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Statewide Child Abuse and Neglect Non-Fatal Injury Trends Observed in California Hospitals and Emergency Departments During the COVID-19 Pandemic

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Table of Contents

| | |
|--|----|
| Acknowledgements | 2 |
| Background | 3 |
| Methods | 3 |
| Results | 5 |
| ED and Hospitalization Related to CAN Visits During the Pandemic | 5 |
| Severity of CAN Injuries During the Pandemic | 6 |
| Patient Demographics | 6 |
| Implications | 8 |
| CAN-Related ED Visits and Hospitalizations During the Pandemic | 8 |
| Severity of CAN Injuries During the Pandemic | 8 |
| Patient Demographics | 9 |
| Next Steps | 10 |
| Strategies and Resources | 11 |
| References | 12 |

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Background

An increased risk of Child Abuse and Neglect (CAN) for children during the COVID-19 pandemic has been reported and observed in many states in the United States.^{1,2} While the number of Emergency Department (ED) visits for any type of emergency decreased from 2019 to 2020 (possibly due to stay at home orders or efforts to reduce exposure to COVID-19), the proportion of CAN-related ED visits per 100,000 ED visits in the U.S. increased from 2019 to 2020.¹ Research has also noted that the proportion of CAN-related ED visits that resulted in hospitalization increased.¹ One study found that ED visits associated with CAN per 1,000 pediatric ED visits increased by 97% from 2018 to 2020², which may suggest that ED visits and risk due to severe injury from CAN could have increased due to the pandemic.^{1,2} The increase in the proportion of CAN-related ED visits during the first year of the pandemic may have occurred due to hardships that many people also experienced at that time (e.g., employment and housing instability, health inequities), which have been shown to increase the risk of exposure to Adverse Childhood Experiences (ACEs).^{3,4}

This report utilizes data from California EDs and hospitals to assess changes in the frequency, severity, and demographics of non-fatal CAN injuries during the pandemic. It is intended to provide information on strategies and resources that can be used by child and family service providers, community coalitions, and others to guide efforts to prevent child abuse, neglect, and ACEs and improve the health and wellbeing of California's children.

Methods

This report presents findings from analysis of ED and hospitalization data from the [Department of Health Care Access and Information \(HCAI\)](#). These data are submitted by licensed health care facilities throughout the state of California.⁵ Analysis is restricted to non-fatal CAN-related injuries among California residents less than 18 years of age who were seen in EDs and hospitals. The term "children" is defined in this report as individuals under the age of 18.

ED visits were defined as face-to-face encounters during which emergency medical services were provided through face-to-face contact.⁶ ED data includes patients treated and released or transferred to another facility. This does not include individuals who visited the hospital but left before being seen by a provider. A provider is described as "the person who has primary responsibility for assessing and treating the condition of a patient at a given contact and exercises independent judgment in the care of the patient."⁷

Hospitalization data consists of inpatient data that was gathered from California-licensed hospitals.⁷ Hospitalization data includes patients admitted to the hospital, and thus generally comprise more severe injuries. Licensed hospitals are defined as "general acute care, acute

psychiatric, chemical dependency recovery, and psychiatric health facilities.”⁸ CAN cases were defined using the following International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10 CM) codes: T74 and T76. The ICD-10-CM is a “morbidity classification” utilized by physicians and other healthcare providers to classify and code all diagnoses, symptoms, and procedures.⁸

To determine if the frequency of ED visits and hospitalizations for CAN injuries changed during the pandemic, 2020 rates per 100,000 rates were compared to those of 2019 using chi square tests. Rates were calculated utilizing population estimates from the California Department of Finance’s, Demographic Research Unit.⁹ Change in severity of CAN injuries seen in hospitals during the pandemic was assessed using length of stay (LOS) of hospitalizations as a proxy, with longer LOS assumed to be due to more severe injuries. Given that the distribution of LOS is highly skewed (i.e., most stays are for a few days, but some last months or more), LOS was categorized as same day/overnight, 2 days, 3-4 days, 5-7 days, and more than one week. Trends over time (i.e., 2016 – 2020) are also included in this report for ED and hospitalization rates associated with CAN and hospitalization LOS. Finally, the demographic composition of CAN injury patients during the pandemic were assessed by sex, race/ethnicity, age, and insurance type. All analyses were performed with SAS 9.4. Statistical significance was set at $p < 0.05$.

Results

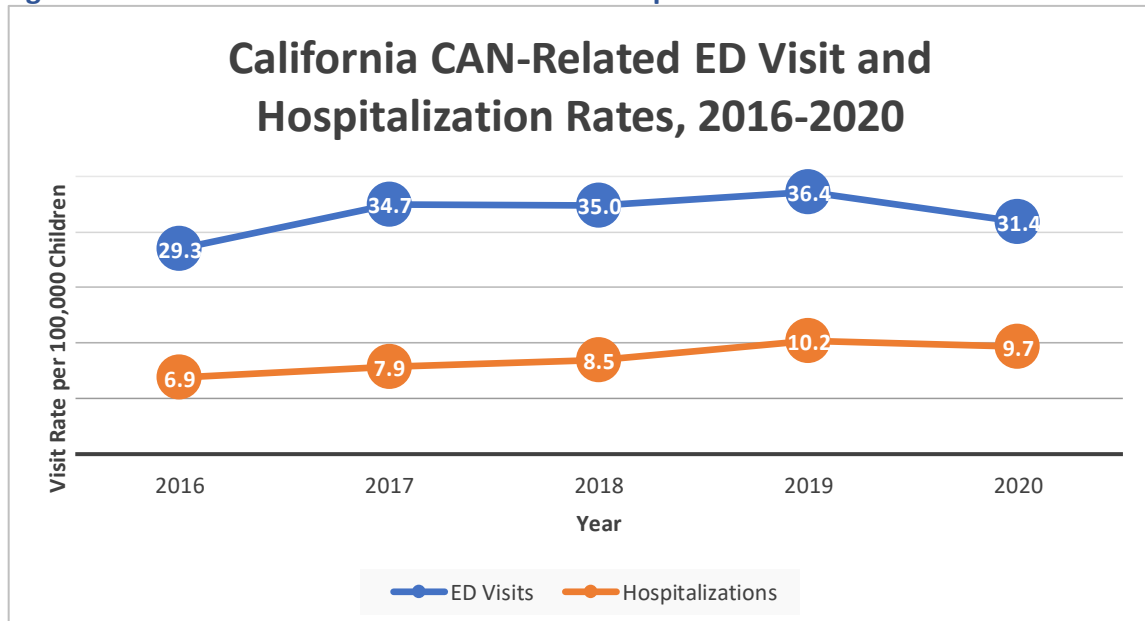
The total number of California ED visits among individuals under 18 years of age for all causes in 2019 was 694,075 compared to 435,956 in 2020. The total number of hospitalizations among individuals under 18 years of age for all causes in 2019 was 18,892 compared to 17,012 in 2020. The total number of California CAN-related ED visits in 2019 was 3,305 compared to 2,826 in 2020. The total number of CAN-related hospitalizations was 928 in 2019 compared to 873 in 2020. ED visits are generally for less severe injuries where the patient could be immediately treated and released, whereas hospitalizations are often for more severe injuries that require admission to the hospital for more involved care. Details on changes in frequency, severity, and patient demographics for CAN-related ED visits and hospitalizations during the pandemic follow.

CAN-Related ED Visits and Hospitalizations During the Pandemic

Figure 1 shows an overall increase in CAN-related ED visit rates from 2016 (29.3 per 100,000 children) to 2019 (36.4 per 100,000 children), with a slight drop in rates in 2020 (31.4 per 100,000 children). This 5.0 per 100,000 children decrease in the CAN-related ED visit rate from 2019 to 2020 is statistically significant ($p < 0.001$).

Figure 1 also demonstrates an increase in California's CAN-related hospitalization rate over time from 2016 (6.9 per 100,000 children) to 2019 (10.2 per 100,000 children) and then a drop in 2020 (9.7 per 100,000 children). This 0.5 per 100,000 decrease in the CAN-related hospitalization rate from 2019 to 2020 is not statistically significant ($p = 0.271$).

Figure 1. California CAN-Related ED Visit and Hospitalization Rates from 2016 to 2020

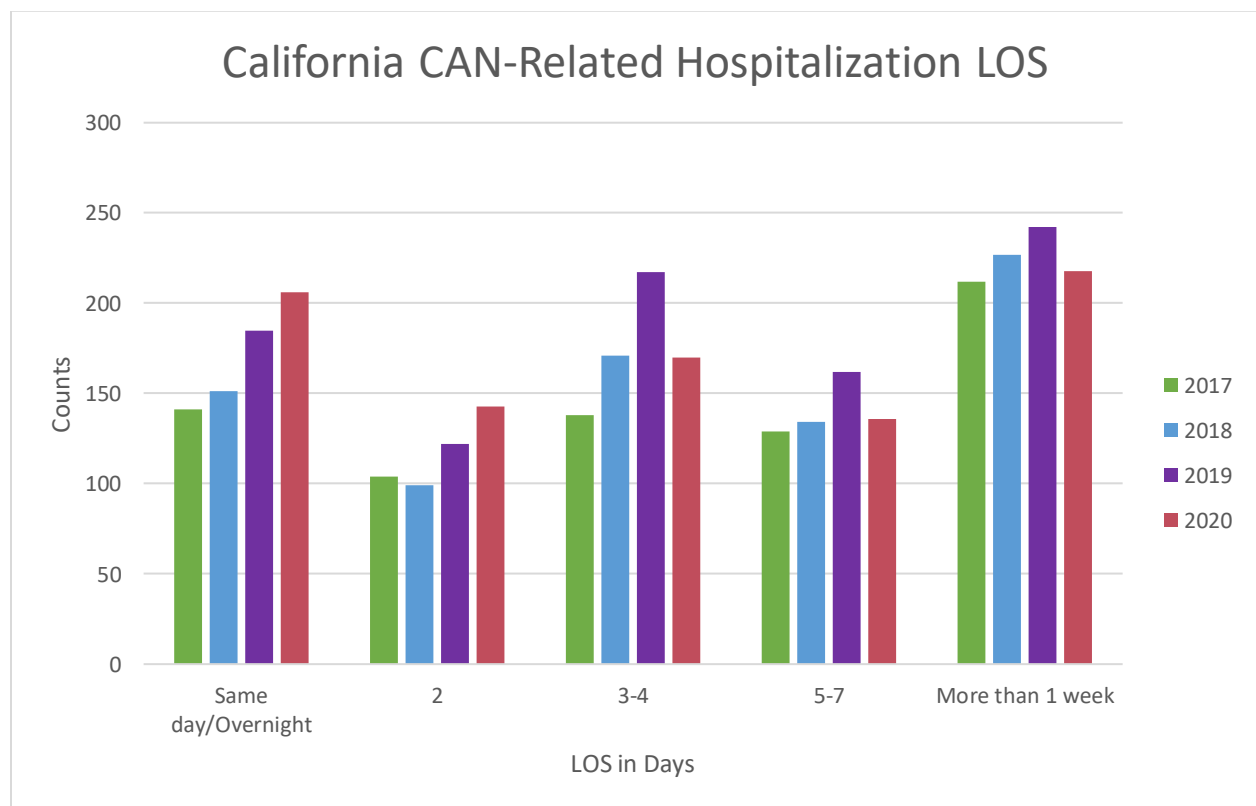


Severity of CAN Injuries During the Pandemic

Of the 2,826 CAN injuries treated in California’s medical facilities in 2020, 30.8% (n=873) of individuals less than 18 years of age were hospitalized with injuries that were presumably more severe than the remaining 69.2% of children treated in the ED. This proportion was up slightly from 2019, during which 28.0% of children with CAN injuries were hospitalized.

Figure 2 shows the number of children with CAN-related hospitalization LOS of 1, 2, 3-4, 5-7, and 8 or more days between 2017 to 2020. Between 2019 and 2020, there was a decrease in the CAN-related hospitalization LOS for the categories of 3-4 days, 5-7 days, and more than one week.

Figure 2. California CAN-Related Hospitalization, LOS from 2017 to 2020



Patient Demographics

Table 1 presents the patient demographics for CAN-related ED visits and hospitalizations in 2019 and 2020. Compared to 2019 CAN ED patients, a greater proportion were female in 2020 (67% female in 2019 and 72% female in 2020). A greater proportion of CAN-related hospitalizations in 2019 were covered by Medi-Cal (67% Medi-Cal in 2019 and 64% Medi-Cal in 2020) compared to 2020 CAN-related hospitalizations.

Table 1. Patient Demographics Among ED and Hospitalized Patients (<18) Associated with CAN During the Pandemic

| Characteristics | | ED | | Hospitalization | |
|-----------------|--------------------------------|--------------|---------------|-----------------|--------------|
| Demographics | | 2019 | 2020 | 2019 | 2020 |
| Biological Sex* | Male | 1083 (32.8%) | 786 (27.8%) | 452 (48.7%) | 425 (48.7 %) |
| | Female | 2222 (67.2%) | 2040 (72.2 %) | 476 (51.3%) | 448 (51.3 %) |
| Race/Ethnicity | White | 779 (23.6%) | 640 (22.6%) | 228 (24.6%) | 206 (23.6%) |
| | Black | 499 (15.1%) | 440 (15.6%) | 129 (13.9%) | 109 (12.5%) |
| | Hispanic | 1657 (50.1%) | 1410 (49.9%) | 416 (44.8%) | 397 (45.5%) |
| | American Indian/Alaskan Native | 17 (0.5%) | <11 (N/A) | <11 (N/A) | <11 (N/A) |
| | Asian/Pacific Islander | 92 (2.8%) | 77 (2.7%) | 37 (4.0%) | 41 (4.7%) |
| | Other/Unknown | 204 (6.2%) | 207 (7.3%) | 94 (10.1%) | 94 (10.8%) |
| | Multiracial | 57 (1.7%) | 46 (1.6%) | 20 (2.2%) | 23 (2.6%) |
| Age | 0-5 years | 1382 (41.8%) | 1202 (42.5%) | 526 (56.7%) | 548 (62.8%) |
| | 6-10 years | 635 (19.2%) | 508 (18.0%) | 70 (7.5%) | 68 (7.8%) |
| | 11-17 years | 1288 (39.0%) | 1116 (39.5%) | 332 (35.8%) | 257 (29.4%) |
| Insurance Type | Medi-Cal | 2145 (64.9%) | 1882 (66.6%) | 619 (66.7%) | 555 (63.6%) |
| | Private | 648 (19.6%) | 522 (18.5%) | 188 (20.3%) | 162 (18.6%) |
| | All Others | 512 (15.5%) | 422 (14.9%) | 121 (13.0%) | 156 (17.8%) |

* The data sources did not collect information on people who are gender nonconforming, gender fluid, or in transition.

Note: Data elements with an insufficient number of responses (<11) are excluded from this supportive document based on data deidentification guidelines from the California Department of Health Care Services (DHCS).

Implications

CAN-Related ED Visits and Hospitalizations During the Pandemic

CAN increases the risk for health issues, such as heart disease and cancer, as well as mental health issues, such as depression and anxiety.¹⁰ Furthermore, CAN can be difficult to identify and often goes unreported.^{11,12} Given that ED providers may be the patient's first hospital contact, the provider has an opportunity to identify a CAN victim and intervene to prevent further harm.¹¹ Additionally, children who are hospitalized for CAN, compared to children hospitalized for other reasons, often may stay at the hospital for longer periods of time, have more severe injuries, or have worse medical outcomes.¹²

This report shows that there was a 14% decrease in the rate of CAN-related ED visits from 2019 to 2020 (from 36.4 to 31.4 per 100,000 children) and a 5% decrease in the rate of CAN-related hospitalizations from 2019 to 2020 (from 10.2 to 9.7 per 100,000 children). While the number of CAN-related hospitalizations decreased from 2019 to 2020, the difference was not statistically significant. Some potential explanations for the statistically significant decrease in CAN-related ED visits in this study and differences in results compared to results from prior research include the following:

- The utilization of different study methods. For example, one study calculated the proportion of ED visits that were CAN injuries (i.e., CAN injuries divided by total number of ED visits).¹ However, this study used absolute change of CAN injuries or population-based rates (i.e., CAN injuries per 100,000 children). Thus, even though the total number of ED visits dropped during the pandemic, the proportion of ED visits that were CAN-related increased even though the absolute number of CAN visits declined.
- Children spending more time with their families during the pandemic may have had a positive association with mental health outcomes.¹³
- Fewer children with injuries were taken to see medical care due to social isolation and social distancing measures.¹⁴

While the number of CAN-related ED decreased from 2019 to 2020 that does not necessarily mean that CAN cases declined. As mentioned above, there may have been other reasons as to why CAN cases went unreported, such as social isolation, distancing measures, or lack of contact with trusted adults outside the home.

Severity of CAN Injuries During the Pandemic

The LOS at a hospital can correlate with the efficiency of the hospital or the quality of care.¹⁵ Research shows that lengthier hospitalizations can increase a patient's chance of being infected

with an opportunistic infection, worse treatment outcomes, higher economic burden for systems of care, and increased mortality rates.¹⁵ It is common for people with more severe injuries to have longer hospitalization LOS.¹³ For CAN-related hospitalization LOS from 2019 to 2020, the following LOS categories increased: 3-4 days, 5-7 days, more than one week. It is possible that children may have had more severe injuries, but were not seen.

Patient Demographics

Disparities based on patient demographics may exist among children who experience CAN.¹⁶ The proportion of female CAN ED visits increased from 2019 to 2020, while the proportion of CAN hospitalizations covered by Medi-Cal decreased from 2019 to 2020.

Next Steps

A limitation of the data included in this report is that it is difficult to determine if CAN-related injuries decreased, remained constant, or were treated less by medical professionals during the pandemic. To address this limitation research could be considered on the following topics:

- Determine whether the frequency of CAN-related ED visits and hospitalizations during 2019 to 2020 decreased by reviewing cases that were not substantiated.
- Examine what aspects of the pandemic may have contributed to (e.g., social isolation) or prevented (e.g., increased financial assistance) CAN.
- Identify effective strategies to maintain and support CAN prevention efforts and mitigate the risk factors that may have been exacerbated by the pandemic.
- Improve CAN ED visits and hospitalizations detection methods that may aid in reducing underreporting.
 - Refining detection methods (e.g., screening tool) may be one beneficial method for having an earlier and more accurate diagnosis.¹¹ Achieving an earlier and more accurate diagnosis could help aid in decreasing the number of CAN-related ED visits and hospitalizations that were undiagnosed and prevent prolonged adverse consequences.¹¹
- Examine why the proportion of female CAN ED visits increased and the proportion of Medi-Cal CAN hospitalizations decreased during the pandemic given that it may be helpful to inform ongoing efforts to prevent and reduce CAN as California recovers from the pandemic.

Strategies and Resources

The following prevention strategies and resources could support child and family service providers, community coalitions, and others in their efforts to not only reduce CAN and ACEs, but also improve the wellbeing of California’s children.

| Strategies | Resources |
|---|--|
| Support Californians’ tax filing for purposes of collecting tax credits, including the California Earned Income Tax Credit (CalEITC) and Young Child Tax Credit (YCTC). | Connecting Families to Tax Credits to Improve Child Wellbeing in California: A Brief for Local Health Departments and Children and Family Service Providers |
| Strengthen economic support and create social norm change. | The Centers for Disease Control and Prevention’s (CDC) Preventing Child Abuse and Neglect: A Technical Package for Policy, Norm, and Programmatic Activities and Preventing Adverse Childhood Experiences (ACEs): Leveraging the Best Available Evidence . |
| Explore where opportunities exist to support local communities in building an equitable recovery from COVID-19. | California Department of Public Health COVID-19 Health Equity Playbook for Communities: Strategies and Practices for an Equitable Reopening and Recovery |
| Engage with local coalitions who are working to create policy change that improves the lives of children. | Essentials for Childhood Initiative California Child Wellbeing Coalition e-Guide |
| Educate about the warning signs of physical abuse, neglect, and sexual abuse in children. | For information about reporting CAN and the legal obligations of mandated reporters, review the Child Abuse Identification and Reporting Guidelines from the California Department of Education (CDE) and the California Department of Social Services (CDSS) |
| Educate about ACEs and Positive Childhood Experiences (PCEs), including how to recover from adversity experienced during the pandemic. | Hardships and Hope in California During the COVID-19 Pandemic: Family Experiences During the COVID-19 Pandemic Questionnaire Brief, Wave 1 |
| Share data about the health and wellbeing of children in California. | KidsData Webpage |
| Educate about utilizing data regarding child maltreatment and ACEs to promote the health and well-being of all children in California. | Essentials for Childhood Initiative Webpage |

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