

**Table. Patient Characteristics During the Year of the COVID-19 Pandemic\(^a\) Compared With Prior Years**

| Characteristic                          | COVID-19 Year\(^a\) | Pre-COVID-19 by 5 years\(^a\) | P value |
|----------------------------------------|---------------------|-------------------------------|---------|
| Total children, No.                    | 187                 | 641                           | NA      |
| Age, mean (SD), y                      | 9.6 (4.2)           | 9.7 (4.2)                     | .82     |
| HbA\(_1c\) at presentation, mean (SD), %| 11.6 (1.8)          | 11.7 (1.9)                    | .52     |
| Body mass index z score, mean (SD)     | −0.4 (1.8)          | −0.4 (1.6)                    | .72     |
| Children requiring insulin infusion, % (95% CI) | 49.7 (42.6-56.8)      | 40.7\(^b\)                   | .01     |
| Children requiring PICU admission, % (95% CI) | 8.6 (5.3-13.4)  | 6.4\(^b\)                     | .39     |

Abbreviations: HbA\(_1c\), hemoglobin A\(_1c\); NA, not applicable; PICU, pediatric intensive care unit.

\(^a\) The COVID-19 year includes March 19, 2020, to March 18, 2021; the pre-COVID-19 years include March 19, 2015, to March 18, 2020, and report aggregate means of the prior 5 years. P values were calculated using a t test for the age, HbA\(_1c\), and body mass index. The P values for the percentage of those requiring insulin infusion or PICU admission compared with the pre-COVID-19 group were calculated using normal approximation z testing with a 95% CI. 

\(^b\) The 95% CI was not provided because this was the reference group.

**Discussion**

To our knowledge, although a few prior studies have observed an increase in TID and DKA during the COVID-19 pandemic, others have not, and most have been limited to a short time period.\(^2,3\) By measuring a 12-month interval after the onset of the COVID-19 pandemic, our cross-sectional study accounted for seasonal variation in the onset of new TID cases. Additionally, we reviewed the 5-year period before the COVID-19 pandemic to account for annual increases in TID cases to show that the case rate during the COVID-19 pandemic was higher than expected at our institution. As the only children’s hospital in the greater San Diego area, we routinely admit children with new-onset diabetes who require initiation of insulin treatment, and we monitor almost all patients newly diagnosed with TID.

In agreement with other studies, we observed a significant increase in the frequency of DKA at the time of COVID-19 diagnosis during the COVID-19 pandemic.\(^4,5\) Study limitations include the lack of COVID-19 antibody testing at the time of diagnosis to investigate possible past infection. Additionally, we did not provide a population denominator for this study. However, the number of inpatient admissions at Rady Children’s Hospital San Diego decreased by 19% from 2019 to 2020, and the number of children seen in our pediatric endocrine clinic and the number of children who reside in San Diego, Riverside, and Imperial counties did not change substantially.\(^6\) Therefore, the observed increase in diabetes diagnoses during the COVID-19 pandemic is unlikely to reflect changes in referral number or pattern.

**Concept and design:** Gottesman, Longhurst, Kim.

**Acquisition, analysis, or interpretation of data:** All authors.

**Drafting of the manuscript:** Gottesman, Yu, Tanaka, Kim.

**Critical revision of the manuscript for important intellectual content:** Gottesman, Yu, Longhurst, Kim.

**Statistical analysis:** Gottesman, Yu, Kim.

**Administrative, technical, or material support:** Gottesman, Longhurst.

**Supervision:** Longhurst, Kim.

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**Unintentional Drug Overdose Mortality in Years of Life Lost Among Adolescents and Young People in the US From 2015 to 2019**

Unintentional drug overdose has become a grave and sustained public health burden in the US.\(^1\) The US Centers for Disease Control and Prevention (CDC) defines unintentional drug overdose as occurring “...when no harm is intended.”\(^2,3,4\) and inclusive of “...overdoses resulting from drug misuse, drug abuse, and taking too much of a drug for medical reasons.”\(^2,3,4\) Adult decedents have been the focus of most overdose mortality reports, despite the fact that adolescents (aged 10-19 years) and young people (aged 10-24 years) are increasingly dying of unintentional drug overdose.\(^3,4\) This troubling trend requires further study, given that adolescents and young people are deprived of many more years of work, community life, and family life than are older individuals dying of unintentional drug overdose.
To our knowledge, no prior study has assessed unintentional drug overdose mortality among adolescents and young people in years of life lost (YLL). YLL is an epidemiologic descriptor that gives weight to deaths among the young. YLL analysis has the potential to provide important context to the overdose crisis by better representing what is meant to society by the loss of adolescents and young people to unintentional drug overdose. The present work aimed to fill this important gap in the literature by calculating unintentional drug overdose YLL in this vulnerable population.

**Methods** | This cross-sectional retrospective study involved summary-level death records from January 1, 2015, to December 31, 2019, obtained from the CDC’s Wide-Ranging Online Data for Epidemiologic Research (CDC WONDER) mortality file. YLL were calculated as standard life expectancy minus age at death. Male and female life expectancy at each individual age was determined from the 2017 Social Security Administration Period Life Table. Information on race and ethnicity was not gathered to protect the privacy of the individuals in the database. Decedents were identified by the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision codes X40-X44. The Ohio State University Wexner Medical Center institutional review board approved this study and granted a waiver of patient consent owing to the use of deidentified patient data. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guidelines.

**Results** | A total of 3296 adolescents (aged 10-19 years) died of unintentional drug overdose in the US between 2015 and 2019 (Figure). The mean (SD) age at death for adolescent unintentional drug overdose decedents was 15.1 (2.7) years. Male adolescents outnumbered female adolescents in incident deaths (2267 [68.8%] vs 1029 [31.2%]) and YLL (133 023.64 vs 65 548.28). Annual total YLL due to unintentional drug overdose was stably elevated with a mean (SD) 39 714.38 (2689.63) annual YLL (Table). Adolescents experienced a total of 187 077.92 YLL during the study period.

A total of 21 689 young people (aged 10-24 years) died of unintentional drug overdose (Figure). The mean (SD) age at death for young people who died of unintentional drug overdose was 17.6 (4.1) years. Male young people outnumbered female young people in incident deaths (15 604 [71.9%] vs 6085 [28.1%]) and YLL (861 576.42 vs 365 647.16) (Table). Young people experienced a total of 1 227 223.58 YLL during the 5-year period of study.

**Discussion** | Over the 5-year period of this cross-sectional study, adolescents experienced nearly 200 000 YLL, and young people amassed greater than 1.25 million YLL. Male adolescents and young people accounted for substantially greater unintentional drug overdose mortality (YLL and incident deaths)

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**Table. Annual Mortality Due to Unintentional Drug Overdose Among Adolescents and Young People, 2015-2019**

| Year | Boys/men | Girls/women | Overall |
|------|----------|-------------|---------|
|       | Deaths, No. | YLL         | Deaths, No. | YLL         | Deaths, No. | YLL         |
| Adolescents |          |            |          |            |            |            |
| 2015  | 436      | 25 578.86  | 202      | 12 885.74  | 638        | 38 464.60  |
| 2016  | 514      | 30 159.22  | 220      | 14 028.38  | 734        | 44 187.60  |
| 2017  | 455      | 26 662.98  | 201      | 12 815.28  | 656        | 39 478.26  |
| 2018  | 407      | 23 910.59  | 207      | 13 117.02  | 614        | 37 027.61  |
| 2019  | 455      | 26 711.99  | 199      | 12 701.86  | 654        | 27 919.85  |
| Total | 2267     | 133 023.64 | 1029     | 65 548.28  | 3296       | 187 077.92 |
| Young people |    |            |          |            |            |            |
| 2015  | 2694     | 148 984.31 | 1050     | 63 219.62  | 3744       | 212 203.93 |
| 2016  | 3574     | 197 270.24 | 1239     | 74 608.05  | 4813       | 271 878.29 |
| 2017  | 3465     | 190 957.17 | 1398     | 83 744.29  | 4863       | 274 701.46 |
| 2018  | 2871     | 158 439.46 | 1227     | 73 727.14  | 4098       | 232 166.60 |
| 2019  | 3000     | 165 925.24 | 1171     | 70 348.06  | 4171       | 236 273.30 |
| Total | 15 604   | 861 576.42 | 6085     | 365 647.16 | 21 689     | 1 227 223.58 |

Abbreviation: YLL, years of life lost.
than female adolescents and young people. Although limited by death records potentially undercounting overdoses and a cross-sectional design insensitive to temporal relations between risk factors and deaths, our findings represent an unacceptable preventable mortality burden for adolescents and young people in the US. Prior research has identified polysubstance use, psychiatric comorbidity, and unstable housing as relevant risk factors for unintentional drug overdose in this age cohort. Our findings suggest that further resources are needed to mitigate these factors. The present study should inform future mortality reviews among adolescents and young people, as well as ecologic interventions involving family, school, and community, in unintentional drug overdose prevention and substance use treatment.

O. Trent Hall, DO
Candice Trimble, BA
Stephanie Garcia, BA
Parker Entrup
Megan Deane, MSW
Julie Teater, MD

Author Affiliations: Ohio State University Wexner Medical Center Talbot Hall, Department of Psychiatry and Behavioral Health, Columbus (Hall, Deane, Teater); Riverside, California (Trimble): College of Medicine, The Ohio State University, Columbus (Garcia, Entrup).

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Corresponding Author: O. Trent Hall, DO, Ohio State University Wexner Medical Center Talbot Hall, Department of Psychiatry and Behavioral Health, 181 Taylor Ave, Columbus, OH 43203 (orman.hall@osumc.edu).

Author Contributions: Dr Hall had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: Hall, Deane, Garcia, Entrup, Teater.

Acquisition, analysis, or interpretation of data: Hall, Trimble, Garcia, Entrup, Teater.

Drafting of the manuscript: Hall, Trimble, Garcia.

Critical revision of the manuscript for important intellectual content: Hall, Trimble, Entrup, Deane, Teater.

Statistical analysis: Hall, Garcia, Entrup.

Obtained funding: Hall.

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Evaluation of Self-reported Cannabis Vaping Among US Youth and Young Adults Who Use E-Cigarettes

E-cigarette use, or vaping, has gained much public attention because of its rapidly increasing popularity among adolescents.1 Besides its use for vaping nicotine, vaping devices, such as e-cigarettes and vape pens, can be used to vape cannabis by heating a liquid or oil containing delta-9-tetrahydrocannabinol (THC). However, little is known about cannabis vaping,2 and many people may mistakenly interpret vaping as just nicotine vaping. For example, EVALI (e-cigarette or vaping use-associated lung injury) was initially assumed by most investigators to be associated with nicotine vaping but was later found to be associated with vaping THC with vitamin E acetate as an additive.3 However, after this finding was widely disseminated, most adults associated the EVALI deaths with the use of nicotine-containing e-cigarettes.4 Thus, distinguishing nicotine from cannabis vaping is important. We used data from the Population Assessment of Tobacco and Health (PATH) Study5 to identify the proportion of current e-cigarette users who vaped cannabis and their frequency of cannabis vaping, characterized by age and other sociodemographic variables.

Methods | The PATH Study5 is a national longitudinal study of tobacco use among US adults and youth. A total of 11 356 young adults aged 18 to 24 years and 11 976 adolescents aged 12 to 17 years participated in the wave 5 survey, which was conducted from December 2018 to November 2019. The weighted response rates for the wave 4 cohort were 88.0% for adult and 83.5% for youth participants. We incorporated cross-sectional survey weights to calculate nationally representative prevalence. Race and ethnicity data were self-reported. The University of Alabama at Birmingham Institutional Review Board exempted the present cross-sectional study from review and waived the requirement for patient informed consent because it used deidentified data. We followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline.

We assessed the frequency of cannabis vaping according to the categorical responses to the PATH Study survey question, “When you have used an electronic product, how often were you using it to smoke marijuana, marijuana concentrates, marijuana waxes, THC, or hash oils?” We also constructed a binary variable of cannabis vaping based on the answer “never” vs all other responses. We included only participants who reported past 30-day use (current use) of electronic nicotine products.

Pearson χ² test of independence was performed to assess the association between cannabis vaping and the sociodemographic variable. A P = .05 was used as the threshold for statistical significance. This complete case analysis used Stata, version 17 (StataCorp LLC), with the svy command to incorporate survey weights.

Results | This study analyzed 164 participants aged 12 to 14 years, 919 participants aged 15 to 17 years, and 3038 participants aged 18 to 24 years. Of these participants, 1824 (44%) were female and 2297 (56%) were male individuals, and 1009 (24%) self-identified as Hispanic, 341 (8%) as non-Hispanic Black, 2378