

Inpatient Hospitalizations and Emergency Department Visits for Mental Health and Substance Use Disorders Among Illinois Youth

Technical Appendix

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This document includes supporting information for the report, *Inpatient Hospitalizations and Emergency Department Visits for Mental Health and Substance Use Disorders Among Illinois Youth*. This technical appendix provides readers with more information on the methodology and additional results from the analyses. To view the full report, visit <https://dph.illinois.gov/topics-services/life-stages-populations/maternal-child-family-health-services/child-health/youth-hospital-visits-for-mental-health-substance-use.html>.



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Appendix A: Methods

Data Sources

Hospital Discharge Data - Inpatient and Outpatient

In Illinois, a record of each inpatient hospitalization and outpatient encounter is generated upon the patient's discharge for billing purposes. These records are collected and submitted for patients with all payers, including patients without insurance, and the resulting dataset is managed by the Illinois Department of Public Health (IDPH). The hospital discharge dataset includes variables for hospital ID and location, patient demographics and ZIP code of residence, diagnoses treated, procedures performed, and charges. In Illinois, discharge data are submitted by most hospitals in the state, including behavioral health facilities; only discharges from Veteran Administration facilities are excluded. While hospital discharge data are collected primarily for billing purposes, which comes with limitations, they are routinely used for state and national disease surveillance and research on various topics.

Inpatient discharge data were used to identify hospitalizations for mental health and substance use (MHSU) disorders among children/adolescents aged 3-17 ("youth"). Similarly, outpatient discharge data were used to identify emergency department (ED) visits for MHSU disorders in youth. To avoid double-counting of ED visits with inpatient hospitalizations, only ED visits with a disposition indicating a routine discharge home were included for analysis (66% of ED visits for MHSU disorders among youth). ED visits resulting in an admission or transfer to another hospital were excluded.

Importantly, no personal identifier is available in the discharge records, so multiple hospitalizations or ED visits for the same child cannot be detected. Therefore, rates are interpreted as hospitalization or ED visit rates per 10,000 children instead of as rates of children who were hospitalized or visited an ED for a MHSU disorder. Furthermore, only Illinois resident youth seen in Illinois hospitals are included in these analyses, so rates likely reflect an underestimate of MHSU hospitalization and ED visit rates for Illinois youth, especially among those residing near borders with other states who may have sought care in out-of-state hospitals.

Census Population Estimates

To generate population rates per 10,000 for MHSU hospitalizations and ED visits to Illinois youth, overall and by demographic category, hospital discharge data was paired with population estimates for Illinois from the Population Division of the U.S. Census Bureau. The Annual State Resident Population Estimates for Six Race Groups by Age, Sex, and Hispanic Origin were obtained (<https://www.census.gov/data/tables/time-series/demo/popest/2020s-state-detail.html>); Vintage 2019 data were used for 2018-2019 estimates and Vintage 2022 data were used for 2020-2022 estimates.

For rates by county and geographic setting, a different data source was used for population estimates because the parallel Annual County Resident Population Estimates are only available by five-year age groupings that do not allow for excluding 18- to 19-year-olds, who are not eligible for pediatric acute mental illness (AMI) beds. Therefore, the American Community Survey (ACS) Five-Year Estimates for each year from 2018 to 2022 were used for population counts by age and sex for each county in Illinois (Table S1001). While the ACS data have fewer limitations to available age groupings, 3- and 4-year-olds are grouped with infants and toddlers. Given that hospitalization and ED visit rates are very low at those younger ages, 3- and 4-year-olds were excluded from geographic analyses to align the age criteria at 5-17 for both the numerators and denominators of rate estimates.

To separate the population of youth living in Chicago versus suburban Cook County, the ACS table for the census “place” designation of Chicago was obtained. Those estimates were subtracted from the full Cook County estimates to generate values for suburban Cook County.

Illinois Health Facilities and Services Review Board

Hospitals in Illinois, including behavioral health hospitals, report annually to the Illinois Health Facilities and Services Review Board on the characteristics of their facilities, including the number of beds "set up and staffed" for several different services (e.g., medical/surgical, intensive care). The number of beds available for pediatric (0-17) acute mental illness (AMI) was extracted from each hospital’s profile for each year from 2018 to 2022. The change in the number of pediatric AMI beds from 2018 to 2022 was calculated for each hospital.

Measures

Mental Health and Substance Use Disorder Index

The MHSU Index used to identify hospitalizations and ED visits relevant for this brief was modified from the Mental, Behavioral and Developmental Disorders (MBD) classification of the Clinical Classifications Software Refined (CCSR), published by the Healthcare Cost and Utilization Project of the Agency for Healthcare Research and Quality (https://hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp). The CCSR aggregates the *International Classification of Diseases, 10th Revision, Clinical Modification* (ICD-10-CM) diagnosis codes into clinically meaningful categories.

While the MBD classification includes 34 categories of codes, the MHSU Index used for this project excluded the following categories because they were outside the scope of this investigation: MBD015 (Neonatal abstinence disorder), MBD016 (Fetal alcohol syndrome), MBD014 (Neurodevelopmental disorders), and MBD024 (Tobacco-related disorders). See Table A1 for a listing of the original categories and a crosswalk between the original categories and the six categories of disorder types reported in the brief.

Table A1: Mental, Behavioral, and Developmental (MBD) CCSR Categories included in the MHSU Index for Youth aged 3-17 and Associated Analysis Categories for Data Brief

MBD #	Description	Analysis Category for this Brief
001	Schizophrenia spectrum and other psychotic disorders	Other mental health conditions
002	Depressive disorders	Mood disorders
003	Bipolar and related disorders	Mood disorders
004	Other specified and unspecified mood disorders	Mood disorders
005	Anxiety and fear-related disorders	Anxiety
006	Obsessive-compulsive and related disorders	Anxiety
007	Trauma- and stressor-related disorders	Anxiety
008	Disruptive, impulse-control, and conduct disorders	Other mental health conditions
009	Personality disorders	Other mental health conditions
010	Feeding and eating disorders	Other mental health conditions
011	Somatic disorders	Other mental health conditions

MBD #	Description	Analysis Category for this Brief
012	Suicidal ideation/attempt/intentional self-harm	Split between suicide ideation/attempt and non-suicidal self-injury
013	Miscellaneous mental and behavioral disorders/conditions	Other mental health conditions
014	<i>Neurodevelopmental disorders</i>	<i>Not included</i>
015	<i>Neonatal abstinence disorder</i>	<i>Not included</i>
016	<i>Fetal alcohol syndrome</i>	<i>Not included</i>
017	Alcohol-related disorders	Substance use
018	Opioid-related disorders	Substance use
019	Cannabis-related disorders	Substance use
020	Sedative-related disorders	Substance use
021	Stimulant-related disorders	Substance use
022	Hallucinogen-related disorders	Substance use
023	Inhalant-related disorders	Substance use
024	<i>Tobacco-related disorders</i>	<i>Not included</i>
025	Other specified substance-related disorders	Substance use
026	Mental and substance use disorders in remission	Other mental health conditions
027	Suicide attempt/intentional self-harm subsequent encounter	Split between suicide ideation/attempt and non-suicidal self-injury
028	Opioid-related disorders subsequent encounter	Substance use
029	Stimulant-related disorders subsequent encounter	Substance use
030	Cannabis-related disorders subsequent encounter	Substance use
031	Hallucinogen-related disorders subsequent encounter	Substance use
032	Sedative-related disorders subsequent encounter	Substance use
033	Inhalant-related disorders subsequent encounter	Substance use
034	Mental and substance use disorders sequela	Other mental health conditions

The hospital discharge dataset has 25 diagnosis code positions on each discharge record. For most disorder types, only the first or primary diagnosis position was used to identify MHSU hospitalizations or ED visits. The exceptions were diagnosis codes for acute MHSU-related events, such as suicidal ideation, suicide attempt, non-suicidal self-injury, or drug poisoning, which could have been present either in 1) the primary diagnosis position, or 2) a secondary diagnosis position with or without a primary diagnosis code for another MHSU condition. Therefore, some hospitalizations and ED visits qualified as MHSU-related based on two or more criteria, the most common combination being a primary mood disorder with a secondary diagnosis of suicidal ideation. For analyses by condition type categories (e.g., Figure 4 in the main data brief), categories were made mutually exclusive by hierarchically assigning them to the suicide attempt and then non-suicidal self-injury categories before the non-event diagnoses. Substance poisonings were grouped into the substance use category, and suicidal ideation was assigned last, encompassing those with only a diagnosis for ideation.

Demographic Definitions

Sex: While there are many different ways that individuals express their gender identity, the discharge data is limited to a binary sex variable for males and females, referred to as "boys" and "girls," respectively, in this brief. From 2018 to 2022, the total number of missing values for sex among MHSU hospitalizations and ED visits was 83 and 8, respectively. Missing values may indicate youth who do not identify as male or female, but the sample sizes were not large enough to analyze those with missing values for sex separately.

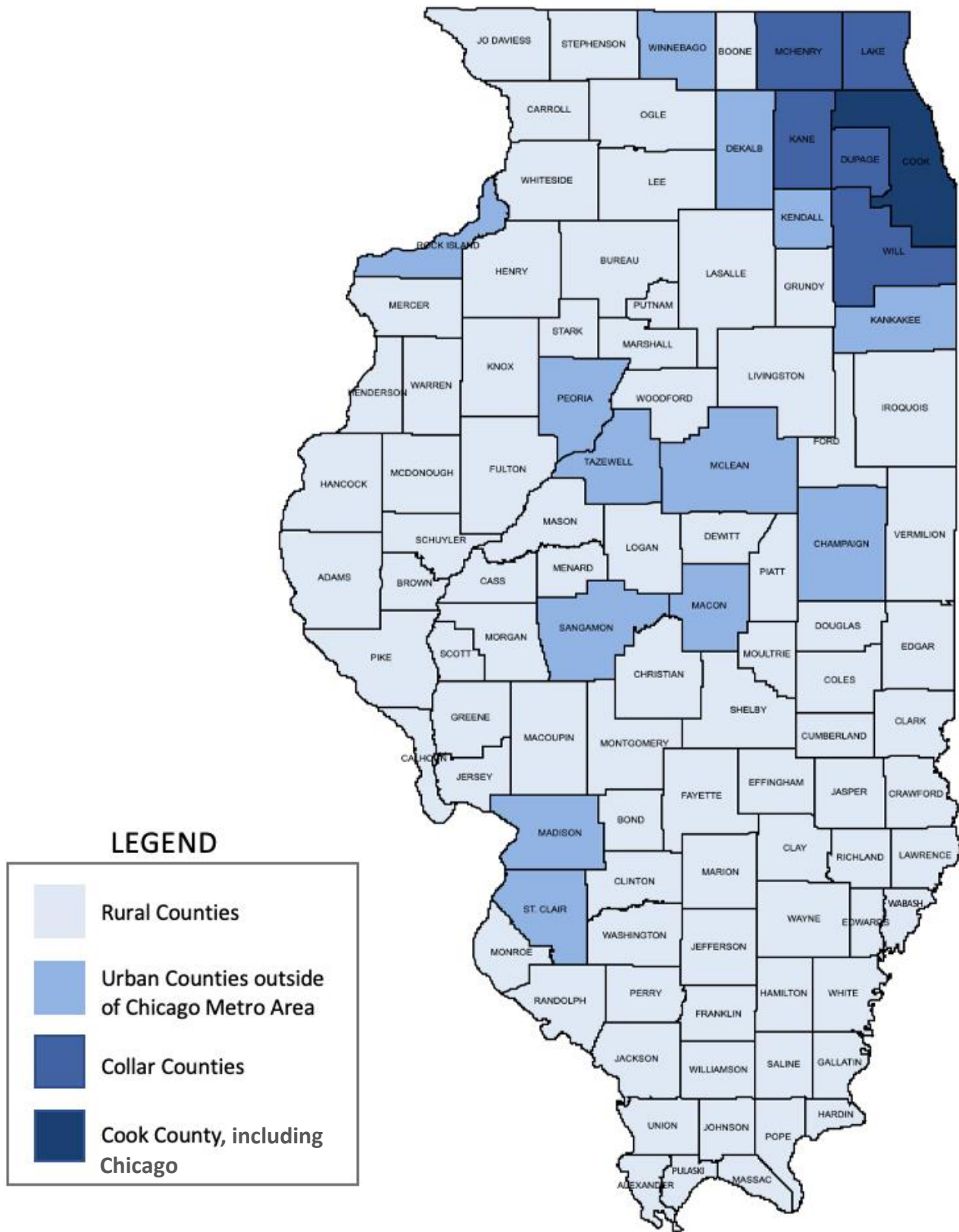
Age: Patient age is available on the discharge record and was categorized as 3-5 (preschool-aged), 6-11 (school-aged), 12-14 (early adolescence), and 15-17 (later adolescence).

Race/Ethnicity: Race and ethnicity are collected as separate fields in the hospital discharge data. Youth were hierarchically categorized into one of the following racial/ethnic groups: American Indian/Alaska Native (including those with Hispanic ethnicity and/or multiple races indicated), Hispanic ethnicity regardless of race, non-Hispanic Black or African American, non-Hispanic Asian, non-Hispanic Native Hawaiian or Other Pacific Islander, non-Hispanic White, and non-Hispanic Other race (includes multiracial youth who were not American Indian/Alaska Native). Sample sizes were not sufficient to separately analyze data for American Indian/Alaska Native, Native Hawaiian, Other Pacific Islander, or Other/Multirace youth, but they are included in all other analyses. The shorthand of "Hispanic," "Black," "Asian," and "White" are used in this report. From 2018 to 2022, the annual average number of missing values for race/ethnicity among MHSU hospitalizations and ED visits was 607 (2.8%) and 240 (1.4%), respectively. Results by race/ethnicity should be interpreted with caution because the method of reporting (i.e., self-reported or provider/staff-reported) is unknown and may be of variable quality across hospitals.

Geographic Residence: Patient ZIP code and county of residence were used to group youth into 1 of 5 geographic categories: 1) Chicago: Residential ZIP code within the Chicago borders; 2) Suburban Cook County: Residence in Cook County, but ZIP code not within the Chicago borders; 3) Counties surrounding Cook County ("Collar Counties"): Residence in DuPage, Kane, Lake, McHenry, or Will counties; 4) Urban counties outside the Chicago area ("Other Urban Counties"): Residence in Champaign, DeKalb, Kankakee, Kendall, McLean, Macon, Madison, Peoria, Rock Island, Sangamon, St. Clair, Tazewell, or Winnebago counties; 5) Rural Counties: Residence in all other counties not referenced above (83 counties). See Figure A1 for an Illinois map of these categories labeled with county names.

Insurance type: This variable was created from the three payer variables on the discharge record. Insurance type was hierarchically assigned as public if any of the three variables indicated Medicaid or Medicare, then private if any of the three variables indicated commercial or health maintenance organization (HMO) payers, and self-pay/other for remaining records with values of self-pay, self-administered, or other. The self-pay/other category was not reported in the results by insurance type because it was a small (2.8% and 6.8% of MHSU hospitalizations and ED visits, respectively) heterogeneous group for which there was not a precise match in the population denominator data.

Figure A1: Geographic Residence Categories by County in Illinois



Statistical Analysis

Population rates of hospitalizations and ED visits for MHSU disorders were calculated by dividing the number of either type of hospital encounter by the corresponding population denominator from the U.S. Census data and multiplying the result by 10,000. Rates were calculated by time period for all youth and then for youth within each demographic category. Rates and rate ratios (RR) with 95% confidence intervals (CI) for the change in rates from 2018-2019 to 2021-2022 were calculated using the following equations:

$$\text{Rate}_{2018-2019} = \frac{\# \text{ encounters}_{2018-2019}}{\text{Population}_{2018-2019}} * 10,000$$

$$\text{Rate}_{2021-2022} = \frac{\# \text{ encounters}_{2021-2022}}{\text{Population}_{2021-2022}} * 10,000$$

$$\text{RR} = \frac{\text{Rate per } 10,000_{2021-2022}}{\text{Rate per } 10,000_{2018-2019}}$$

$$95\% \text{ CI} = e^{\left(\ln(\text{RR}) \pm 1.96 \sqrt{\frac{1}{\# \text{ encounters}_{2021-2022}} + \frac{1}{\# \text{ encounters}_{2018-2019}}} \right)},$$

where “encounters” signify inpatient hospitalizations or ED visits

Drive time over roads from the centroid of each patient's ZIP code to the centroid of the behavioral health hospital or unit where they were admitted were computed using the Calculate Travel Cost tool in ArcGIS Online software. Drive times were categorized as one hour or more versus less than one hour, and differences in the proportion with greater than an hour drive time over time from 2018-2019 to 2021-2022 were tested using Pearson’s chi-square tests.

Limitations

There are several limitations to the results presented in the brief, including:

- Hospital discharge data is administrative, used primarily for billing purposes, and not intended for public health analyses. Therefore, many clinical characteristics of interest (e.g., medications prescribed and detailed discharge plans) are unavailable and many diagnosis codes are non-specific.
- Illinois youth visiting EDs or hospitalized in facilities outside of Illinois are not included, likely resulting in underestimates of population rates, especially among youth living in areas close to borders with other states.
- The hospital discharge dataset does not include a patient identifier, so youth cannot be followed over time, and results can only be presented for hospitalizations or ED visits rather than for unique patients.
- Treatment settings outside of inpatient hospitalizations and ED visits are not included in the data; therefore, this brief does not include information about youth in residential treatment, partial hospitalization programs, intensive outpatient programs, or other outpatient treatment.
- The type of bed utilized is not available on discharge records, so it is only possible to know whether youth were hospitalized in a facility with pediatric AMI beds, not whether or not they occupied one of

those beds. If youth are assigned to adult AMI beds when pediatric beds are full, for example, it is problematic from a developmental and clinical perspective. However, this situation cannot be discerned from discharge data.

- The source of information for patients' race/ethnicity classification is unknown in hospital discharge data. To the extent that race/ethnicity is not self-reported, misclassification may be present in the data.
- Only binary patient sex is captured in hospital discharge data, which does not allow for analyses by gender identity.
- Changes over time from 2018-2019 to 2021-2022 may have been related to factors other than the COVID-19 pandemic, but not all reasons are known.

Appendix B:

Inpatient Hospitalization Data Tables

Table B1: Quarterly Inpatient Mental Health and Substance Use Hospitalization Rates per 10,000 Youth ages 3-17, Illinois 2018-2022
(Results Not Shown in Brief)

Year, Quarter		All Youth		
		# Hospitalizations	Population	Rate per 10,000
2018	Q1	6,369	601,144	105.95
	Q2	5,189	601,144	86.32
	Q3	4,649	601,144	77.34
	Q4	6,770	601,144	112.62
2019	Q1	6,263	594,678	105.32
	Q2	5,897	594,678	99.16
	Q3	4,536	594,678	76.28
	Q4	6,336	594,678	106.55
2020	Q1	6,270	601,791	104.19
	Q2	3,480	601,791	57.83
	Q3	4,227	601,791	70.24
	Q4	5,150	601,791	85.58
2021	Q1	5,654	591,884	95.53
	Q2	5,421	591,884	91.59
	Q3	4,334	591,884	73.22
	Q4	6,011	591,884	101.56
2022	Q1	5,547	580,494	95.56
	Q2	5,127	580,494	88.32
	Q3	4,178	580,494	71.97
	Q4	5,687	580,494	97.97

**Table B2: Quarterly Inpatient Mental Health and Substance Use Hospitalization Rates
per 10,000 Youth ages 3-17, by Sex, Illinois 2018-2022**
(Corresponds with Figure 1 in Brief)

Year, Quarter		Boys			Girls		
		# Hospitalizations	Population	Rate per 10,000	# Hospitalizations	Population	Rate per 10,000
2018	Q1	2,642	306,828	86.11	3,723	294,316	126.50
	Q2	2,150	306,828	70.07	3,036	294,316	103.15
	Q3	1,969	306,828	64.17	2,676	294,316	90.92
	Q4	2,876	306,828	93.73	3,891	294,316	132.20
2019	Q1	2,475	303,604	81.52	3,786	291,075	130.07
	Q2	2,462	303,604	81.09	3,431	291,075	117.87
	Q3	1,958	303,604	64.49	2,577	291,075	88.53
	Q4	2,604	303,604	85.77	3,731	291,075	128.18
2020	Q1	2,419	307,937	78.56	3,848	293,854	130.95
	Q2	1,361	307,937	44.20	2,118	293,854	72.08
	Q3	1,595	307,937	51.80	2,631	293,854	89.53
	Q4	1,758	307,937	57.09	3,391	293,854	115.40
2021	Q1	1,862	302,714	61.51	3,786	289,170	130.93
	Q2	1,803	302,714	59.56	3,611	289,170	124.87
	Q3	1,431	302,714	47.27	2,898	289,170	100.22
	Q4	1,956	302,714	64.62	4,045	289,170	139.88
2022	Q1	1,875	296,712	63.19	3,658	283,783	128.90
	Q2	1,792	296,712	60.40	3,329	283,783	117.31
	Q3	1,576	296,712	53.12	2,597	283,783	91.51
	Q4	2,055	296,712	69.26	3,630	283,783	127.91

Table B3: Inpatient Mental Health and Substance Use Hospitalization Rates per 10,000 Youth ages 3-17, by Time Period and Demographic Characteristics, Illinois 2018-2019 and 2021-2022
(Results Not Shown in Brief)

Demographic Characteristic	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
	# Hospitalizations	Population	Rate per 10,000	# Hospitalizations	Population	Rate per 10,000	Rate Ratio	95% CI	
All Youth	46,009	4,783,288	96.19	41,959	4,689,514	89.47	0.93	0.92	0.94
Sex									
Male	19,136	2,441,726	78.37	14,350	2,397,703	59.85	0.76	0.75	0.78
Female	26,851	2,341,562	114.67	27,554	2,291,811	120.23	1.05	1.03	1.07
Age Group									
3-5	222	921,283	2.41	170	871,523	1.95	0.81	0.66	0.99
6-11	7,120	1,885,314	37.77	5,406	1,823,961	29.64	0.78	0.76	0.81
12-14	16,202	982,561	164.90	16,226	986,609	164.46	1.00	0.98	1.02
15-17	22,465	994,130	225.98	20,157	1,007,421	200.09	0.89	0.87	0.90
Race/Ethnicity									
White, NH	22,335	2,447,100	91.27	21,366	2,355,296	90.71	0.99	0.98	1.01
Black, NH	10,151	722,460	140.51	8,075	717,266	112.58	0.80	0.78	0.83
Hispanic	7,618	1,171,297	65.04	6,758	1,149,002	58.82	0.90	0.88	0.93
Asian, NH	745	246,363	30.24	816	264,095	30.90	1.02	0.93	1.13
Geographic Residence (ages 5-17)*									
Chicago	8,863	795,667	111.39	6,682	783,010	85.34	0.77	0.74	0.79
Suburban Cook County	8,714	859,828	101.35	8,134	878,148	92.63	0.91	0.89	0.94
Other Collar Counties (5 counties)	11,640	1,173,354	99.20	11,845	1,144,898	103.46	1.04	1.02	1.07
Other Urban Counties (13 counties)	8,795	766,395	114.76	7,900	763,992	103.40	0.90	0.87	0.93
Rural Counties (83 counties)	7,949	678,693	117.12	7,344	669,976	109.62	0.94	0.91	0.97

*See Table B6 for the list of counties included in each geographic category.

Data Notes: Bolded values for rate ratios represent statistically significant differences across the two time periods, with values over 1.0 indicating a significant increase in hospitalization rates and values under 1.0 indicating a significant decrease in hospitalization rates from 2018-2019 to 2021-2022 for that demographic subgroup.

Table B4: Inpatient Mental Health and Substance Use Hospitalization Rates per 10,000 BOYS ages 3-17, by Time Period and Demographic Characteristics, Illinois 2018-2019 and 2021-2022
(Corresponds with Figure 2 in Brief)

Demographic Characteristic	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
	# Hospitalizations	Population	Rate per 10,000	# Hospitalizations	Population	Rate per 10,000	Rate Ratio	95% CI	
All Boys	19,136	2,441,726	78.37	14,350	2,397,703	59.85	0.76	0.75	0.78
Age Group									
3-5	158	471,460	3.35	124	444,935	2.79	0.83	0.66	1.05
6-11	4,350	961,724	45.23	2,858	933,464	30.62	0.68	0.65	0.71
12-14	5,833	501,534	116.3	4,375	503,735	86.85	0.75	0.72	0.78
15-17	8,795	507,008	173.47	6,993	515,569	135.64	0.78	0.76	0.81
Race/Ethnicity									
White, NH	9,282	1,255,098	73.95	7,268	1,210,348	60.05	0.81	0.79	0.84
Black, NH	4,530	365,485	123.94	3,070	364,186	84.3	0.68	0.65	0.71
Hispanic	3,024	596,009	50.74	2,092	584,571	35.79	0.71	0.67	0.75
Asian, NH	295	124,564	23.68	240	134,030	17.91	0.76	0.64	0.9
Geographic Residence (ages 5-17)*									
Chicago	3,902	401,915	97.09	2,261	394,188	57.36	0.59	0.56	0.62
Suburban Cook County	3,698	438,187	84.39	2,733	451,904	60.48	0.72	0.68	0.75
Other Collar Counties (5 counties)	4,585	599,974	76.42	3,837	586,207	65.45	0.86	0.82	0.89
Other Urban Counties (13 counties)	3,547	391,321	90.64	2,850	392,279	72.65	0.8	0.76	0.84
Rural Counties (83 counties)	3,369	347,901	96.84	2,636	343,074	76.83	0.79	0.75	0.83

*See Table B6 for the list of counties included in each geographic category.

Data Notes: Bolded values for rate ratios represent statistically significant differences across the two time periods, with values over 1.0 indicating a significant increase in hospitalization rates and values under 1.0 indicating a significant decrease in hospitalization rates from 2018-2019 to 2021-2022 for that demographic subgroup.

Table B5: Inpatient Mental Health and Substance Use Hospitalization Rates per 10,000 GIRLS ages 3-17, by Time Period and Demographic Characteristics, Illinois 2018-2019 and 2021-2022
(Corresponds with Figure 2 in Brief)

Demographic Characteristic	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
	# Hospitalizations	Population	Rate per 10,000	# Hospitalizations	Population	Rate per 10,000	Rate Ratio	95% CI	
All Girls	26,851	2,341,562	114.67	27,554	2,291,811	120.23	1.05	1.03	1.07
<i>Age Group</i>									
3-5	64	449,823	1.42	46	426,588	1.08	0.76	0.52	1.11
6-11	2,769	923,590	29.98	2,546	890,497	28.59	0.95	0.90	1.01
12-14	10,359	481,027	215.35	11,819	482,874	244.76	1.14	1.11	1.17
15-17	13,659	487,122	280.40	13,143	491,852	267.21	0.95	0.93	0.98
<i>Race/Ethnicity</i>									
White, NH	13,046	1,192,002	109.45	14,064	1,144,948	122.84	1.12	1.10	1.15
Black, NH	5,621	356,975	157.46	5,002	353,080	141.67	0.90	0.87	0.93
Hispanic	4,592	575,288	79.82	4,661	564,431	82.58	1.03	0.99	1.08
Asian, NH	448	121,799	36.78	575	130,065	44.21	1.20	1.06	1.36
<i>Geographic Residence (ages 5-17)*</i>									
Chicago	4,953	393,752	125.79	4,419	388,822	113.65	0.90	0.87	0.94
Suburban Cook County	5,011	421,641	118.85	5,387	426,244	126.38	1.06	1.02	1.11
Other Collar Counties (5 counties)	7,047	573,380	122.90	7,974	558,691	142.73	1.16	1.12	1.20
Other Urban Counties (13 counties)	5,248	375,074	139.92	5,045	372,671	135.37	0.97	0.93	1.01
Rural Counties (83 counties)	4,579	330,792	138.43	4,708	326,902	144.02	1.04	0.999	1.08

*See Table B6 for the list of counties included in each geographic category.

Data Notes: Bolded values for rate ratios represent statistically significant differences across the two time periods, with values over 1.0 indicating a significant increase in hospitalization rates and values under 1.0 indicating a significant decrease in hospitalization rates from 2018-2019 to 2021-2022 for that demographic subgroup.

Table B6: Inpatient Mental Health and Substance Use Hospitalization Rates per 10,000 Youth ages 3-17 by County, Illinois 2018-2019 and 2021-2022
(Results Not Shown in Brief)

Geographic Residence	County/City	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
		# Hospitalizations	Population	Rate per 10,000	# Hospitalizations	Population	Rate per 10,000	Rate Ratio	95% CI	
Chicago	Chicago	8,863	795,667	111.4	6,682	783,010	85.3	0.77	0.74	0.79
Suburban Cook	Suburban Cook	8,714	859,828	101.3	8,134	878,148	92.6	0.91	0.89	0.94
Collar Counties	DuPage	3,158	317,190	99.6	3,160	313,821	100.7	1.01	0.96	1.06
	Kane	2,053	208,747	98.3	1,921	195,915	98.1	1.00	0.94	1.06
	Lake	2,269	263,777	86.0	2,532	261,792	96.7	1.12	1.06	1.19
	McHenry	1,103	113,898	96.8	1,206	111,110	108.5	1.12	1.03	1.22
	Will	3,057	269,742	113.3	3,026	262,260	115.4	1.02	0.97	1.07
Other Urban Counties Outside of the Chicago Area	Champaign	778	56,007	138.9	757	56,513	134.0	0.96	0.87	1.07
	DeKalb	446	33,082	134.8	418	32,173	129.9	0.96	0.84	1.10
	Kankakee	628	38,315	163.9	652	36,883	176.8	1.08	0.97	1.20
	Kendall	571	55,116	103.6	604	57,380	105.3	1.02	0.91	1.14
	McLean	458	54,379	84.2	482	54,227	88.9	1.06	0.93	1.20
	Macon	426	34,218	124.5	379	34,003	111.5	0.90	0.78	1.03
	Madison	864	85,890	100.6	636	86,173	73.8	0.73	0.66	0.81
	Peoria	781	61,883	126.2	789	62,321	126.6	1.00	0.91	1.11
	Rock Island	386	46,491	83.0	441	47,455	92.9	1.12	0.98	1.28
	St. Clair	840	90,937	92.4	437	89,484	48.8	0.53	0.47	0.59
	Sangamon	813	65,993	123.2	656	64,798	101.2	0.82	0.74	0.91
	Tazewell	569	45,234	125.8	641	44,999	142.4	1.13	1.01	1.27
	Winnebago	1,235	98,850	124.9	1,008	98,541	102.3	0.82	0.75	0.89
Rural Counties	Adams	555	21,769	254.9	456	21,876	208.4	0.82	0.72	0.93
	Alexander		2,161		15	1,906	78.7			
	Bond	34	4,907	69.3	45	4,859	92.6	1.34	0.86	2.09
	Boone	250	21,105	118.5	177	20,427	86.7	0.73	0.60	0.89
	Brown	12	1,617	74.2	19	1,624	117.0	1.58	0.77	3.25
	Bureau	111	10,922	101.6	93	10,774	86.3	0.85	0.64	1.12
	Calhoun	14	1,530	91.5		1,402				

Geographic Residence	County/City	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
		# Hospitalizations	Population	Rate per 10,000	# Hospitalizations	Population	Rate per 10,000	Rate Ratio	95% CI	
Rural Counties	Carroll	45	4,106	109.6	44	4,391	100.2	0.91	0.60	1.39
	Cass	55	4,467	123.1	50	4,897	102.1	0.83	0.57	1.22
	Christian	160	10,153	157.6	126	10,498	120.0	0.76	0.60	0.96
	Clark	62	5,434	114.1	42	5,390	77.9	0.68	0.46	1.01
	Clay	65	4,490	144.8	36	4,616	78.0	0.54	0.36	0.81
	Clinton	67	11,795	56.8	49	11,685	41.9	0.74	0.51	1.07
	Coles	236	13,804	171.0	277	12,609	219.7	1.28	1.08	1.53
	Crawford	52	5,518	94.2	63	5,537	113.8	1.21	0.84	1.74
	Cumberland	33	3,611	91.4	15	3,480	43.1	0.47	0.26	0.87
	DeWitt	71	5,210	136.3	67	4,910	136.5	1.00	0.72	1.40
	Douglas	81	7,218	112.2	99	7,090	139.6	1.24	0.93	1.67
	Edgar	82	5,375	152.6	40	5,030	79.5	0.52	0.36	0.76
	Edwards		2,273		10	2,129	47.0			
	Effingham	123	11,675	105.4	112	12,080	92.7	0.88	0.68	1.14
	Fayette	61	6,615	92.2	49	6,429	76.2	0.83	0.57	1.20
	Ford	70	4,624	151.4	51	4,672	109.2	0.72	0.50	1.03
	Franklin	171	12,759	134.0	155	12,475	124.2	0.93	0.75	1.15
	Fulton	137	10,658	128.5	146	10,043	145.4	1.13	0.90	1.43
	Gallatin		1,588			1,490				
	Greene	53	4,184	126.7	49	3,976	123.2	0.97	0.66	1.43
	Grundy	238	19,551	121.7	326	20,127	162.0	1.33	1.13	1.57
	Hamilton	23	2,723	84.5	15	2,616	57.3	0.68	0.35	1.30
	Hancock	113	5,645	200.2	55	5,575	98.7	0.49	0.36	0.68
	Hardin		1,137			815				
	Henderson		1,870		11	1,783	61.7			
	Henry	152	16,686	91.1	123	16,674	73.8	0.81	0.64	1.03
Iroquois	139	9,263	150.1	131	8,877	147.6	0.98	0.77	1.25	
Jackson	159	15,149	105.0	183	14,294	128.0	1.22	0.99	1.51	
Jasper	31	3,253	95.3	19	3,104	61.2	0.64	0.36	1.14	
Jefferson	140	12,093	115.8	136	12,223	111.3	0.96	0.76	1.22	
Jersey	33	7,113	46.4	55	6,596	83.4	1.80	1.17	2.77	

Geographic Residence	County/City	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
		# Hospitalizations	Population	Rate per 10,000	# Hospitalizations	Population	Rate per 10,000	Rate Ratio	95% CI	
Rural Counties	Jo Daviess	29	6,487	44.7	30	6,397	46.9	1.05	0.63	1.75
	Johnson	15	3,424	43.8	22	4,095	53.7	1.23	0.64	2.36
	Knox	179	14,498	123.5	139	14,403	96.5	0.78	0.63	0.98
	LaSalle	424	35,513	119.4	464	35,144	132.0	1.11	0.97	1.26
	Lawrence	39	4,414	88.4	25	4,344	57.6	0.65	0.39	1.08
	Lee	135	10,220	132.1	120	10,216	117.5	0.89	0.70	1.14
	Livingston	83	11,669	71.1	120	11,700	102.6	1.44	1.09	1.91
	Logan	134	8,129	164.8	113	8,043	140.5	0.85	0.66	1.09
	McDonough	147	7,666	191.8	107	7,102	150.7	0.79	0.61	1.01
	Macoupin	165	14,912	110.6	205	14,326	143.1	1.29	1.05	1.59
	Marion	302	12,589	239.9	218	12,918	168.8	0.70	0.59	0.84
	Marshall	62	3,467	178.8	62	3,583	173.0	0.97	0.68	1.38
	Mason	59	4,292	137.5	61	4,127	147.8	1.08	0.75	1.54
	Massac	32	4,851	66.0	27	4,737	57.0	0.86	0.52	1.44
	Menard	37	4,083	90.6	30	4,260	70.4	0.78	0.48	1.26
	Mercer	28	5,165	54.2	31	5,058	61.3	1.13	0.68	1.88
	Monroe	30	11,628	25.8	15	11,625	12.9	0.50	0.27	0.93
	Montgomery	116	8,601	134.9	105	8,503	123.5	0.92	0.70	1.19
	Morgan	176	9,491	185.4	116	9,189	126.2	0.68	0.54	0.86
	Moultrie	75	5,449	137.6	71	5,667	125.3	0.91	0.66	1.26
	Ogle	176	17,728	99.3	183	17,706	103.4	1.04	0.85	1.28
	Perry	29	5,925	48.9	43	6,099	70.5	1.44	0.90	2.31
	Piatt	43	5,458	78.8	70	5,546	126.2	1.60	1.10	2.34
	Pike	92	5,158	178.4	96	4,925	194.9	1.09	0.82	1.45
	Pope		907			939				
	Pulaski		1,820			1,626				
	Putnam	14	1,773	79.0	20	1,644	121.7	1.54	0.78	3.05
	Randolph	110	9,311	118.1	47	9,053	51.9	0.44	0.31	0.62
Richland	51	5,130	99.4	40	5,407	74.0	0.74	0.49	1.13	
Saline	63	7,495	84.1	36	7,134	50.5	0.60	0.40	0.90	
Schuyler		2,059		15	1,891	79.3				

Geographic Residence	County/City	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
		# Hospitalizations	Population	Rate per 10,000	# Hospitalizations	Population	Rate per 10,000	Rate Ratio	95% CI	
Rural Counties	Scott		1,738		15	1,680	89.3			
	Shelby	60	6,960	86.2	54	6,834	79.0	0.92	0.63	1.32
	Stark	17	1,771	96.0	13	1,742	74.6	0.78	0.38	1.60
	Stephenson	165	14,510	113.7	140	14,150	98.9	0.87	0.69	1.09
	Union	21	5,319	39.5	40	5,380	74.3	1.88	1.11	3.19
	Vermilion	325	26,919	120.7	308	25,904	118.9	0.98	0.84	1.15
	Wabash	26	3,680	70.7	25	3,731	67.0	0.95	0.55	1.64
	Warren	56	5,549	100.9	49	5,594	87.6	0.87	0.59	1.27
	Washington	59	4,543	129.9	34	4,393	77.4	0.60	0.39	0.91
	Wayne	52	5,414	96.0	49	5,399	90.8	0.94	0.64	1.40
	White	45	4,496	100.1	38	4,626	82.1	0.82	0.53	1.26
	Whiteside	281	18,686	150.4	237	18,459	128.4	0.85	0.72	1.01
	Williamson	214	21,504	99.5	211	21,641	97.5	0.98	0.81	1.18
Woodford	84	14,241	59.0	134	14,057	95.3	1.62	1.23	2.12	

Data Notes: Gray cells indicate counties for which data are suppressed because they had fewer than 10 hospitalizations for MHSU disorders among youth ages 3-17 in that time period; Bolded values for rate ratios represent statistically significant differences across the two time periods, with values over 1.0 indicating a significant increase in hospitalization rates and values under 1.0 indicating a significant decrease in hospitalization rates from 2018-2019 to 2021-2022 for that county.

Table B7: Distribution of Disorder Types for Mental Health and Substance Use Hospitalizations among Youth ages 3-17, Overall and by Sex, Illinois 2021-2022
(Corresponds with Figure 4 in Brief)

Disorder Types	All Youth		Girls		Boys	
	# Hospitalizations	%	# Hospitalizations	%	# Hospitalizations	%
All	41,959	100	27,554	100	14,350	100
Mood Disorders	30,763	73.3	20,030	72.7	10,699	74.6
Non-suicidal Self-injury	5,488	13.1	4,245	15.4	1,224	8.5
Other Mental Health Disorders*	2,574	6.1	1,282	4.7	1,292	9.0
Anxiety	1,480	3.5	1,042	3.8	437	3.1
Suicide Ideation/Attempt	1,291	3.1	813	3.0	477	3.3
Substance Use Disorders	363	0.9	142	0.5	221	1.5

*Other MH disorders include schizophrenia spectrum and other psychotic disorders; disruptive, impulse-control and conduct disorders; personality disorders; feeding and eating disorders; somatic disorders; and miscellaneous disorders.

Data Notes: The distribution across disorder types is statistically significantly different between girls and boys at $p < 0.0001$ (Pearson's chi-square test).

Table B8: Inpatient Mental Health and Substance Use Hospitalization Rates per 10,000 Youth ages 3-17, by Time Period and Insurance Type, Illinois 2018-2019 and 2021-2022
(Corresponds with Figure 5 in Brief)

Payer	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
	# Hospitalizations	Population	Rate per 10,000	# Hospitalizations	Population	Rate per 10,000	Rate Ratio	95% CI	
All Youth	46,009	4,783,288	96.19	41,959	4,689,514	89.47	0.93	0.92	0.94
<i>Insurance Type</i>									
Private	15,871	2,874,653	55.21	13,372	2,748,237	48.66	0.88	0.86	0.90
Public	29,411	1,731,783	169.83	26,890	1,788,936	150.31	0.89	0.87	0.90

Data Notes: The small percent of hospitalizations that had self-pay or an other payer are not shown because there was not an appropriate population denominator from the U.S. Census for that group.

Table B9: Number of Pediatric Acute Mental Illness (AMI) Beds in Illinois Behavioral Health Hospitals and Units, Overall and by Hospital Type and Year, Illinois Health Facilities and Services Review Board Hospital Profiles 2018-2022
(Corresponds with Figure 6 in Brief)

Hospital Name	City	County	# of Pediatric AMI Beds					Change in Pediatric AMI Beds from 2018 to 2022
			2018	2019	2020	2021	2022	
All Hospitals with any Pediatric AMI Beds from 2018 to 2022			965	942	872	896	873	Reduced beds
All Behavioral Health Hospitals with Pediatric AMI Beds			679	659	583	658	630	Reduced beds
Lake Behavioral Hospital	Waukegan	Lake	0	0	0	33	24	Added beds
Silver Oaks Behavioral Hospital	New Lenox	Will	0	26	0	27	22	Added beds
Alexian Brothers Behavioral Health Hospital	Hoffman Estates	Cook	25	0	25	25	25	Consistent # of beds
Garfield Park Hospital	Chicago	Cook	88	88	88	88	88	Consistent # of beds
Lincoln Prairie Behavioral Health Center	Springfield	Sangamon	97	97	97	97	97	Consistent # of beds
Linden Oaks Hospital	Naperville	DuPage	29	29	29	29	29	Consistent # of beds
Riveredge Hospital	Forest Park	Cook	81	81	81	81	81	Consistent # of beds
Streamwood Behavioral Healthcare System	Streamwood	Cook	142	142	142	142	142	Consistent # of beds
The Pavilion Foundation	Champaign	Champaign	42	30	30	30	42	Consistent # of beds
Hartgrove Hospital	Chicago	Cook	95	95	80	95	80	Reduced beds
Chicago Behavioral Hospital	Des Plaines	Cook	20	11	11	11	0	Eliminated all beds
Chicago Lakeshore Hospital	Chicago	Cook	60	60	0	0	0	Closed
All General Hospitals with Pediatric Behavioral Health Units			286	283	289	238	243	Reduced beds
Amita Health Adventist Medical Center Hinsdale	Hinsdale	DuPage	0	0	0	5	5	Added beds
Amita Health Mercy Medical Center Aurora	Aurora	Kane	0	18	18	18	20	Added beds
The Methodist Medical Center Of Illinois	Peoria	Peoria	23	23	23	23	26	Added beds

Hospital Name	City	County	# of Pediatric AMI Beds					Change in Pediatric AMI Beds from 2018 to 2022
			2018	2019	2020	2021	2022	
Unitypoint Health - Trinity Rock Island	Rock Island	Rock Island	6	6	13	13	13	Added beds
UW Health SwedishAmerican Hospital	Rockford	Winnebago	12	12	12	12	16	Added beds
Amita Health Saint Elizabeth Hospital Chicago	Chicago	Cook	40	40	40	40	40	Consistent # of beds
Amita Health Saint Joseph Hospital Elgin	Elgin	Kane	6	6	6	6	6	Consistent # of beds
Amita Health Saint Joseph Medical Center Joliet	Joliet	Will	9	9	9	9	9	Consistent # of beds
Blessing Hospital at 11th	Quincy	Adams	15	15	15	15	15	Consistent # of beds
Highland Park Hospital	Highland Park	Lake	7	7	7	7	7	Consistent # of beds
HSHS St. Mary's Hospital	Decatur	Macon	20	20	20	20	20	Consistent # of beds
Northwest Community Hospital	Arlington Heights	Cook	12	12	12	12	12	Consistent # of beds
Ann & Robert H. Lurie Children's Hospital*	Chicago	Cook	12	12	12	12	12	Consistent # of beds
Riverside Medical Center	Kankakee	Kankakee	28	28	28	25	25	Reduced beds
University of Illinois Hospital & Clinics	Chicago	Cook	16	9	9	9	9	Reduced beds
Advocate Lutheran General Hospital	Park Ridge	Cook	12	12	12	12	8	Reduced beds
Gateway Regional Medical Center	Granite City	Madison	41	41	41	0	0	Eliminated all beds
Ingalls Memorial Hospital	Harvey	Cook	12	13	12	0	0	Eliminated all beds
Rush University Medical Center	Chicago	Cook	15	0	0	0	0	Eliminated all beds

*Children's hospital

Data Notes: The category describing change over time in the number of pediatric AMI beds is based on 2018 and 2022 data only; it does not capture fluctuations during the intervening years.

Table B10: Drive Times from Patient ZIP Code Centroid to Hospital ZIP Code Centroid among Youth MHSU Hospitalizations in Behavioral Health Hospitals or Units, Illinois 2018 and 2022
(Corresponds with Figure 7 in Brief)

Geographic Residence*	2018		2022	
	# Hospitalizations	% with Drive Time > One Hour	# Hospitalizations	% with Drive Time > One Hour
All	20,762	20.0	19,155	26.2
Chicago	4,309	0.8	3,129	5.9
Suburban Cook County	4,002	1.1	3,663	5.2
Other Collar Counties (5 counties)	4,637	7.7	5,085	10.6
Other Urban Counties (13 counties)	4,000	29.4	3,797	42.4
Rural Counties (83 counties)	3,814	66.4	3,481	71.7

*See Table B6 for the list of counties included in each geographic category.

Data Notes: The change over time from 2018 to 2022 in the percent of youth with over an hour drive time to their admitting behavioral health hospital or unit is statistically significant at $p < 0.0001$ (Pearson's chi-square test), overall and within each geographic category.

Table B11: Distribution of Hospital Types for Mental Health and Substance Use Hospitalizations among Youth ages 3-17 by Year, Illinois 2018-2022
(Corresponds with Figure 8 in Brief)

Hospital Type	2018	2019	2020	2021	2022
	%	%	%	%	%
All Hospitalizations	100	100	100	100	100
Behavioral Health Hospital	58.4	56.9	60.6	66.4	66.4
General Hospital <i>with</i> Acute Mental Illness Beds	31.9	30.5	27.7	28.3	26.9
General Hospital without Acute Mental Illness Beds	9.6	12.6	11.7	5.3	6.7

Data Notes: In the brief, the second category of hospital type, General Hospital *with* Acute Mental Illness Beds, is also referred to as pediatric behavioral health units in general hospitals. In Figure 8 of the brief, behavioral health hospitals and units are combined; they are separated here to provide additional information for interested readers.

Table B12: Percent of Youth MHSU Hospitalizations with a Length of Stay Greater than Two Weeks, with Relative Risks and 95% Confidence Intervals (CI) for Associations with Hospital Type and Youth Characteristics
(Corresponds with Figure 9 in Brief)

Characteristic	% of Hospitalizations with LOS > 2 weeks	Category vs. Reference Group		
		Relative Risk	95% CI	
All	9.9	--	--	--
Hospital Type				
Behavioral health hospitals	12.0	0.85	0.70	1.02
General hospitals <u>with</u> AMI beds	6.0	2.07	1.91	2.25
General hospitals <u>without</u> AMI beds	4.9	Reference Group		
Sex				
Boys	11.7	1.30	1.22	1.38
Girls	9.0	Reference Group		
Age Group				
3-5	14.7	1.60	1.10	2.33
6-11	13.4	1.49	1.38	1.62
12-14	9.7	1.09	1.02	1.16
15-17	9.0	Reference Group		
Race/Ethnicity				
White, NH	8.9	Reference Group		
Black	15.2	1.70	1.59	1.82
Hispanic, NH	6.7	0.75	0.68	0.83
Asian, NH	7.7	0.87	0.68	1.10
Geographic Residence*				
Chicago	13.0	1.60	1.47	1.75
Suburban Cook County	8.6	1.06	0.96	1.16
Collar Counties	8.3	Reference Group		
Other Urban Counties	10.4	1.26	1.15	1.38
Rural Counties	10.4	1.26	1.15	1.38
MHSU Disorder Type				
Mood disorders	9.7	Reference Group		
Non-suicidal self-injury	8.1	0.83	0.76	0.92
Other MH disorders**	19.6	2.01	1.84	2.19
Anxiety	5.3	0.52	0.41	0.65
Suicide attempt or ideation	7.7	0.78	0.64	0.95
Substance Use disorders	7.2	0.64	0.42	0.97
Insurance Type				
Private	5.8	Reference Group		
Public	11.9	2.08	1.92	2.24

*See Table B6 for the list of counties included in each geographic category.

**Other MH disorders include schizophrenia spectrum and other psychotic disorders; disruptive, impulse-control and conduct disorders; personality disorders; feeding and eating disorders; somatic disorders; and miscellaneous

Data Notes: Bolded values for relative risks represent statistically significant differences in the percent of hospitalizations with a length of stay greater than two weeks among youth in that category compared to those in the reference group; values over 1.0 indicate a significantly higher risk of a long length of stay while values under 1.0 indicate a significantly lower risk.

Appendix C:

Emergency Department Visit Data Tables

Table C1: Quarterly Mental Health and Substance Use Emergency Department Visit Rates per 10,000 Youth ages 3-17, Illinois 2018-2022
(Results Not Shown in Brief)

Year, Quarter		All Youth		
		# ED Visits	Population	Rate per 10,000
2018	Q1	4,706	601,144	78.28
	Q2	4,415	601,144	73.44
	Q3	3,935	601,144	65.46
	Q4	4,874	601,144	81.08
2019	Q1	4,648	594,678	78.16
	Q2	4,542	594,678	76.38
	Q3	4,147	594,678	69.74
	Q4	4,783	594,678	80.43
2020	Q1	5,042	601,791	83.78
	Q2	2,394	601,791	39.78
	Q3	3,407	601,791	56.61
	Q4	3,488	601,791	57.96
2021	Q1	3,657	591,884	61.79
	Q2	3,944	591,884	66.63
	Q3	3,969	591,884	67.06
	Q4	4,871	591,884	82.30
2022	Q1	4,716	580,494	81.24
	Q2	4,158	580,494	71.63
	Q3	3,873	580,494	66.72
	Q4	4,307	580,494	74.20

Table C2: Quarterly Mental Health and Substance Use Emergency Department Visit Rates per 10,000 Youth ages 3-17, by Sex, Illinois 2018-2022
(Corresponds with Figure 1 in Brief)

Year, Quarter		Boys			Girls		
		# ED Visits	Population	Rate per 10,000	# ED Visits	Population	Rate per 10,000
2018	Q1	2,087	306,828	68.02	2,618	294,316	88.95
	Q2	1,985	306,828	64.69	2,430	294,316	82.56
	Q3	1,760	306,828	57.36	2,174	294,316	73.87
	Q4	2,179	306,828	71.02	2,695	294,316	91.57
2019	Q1	2,123	303,604	69.93	2,524	291,075	86.71
	Q2	2,099	303,604	69.14	2,443	291,075	83.93
	Q3	1,878	303,604	61.86	2,268	291,075	77.92
	Q4	2,189	303,604	72.10	2,593	291,075	89.08
2020	Q1	2,298	307,937	74.63	2,743	293,854	93.35
	Q2	1,068	307,937	34.68	1,326	293,854	45.12
	Q3	1,497	307,937	48.61	1,910	293,854	65.00
	Q4	1,450	307,937	47.09	2,038	293,854	69.35
2021	Q1	1,466	302,714	48.43	2,190	289,170	75.73
	Q2	1,588	302,714	52.46	2,356	289,170	81.47
	Q3	1,567	302,714	51.76	2,402	289,170	83.07
	Q4	1,921	302,714	63.46	2,950	289,170	102.02
2022	Q1	1,909	296,712	64.34	2,806	283,783	98.88
	Q2	1,701	296,712	57.33	2,457	283,783	86.58
	Q3	1,585	296,712	53.42	2,288	283,783	80.63
	Q4	1,806	296,712	60.87	2,501	283,783	88.13

Table C3: Mental Health and Substance Use Emergency Department Visit Rates per 10,000 Youth ages 3-17, by Time Period and Demographic Characteristics, Illinois 2018-2019 and 2021-2022
(Results Not Shown in Brief)

Demographic Characteristic	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
	# ED Visits	Population	Rate per 10,000	# ED Visits	Population	Rate per 10,000	Rate Ratio	95% CI	
All Youth	36,050	4,783,288	75.37	33,495	4,689,514	71.43	0.95	0.93	0.96
Sex									
Male	16,300	2,441,726	66.76	13,543	2,397,703	56.48	0.85	0.83	0.87
Female	19,745	2,341,562	84.32	19,950	2,291,811	87.05	1.03	1.01	1.05
Age Group									
3-5	419	921,283	4.55	428	871,523	4.91	1.08	0.94	1.24
6-11	5,241	1,885,314	27.80	4,986	1,823,961	27.34	0.98	0.95	1.02
12-14	11,155	982,561	113.53	11,643	986,609	118.01	1.04	1.01	1.07
15-17	19,235	994,130	193.49	16,438	1,007,421	163.17	0.84	0.83	0.86
Race/Ethnicity									
White, NH	19,008	2,447,100	77.68	17,365	2,355,296	73.73	0.95	0.93	0.97
Black, NH	7,025	722,460	97.24	6,266	717,266	87.36	0.90	0.87	0.93
Hispanic	5,988	1,171,297	51.12	6,369	1,149,002	55.43	1.08	1.05	1.12
Asian, NH	542	246,363	22.00	557	264,095	21.09	0.96	0.85	1.08
Geographic Residence (ages 5-17)*									
Chicago	5,421	795,667	68.13	4,909	783,010	62.69	0.92	0.89	0.96
Suburban Cook County	6,093	859,828	70.86	5,273	878,148	60.05	0.85	0.82	0.88
Other Collar Counties (5 counties)	9,622	1,173,354	82.00	8,665	1,144,898	75.68	0.92	0.90	0.95
Other Urban Counties (13 counties)	7,813	766,395	101.94	7,472	763,992	97.80	0.96	0.93	0.99
Rural Counties (83 counties)	6,881	678,693	101.39	6,927	669,976	103.39	1.02	0.99	1.05

*See Table C6 for the list of counties included in each geographic category.

Data Notes: Bolded values for rate ratios represent statistically significant differences across the two time periods, with values over 1.0 indicating a significant increase in ED visit rates and values under 1.0 indicating a significant decrease in ED visit rates from 2018-2019 to 2021-2022 for that demographic subgroup.

Table C4: Mental Health and Substance Use Emergency Department Visit Rates per 10,000 BOYS ages 3-17, by Time Period and Demographic Characteristics, Illinois 2018-2019 and 2021-2022
(Corresponds with Figure 3 in Brief)

Demographic Characteristic	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
	# ED Visits	Population	Rate per 10,000	# ED Visits	Population	Rate per 10,000	Rate Ratio	95% CI	
All Boys	16,300	2,441,726	66.76	13,543	2,397,703	56.48	0.85	0.83	0.87
<i>Age Group</i>									
3-5	265	471,460	5.62	261	444,935	5.87	1.04	0.88	1.24
6-11	3,098	961,724	32.21	2,699	933,464	28.91	0.90	0.85	0.95
12-14	4,489	501,534	89.51	3,817	503,735	75.77	0.85	0.81	0.88
15-17	8,448	507,008	166.62	6,766	515,569	131.23	0.79	0.76	0.81
<i>Race/Ethnicity</i>									
White, NH	8,631	1,255,098	68.77	7,282	1,210,348	60.16	0.87	0.85	0.90
Black, NH	3,082	365,485	84.33	2,486	364,186	68.26	0.81	0.77	0.85
Hispanic	2,798	596,009	46.95	2,375	584,571	40.63	0.87	0.82	0.91
Asian, NH	239	124,564	19.19	212	134,030	15.82	0.82	0.69	0.99
<i>Geographic Residence (ages 5-17)*</i>									
Chicago	2,433	401,915	60.54	1,844	394,188	46.78	0.77	0.73	0.82
Suburban Cook County	2,861	438,187	65.29	2,130	451,904	47.13	0.72	0.68	0.76
Other Collar Counties (5 counties)	4,394	599,974	73.24	3,533	586,207	60.27	0.82	0.79	0.86
Other Urban Counties (13 counties)	3,479	391,321	88.90	3,066	392,279	78.16	0.88	0.84	0.92
Rural Counties (83 counties)	3,005	347,901	86.38	2,834	343,074	82.61	0.96	0.91	1.01

*See Table C6 for the list of counties included in each geographic category.

Data Notes: Bolded values for rate ratios represent statistically significant differences across the two time periods, with values over 1.0 indicating a significant increase in ED visit rates and values under 1.0 indicating a significant decrease in ED visit rates from 2018-2019 to 2021-2022 for that demographic subgroup.

Table C5: Mental Health and Substance Use Emergency Department Visit Rates per 10,000 GIRLS ages 3-17, by Time Period and Demographic Characteristics, Illinois 2018-2019 and 2021-2022
(Corresponds with Figure 3 in Brief)

Demographic Characteristic	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
	# ED Visits	Population	Rate per 10,000	# ED Visits	Population	Rate per 10,000	Rate Ratio	95% CI	
All Girls	19,745	2,341,562	84.32	19,950	2,291,811	87.05	1.03	1.01	1.05
Age Group									
3-5	154	449,823	3.42	167	426,588	3.91	1.14	0.92	1.42
6-11	2,143	923,590	23.20	2,287	890,497	25.68	1.11	1.04	1.17
12-14	6,664	481,027	138.54	7,825	482,874	162.05	1.17	1.13	1.21
15-17	10,784	487,122	221.38	9,671	491,852	196.62	0.89	0.86	0.91
Race/Ethnicity									
White, NH	10,373	1,192,002	87.02	10,081	1,144,948	88.05	1.01	0.98	1.04
Black, NH	3,943	356,975	110.46	3,780	353,080	107.06	0.97	0.93	1.01
Hispanic	3,189	575,288	55.43	3,994	564,431	70.76	1.28	1.22	1.34
Asian, NH	303	121,799	24.88	345	130,065	26.53	1.07	0.91	1.24
Geographic Residence (ages 5-17)*									
Chicago	2,987	393,752	75.86	3,065	388,822	78.83	1.04	0.99	1.09
Suburban Cook County	3,230	421,641	76.61	3,142	426,244	73.71	0.96	0.92	1.01
Other Collar Counties (5 counties)	5,227	573,380	91.16	5,132	558,691	91.86	1.01	0.97	1.05
Other Urban Counties (13 counties)	4,334	375,074	115.55	4,405	372,671	118.20	1.02	0.98	1.07
Rural Counties (83 counties)	3,875	330,792	117.14	4,093	326,902	125.21	1.07	1.02	1.12

*See Table C6 for the list of counties included in each geographic category.

Data Notes: Bolded values for rate ratios represent statistically significant differences across the two time periods, with values over 1.0 indicating a significant increase in ED visit rates and values under 1.0 indicating a significant decrease in ED visit rates from 2018-2019 to 2021-2022 for that demographic subgroup.

Table C6: Mental Health and Substance Use Emergency Department Visit Rates per 10,000 Youth ages 3-17 by County, Illinois 2018-2019 and 2021-2022
(Results Not Shown in Brief)

Geographic Residence	County/City	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
		# ED Visits	Population	Rate per 10,000	# ED Visits	Population	Rate per 10,000	Rate Ratio	95% CI	
Chicago	Chicago	5,421	795,667	68.1	4,909	783,010	62.7	0.92	0.89	0.96
Suburban Cook	Suburban Cook	6,093	859,828	70.9	5,273	878,148	60.0	0.85	0.82	0.88
Other Collar Counties	DuPage	2,269	317,190	71.5	2,139	313,821	68.2	0.95	0.90	1.01
	Kane	1,905	208,747	91.3	1,727	195,915	88.2	0.97	0.91	1.03
	Lake	2,381	263,777	90.3	2,246	261,792	85.8	0.95	0.90	1.01
	McHenry	1,359	113,898	119.3	1,120	111,110	100.8	0.84	0.78	0.91
	Will	1,708	269,742	63.3	1,433	262,260	54.6	0.86	0.80	0.93
Other Urban Counties Outside of the Chicago Metro Area	Champaign	478	56,007	85.3	532	56,513	94.1	1.10	0.97	1.25
	DeKalb	387	33,082	117.0	378	32,173	117.5	1.00	0.87	1.16
	Kankakee	511	38,315	133.4	519	36,883	140.7	1.06	0.93	1.19
	Kendall	439	55,116	79.7	369	57,380	64.3	0.81	0.70	0.93
	McLean	601	54,379	110.5	677	54,227	124.8	1.13	1.01	1.26
	Macon	550	34,218	160.7	460	34,003	135.3	0.84	0.74	0.95
	Madison	564	85,890	65.7	494	86,173	57.3	0.87	0.77	0.99
	Peoria	843	61,883	136.2	690	62,321	110.7	0.81	0.73	0.90
	Rock Island	595	46,491	128.0	647	47,455	136.3	1.07	0.95	1.19
	St. Clair	540	90,937	59.4	539	89,484	60.2	1.01	0.90	1.14
	Sangamon	723	65,993	109.6	846	64,798	130.6	1.19	1.08	1.32
	Tazewell	618	45,234	136.6	536	44,999	119.1	0.87	0.78	0.98
	Winnebago	964	98,850	97.5	785	98,541	79.7	0.82	0.74	0.90
Rural Counties	Adams	184	21,769	84.5	151	21,876	69.0	0.82	0.66	1.01
	Alexander		2,161			1,906				
	Bond	34	4,907	69.3	50	4,859	102.9	1.49	0.96	2.30
	Boone	196	21,105	92.9	144	20,427	70.5	0.76	0.61	0.94
	Brown		1,617		10	1,624	61.6			

Geographic Residence	County/City	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
		# ED Visits	Population	Rate per 10,000	# ED Visits	Population	Rate per 10,000	Rate Ratio	95% CI	
Rural Counties	Bureau	142	10,922	130.0	70	10,774	65.0	0.50	0.38	0.67
	Calhoun		1,530			1,402				
	Carroll	31	4,106	75.5	41	4,391	93.4	1.24	0.78	1.97
	Cass	39	4,467	87.3	44	4,897	89.9	1.03	0.67	1.58
	Christian	136	10,153	134.0	184	10,498	175.3	1.31	1.05	1.63
	Clark	19	5,434	35.0	23	5,390	42.7	1.22	0.66	2.24
	Clay	56	4,490	124.7	32	4,616	69.3	0.56	0.36	0.86
	Clinton	39	11,795	33.1	50	11,685	42.8	1.29	0.85	1.97
	Coles	142	13,804	102.9	243	12,609	192.7	1.87	1.52	2.30
	Crawford	57	5,518	103.3	113	5,537	204.1	1.98	1.44	2.72
	Cumberland	17	3,611	47.1	22	3,480	63.2	1.34	0.71	2.53
	DeWitt	61	5,210	117.1	80	4,910	162.9	1.39	1.00	1.94
	Douglas	47	7,218	65.1	92	7,090	129.8	1.99	1.40	2.83
	Edgar	65	5,375	120.9	61	5,030	121.3	1.00	0.71	1.42
	Edwards	10	2,273	44.0	10	2,129	47.0	1.07	0.44	2.57
	Effingham	99	11,675	84.8	109	12,080	90.2	1.06	0.81	1.40
	Fayette	68	6,615	102.8	70	6,429	108.9	1.06	0.76	1.48
	Ford	51	4,624	110.3	35	4,672	74.9	0.68	0.44	1.04
	Franklin	132	12,759	103.5	141	12,475	113.0	1.09	0.86	1.39
	Fulton	173	10,658	162.3	179	10,043	178.2	1.10	0.89	1.35
	Gallatin		1,588		24	1,490	161.1			
	Greene	40	4,184	95.6	43	3,976	108.1	1.13	0.74	1.74
	Grundy	152	19,551	77.7	151	20,127	75.0	0.96	0.77	1.21
	Hamilton	14	2,723	51.4	15	2,616	57.3	1.12	0.54	2.31
Hancock	40	5,645	70.9	28	5,575	50.2	0.71	0.44	1.15	
Hardin		1,137		10	815	122.7				
Henderson	11	1,870	58.8	10	1,783	56.1	0.95	0.40	2.25	
Henry	269	16,686	161.2	239	16,674	143.3	0.89	0.75	1.06	

Geographic Residence	County/City	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
		# ED Visits	Population	Rate per 10,000	# ED Visits	Population	Rate per 10,000	Rate Ratio	95% CI	
Rural Counties	Iroquois	87	9,263	93.9	98	8,877	110.4	1.18	0.88	1.57
	Jackson	163	15,149	107.6	136	14,294	95.1	0.88	0.70	1.11
	Jasper	15	3,253	46.1	32	3,104	103.1	2.24	1.21	4.13
	Jefferson	158	12,093	130.7	108	12,223	88.4	0.68	0.53	0.86
	Jersey	37	7,113	52.0	43	6,596	65.2	1.25	0.81	1.94
	Jo Daviess	41	6,487	63.2	56	6,397	87.5	1.39	0.93	2.07
	Johnson	18	3,424	52.6	17	4,095	41.5	0.79	0.41	1.53
	Knox	228	14,498	157.3	166	14,403	115.3	0.73	0.60	0.90
	LaSalle	402	35,513	113.2	298	35,144	84.8	0.75	0.64	0.87
	Lawrence	37	4,414	83.8	54	4,344	124.3	1.48	0.98	2.25
	Lee	115	10,220	112.5	201	10,216	196.8	1.75	1.39	2.20
	Livingston	95	11,669	81.4	109	11,700	93.2	1.14	0.87	1.51
	Logan	137	8,129	168.5	192	8,043	238.7	1.42	1.14	1.76
	McDonough	198	7,666	258.3	166	7,102	233.7	0.90	0.74	1.11
	Macoupin	121	14,912	81.1	131	14,326	91.4	1.13	0.88	1.44
	Marion	139	12,589	110.4	115	12,918	89.0	0.81	0.63	1.03
	Marshall	52	3,467	150.0	60	3,583	167.5	1.12	0.77	1.62
	Mason	61	4,292	142.1	82	4,127	198.7	1.40	1.00	1.95
	Massac	29	4,851	59.8	21	4,737	44.3	0.74	0.42	1.30
	Menard	54	4,083	132.3	53	4,260	124.4	0.94	0.64	1.37
	Mercer	52	5,165	100.7	49	5,058	96.9	0.96	0.65	1.42
	Monroe		11,628			11,625				
	Montgomery	95	8,601	110.5	92	8,503	108.2	0.98	0.74	1.30
	Morgan	202	9,491	212.8	135	9,189	146.9	0.69	0.56	0.86
Moultrie	38	5,449	69.7	45	5,667	79.4	1.14	0.74	1.75	
Ogle	140	17,728	79.0	214	17,706	120.9	1.53	1.24	1.89	
Perry	49	5,925	82.7	29	6,099	47.5	0.57	0.36	0.91	
Piatt	47	5,458	86.1	76	5,546	137.0	1.59	1.11	2.29	

Geographic Residence	County/City	2018-2019			2021-2022			2021-2022 vs. 2018-2019		
		# ED Visits	Population	Rate per 10,000	# ED Visits	Population	Rate per 10,000	Rate Ratio	95% CI	
Rural Counties	Pike	39	5,158	75.6	52	4,925	105.6	1.40	0.92	2.12
	Pope		907			939				
	Pulaski		1,820			1,626				
	Putnam	14	1,773	79.0	26	1,644	158.2	2.00	1.05	3.84
	Randolph	89	9,311	95.6	70	9,053	77.3	0.81	0.59	1.11
	Richland	48	5,130	93.6	49	5,407	90.6	0.97	0.65	1.44
	Saline	58	7,495	77.4	71	7,134	99.5	1.29	0.91	1.82
	Schuyler		2,059		18	1,891	95.2			
	Scott	22	1,738	126.6	19	1,680	113.1	0.89	0.48	1.65
	Shelby	58	6,960	83.3	72	6,834	105.4	1.26	0.89	1.79
	Stark	20	1,771	112.9	14	1,742	80.4	0.71	0.36	1.41
	Stephenson	257	14,510	177.1	219	14,150	154.8	0.87	0.73	1.05
	Union	50	5,319	94.0	55	5,380	102.2	1.09	0.74	1.60
	Vermilion	291	26,919	108.1	271	25,904	104.6	0.97	0.82	1.14
	Wabash	33	3,680	89.7	45	3,731	120.6	1.34	0.86	2.11
	Warren	71	5,549	128.0	55	5,594	98.3	0.77	0.54	1.09
	Washington	19	4,543	41.8	29	4,393	66.0	1.58	0.89	2.81
	Wayne	62	5,414	114.5	68	5,399	125.9	1.10	0.78	1.55
	White	37	4,496	82.3	48	4,626	103.8	1.26	0.82	1.94
	Whiteside	238	18,686	127.4	200	18,459	108.3	0.85	0.70	1.03
Williamson	199	21,504	92.5	172	21,641	79.5	0.86	0.70	1.05	
Woodford	95	14,241	66.7	95	14,057	67.6	1.01	0.76	1.35	

Data Notes: Gray cells indicate counties for which data are suppressed because they had fewer than 10 ED visits for MHSU disorders among youth aged 3-17 in that time period. Bolded values for rate ratios represent statistically significant differences across the two time periods, with values over 1.0 indicating a significant increase in ED visit rates and values under 1.0 indicating a significant decrease in ED visit rates from 2018-2019 to 2021-2022 for that county.

**Table C7: Distribution of Disorder Types for Mental Health and Substance Use
Emergency Department Visits among Youth ages 3-17, Overall and by Sex, Illinois 2021-2022
(Corresponds with Figure 4 in Brief)**

Disorder Types	All Youth		Girls		Boys	
	# ED Visits	%	# ED Visits	%	# ED Visits	%
All	33,495	100	19,950	100	13,543	100
Mood Disorders	8,348	24.9	5,222	26.2	3,125	23.1
Non-suicidal Self-injury	3,104	9.3	2,348	11.8	756	5.6
Other Mental Health Disorders*	4,784	14.3	2,064	10.4	2,719	20.1
Anxiety	7,098	21.2	4,515	22.6	2,583	19.1
Suicide Ideation/Attempt	6,080	18.2	3,866	19.4	2,214	16.4
Substance Use Disorders	4,081	12.2	1,935	9.7	2,146	15.9

*Other MH disorders include schizophrenia spectrum and other psychotic disorders; disruptive, impulse-control and conduct disorders; personality disorders; feeding and eating disorders; somatic disorders; and miscellaneous disorders.

Data Notes: The distribution across disorder types is statistically significantly different between girls and boys at $p < 0.0001$ (Pearson's chi-square test).