Measuring Mental Health Exasperation in the Era of Lockdowns

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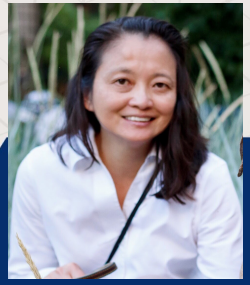

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Trends in Emergency Department Utilization for Mental Health, Substance Use and Violent Victimization in Chicago, IL Before and at the Beginning of the COVID-19 Pandemic in 2020

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Emergency Department Utilization for Behavioral Health, Chicago, IL, 2019 - 2020

Analytic Goal:

To examine how ED utilization was affected for those with acute behavioral health needs during the pandemic.

Methods:

- Selected 7 syndromic indicators from the National Syndromic Surveillance Program (NSSP) covering 3 behavioral health domains:
  - I. Mental Health
    - A. CDC Suicide Attempt, v1
    - B. SDC Disaster-related Mental Health v1
  - II. Violent Victimization
    - A. CDC Suspected Child Abuse & Neglect, v1
    - B. CDC Assault-related Firearm Injury, v1
    - C. CDC Intimate Partner Violence, v2
  - III. Substance Use
    - A. CDC Alcohol v1
    - B. CDC All Drugs v2

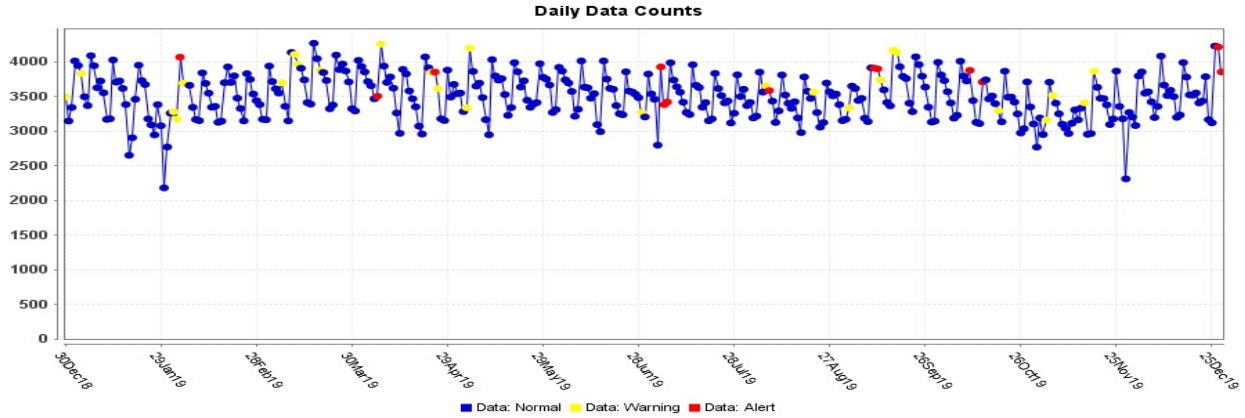
Methods, (continued):

- Indicators were examined both separately and collectively with a Behavioral Health composite score (total number of ED visits summed across all 7 NSSP indicators)
- Three distinct time periods:
  - A. Time 1 (T1): Before the IL stay-at-home order (reference period)
  - B. Time 2 (T2): After the IL stay-at-home order and up until the second surge
  - C. Time 3 (T3): During the second surge
- Metric Definitions:
  - A. Utilization rates: Number of ED visits for an indicator per 100,000
  - B. Percent change: Magnitude of change for each time period when compared to the same time period in 2019 expressed as a percent
  - C. Fold change: Magnitude of change between two time periods in 2020 expressed as a ratio

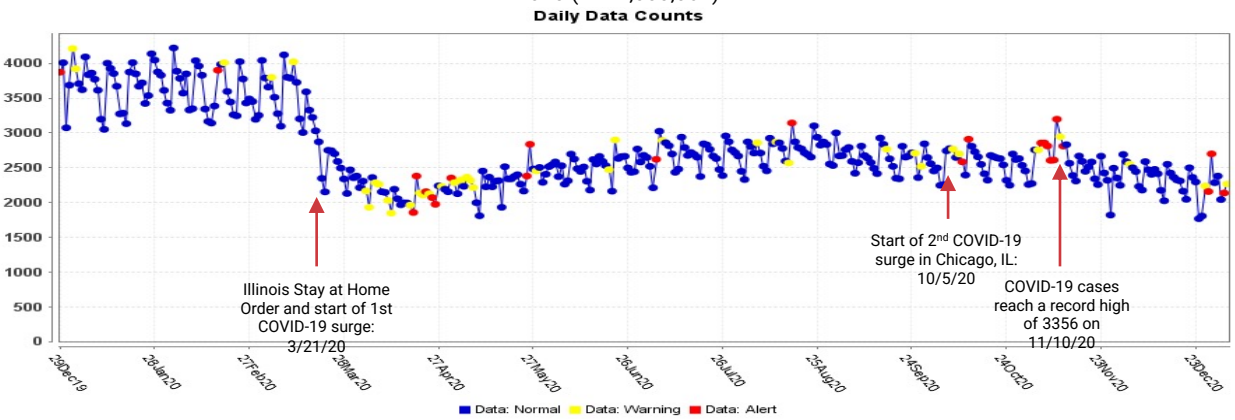
Emergency Department Visits in Chicago, 2019 - 2020

- The total number of Emergency Department (ED) visits in Chicago decreased by 21.5% from 2019 to 2020.
- Two pivotal dates in 2020:
  1. 3/21/20: the Illinois Stay-at-Home order and start of first COVID-19 surge.
  2. 10/5/20: start of the second and largest COVID-19 surge

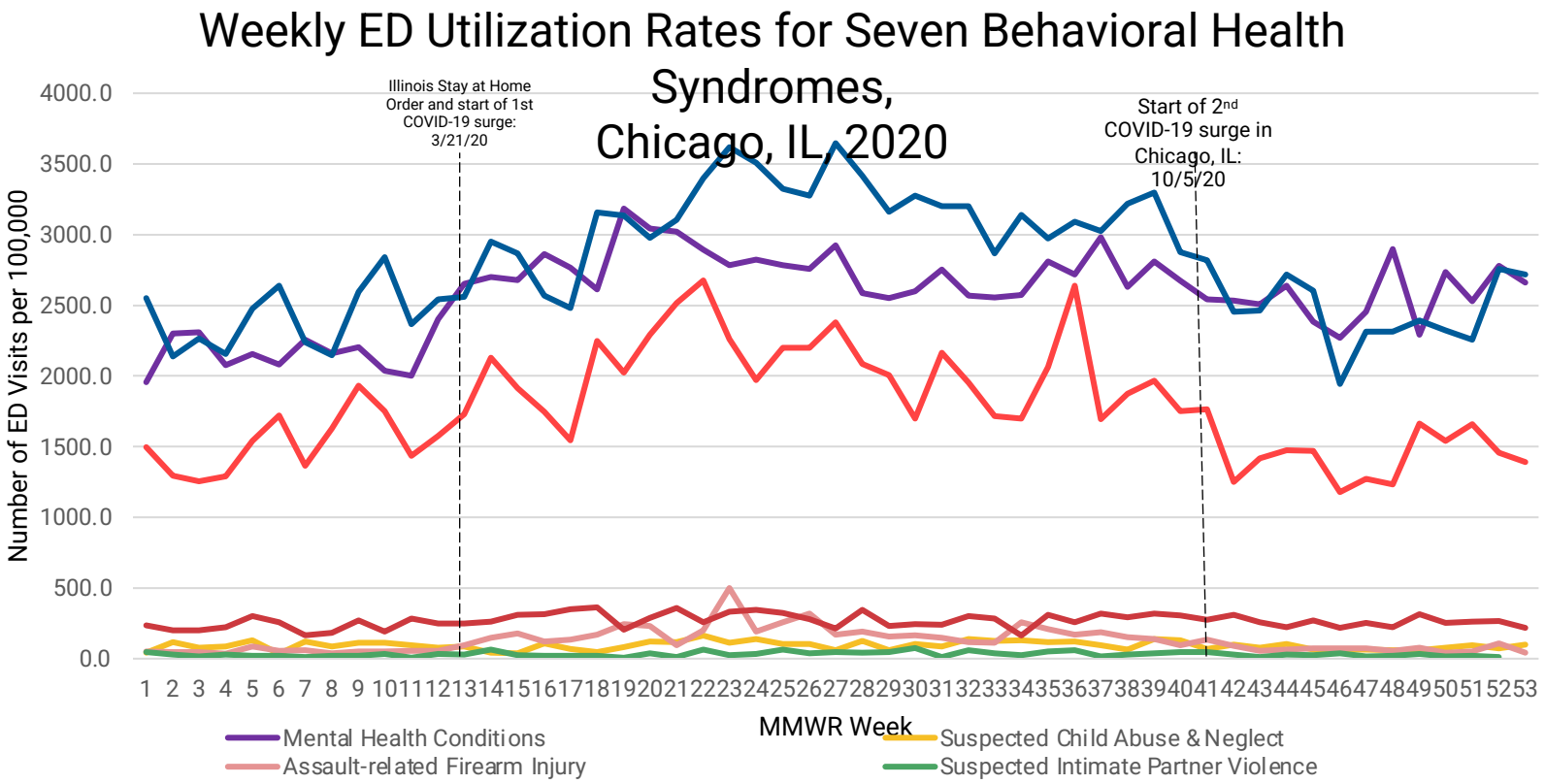
2019 (N =1,278,299)



2020 (N = 1,003,064)



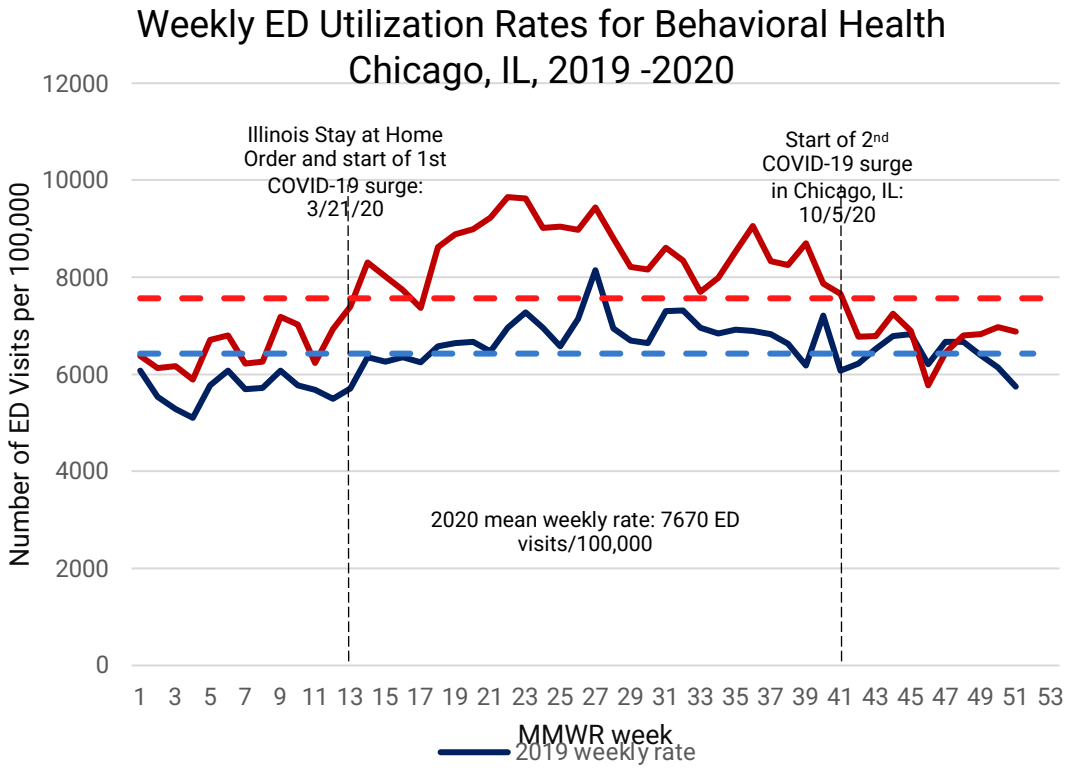
Emergency Department Utilization for Behavioral Health, Chicago, IL, 2020



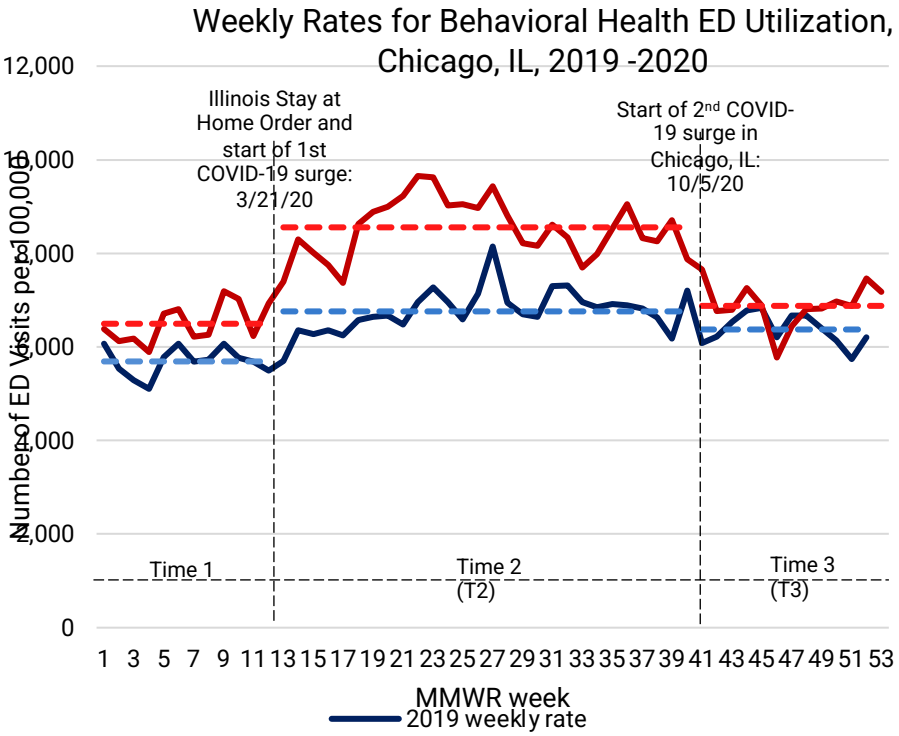
Emergency Department Utilization for Behavioral Health, Chicago, IL, 2019 - 2020

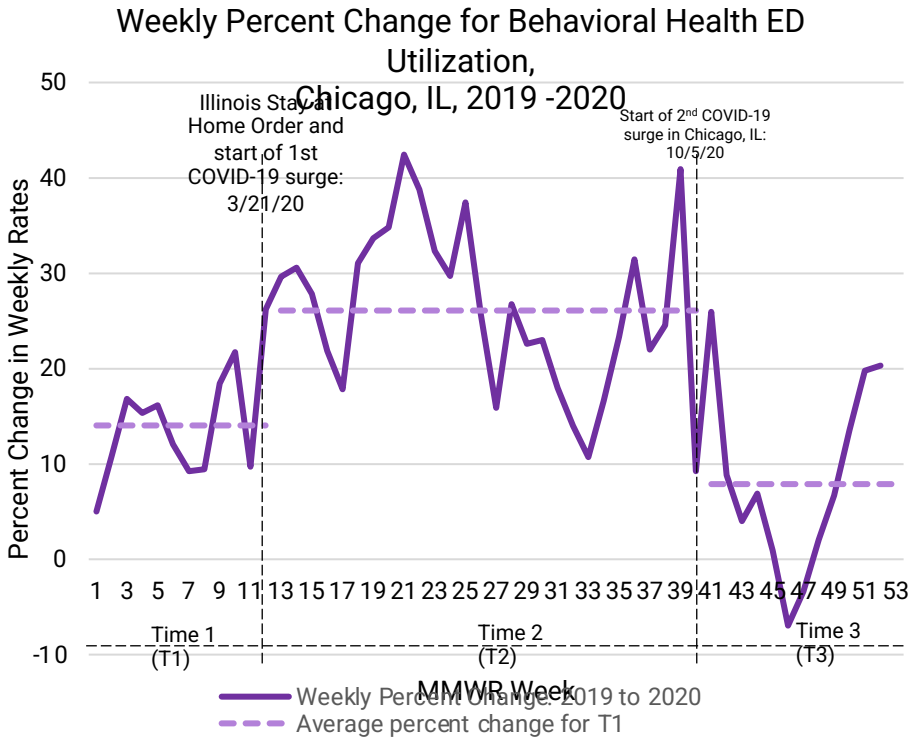
Behavioral Health composite score:

- Total number of ED visits summed across all 7 Behavioral Health syndromes
- ED utilization for behavioral health increased by 19.3% in 2020 but decreased by 1.3% for all other types of ED visits.



Emergency Department Utilization for Behavioral Health, Chicago, IL, 2019 - 2020





Emergency Department Utilization for Behavioral Health, Chicago, IL, 2019 – 2020

Behavioral Health Domain	Behavioral Health Syndrome	Total Number Visits in 2020, N (%)	Annual mean weekly rate, 2020 (N per 100,000 visits)	Annual Percent Change in Mean Weekly Rates: 2019 to 2020	Average percent change for T1	Average percent change for T2	Average percent change for T3	Fold Change: T1 to T2	Fold Change: T1 to T3
OVERALL	Behavioral Health composite score of 7 Syndromes	77,042 (100%)	7,670	+19.3%	14.2%	25.9%	+7.9%	1.8x (↑)	1.8x (↓)
Mental Health	CDC Suicide Attempt, v1	2,682 (3.5%)	267	+21.7%	+4.4%	+31.3%	+17.0%	7.1x (↑)	3.9x (↑)
	SDC Disaster-related Mental Health v1	25,786 (33.5%)	2,575	+14.7%	+2.2%	+20.1%	+13.9%	9.2x (↑)	6.4x (↑)
Violent Victimization	CDC Suspected Child Abuse & Neglect, v1	946 (1.2%)	93	-0.7%	-10.0%	+10.2%	-14.8%	2.1x (↑)	1.5x(↓)
	CDC Assault-related Firearm Injury, v1	1,227 (1.6%)	127	106.6%	+13.2%	+166.6%	+24.1%	12.7x (↑)	1.8x (↑)
	CDC Intimate Partner Violence, v2	313 (0.41%)	31	14.0%	-2.1%	+29.1%	-6.9%	15.0x(↑)	3.3x (↓)
Substance Use	CDC Alcohol v1	28,208 (36.6%)	2,799	6.7%	+6.5%	+10.7%	-2.6%	1.6x (↑)	1.4x (↓)
	CDC All Drugs v2	17,870 (23.2%)	1,777	53.0%	+66.5%	+63.3%	+20.2%	0.95 (↓)	3.3x (↓)

(↑): Increase in fold change across two time periods; (↓): Decrease in fold change across two time periods

Emergency Department Utilization for Behavioral Health, Chicago, IL, 2019 - 2020

Conclusions:

1. When compared to the first 3 months of 2020 (T1), ED utilization for behavioral health in Chicago:
   - Increased 1.8 - fold during the 7 months following the IL stay-at-home order (T2) but then
   - Decreased by the same amount in last 3 months of 2020 (T3) during the second surge of COVID-19
2. Out of the three behavioral health domains, ED utilization rates for violent victimization increased the most in T2 followed by mental health.
3. In T3, ED utilization rates for violent victimization decreased the most followed by a slight decrease in mental health rates.
4. Large changes in substance use rates were not seen throughout 2020 although these ED visits accounted for the greatest proportion (60%) of all behavioral health visits.

Emergency Department Utilization for Behavioral Health, Chicago, IL, 2019 - 2020

Discussion:

1. Acknowledgment of data limitations:
    1. Data is cross-sectional. Therefore, causation cannot be inferred.
    2. ED utilization as a population indicator may not capture all contributing factors leading up to each visit.
    3. Chief complaint data used for NSSP-ESSENCE (Electronic Surveillance System for the Early Notification of Community-Based Epidemics) queries may impact sensitivity/specificity of indicators.
2. Multiple events related to the pandemic including the stay-at-home order, disruptions in healthcare and social service delivery systems, or major socioeconomic events (e.g. loss of jobs or loved ones) may have increased experiences of traumatic stress among many Chicagoans.
3. As seen in other large urban settings nationwide, events rooted in social injustice, such as the deaths of Breonna Taylor and George Floyd, and mounting political tensions around the 2020 elections may have added to increased social unrest and traumatic stress.
4. Acute changes in behavioral health outcomes may be manifestations of increased levels of traumatic stress.
5. Further analyses to stratify rates by demographics and geographics can be used to identify subpopulations who may be disproportionately experiencing worsening behavioral health. This information can also be used to bolster support systems cross-cutting multiple sectors (e.g. economic, behavioral health and social services) in ways that will promote coping and resilience.

Emergency Department Utilization for Behavioral Health, Chicago, IL, 2019 - 2020

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- Livia Verklan McInnes, GIS Analyst, Chicago Department of Public Health

Data Source:

CDC National Syndromic Surveillance Program

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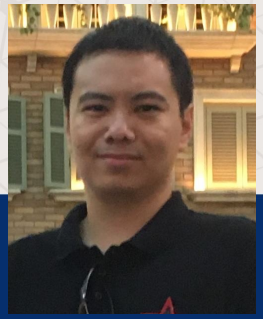

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WASHINGTON STATE DEPARTMENT OF HEALTH'S SYNDROMIC SURVEILLANCE IN GUIDING THE BEHAVIORAL HEALTH RESPONSE DURING THE PANDEMIC

Vasiliki Georgoulas-Sherry, PhD & Mary Franzen, MPH
Washington State Department of Health
Division of Emergency Preparedness, Resilience, and Response

Background

- The effect of the novel coronavirus (SARS-CoV-2) pandemic has produced significant health concerns, negatively impacting individuals in a multitude of ways, creating new hardships and barriers for individuals. Even if individuals are not physically affected by COVID-19, the implications for behavioral health remain.

- As the ongoing and constantly changing nature of the pandemic continues, the unique characteristics of this pandemic trend toward anxiety and loneliness as significant behavioral health outcomes.

- This subsequently has led to behavioral health problems being considered as critical and prevalent public health concerns, especially as the pandemic continues to considerably impact the community. The pandemic has presented uncommon behavioral health impacts like no other, and this requires different mitigation, planning, and response.

Methods

- Since April 2020, the Washington State Department of Health (WA DOH) has utilized the Rapid Health Information Network (RHINO) to conduct syndromic surveillance on five behavioral health syndrome queries that can be detected in emergency department settings:

  - psychological distress,
  - suicidal ideation,
  - suspected suicide attempts,
  - alcohol-related conditions, and
  - suspected all-drug overdoses

  through deidentified patient records.

Data Source & Definitions

The Department of Health collects syndromic surveillance data in near real-time from hospitals and clinics across Washington. The data are always subject to updates. Key data elements reported include patient demographic information, chief complaint, and coded diagnoses. This data collection system is the only source of emergency department (ED) data for Washington.

Visits of interest per 10,000 ED visits can help provide insights into:

1. behavioral health impacts since the implementation of the "Stay Home, Stay Healthy" order from March 23, 2020 (CDC Week 13),
2. seasonal shifts year-over-year,
3. new visit trends due to COVID-19 symptoms and diagnosis,
4. perceptions of disease transmission and risk, as well as,
5. the relative frequency of these indicators for 2019, 2020, and 2021.

Limitations:

Because the volume of visits across care settings varied widely during 2020 and to date in 2021, rates presented in this report may not reflect the true magnitude and direction of trends for behavioral health conditions and should be interpreted cautiously.

Furthermore, caution should be taken when evaluating data as fewer overall ED visits beginning in March 2020 (CDC Week 10-14) can skew results of data.

Furthermore, ED visits count for suicidal ideation, suspected suicide attempt, psychological distress, and suspected overdoses might show an increase in awareness in mental health experiences, thus taking a larger share of the total ED visits.

Suicidal ideation: Created by partners in the CDCs National Center for Injury Prevention to support states and jurisdictions to query visits related to suicidal ideation, or thoughts or plans of engaging in suicide-related behavior. Full details are available at https://knowledgerepository.syndromicsurveillance.org/CDC-suicide-attempt-v1-syndromedefinitioncommittee.

Suspected suicide attempt: Created by partners in the CDCs National Center for Injury Prevention to support states and jurisdictions to query visits related to a suicide attempt, or self-directed and potentially injurious behavior with any intent to die as a result of the behavior. Full details are available at https://knowledgerepository.syndromicsurveillance.org/CDC-suicide-ideation-v1-syndromedefinitioncommittee.

Psychological distress: This is a Syndrome Definition Committee community-developed syndrome definition for mental health conditions likely to increase in emergency department frequency during and after natural or human-caused disaster events. Full details are available at https://knowledgerepository.syndromicsurveillance.org/disaster-related-mental-health-v1-syndromedefinitioncommittee.

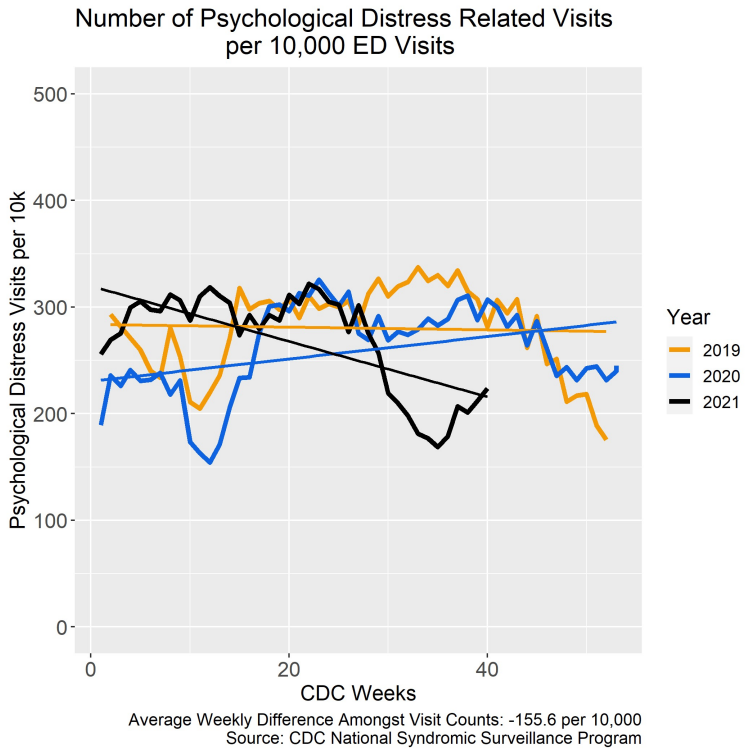
Suspected all drugs overdoses: This definition specifies overdoses for any drug, including heroin, opioid, and stimulants. It is indexed in the Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE) platform as CDC All Drug v1. Full details available at https://knowledgerepository.syndromicsurveillance.org/cdc-all-drug-v1.

Results

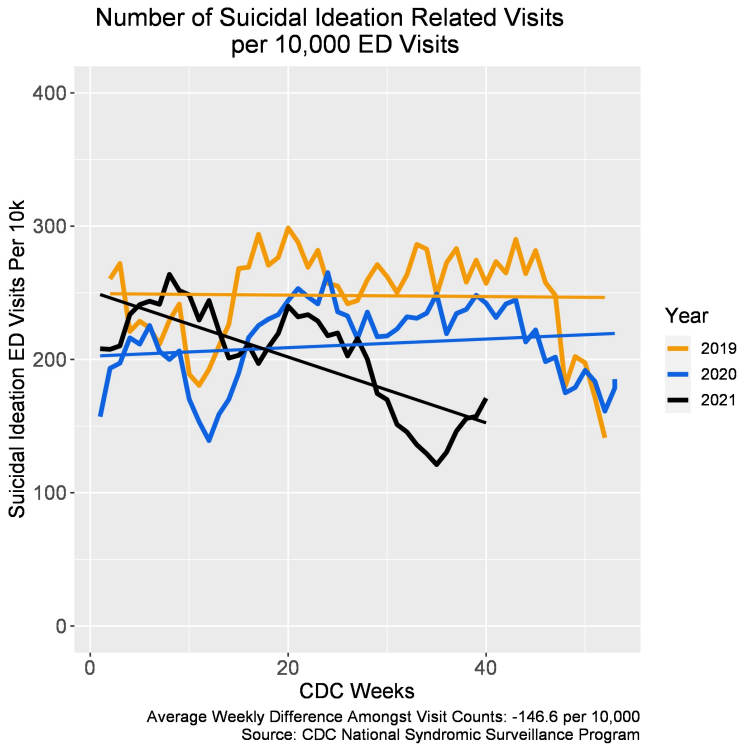
- Syndromic data evaluating psychological distress, suicidal ideation, suspected suicide attempts, alcohol-related conditions, and suspected all-drug overdoses from 2019 to 2021 has shown that visit volumes appear to be trending back to reflect levels more typical of care-seeking behavior before COVID-19, and therefore, rates may be converging with previous years' rates.

- While rate (calculated as per 10,000 ED visits) in all five behavioral health indicators peaked in the beginning months of 2021 and were typically higher than the rates in 2019 or 2020, the Summer months show decreases in these rates and remain lower than rates in 2019 or 2020.

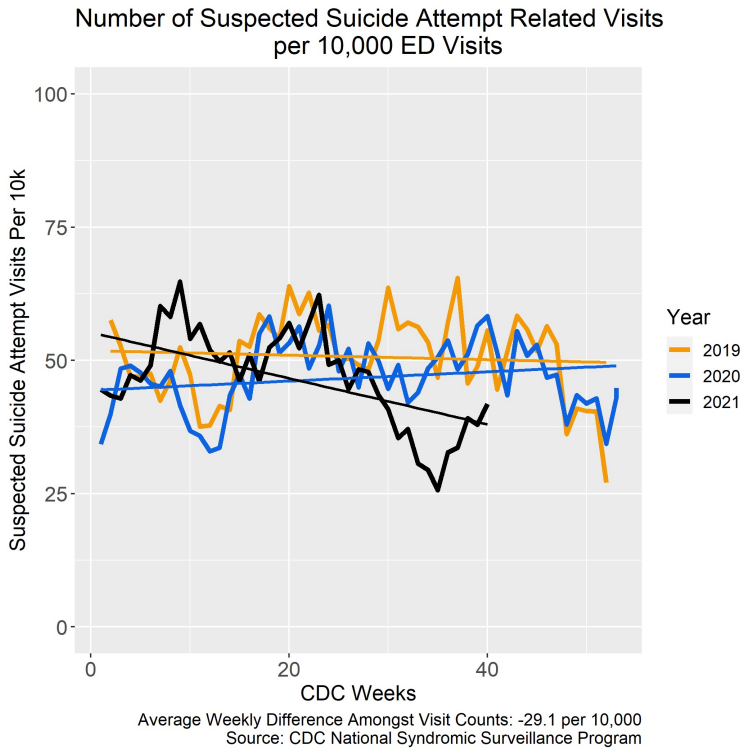
Results: Psychological Distress



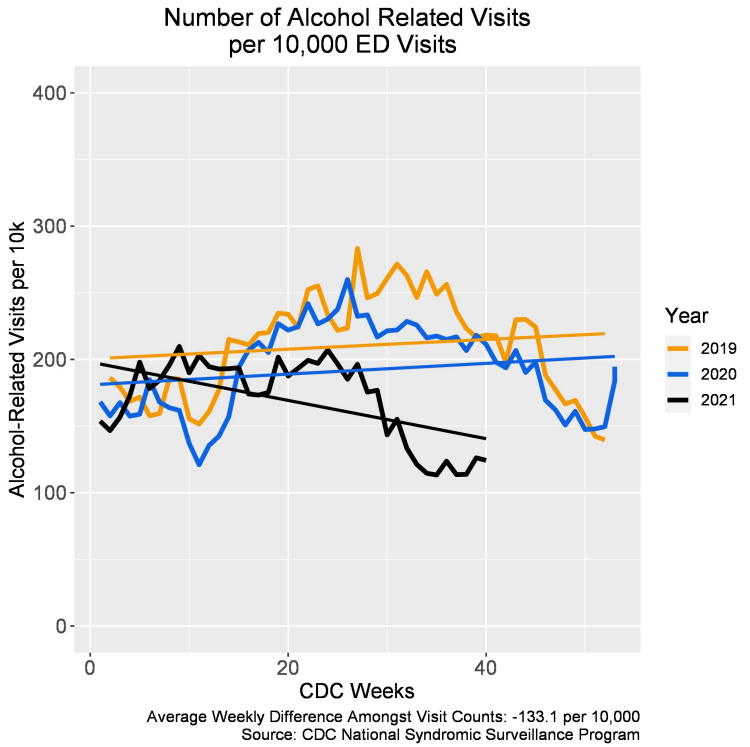
Results: Suicidal Ideation



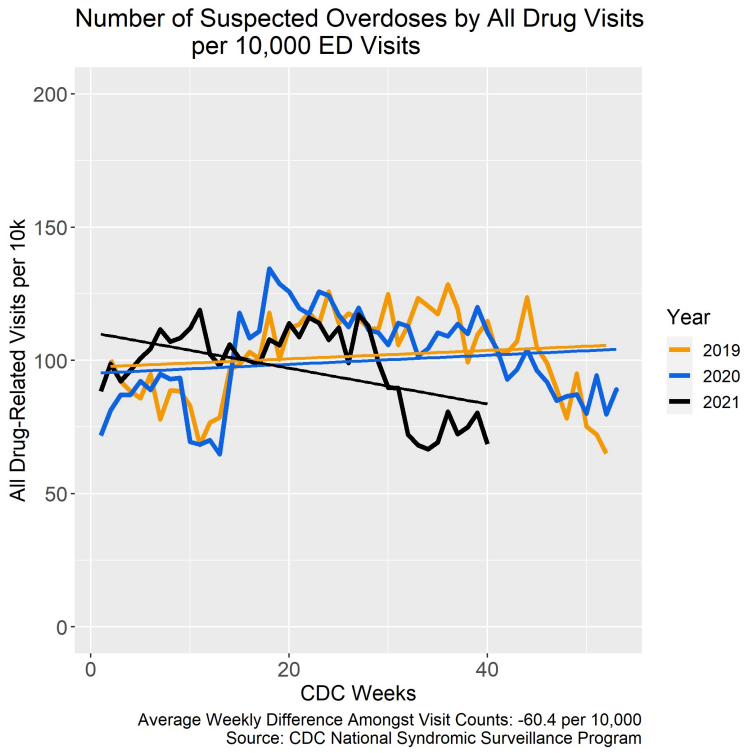
Results: Suspected Suicide Attempts



Results: Alcohol-Related Conditions



Results: Suspected All-Drug Overdoses



Implications

- The utilization of syndromic surveillance for behavioral health can show with near real-time data the potential impacts of the COVID-19 pandemic on mental health and substance use issues which can:
  - support population-level strategic planning and intervention,
  - mitigate the behavioral health impacts of the COVID-19 pandemic,
  - impact forecasts used by health partners and state agencies for strategic planning and intervention, and
  - help public health partners such as behavioral health providers and response teams respond quickly to potential behavioral health outcomes of the COVID-19 pandemic by creating:
    - provider alerts,
    - social media messaging,
    - behavioral health reference guides, and
    - other health communications (youth-, older adults-, regional-, and statewide-focused reports on behavioral health).

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2021

Syndromic Surveillance Symposium

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