ASPE ASSISTANT SECRETARY FOR PLANNING AND EVALUATION

OFFICE OF BEHAVIORAL HEALTH, DISABILITY, AND AGING POLICY

ISSUE BRIEF

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TREATMENT OF SUICIDAL IDEATION AND SUICIDE-RELATED BEHAVIORS AMONG CHILDREN AND ADOLESCENTS ENROLLED IN MEDICAID AND CHIP DURING THE EARLY COVID-19 PUBLIC HEALTH EMERGENCY

KEY POINTS

- The data do not indicate the public health emergency had a lasting impact on changes in treatment for suicidal behaviors during the first year of the public health emergency. Rates of encounters related to suicide attempt or self-harm decreased at the start of the COVID-19 public health emergency from 0.33 to 0.24 encounters per 1,000 beneficiaries from April 2019 to April 2020, and from 1.35 to 0.70 suicidal ideation encounters per 1,000 beneficiaries in the same period. Encounter rates rebounded, however, to meet or surpass pre-emergency encounter rates in late 2020 (0.44 suicide attempt or self-harm encounters per 1,000 beneficiaries in October 2020 compared with 0.35 treatment events per 1,000 beneficiaries in October 2019).
- Beneficiaries with depression accounted for the greatest number of beneficiaries with encounters related to suicide attempt or self-harm (3,581 per month before versus 3,528 per month during the public health emergency) and suicidal ideation (15,957 before versus 13,174 during the public health emergency).
- Trends over time were consistent across most disorders, though encounters related to suicide attempt or self-harm increased dramatically for beneficiaries in Medicaid and the Children's Health Insurance Program with other mental health conditions in late 2020 from 19.81 encounters per 1,000 beneficiaries in October 2019 to 31.74 encounters per 1,000 beneficiaries in October 2020.

BACKGROUND

Before the COVID-19 public health emergency, rates of youth suicide were increasing. From 2009 to 2019, the percentage of high school students who had attempted suicide at least once in the past year increased from 6.3% to 8.9%.[1] Medicaid's Early and Periodic Screening, Diagnostic and Treatment benefit covers many behavioral health services provided in school settings,[2] and school closures may have removed an important source of treatment, screening, and referral for behavioral health conditions. In response, the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry, and the Children's Hospital Association jointly declared a National State of Emergency in Children's Mental Health in 2021, citing COVID-19's potential negative impact on the pre-COVID-19 pattern of increasing suicide rates among youth.[3] During the public health emergency, the mean weekly number of emergency department visits for suspected suicide attempts among those ages 12-17 was 22.3% higher in summer 2020 and 39.1% higher in winter 2021 than during the corresponding periods in 2019.[4] Other studies report increased rates of positive suicide screens in pediatric hospitals during the public health emergency,[5,6] and an increase in the proportion of overall suicides that occurred among adolescents.[7] More data are needed to examine rates of suicide attempt and suicidal ideation among children and adolescents during the public health emergency.

Although rates of suicidal ideation and attempt were similar across coverage groups (Medicaid and Children's Health Insurance Program [CHIP] versus privately insured) before the public health emergency,[8] 40% of youth

ages 10-18 who died by suicide between 2009 and 2013 were covered by Medicaid.[9,i] This brief provides the descriptive results of an analysis of Medicaid and CHIP claims data that examined beneficiary encounters related to suicidal ideation and suicide attempt or self-harm during 2019 and 2020, and it adds to the knowledge base on this topic by including younger children and examining rates across groups with different co-occurring behavioral health disorders. The findings can be used to inform efforts to reduce the risk of suicide in children and adolescents.

METHODS

This analysis relied on the 2018-2020 Transformed Medicaid Statistical Information System Analytic Files Research Identifiable Files. We used the annual Demographics and Eligibility (DE) file and the four claims files: (1) inpatient; (2) long-term care; (3) other services; and (4) pharmacy. The annual DE file includes demographic, eligibility, and enrollment information for all Medicaid and CHIP beneficiaries enrolled during the calendar year. We analyzed DE records from 2018 to 2020 to identify demographic and enrollment characteristics. The claims files include fee-for-service claims, managed care encounters, and financial transaction records (including capitation payments, service tracking claims, and supplemental payments) paid for by Medicaid or CHIP. We analyzed claims records from 2018 to 2020 to identify behavioral health conditions[ii] and claims from 2019-2020 to identify suicidal ideation and suicide attempt or self-harm.[iii]

The study population was limited to beneficiaries enrolled in Medicaid or CHIP for at least six consecutive months in all 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands; were eligible for full or comprehensive benefits; and aged 3-17. For this population, we examined the following metrics: (1) the count of beneficiaries with encounters related to suicidal ideation, suicide attempt or intentional self-harm in each month; and (2) the rate of encounters in each month per 1,000 total Medicaid and CHIP beneficiaries in the analytic population.[iii] Counts and rates are produced separately for suicidal ideation and for suicide attempt or self-harm. More information on the diagnosis codes used to identify suicidal ideation and suicide attempt or self-harm are available in the ***Appendix***.

We stratified these metrics by co-occurring behavioral health conditions. Mental health conditions include attention-deficit/hyperactivity disorder (ADHD), anxiety, behavior or conduct disorders, depression, mood disorders (including bipolar disorder), psychotic disorders, other mental health conditions,[iv] trauma or stressor related disorders. Substance use disorder (SUD) conditions include alcohol use disorder, opioid use disorder, and other drug use disorders.[v]

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[i] Statistics reported by Medicaid and CHIP Payment and Access Commission (MACPAC) indicate that between 30% and 32% of youth 10-18 were covered by Medicaid and CHIP in 2010-2012. For more information see the June 2024 MACStats Report: https://www.macpac.gov/wp-content/uploads/2015/03/June-2014-MACStats.pdf.

[ii] To identify beneficiaries with behavioral health conditions, we used the standardized approach of the Centers for Medicare & Medicaid Services for identifying beneficiaries with behavioral health conditions in claims data available from the Chronic Conditions Data Warehouse (CCW). For most behavioral health conditions, the CCW algorithm requires "at least 1 inpatient claim or 2 other non-drug claims of any service type" during a two-year reference period to identify beneficiaries considered to have a behavioral health condition during a particular year.

[iii] We identify claims related to suicide attempt or self-harm as claims with an International Classification of Diseases, 10th revision (ICD-10) diagnosis code for suicide attempt or intentional self-harm and claims related to suicidal ideation as claims with a diagnosis code for suicidal ideation. We do not include claims with a diagnosis code indicating a subsequent encounter or sequela encounter for suicide attempt or self-harm, or suicidal ideation.

[iv] Other mental health conditions include eating disorders; sleeping disorders; fictitious disorder imposed on self, unspecified; mental health and behavioral disorders associated with the puerperium, not elsewhere classified; psychological and behavioral factors associated with disorders or diseases classified elsewhere; and unspecified behavioral syndromes associated with physiological disturbances and physical factors.

[v] CCW algorithm for "drug use disorder", other drug use disorders include cannabis, Sedative, hypnotic or anxiolytic, cocaine, stimulants, hallucinogens, inhalants, and codes for "other psychoactive substance abuse".

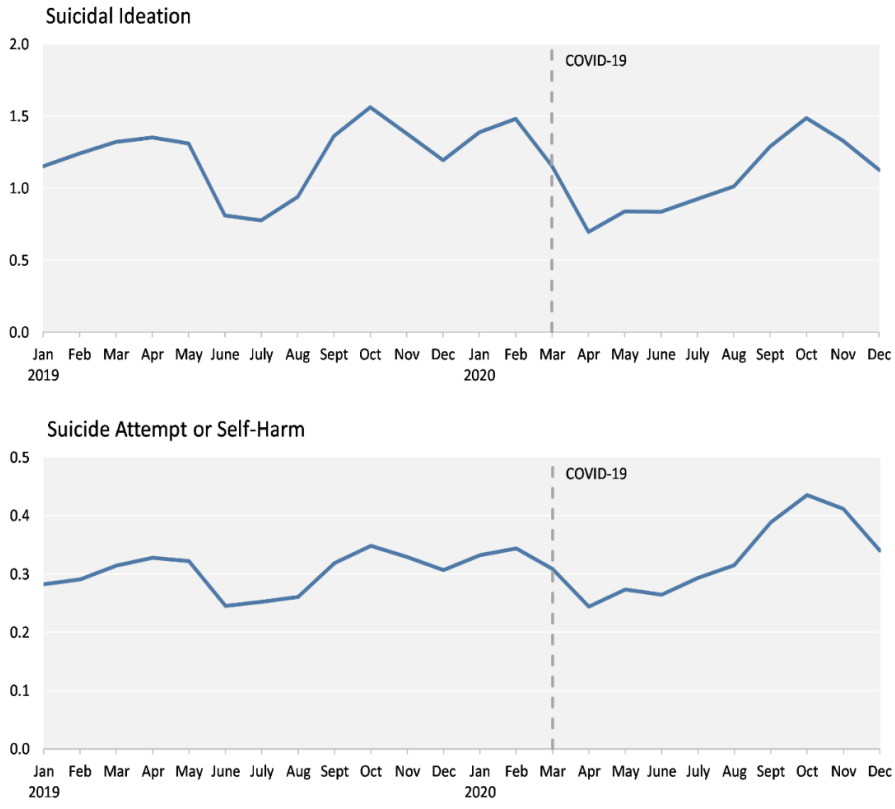
Our final analytic sample includes 36,149,921 Medicaid and CHIP beneficiaries that were aged 3-17 between January 2019 and December 2020, out of which 377,534 beneficiaries had an encounter related to suicidal ideation, or suicide attempt or self-harm.

FINDINGS

Overall Trends in the Rate of Encounters for Suicide Attempt or Self-Harm and Suicidal Ideation

Figure 1 shows the rate of encounters for suicide attempt or self-harm and suicidal ideation each month per 1,000 beneficiaries. The data do not indicate the public health emergency (PHE) had a lasting impact on treatment for suicidal behaviors during the first year of the public health emergency. Rates of encounters related to suicide attempts or self-harm slightly decreased at the beginning of the emergency (0.24 encounters per 1,000 beneficiaries in April 2020 versus 0.33 encounters per 1,000 beneficiaries in April 2019) but then surpassed pre-emergency rates in late 2020 (0.44 encounters per 1,000 beneficiaries in October 2020 versus 0.35 encounters per 1,000 beneficiaries in October 2019). Rates of encounters for suicidal ideation also slightly declined early in the public health emergency (0.70 encounters per 1,000 beneficiaries in April 2020 versus 1.35 encounters per 1,000 beneficiaries in April 2019).

Figure 1. Rate of Suicide Attempt or Self-Harm and Suicidal Ideation Encounters per 1,000 Medicaid and CHIP Beneficiaries, 2019-2020



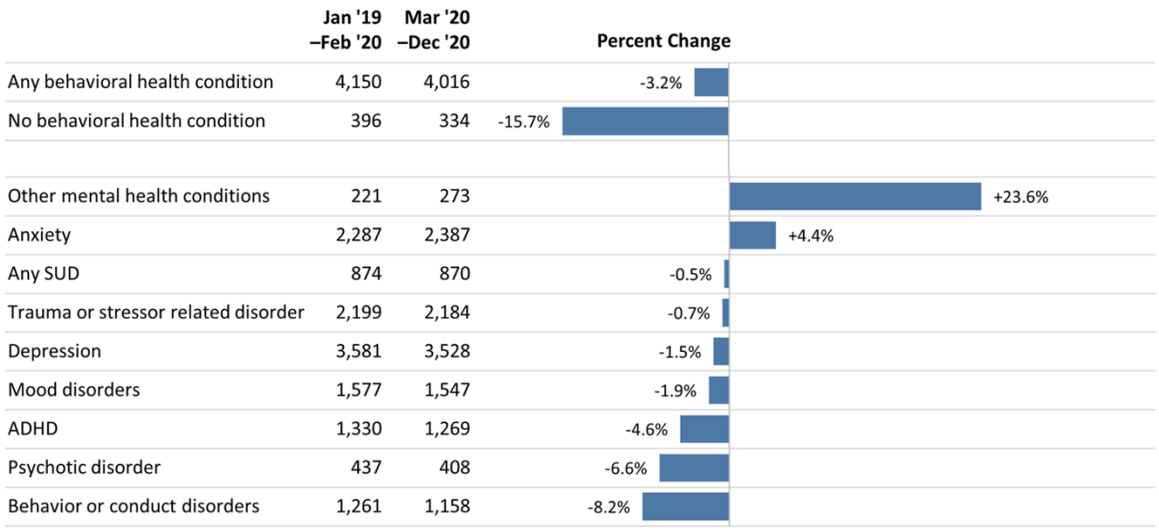
Source: Transformed Medicaid Statistical Information System Analytic Files, 2018-2020 version 5.

Notes: The rate of encounters per 1,000 Medicaid and CHIP beneficiaries is calculated from the count of services in the month divided by the number of Medicaid and CHIP beneficiaries in the year. This analysis includes beneficiaries aged 3-17 enrolled in Medicaid or CHIP with full or comprehensive benefits who were enrolled for at least 6 consecutive months. Age was determined as of December 31 of each calendar year.

Encounters for Suicide Attempt or Self-Harm and Suicidal Ideation by Condition

Figure 2 shows the average monthly count of beneficiaries with each condition who had an encounter for suicide attempt or self-harm before the and during the initial months of the public health emergency pandemic. Some encounters for suicide attempt or self-harm occurred among beneficiaries with no behavioral health conditions, though this group experienced the largest decrease in encounters related to suicide attempt or self-harm during this time period (15.7% decrease from an average of 396 beneficiaries with encounters per month from January 2019 to February 2020, to 334 per month from March 2020 to December 2020). Beneficiaries with depression accounted for the greatest number of beneficiaries with such encounters (average of 3,581 beneficiaries with encounters per month from January 2019 to February 2020 versus 3,528 per month from March 2020 to December 2020), followed by beneficiaries with anxiety disorders (2,287 beneficiaries with encounters per month from January 2019 to February 2020, versus 2,387 per month from March 2020 to December 2020), then trauma or stressor related disorders (2,199 beneficiaries with encounters per month from January 2019 to February 2020, versus 2,184 per month from March 2020 to December 2020).

Figure 2. Average Monthly Count and Percentage Change of Medicaid and CHIP Beneficiaries with Encounters for Suicide Attempt or Self-Harm, by Condition, 2019-2020



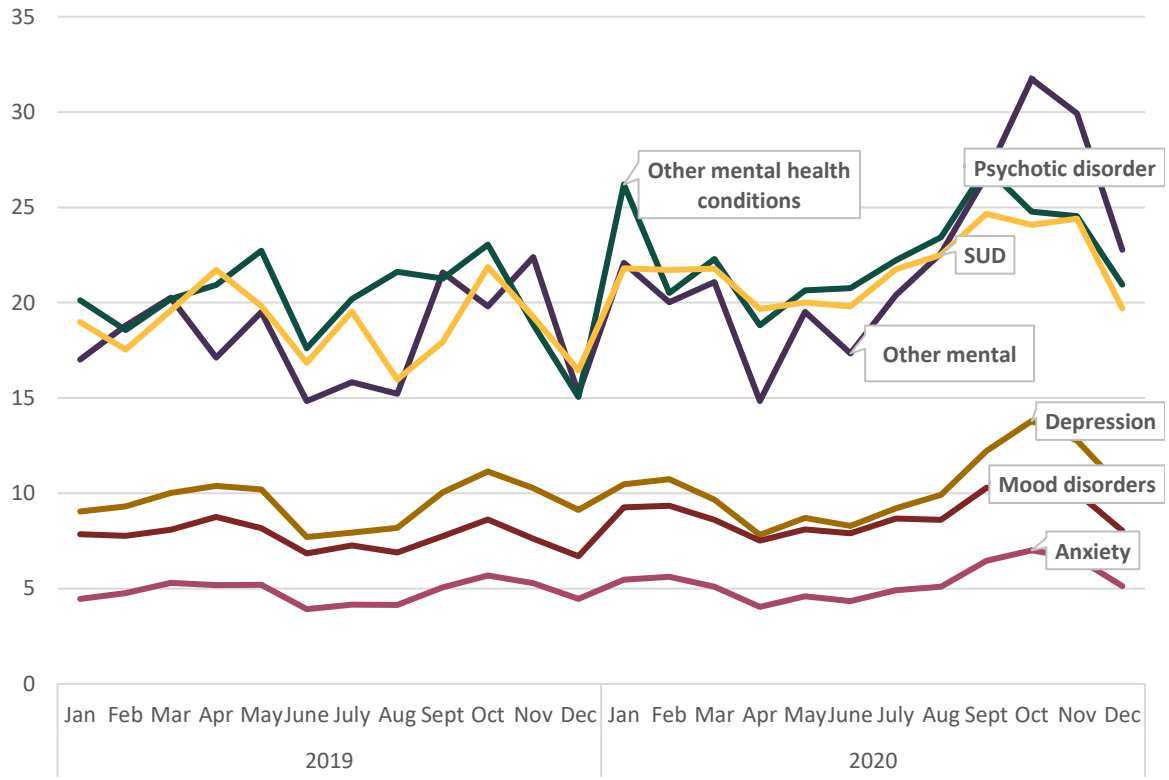
Source: Transformed Medicaid Statistical Information System Analytic Files, 2018-2020 version 5.

Notes: This table provides the average monthly count of Medicaid and CHIP beneficiaries with each condition with encounters in each year. This analysis includes beneficiaries 3-17 years old enrolled in Medicaid or CHIP with full or comprehensive benefits who were enrolled for at least 6 consecutive months. Age was determined as of December 31 of each calendar year. Other mental health conditions include eating disorders; sleeping disordersfictitious disorder imposed on self, unspecified; mental health and behavioral disorders associated with the puerperium, not elsewhere classified; psychological and behavioral factors associated with disorders or diseases classified elsewhere; and unspecified behavioral syndromes associated with physiological disturbances and physical factors.

ADHD = Attention-Deficit/Hyperactivity Disorder (ADHD); SUD = Substance Use Disorder.

Figure 3 shows the monthly rate of suicide attempt or self-harm encounters per 1,000 beneficiaries with each behavioral health condition. Although depression accounted for the largest overall number of beneficiaries with encounters in ***Figure 2***, beneficiaries with psychotic disorders, SUD, and other mental health conditions had encounters for suicide attempt or self-harm at the highest rates. Beneficiaries with all three disorders surpassed pre-public health emergency rates in late 2020, but the increase was particularly high for those with other mental health conditions (31.74 encounters per 1,000 beneficiaries in October 2020, versus 19.81 encounters per 1,000 beneficiaries in October 2019).

Figure 3. Monthly Rate of Suicide Attempt or Self-Harm Encounters per 1,000 Medicaid and CHIP Beneficiaries, by Condition, 2019-2020



Source: Transformed Medicaid Statistical Information System Analytic Files, 2018-2020 version 5.

Notes: The rate of encounters per 1,000 Medicaid and CHIP beneficiaries includes the count of services in the month for beneficiaries with each condition, divided by the number of Medicaid and CHIP beneficiaries with each condition in the year. This analysis includes beneficiaries 3-17 years old enrolled in Medicaid or CHIP with full or comprehensive benefits who were enrolled for at least 6 consecutive months. Age was determined as of December 31 of each calendar year. The graph includes the monthly rate for the 6 behavioral health conditions with the highest monthly rate and does not include ADHD, Tourette's syndrome, trauma or stressor related disorders, and behavioral or conduct disorders. Other mental health conditions include eating disorders; sleeping disorders; fictitious disorder imposed on self, unspecified; mental health and behavioral disorders associated with the puerperium, not elsewhere classified; psychological and behavioral factors associated with disorders or diseases classified elsewhere; and unspecified behavioral syndromes associated with physiological disturbances and physical factors.

SUD = Substance Use Disorder.

Counts and rates of encounters related to suicidal ideation follow a similar pattern as those related to suicide attempt or self-harm: a larger number of beneficiaries with depression had encounters for suicidal ideation relative to other conditions (***Figure 3***), but those with psychotic disorders, SUD, and other conditions had encounters at higher rates (***Figure 4***). Unlike suicide attempt or self-harm, the counts of beneficiaries and rates of encounters related to suicidal ideation generally matched pre-public health emergency trends in late 2020 rather than surpassed them; we observed this pattern for most conditions.

Figure 4. Average Monthly Count and Percentage Change of Medicaid and CHIP Beneficiaries with Encounters Related to Suicidal Ideation, by Condition, 2019-2020

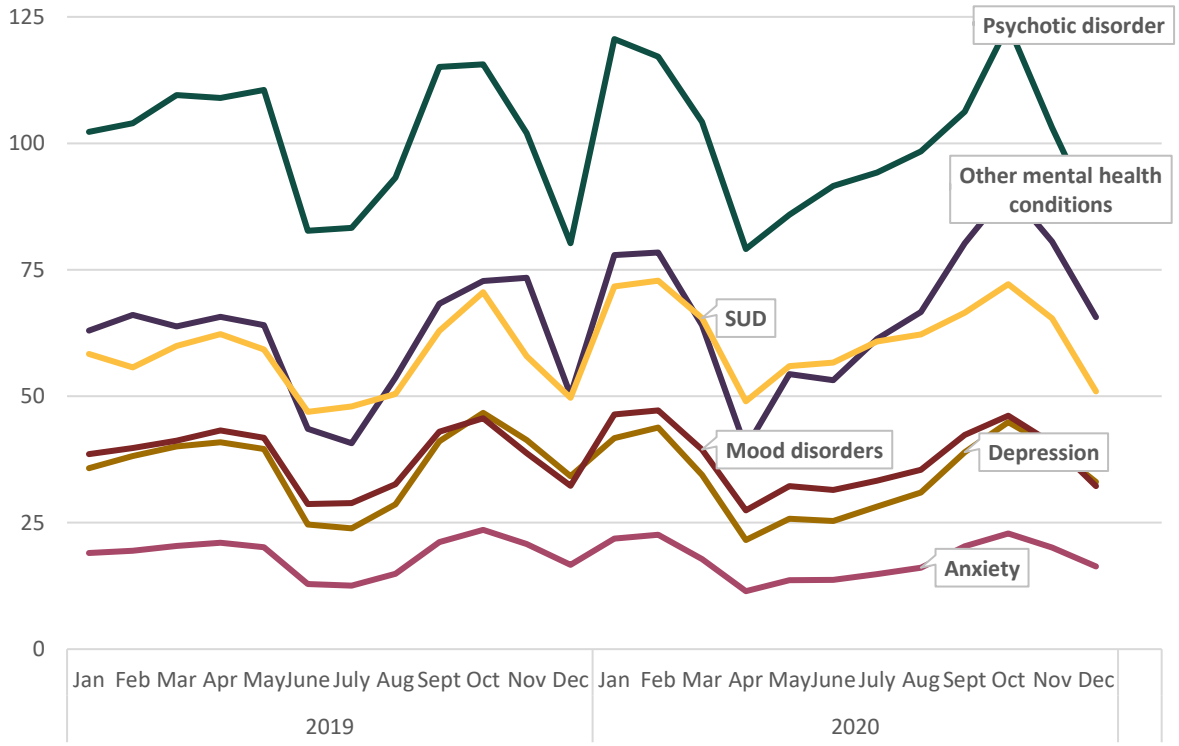
	Jan '19 –Feb '20	Mar '20 –Dec '20	Percent Change
Any behavioral health condition	19,723	15,803	-19.9%
No behavioral health condition	1,145	837	-26.9%
Other mental health conditions	842	922	+9.5%
Any SUD	3,093	2,837	-8.3%
Anxiety	10,267	8,856	-13.7%
Trauma or stressor related disorder	10,528	8,827	-16.2%
Depression	15,957	13,174	-17.4%
Mood disorders	8,889	7,338	-17.5%
Psychotic disorder	2,345	1,920	-18.1%
Behavior or conduct disorders	7,451	5,877	-21.1%
ADHD	8,205	6,371	-22.4%

Source: Transformed Medicaid Statistical Information System Analytic Files, 2018-2020 version 5.

Notes: This table provides the average monthly count of Medicaid and CHIP beneficiaries with each condition with encounters in each year. This analysis includes beneficiaries 3-17 years old enrolled in Medicaid or CHIP with full or comprehensive benefits who were enrolled for at least 6 consecutive months. Age was determined as of December 31 of each calendar year. Other mental health conditions include eating disorders; sleeping disorders; fictitious disorder imposed on self, unspecified; mental health and behavioral disorders associated with the puerperium, not elsewhere classified; psychological and behavioral factors associated with disorders or diseases classified elsewhere; and unspecified behavioral syndromes associated with physiological disturbances and physical factors.

ADHD = Attention-Deficit/Hyperactivity Disorder (ADHD); SUD = Substance Use Disorder.

Figure 5. Monthly Rate of Suicidal Ideation Encounters per 1,000 Medicaid and CHIP Beneficiaries, by Condition, 2019-2020



Source: Transformed Medicaid Statistical Information System Analytic Files, 2018-2020 version 5.

Notes: The rate of encounters per 1,000 Medicaid and CHIP beneficiaries includes the count of services in the month for beneficiaries with each condition, divided by the number of Medicaid and CHIP beneficiaries with each condition in the year. This analysis includes beneficiaries 3-17 years old enrolled in Medicaid or CHIP with full or comprehensive benefits who were enrolled for at least 6 consecutive months. Age was determined as of December 31 of each calendar year. The graph includes the monthly rate for the 6 behavioral health conditions with the highest monthly rate and does not include ADHD, Tourette's syndrome, trauma or stressor related disorders, and behavioral or conduct disorders. Other mental health conditions include eating disorders; sleeping disorders; fictitious disorder imposed on self, unspecified; mental health and behavioral disorders associated with the puerperium, not elsewhere classified; psychological and behavioral factors associated with disorders or diseases classified elsewhere; and unspecified behavioral syndromes associated with physiological disturbances and physical factors.

SUD = Substance Use Disorder.

LIMITATIONS

There are several limitations to the analysis. First, claims data only allow us to examine encounter rates, not the underlying need for treatment in the population. The trends observed here likely reflect both changes in the underlying need for services, as well as factors affecting care-seeking behavior, such as fear of exposure to COVID-19, changes in diagnosis and referral patterns due to school closures that limited access to school-based health services, or transitions from in-person treatment to telehealth.[10] Second, we are limited to the diagnosis codes included on medical claims to identify suicide attempt or self-harm and suicidal ideation. Providers might not document all relevant diagnosis codes if they are not required for reimbursement, which would lead to undercounting of suicide-related encounters. Third, we are unable to distinguish between intentional self-harm without suicidal intent and intentional self-harm with suicidal intent, some of the encounters that we identify as related to self-harm may not be "suicide-related". Although a standard code set to identify suicide-related claims does not exist, our code set is consistent with other literature on suicide attempt or self-harm in claims data for this population.[3]

DISCUSSION

Rates of encounters related to suicide attempt or self-harm and suicidal ideation were lower at the start of the public health emergency relative to the same period in 2019, but they increased in late 2020 to meet or surpass encounter rates from the same period in 2019. Rates of encounters for suicide attempt or self-harm in late 2020 surpassed encounter rates from the same period in 2019, but rates of encounters for suicidal ideation did not. Possible explanations for the observed increase in rates of encounters for suicide attempt or self-harm include changes in the underlying prevalence of these behaviors during the public health emergency period, or forgone care for behavioral health conditions during the early months of the public health emergency leading to a disproportionate increase in more severe outcomes later in 2020. These findings are consistent with a study that found emergency department visits for suspected suicide attempts decreased in March 2020 and April 2020 but began increasing in May 2020 and continued through 2021, especially among girls.[3]

The impact of COVID-19 mitigation measures on the need for and access to health care services may have been twofold. First, school closures can lead to isolation, and lack of connectedness to schools, teachers, peers, and other support systems increase the underlying need for treatment. Numerous studies have described the increased mental health risk of isolation that school closures posed to children and adolescents.[11,12,13] Second, school closures might have removed an important source of treatment, screening, and referral for mental health conditions because we find higher service use during months when children are traditionally in school. In March 2020, encounter rates might have decreased not only because access to care was disrupted throughout the entire health care system but also because a key source of treatment, screening, and referral might have been lost when schools closed.

Although beneficiaries with depression accounted for the greatest number of beneficiaries with suicide-related encounters, rates of encounters were highest among beneficiaries with psychotic disorders, SUDs, and other mental health conditions. These findings are consistent with the literature, which suggests that risk of death by suicide among Medicaid-enrolled youth was highest among youth with depression, schizophrenia, SUD, and bipolar disorder from 2009 to 2013.[14] Yet few studies have examined the effect of the COVID-19 public health emergency period on suicide-related encounters among youth across different types of conditions. We found that rates of encounters for suicide attempt or self-harm increased dramatically in late 2020 for beneficiaries with other mental health conditions, including eating disorders, sleeping disorders, among others, revealing a key area for future investigation and intervention.

Future research could include 2021 data to determine whether the increase in rates of suicide-related encounters observed in late 2020 continued through 2021 or whether rates stabilized with increased access to preventive care, particularly for girls who experienced pronounced increases.[3] In addition, future research could examine rates of suicide-related encounters across demographic groups (age, gender, race and ethnicity, and geographic location), because they vary substantially,[1,15] highlighting the need for more tailored policy and programing to better account for cultural differences. Finally, more years of data would be helpful to determine whether the increase in encounters for suicide attempts and self-harm continued at higher levels as the PHE continued into 2021 and 2022.

APPENDIX A: ADDITIONAL METHODOLOGICAL INFORMATION

Table A1. ICD-10 Diagnosis Codes Used to Identify Suicidal Ideation, Suicide Attempt, and Intentional Self-Harm

Category	Codes
Suicidal ideation	R45.851 (suicidal ideation)†
Suicide attempt	T14.91X (suicide attempt)†
Intentional self-harm	T36.0X2-T65.9 (intentional self-harm by poisoning or toxicity codes)
	X60-X84 (intentional self-harm, external causes of morbidity and mortality)

† Follow-up and sequela codes were not included in the code set.

Table A2. Number and Percentage of Claims with Diagnosis Codes for Suicidal Ideation, Intentional Self-Harm, and Suicide Attempt

Categories	2019 Count (percentage)†	2020 Count (percentage)†
Suicidal ideation only	552,187 (79.1)	553,465 (75.9)
Intentional self-harm only	102,954 (14.7)	123,377 (16.9)
Suicide attempt only	24,004 (3.4)	28,425 (3.9)
Suicidal ideation and intentional self-harm	11,229 (1.6)	14,220 (1.9)
Suicidal ideation and suicide attempt	1,326 (0.1)	1,287 (0.1)
Suicide attempt and intentional self-harm	6,117 (0.8)	7,496 (1.0)
Suicidal ideation, suicide attempt, and intentional self-harm	32 (0.0)	35 (0.0)

† This is the count of claims that had a code for the diagnosis divided by the total number of claims with any suicidal activity codes in the year.

Table A3. Number and Percentage of Beneficiaries with at Least One Claim for Suicidal Ideation, Intentional Self-Harm, and Suicide Attempt in 2019-2020

Categories	2019 Count (percentage)†	2020 Count (percentage)†
Suicidal ideation only	166,693 (76.9)	136,029 (73.9)
Intentional self-harm only	14,689 (6.7)	13,103 (7.1)
Suicide attempt only	2,298 (1.0)	1,884 (1.0)
Suicidal ideation and intentional self-harm	17,627 (8.1)	17,631 (9.5)
Suicidal ideation and suicide attempt	5,939 (2.7)	5,332 (2.8)
Suicide attempt and intentional self-harm	2,710 (1.2)	2,825 (1.5)
Suicidal ideation, suicide attempt, and intentional self-harm	6,682 (3.0)	7,062 (3.8)

† This is the count of beneficiaries who had at least one claim in the year for the diagnosis divided by the total number of beneficiaries who any suicidal activity claims in the year.

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