

Training in Adolescent Substance and Opioid Misuse in Pediatric Residency Programs

Emily B. Allen, MD, MPH,^{a,b} Catherine D. Michelson, MD, MMSc,^{c,d} Katherine A. O'Donnell, MD,^{e,f} Sarah M. Bagley, MD, MSc,^{c,g} Joel Earlywine, MSc,^{h,i} Scott E. Hadland, MD, MPH, MS^{c,d,e,j}

Nine in 10 adults with a substance use disorder began using substances before age 18.¹ Among youth, opioid and polysubstance overdose deaths have increased by 384% and 760%, respectively, since the late 1990s.² Pediatricians need training in screening, brief intervention, and referral to treatment (SBIRT) for substance use disorders and in medication treatment of opioid use disorder (OUD), all of which are recommended as best practice by the American Academy of Pediatrics (AAP).³⁻⁵

Pediatric residency training on substance use and opioid misuse is poorly described. The extent to which training relates to regional needs, perhaps most importantly, local overdose death rates, is also insufficiently characterized. We conducted a survey of US pediatric residency programs to assess training in youth substance use and compared findings with regional overdose mortality. We hypothesized that programs located in counties with elevated mortality would be more likely to offer substance use training, but that, overall, the percentage offering such training would be low.

METHODS

We developed an online survey on substance use education that was approved and distributed by the Association of Pediatric Program Directors. The 25-item survey assessed program leadership's estimated content on substance use

and the perceived quality of that training. The survey was distributed by e-mail to pediatric associate program directors from all 201 US pediatric residency programs in March 2019. Associate program directors were surveyed per recommendation by the Association of Pediatric Program Directors and were given the option of forwarding the survey to a faculty member with more knowledge about the curriculum. Results presented in this article are a subset of questions from the survey; the full survey and results are available online (<https://hdl.handle.net/2144/41197>).

Opioid overdose mortality for each program's county was obtained from the Centers for Disease Control and Prevention's Wide-Ranging Online Data for Epidemiologic Research.⁶ Counties were classified as having "high" or "low" mortality relative to the national 2018 age-adjusted mean of 14.6 per 100 000.⁷

Descriptive statistics were used to summarize results, with χ^2 analyses to evaluate associations between training and location within high versus low overdose counties. The study was considered exempt by the Boston University Medical Campus Institutional Review Board.

RESULTS

Surveys were completed by 120 of 201 programs (60%; Table 1). Ninety-seven programs had county-

^aThe Warren Alpert Medical School of Brown University, Providence, Rhode Island; ^bDivision of Adolescent Medicine, Hasbro Children's Hospital, Providence, Rhode Island; ^cSchool of Medicine, Boston University, Boston, Massachusetts; ^dDepartment of Pediatrics, Boston Medical Center, Boston, Massachusetts; ^eHarvard Medical School, Boston, Massachusetts; ^fDepartment of General Pediatrics, Boston Children's Hospital, Boston, Massachusetts; ^gSection of General Internal Medicine, Division of General Pediatrics, Boston Medical Center, Boston, Massachusetts; ^hDepartment of Health Law, Policy & Management, School of Public Health, Boston University, Boston, Massachusetts; ⁱMathematica, Seattle, Washington; ^jDivision of Adolescent and Young Adult Medicine, Mass General Hospital for Children, Boston, Massachusetts

Dr Allen conceptualized and designed the study, designed the survey, drafted the initial manuscript, and reviewed and revised the manuscript; Mr Earlywine reviewed and revised the survey and conducted data analysis; Drs Michelson, O'Donnell, and Bagley reviewed and revised the survey and manuscript; Dr Hadland conceptualized and designed the study, designed the survey, coordinated and supervised data collection, drafted the initial manuscript, and critically reviewed and revised the manuscript; and all authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

This study describes pediatric residency program training in adolescent substance use and opioid misuse, correlates training to local overdose rates, and identifies gaps in training.

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Address correspondence to Emily Allen, MD, MPH, Division of Adolescent Medicine, Hasbro Children's Hospital, 593 Eddy St, Potter 200, Providence, RI 02903. E-mail: emily_allen@brown.edu

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TABLE 1 Characteristics of Residency Programs (*N* = 97)

Residency Program Characteristics ^a	Total, <i>n</i> (%) ^b
Size	
<30	17 (17.5)
30–60	42 (43.3)
>60	38 (39.2)
Type	
Categorical pediatrics only	49 (50.5)
Combined and other tracks also present	48 (49.5)
Setting	
Free-standing and other university-based hospitals	45 (46.4)
Community-based and military	52 (53.6)
Region	
Northeast	33 (34.0)
Midwest	21 (21.6)
South	27 (27.8)
West	16 (16.5)
County overdose mortality ^c	
Above median	59 (60.8)
Below median	38 (39.2)

^a Ninety-seven programs had county-level data and were included in final analyses.

^b Some columns do not add to 100% because of rounding.

^c Relative to national median overdose death rate of 14.6 deaths per 100 000.

level overdose data and were included in final analyses. Most programs offered some education on adolescent substance use (*n* = 80, 82.5%); 77 programs required it and 61 programs offered elective opportunities. Fewer than half provided training inclusive of AAP-recommended SBIRT (*n* = 40, 41.2%; Table 2).

Programs in high-overdose counties were more likely to have education on opioids (including about

substance-exposed neonates) as a part of their standard residency curriculum than those in low-overdose counties (79.7% vs 52.6%, *P* = .005; Table 2). Few programs offered a buprenorphine waiver course (*n* = 22, 22.5%), although programs in high-overdose counties were more likely to have any residents complete this optional training (22.0% vs 5.3%, *P* = .03).

Overall, 97.5% of programs reported that training about opioid misuse

was “important” or “very important,” although just 12.5% rated their overall education on opioid misuse as “good” or “very good.” The main barriers to providing education about adolescent opioid misuse included insufficient faculty expertise (62.8%), curricular time (50.4%), and available content (47.9%). Only 3.3% of programs identified lack of interest as a barrier. All (100%) respondents reported interest in a shared, web-based curriculum on adolescent opioid misuse and related topics.

DISCUSSION

Although most US pediatric residency programs provide education about adolescent substance use, gaps remain, particularly with respect to opioid misuse. Programs in counties with a high opioid overdose burden had more training on OUD, but overall rates of training inclusive of treatment were low. Two AAP-recommended interventions, SBIRT and medications for OUD, were infrequently covered.^{4,5} Few programs offer education about how to prescribe naloxone, a life-saving intervention for opioid overdose,

TABLE 2 Adolescent Substance Use Education at Residency Programs

	Total, <i>n</i> (%)	High-Overdose County, ^a <i>n</i> (%)	Low-Overdose County, ^a <i>n</i> (%)	<i>P</i>
Education about adolescent substance use				
Any	80 (82.5)	52 (88.1)	28 (73.7)	.07
Screening	77 (79.4)	51 (86.4)	26 (68.4)	.03
Brief intervention	61 (62.9)	39 (66.1)	22 (57.9)	.41
Treatment	41 (42.3)	28 (47.5)	13 (34.2)	.20
All	40 (41.2)	27 (45.8)	13 (34.2)	.26
Education about OUD				
Any	67 (69.1)	47 (79.7)	20 (52.6)	.005
Epidemiology	46 (47.4)	33 (55.9)	13 (34.2)	.04
Screening	57 (58.8)	40 (67.8)	17 (44.7)	.02
Medication for OUD	30 (30.9)	23 (39.0)	7 (18.4)	.03
Fentanyl	22 (22.7)	14 (23.7)	8 (21.1)	.76
Treating overdose	48 (49.0)	37 (61.7)	11 (29.0)	.001
Naloxone prescribing	20 (20.6)	15 (25.4)	5 (13.2)	.15
All	9 (9.3)	6 (10.2)	3 (7.9)	.71
Buprenorphine waiver course				
Offered	22 (22.5)	16 (26.7)	6 (15.8)	.21
Any resident completed	15 (15.5)	13 (22.0)	2 (5.3)	.03

^a Counties classified relative to the national 2018 age-adjusted mean overdose death rate of 14.6 per 100 000.

despite high regional overdose mortality and widespread availability of such training.

This study had limitations. The survey collected self-reported data, which may be subject to social desirability bias, and some respondents may have been

unaware of the full extent of the training offered.

Given that substance use disorders often have their onset in adolescence and that opioid-related mortality among youth is rising, addressing gaps in training for pediatricians should be a priority.

ABBREVIATIONS

AAP: American Academy of Pediatrics
OUD: opioid use disorder
SBIRT: screening, brief intervention, referral to treatment

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