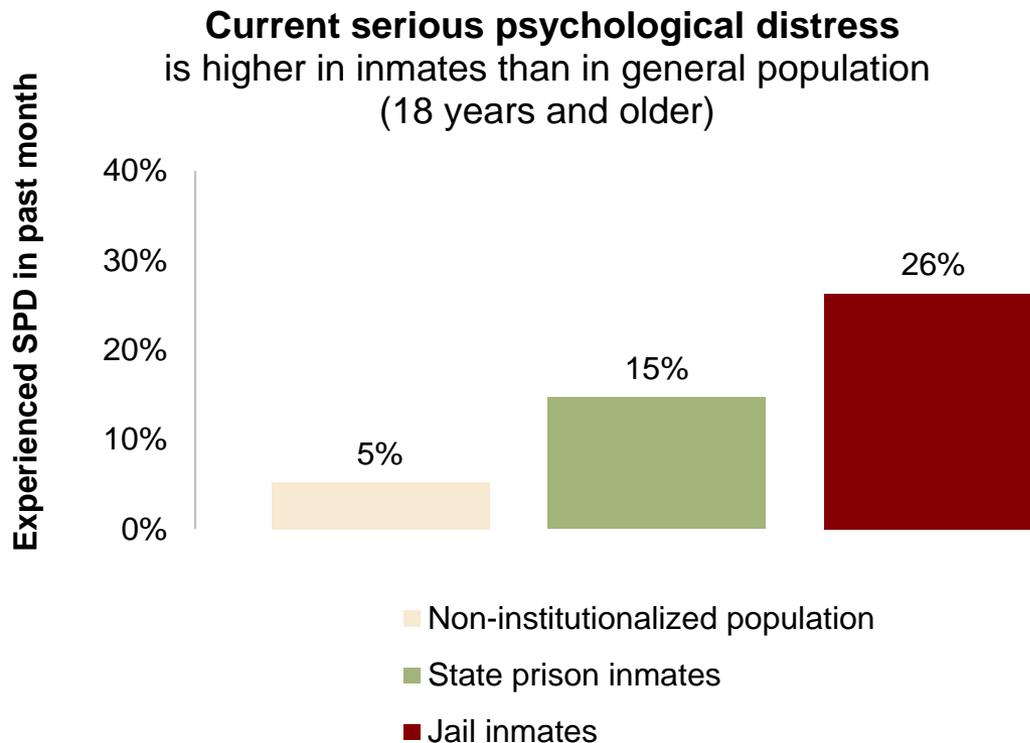


*People who experienced serious psychological distress (SPD) are more likely to have been arrested or be on parole or probation in the past year.*

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.*

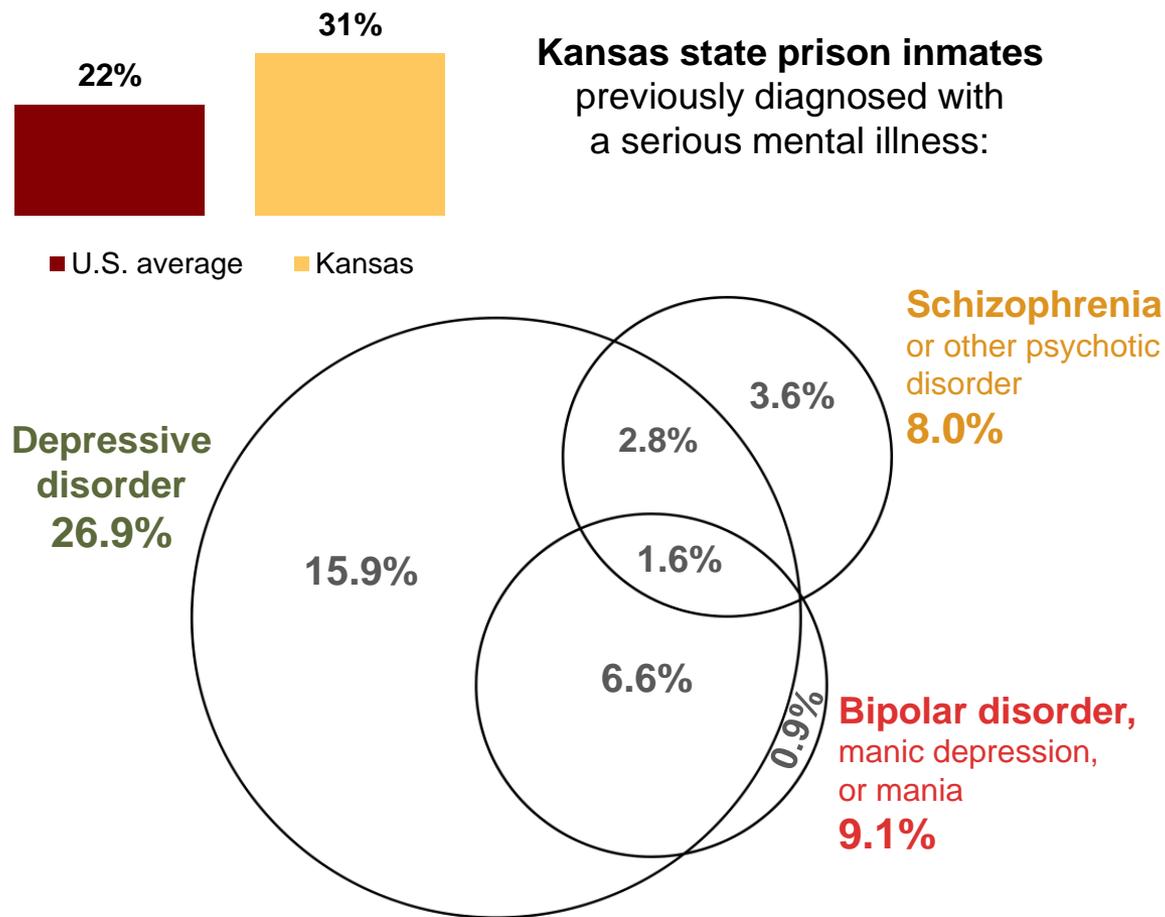
Source: National Survey of Drug Use and Health (NSDUH) 2015

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

## KANSAS



*In Kansas state prisons, approximately 31% of prison inmates previously have been diagnosed with a serious mental illness, which is much higher than 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.*

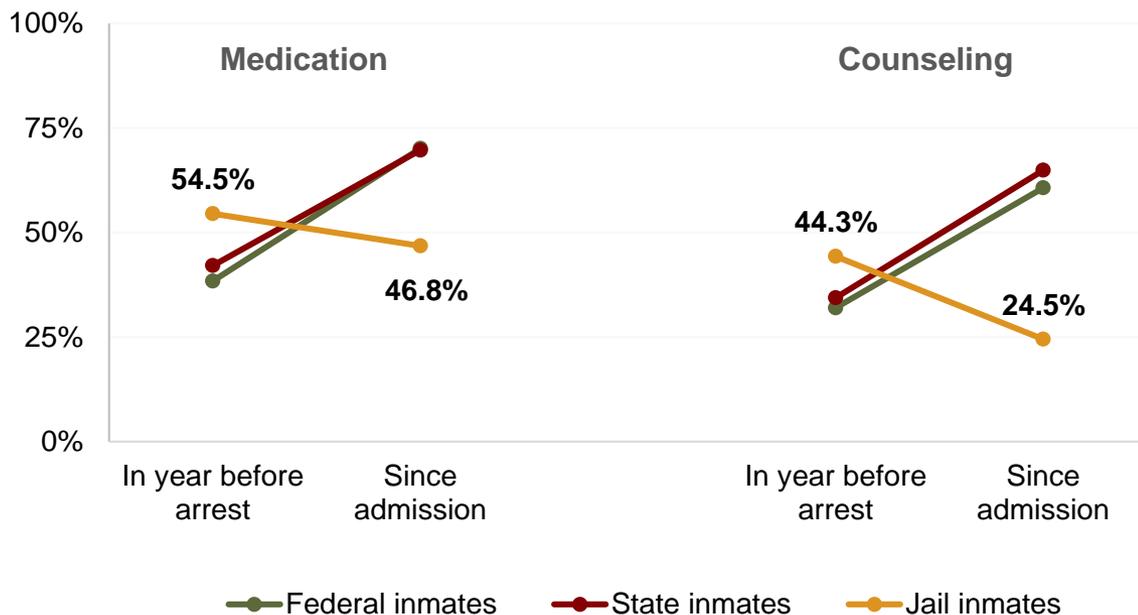
Source: Survey of Inmates in State Correctional facilities, BJS, 2004. Includes juveniles  
 Due to rounding, percentages of separate parts may not add up to the total percentage

# 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.

Estimated number of  
**Kansas state prison inmates** in 2016,  
previously diagnosed with serious mental illness :

**3,011**

Estimate of overall annual costs in 2016:

**\$110,212,130**

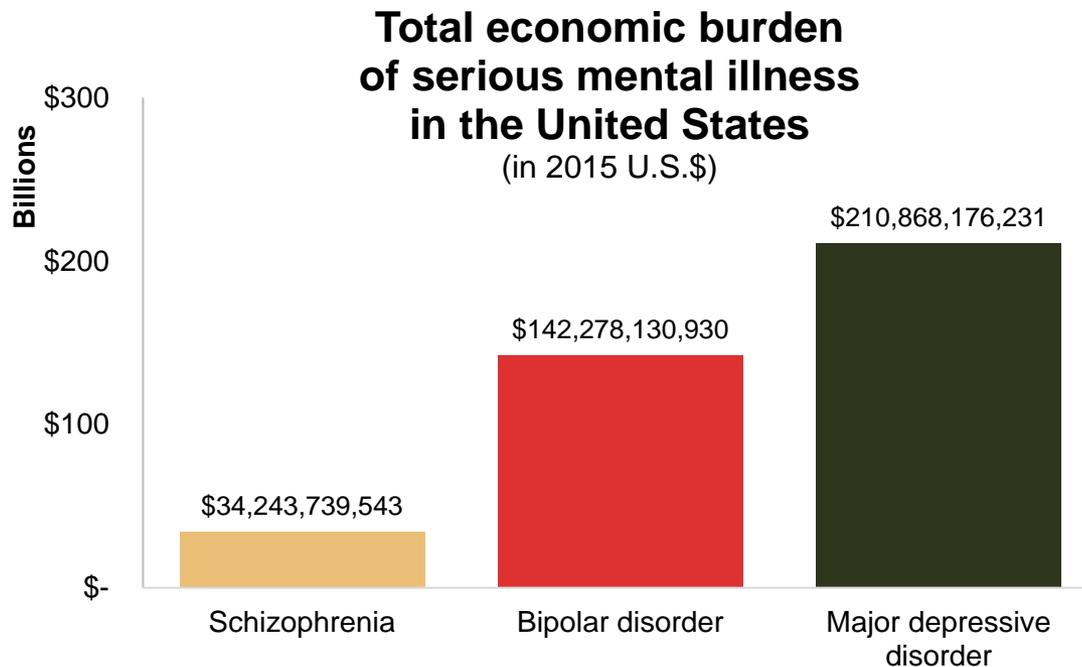
*Overall annual costs based on 2016 average of all state prison inmates in Kansas  
Source: Annual Survey of State Government Finances 2016  
Survey of Inmates in State/Federal Correctional facilities, BJS, 2004  
Kansas State, Department of Corrections Annual Report FY 2016*

# TOTAL ECONOMIC BURDEN OF SERIOUS MENTAL ILLNESS

*The economic burden of each serious mental illness in adults is estimated to be at least \$34 billion for the U.S. and \$300 million for Kansas per year*

# Economic burden of serious mental illness

UNITED STATES 2015



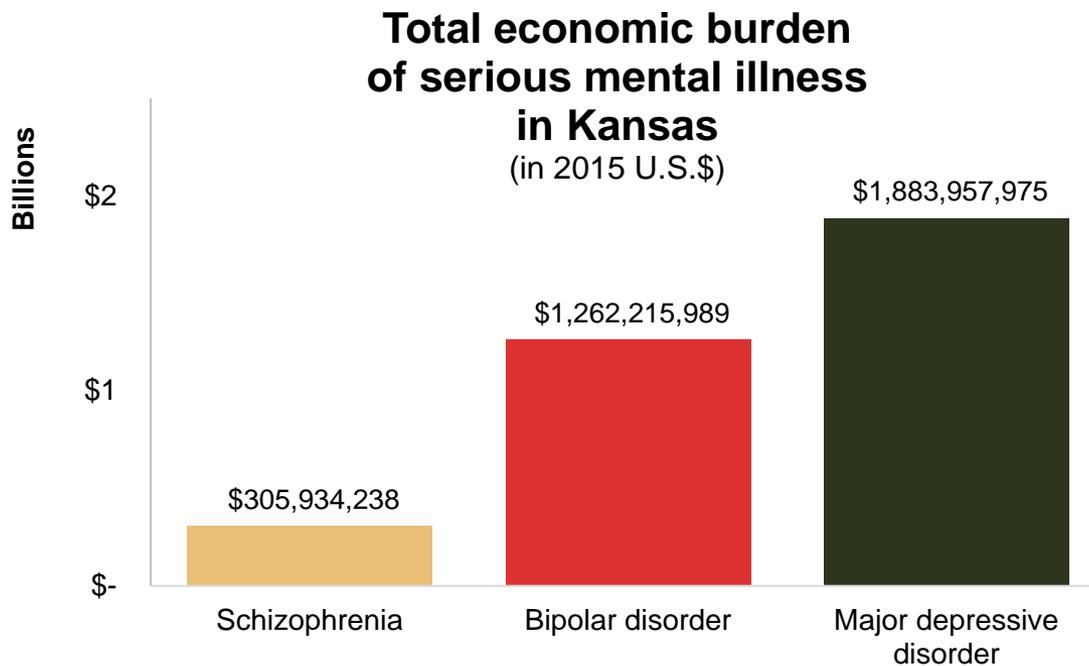
*The economic burden of schizophrenia, bipolar disorder, and major depressive disorder in adults in the U.S. is estimated to be at least **\$34 billion for each serious mental illness.***

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

KANSAS 2015



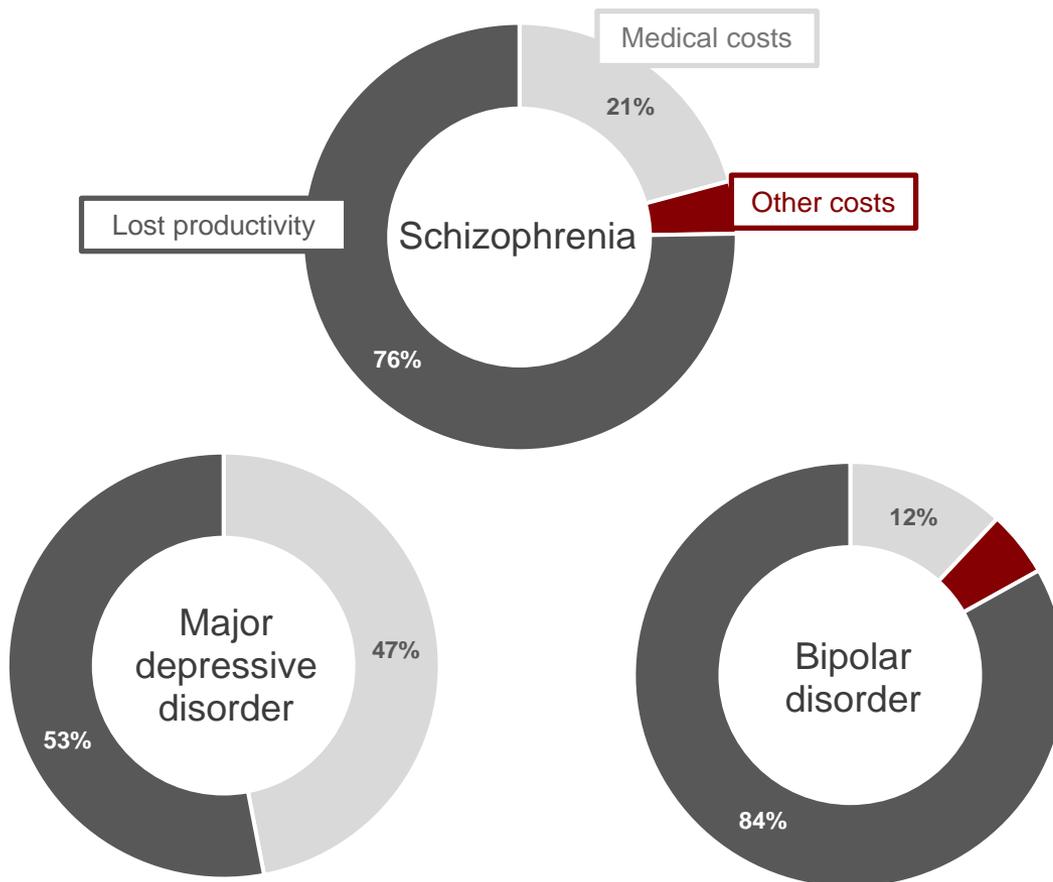
*The economic burden of schizophrenia, bipolar disorder, and major depressive disorder in adults in Kansas is estimated to be at least **\$300 million for each serious mental illness.***

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

# Lost productivity is the largest contributor to economic burden of serious mental illness

UNITED STATES 2015



*Most of the total economic burden of serious mental illness is due to **lost productivity** (unemployment, lost compensation (incl. caregivers), or early mortality). Only 12 to 47% of the total burden is resulting from direct **medical costs** (including substance abuse treatment), and an even smaller percentage from law enforcement, incarceration, shelters, or research & training (**other costs**).*

*This highlights the large potential economic and societal benefits from improving treatment for serious mental illness even if it means spending more on care.*

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

# ACKNOWLEDGMENTS

Authors:

Hanke Heun-Johnson,  
PhD

Michael Menchine,  
MD, MPH

Dana P. Goldman,  
PhD

Seth A. Seabury,  
PhD

Funding for this project was provided through an unrestricted grant from Alkermes. Goldman and Seabury are consultants to Precision Health Economics, LLC and Goldman holds equity (<1%) in its parent firm.

This work was done as part of the [Keck-Schaeffer Initiative for Population Health Policy](#).

We also acknowledge comments and contributions to this work from the [National Council for Behavioral Health](#) and the [Behavioral Health + Economics Network](#).



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](http://healthpolicy.usc.edu/Keck_Schaeffer_Initiative.aspx)

# USC Schaeffer

Leonard D. Schaeffer Center  
for Health Policy & Economics

