

# Child traumatic physical abuse rates and comparisons during the COVID-19 pandemic

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## BACKGROUND

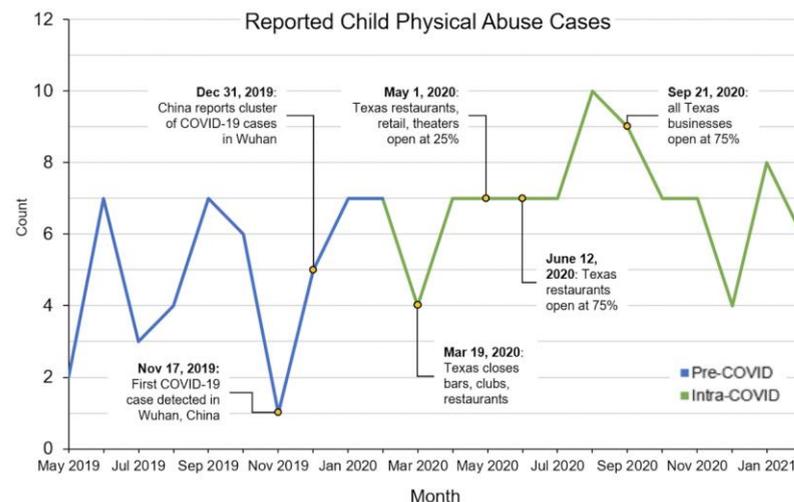
The COVID-19 pandemic drastically altered human behavior and socialization and may have created an environment that could lead to increased incidence of domestic abuse and non-accidental trauma, or child physical abuse (CPA). Initial reports on the effect of the COVID-19 pandemic on the rate of CPA showed mixed results. Uncovering the specific effects of the COVID-19 pandemic on rates of CPA can help inform trauma care, shape public policy, and better prepare society to navigate a post-COVID world.

## PURPOSE

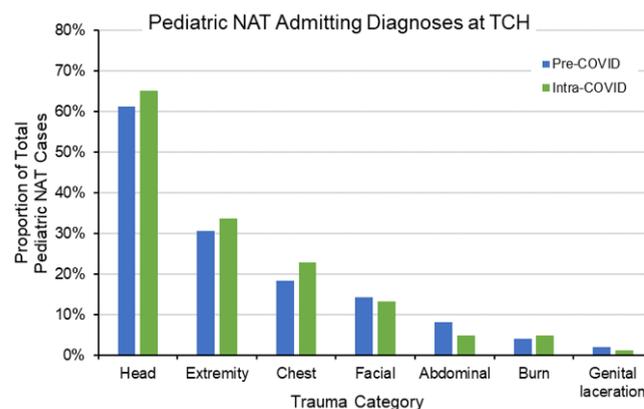
The purpose of this study is to describe the effects of COVID-19 on rates of CPA in a large metropolitan pediatric hospital and level I pediatric trauma center. We hypothesized that the incidence of CPA requiring hospitalization would increase.

## METHODS

- IRB approved, retrospective cross-sectional review of institutional trauma database of a level I trauma center in a large metropolitan city.
- Included all CPA admissions under 18 years of age from May 2019 to Feb 2021.
- Included patients sustaining a traumatic injury within 14 days of initial hospital encounter with injury diagnostic codes S00-S99, T07, T14, T17.A1-T79.A9.
- CPA defined as patient with trauma diagnosis that was removed from caregiver or child protective services were involved.
- Compared pre-COVID (May 2019 to Feb 2020) and intra-COVID (Mar 2020 to Feb 2021) periods.
- Chi-squared and Fischer's exact test used for analysis of independence. Unpaired *t*-test used to assess statistical significance.



**Fig 1:** Monthly CPA cases from May 2019 to February 2021. Data is displayed as counts.



**Fig 2:** Admitting diagnoses of CPA incidents from May 2019 to February 2021. Data presented as percentages of total cases within that time period.

Variables	Pre-COVID	Intra-COVID	p
Total Patient Admissions	133,851 (100%)	97,582 (100%)	N/A
Suspected Pediatric CPA Incidents	54 (0.04%)	94 (0.10%)	< 0.00001

**Table 1:** Summary of pediatric CPA incidents from May 2019 to February 2021.

Sex	Pre-COVID n = 49	Intra-COVID n = 83	p
Female	17 (34.7%)	34 (41.0%)	0.475
Male	32 (65.3%)	49 (59.0%)	
Race			
Asian	1 (2.0%)	4 (4.8%)	0.694
Black	17 (34.7%)	26 (31.3%)	
White/Hispanic	31 (63.3%)	52 (62.7%)	
Other/Unknown	0 (0.0%)	1 (1.2%)	1
Age			
Less than 6 months	21 (42.9%)	38 (45.8%)	0.322
6 to < 12 months	12 (24.5%)	27 (23.5%)	
12 to < 24 months	8 (16.3%)	7 (8.4%)	
2 to < 5 years	5 (10.2%)	9 (10.8%)	
5 to < 11 years	1 (2.0%)	2 (2.4%)	
11 years and older	2 (4.1%)	0 (0.0%)	

**Table 2:** Demographic breakdown of unique CPA incidents from May 2019 to February 2021. The inferential statistics applied was solely for the subgroup of unique child abuse patients, and not the entire admission population.

Category	Pre-COVID n = 49	Intra-COVID n = 83	p
Trauma Mechanism			
Blunt	48 (98.0%)	78 (94.0%)	0.914
Penetrating	1 (2.0%)	1 (1.2%)	
Burn	2 (4.1%)	4 (4.8%)	
Body Region			
Head	30 (61.2%)	54 (65.1%)	0.979
Extremity	15 (30.6%)	28 (33.7%)	
Chest	9 (18.4%)	19 (22.9%)	
Facial	7 (14.3%)	11 (13.3%)	
Abdominal	4 (8.2%)	4 (4.8%)	
Burn	2 (4.1%)	4 (4.8%)	
Genital Laceration	1 (2.0%)	1 (1.2%)	

**Table 3:** Admitting diagnoses of CPA incidents from May 2019 to February 2021. Data presented as counts with corresponding percentages of total cases within that time period.

## RESULTS

- A total of 148 patients were evaluated.
- Compared to the pre-COVID time period, the intra-COVID time period had a significantly higher rate of suspected pediatric CPA incidents (0.10% vs 0.04%,  $p < 0.00001$ ) (Table 1).
- Monthly CPA cases increased during the COVID time period (mean 6.9, 95% CI: 5.8-12.7) compared to the pre-COVID time period (mean 4.9, 95% CI: 3.3-8.2) (Fig 1).
- The age distribution for both pre-COVID and intra-COVID populations was notably skewed towards infants (median 0.67 and 0.50 years; IQR 0.22-1.42 years and 0.23-0.83 years respectively) (Table 2).
- In both time periods, almost all incidents of CPA occurred via blunt trauma (98.0% and 94.0% pre- and intra-COVID) (Table 3). Injuries were largely localized to the head (61.2% and 65.1%) and/or the extremities (30.6% and 33.7%) (Fig 2).

## CONCLUSION

The COVID-19 epidemic invoked stress and socioeconomic burdens on households around the USA, leading directly to increased prevalence of factors that infer risk for CPA and decreased exposure of children to those who most commonly recognize and report CPA to authorities. While overall hospital admissions decreased upon the onset of mandated shutdowns and isolation, the reopening of some facilities in the months after corresponded with an increased rate of CPA admissions compared to the time period prior to the pandemic. Knowledge of these trends and the implicating factors will help to identify children at risk for CPA.