

# Evidence-Based Treatment of Young Adults With Substance Use Disorders

Scott E. Hadland, MD, MPH, MS,<sup>a,b</sup> Amy M. Yule, MD,<sup>c,d</sup> Sharon J. Levy, MD, MPH,<sup>d,e</sup> Eliza Hallett, MS,<sup>b</sup> Michael Silverstein, MD, MPH,<sup>a,b</sup> Sarah M. Bagley, MD, MSc<sup>a,b,f</sup>

## abstract

In summarizing the proceedings of a longitudinal meeting of experts in substance use disorders (SUDs) among adolescents and young adults, in this special article, we review principles of care related to SUD treatment of young adults. SUDs are most commonly diagnosed during young adulthood, but most of the evidence guiding the treatment of this population has been obtained from older adult study participants. Extrapolating evidence from older populations, the expert group asserted the following principles for SUD treatment: It is important that clinicians who work with young adults effectively identify and address SUD to avert long-term addiction and its associated adverse health outcomes. Young adults receiving addiction treatment should have access to a broad range of evidence-based assessment, psychosocial and pharmacologic treatments, harm reduction interventions, and recovery services. These evidence-based approaches should be tailored to young adults' needs and provided in the least restrictive environment possible. Young adults should enter care voluntarily; civil commitment to treatment should be a last resort. In many settings, compulsory treatment does not use evidence-based approaches; thus, when treatment is involuntary, it should reflect recognized standards of care. Continuous engagement with young adults, particularly during periods of relapse, should be considered a goal of treatment and can be supported by care that is patient-centered and focused on the young adult's goals. Lastly, substance use treatments for young adults should be held to the same evidence and quality standards as those for other chronic health conditions.



<sup>a</sup>Grayken Center for Addiction and Department of Pediatrics, Boston Medical Center, Boston, Massachusetts; <sup>b</sup>Division of General Pediatrics, Department of Pediatrics, School of Medicine, Boston University, Boston, Massachusetts; <sup>c</sup>Center for Addiction Medicine, Department of Psychiatry, Massachusetts General Hospital, Boston, Massachusetts; <sup>d</sup>Departments of Psychiatry and Pediatrics, Harvard Medical School, Harvard University, Boston, Massachusetts; <sup>e</sup>Adolescent Substance Use and Addiction Program and Division of Developmental Medicine, Boston Children's Hospital, Boston, Massachusetts; and <sup>f</sup>Section of General Internal Medicine, Department of Medicine, Boston Medical Center, Boston, Massachusetts

The guidelines/recommendations in this article are not American Academy of Pediatrics policy, and publication herein does not imply endorsement.

Dr Hadland conducted the literature review, wrote the first draft, and reviewed and revised the manuscript; Drs Yule, Levy, Silverstein, and Bagley reviewed and revised the manuscript; Ms Hallett drafted the evidence table; and all authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

**DOI:** <https://doi.org/10.1542/peds.2020-023523D>

Address correspondence to Scott E. Hadland, MD, MPH, MS, Grayken Center for Addiction and Department of Pediatrics, Boston Medical Center and School of Medicine, Boston University, 801 Albany St, Room 2055, Boston, MA 02119. E-mail: [scott.hadland@bmc.org](mailto:scott.hadland@bmc.org)

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2021 by the American Academy of Pediatrics

**FINANCIAL DISCLOSURE:** The authors have indicated they have no financial relationships relevant to this article to disclose.

**FUNDING:** Dr Hadland was supported by the National Institutes of Health National Institute on Drug Abuse grants K23DA045085-02 and L40DA042434-03, the Thrasher Research Fund (Early Career Award), and the Academic Pediatric Association (Young Investigator Award). Dr Bagley was supported by the National Institutes of Health National Institute on Drug Abuse grant K23DA044324-01. Dr Yule was supported by National Institutes of Health National Institute on Drug Abuse grant K12DA000357-17. The funders did not participate in the work. Funded by the National Institutes of Health (NIH).

**POTENTIAL CONFLICT OF INTEREST:** The authors have indicated they have no potential conflicts of interest to disclose.

The continuum of care for young adults with substance use disorders (SUDs) is fragmented. Clinicians in traditional medical settings frequently lack the training and comfort to conduct comprehensive assessments of young adults with SUDs and ensure that young adults receive developmentally appropriate, evidence-based treatment, including pharmacotherapy for opioid use disorder (OUD). Thus, diagnosis and treatment are often delayed.

Young adults who do receive treatment commonly do so at a dedicated addiction treatment facility, often operating outside the mainstream medical system, where they may not receive standard-of-care pharmacotherapy and, frequently, receive care alongside older adults, with little consideration of their unique developmental needs. Such treatment is commonly coerced or court mandated, without the explicit consent of the young adult. For these reasons, among others, treatment of young adults is commonly marked by poor outcomes, loss to follow-up, and low quality.<sup>1-3</sup>

Despite this suboptimal practice landscape, data from clinical trials and observational studies (Table 1) as well as expert consensus provide a clearer picture of how an effective continuum of care for young adults with SUDs should look. The principles described here, derived from a panel of experts convened by Boston Medical Center's Grayken Center for Addiction, emphasize early intervention for young adults with SUD, comprehensive and tailored services, access to pharmacotherapy when indicated, voluntary entry into treatment, continuous engagement, and assurance of quality of care. The recommendations in this article are not American Academy of Pediatrics policy, and publication herein does not imply endorsement.

## PRINCIPLES OF CARE

### Principle 1: Young Adults Should Be Offered Access to Care and Services as Soon as Needs Are Identified

#### Guidance

The workgroup concluded that SUDs should be addressed as soon as they are detected by ensuring efficient access to evidence-based treatment and support services. Left untreated, SUDs for many individuals worsen, resulting in cumulative, lifelong harms. The workgroup felt that intervening with young adults early in the development of SUD is critical, not only because it can avert worsening addiction, but also because intervening later in the life course, after an individual has a longer history of substance use, is far more difficult.<sup>12</sup>

The workgroup noted the importance of ensuring that the full complement of evidence-based services is offered immediately. Certain evidence-based practices (in particular, pharmacotherapy) are sometimes delayed while a young adult receives nonpharmacologic treatment, such as psychotherapy. In these cases, pharmacotherapy may only be offered after initial treatment attempts have been unsuccessful. The workgroup felt that offering a pharmacologic standard-of-care treatment immediately on detection of SUD (when applicable to the substance[s] being used) is important to optimize outcomes.

#### Evidence

More than 9 in 10 individuals receiving treatment of SUD report that their first use of substances occurred by young adulthood.<sup>13</sup> Often, alcohol or marijuana is the first substance that a young person uses. It is common, furthermore, for clinicians to avoid addressing alcohol or cannabis use in certain populations (eg, college students) when use of these substances is common.<sup>14</sup> Alcohol and drug use, however, is

associated with acute consequences, including motor vehicle crashes and other injuries, sexual assault, and mental health problems that can occur even among individuals who do not meet criteria for an SUD.<sup>15,16</sup> It is critical that clinicians working with young adults identify and address substance use as early as possible because, left untreated, more severe disorders and harm can result.<sup>17,18</sup> Waiting to determine if an SUD self-resolves represents a missed opportunity to intervene early.

Even when problematic substance use is recognized, clinicians may delay providing the full complement of addiction services. Most young adults with OUD, for example, receive psychotherapy without pharmacotherapy, one of the single most effective interventions.<sup>3,5</sup> In some cases, clinicians delay pharmacotherapy while determining if behavioral health services alone are sufficient.<sup>19-21</sup> Such delays, however, may place young adults at risk for developing a more severe SUD or experiencing drug use-related harm.

#### Practice Considerations

There are numerous barriers to identification and early intervention for SUD among young adults. First, addiction services have long been delivered outside traditional health care settings, and many clinicians have not received training on how to effectively screen and address substance use.<sup>21,22</sup> Second, young adults may be ambivalent about receiving SUD treatment and decline services.<sup>23,24</sup> Third, even when clinicians offer SUD care, young adults only receive services if they present for care. Young adults have among the lowest rate of participation in routine health care of any age group.<sup>24,25</sup> Addressing these numerous challenges will require widespread clinician training on evidence-based

**TABLE 1** Summary of Selected Studies Reviewed by Expert Panel (Studies Listed Alphabetically)

Author and y	Sample	Setting	Study Period	Design	Outcome	Main Findings	Contribution to Summit Principles
Chadi et al <sup>4</sup> 2019	N = 81 144 youth ages 10–22 y continuously enrolled in Medicaid for at least 6 mo diagnosed with NUD	Insurance claims data from 11 states enrolled in Medicaid	January 2014 to June 2015	Retrospective cohort study to compare youth who received treatment with those who did not	Receipt of treatment (counseling for NUD, varenicline, or sustained-release bupropion) within 6 mo of NUD diagnosis	There was low receipt (5.5%) of treatment of NUD among youth enrolled in Medicaid. Among youth with NUD receiving treatment, older age and co-occurring mental health and SUD were associated with receipt of pharmacotherapy.	Identifies gaps in the provision of any treatment of NUD among young adults, and, in particular, gaps in the provision of pharmacotherapy for NUD. Suggests substantial area for improvement in the treatment of NUD among young adults.
Hadland et al <sup>5</sup> 2017	N = 20 822 youth ages 13–25 y diagnosed with OUD	Health insurance claims data from all 50 states enrolled in a large US commercial health insurer	January 2001 to December 2014	Retrospective cohort study to compare youth who received medications for OUD with those who did not	Dispensing of medication (buprenorphine or naltrexone) within 6 mo of first OUD diagnosis	Medication receipt increased over the study period, but only 1 in 4 individuals (26.8%) received pharmacotherapy. Younger individuals ( $P < .001$ ), female patients ( $P < .001$ ), and Black and Hispanic youth ( $P < .001$ ) were less likely to receive a medication than older, male, and non-Hispanic white youth, respectively.	Identifies gaps in the provision of pharmacotherapy for young adults with OUD. Also, identifies likely disparities in the receipt of treatment by age, sex, and race and ethnicity that should be prioritized, as access to and use of medications for OUD are expanded.
Hadland et al <sup>6</sup> 2018	N = 4837 youth ages 13–22 y diagnosed with OUD	Health insurance claims data from 11 states enrolled in Medicaid	January 2014 to December 2015	Retrospective cohort study to compare youth who received any treatment (including medications for OUD and/or behavioral therapy)	Retention in care, with attrition defined as $\geq 60$ d without any treatment-related claims	Youth who received buprenorphine, naltrexone, or methadone within 3 mo of diagnosis of OUD were 42%, 46%, or 68% less likely to discontinue treatment, compared with youth who received behavioral treatment only.	Reveals the likely role of pharmacotherapy for OUD in supporting retention in care among young adults. Data suggest that retention in care may be improved with the use of medications.
Marsch et al <sup>6</sup> 2016	N = 53 youth ages 16–24 y who met DSM-IV criteria for opioid dependence	New York City, New York	2005–2010	Multicenter randomized controlled trial, double-blind and placebo controlled to compare duration of taper off buprenorphine (56 vs 28 d) after withdrawal treatment	Opioid abstinence and treatment retention	Individuals with a 56-d buprenorphine taper had a significantly higher percentage of opioid-negative urine test results (35% vs 17%, $P = .039$ ) and were retained in treatment significantly longer (37.5 vs 26.4 d; $P = .027$ ) than individuals with a 28-d buprenorphine taper.	One of the only youth-focused trials to date. The sample was composed mostly of young adults and revealed superiority of maintenance buprenorphine given over 4 wk, compared to 2 wk, suggesting better outcomes with longer buprenorphine treatment. Additionally, a higher frequency of visits was associated with poorer treatment outcomes.
Rafful et al <sup>7</sup> 2018	N = 671 individuals who inject drugs	Tijuana, Mexico	March 2011 to July 2017	Longitudinal cohort study comparing individuals who received IDT to those who did not	Reported nonfatal overdose event in the past 6 mo	IDT significantly increased the odds of reporting a nonfatal overdose event (aOR: 1.76; 95% CI: 1.04–2.96).	Similar to the findings of the systematic review by Werb et al, <sup>8</sup> suggests that compulsory treatment may be associated with harm.
Sordo et al <sup>8</sup> 2017	N = 138 716 individuals with OUD	19 prospective or retrospective cohort studies that	Studies published until	Systematic review and meta-analysis comparing individuals who received	Risk for all cause and overdose mortality during and after	Retention in methadone and buprenorphine treatment was associated with substantial	Compiling data across numerous studies, highlights that maintaining young adults in

**TABLE 1** Continued

Author and y	Sample	Setting	Study Period	Design	Outcome	Main Findings	Contribution to Summit Principles	
Wakeman et al <sup>10</sup> 2019	N = 2706 adult primary care patients (1353 matched pairs from practices with and without integrated addiction treatment)	Boston, Massachusetts	September 2016 to December 2015	Retrospective cohort study comparing individuals who received integrated primary care–based addiction treatment (medications for OUD and recovery coaching) to those who did not	opioid agonist treatment to those who did not	substitution treatment. Trends in mortality risk after initiation and cessation of treatment	reductions in the risk for all cause and overdose mortality. Mortality risk increased during the induction phase and time immediately after leaving treatment.	treatment with an opioid agonist is likely highly protective.
Werb et al <sup>8</sup> 2016	N = 10 699 individuals with SUDs	9 peer-reviewed scientific studies presenting original data assessing outcomes of compulsory treatment	Studies published until July 2015	Systematic review comparing those who received compulsory drug treatment to those who did not	Inpatient admissions, hospital bed days, ED visits, primary care visits	Posttreatment drug use, criminal recidivism	Highlights that compulsory treatment, although commonly pursued, is not associated with improved treatment outcomes and, in fact, may be harmful.	
Woody et al <sup>11</sup> 2008	N = 152 youth ages 15–21 y who met DSM-IV criteria for opioid dependence and sought outpatient treatment	6 community program sites in New Mexico (2), Delaware, Maine, Maryland, and North Carolina	July 2003 to December 2006	Randomized controlled clinical trial comparing 12 wk of buprenorphine treatment to detoxification with buprenorphine over 14 d	Opioid-positive urine test results at weeks 4, 8, and 12	Individuals in the detox group (14-d taper) had higher proportions of opioid-positive urine test results compared with individuals in the 12 wk buprenorphine-naloxone group at weeks 4 (P < .001) and 8 (P = .001), but not at week 12 (P = .18).	One of the only youth-focused trials to date. The sample is composed mostly of young adults and revealed the superiority of maintenance buprenorphine over detox only over 2 mo.	

aOR, adjusted odds ratio; CI, confidence interval; DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; ED, emergency department; IDT, involuntary drug treatment; NUD, nicotine use disorder.

treatments for young adults and health-system improvements to support addiction care and improve outreach, engagement, and retention in care.

## **Principle 2: Young Adults Should Have Access to a Comprehensive Set of Assessment, Psychosocial and Pharmacologic Treatment, Harm Reduction, and Recovery Services Supported by Evidence**

### *Guidance*

The workgroup asserted that young adults with a potential SUD should undergo a broad medical, mental health, and psychosocial assessment.<sup>26</sup> Recommended components include a medical history; a physical examination; relevant laboratory testing (eg, studies for the sequelae of SUD, such as a comprehensive metabolic panel in the setting of an alcohol use disorder, and testing for sexually transmitted and blood-borne infections, including HIV); assessment for psychiatric disorders, other SUDs, and tobacco use; and contraception and HIV preexposure prophylaxis.<sup>26-28</sup> Ascertaining the young adult's goals for care, previous treatment experiences, family and other supports, education, employment, and prosocial activities may also help to individualize treatment.

The workgroup clarified that young adults with opioid, alcohol, and tobacco use disorders should uniformly be offered US Food and Drug Administration–approved medications to address cravings and withdrawal.<sup>6,11,17,26,29-32</sup> Options include buprenorphine, methadone, and naltrexone for OUD; naltrexone, acamprosate, and disulfiram for alcohol use disorder; and varenicline, bupropion, and nicotine replacement therapy for nicotine use disorder.<sup>33</sup>

All young adults with SUD (regardless of readiness for treatment) can benefit from harm reduction services.

Overdose education should include naloxone provision to all patients who use opioids and their family members.<sup>27,34,35</sup> Additionally, the workgroup highlighted that support services (such as that offered by a recovery coach) can be layered onto treatment to promote recovery, support achievement of educational and employment goals, and resume prosocial and other recreational activities.

### *Evidence*

Providing comprehensive treatment of young adults with SUD improves outcomes.<sup>26</sup> An initial, scoping assessment to identify young adults' medical, mental health, and psychosocial needs can help clinicians deliver the full range of services needed.<sup>26,27</sup> Traditionally, substance use treatment has been focused on achieving abstinence from all substances and, in many settings, has relied heavily, if not exclusively, on behavioral therapy and peer support through mutual help (ie, 12-step) organizations, such as Alcoholics Anonymous and Narcotics Anonymous, to attain this goal.<sup>36</sup> For opioid, alcohol, and nicotine use disorders, evidence-based medications exist,<sup>17,26,29,30</sup> but young adults infrequently receive this treatment. Recent studies indicate that only ~1 in 4 young adults receives a medication for OUD,<sup>3,5</sup> and only 1 in 73 young adults receives a medication for nicotine use disorder.<sup>4</sup> Medications reduce substance use and cravings, enhance retention in care, and, in some cases, reduce mortality.<sup>9,17,26,29,30</sup> The decision to initiate pharmacotherapy is, ideally, based on patient preferences after counseling from clinicians on the benefits and risks. Providing accurate information is paramount because young adults may receive inaccurate information or stigmatizing messaging regarding pharmacotherapy from family, friends, and other individuals.<sup>37</sup> Receipt of medications should not be

contingent on whether a young adult is engaged with psychosocial treatment; although a comprehensive treatment approach is optimal, data suggest that outcomes may be improved with pharmacotherapy alone.<sup>38-41</sup>

The evidence for harm reduction and recovery support services is reviewed elsewhere in this series (see accompanying articles by Kimmel et al<sup>42</sup> and Xuan et al,<sup>43</sup> respectively).

### *Practice Considerations*

Establishing comprehensive services in many settings is difficult. Many specialty addiction treatment settings, particularly those not routinely staffed by a medical clinician, are not equipped to conduct a full medical and psychiatric assessment. Many traditional medical offices are well poised to perform a medical and psychiatric assessment, but clinicians may lack experience caring for young adults with SUDs.

Improving access to pharmacotherapy for youth is hampered by numerous barriers. First, many treatment programs have policies that preclude the use of pharmacotherapy, and some even deny entry to young adults who take medications prescribed elsewhere. Of 11 532 national treatment programs for OUD that treat young adults, 52% do not accept individuals on pharmacotherapy.<sup>44</sup>

Second, there is a national shortage of clinicians to prescribe medications.<sup>45</sup> This is particularly true for buprenorphine, an effective OUD medication that requires completing extensive mandatory education (8 hours of training for physicians and 24 hours of training for nurse practitioners and physician assistants) for a waiver to prescribe.<sup>46</sup> Even still, medications that do not require extensive training, such as those for alcohol use disorder

and nicotine use disorder, are only infrequently prescribed,<sup>47,48</sup> thus highlighting additional barriers, including clinician unease or unfamiliarity with pharmacotherapy for SUD treatment.

Third, there is widespread stigma surrounding the use of medications for SUD treatment. Many young adults receive messaging that they are not truly in recovery if they are on pharmacotherapy, particularly when receiving an agonist treatment, such as methadone or buprenorphine to treat OUD.<sup>37</sup> Often, this messaging comes from trusted adults in the young person's life, such as treatment providers, mutual support group members, other individuals in recovery, parents, family members, or friends.

To address workforce limitations, health systems can ensure that clinicians receive the training and resources necessary to establish comprehensive addiction treatment, harm reduction, and recovery support services or, at a minimum, ensure that local referrals are available that are youth friendly. Integrating allied health professionals such as social workers into primary care settings allows practices to offer on-site counseling, case management, and referrals to community recovery support services.

Health care systems should consider eliminating rules that restrict young adults from receiving pharmacotherapy, and clinicians should receive training to become buprenorphine waived and improve their familiarity with other medications for addiction treatment. National resources are available. For example, the Prescribers Clinical Support System (<https://pcssnow.org/>) provides free training. Offering medications in primary care, promoting the medical model of addiction (as opposed to narratives that portray addiction as a moral failing), and highlighting the

pathophysiological rationale for pharmacotherapy may help to reduce stigma and correct common misperceptions among young adults and their families.

### **Principle 3: Respecting the Diversity of Young Adults, Services Should Be Tailored to Individual Strengths and Needs, by Using the Least Restrictive Environment Possible**

#### *Guidance*

The workgroup concluded that, although high levels of care are often indicated when mental health or SUD symptoms threaten patient safety, the need for a more restrictive environment should be carefully balanced with the importance of preserving young adults' autonomy and need to stay engaged in school, work, and prosocial activities vital to long-term recovery. Once patients are stabilized in restrictive settings, a return to the community should occur, and ongoing monitoring and treatment should be conducted on an outpatient basis.

#### *Evidence*

Data are inconclusive whether higher levels of addiction treatment (eg, inpatient, residential, partial hospitalization, or intensive outpatient programs) improve SUD outcomes as compared with outpatient treatment alone for young adults.<sup>3,49</sup> Numerous factors influence the decision to seek a higher level of addiction care. These include the presence of intoxication or withdrawal symptoms, comorbid medical and psychiatric conditions, readiness to change, ongoing use and risk for relapse, and a young adult's living environment.<sup>49</sup> At higher levels of care, however, young adults generally have less autonomy and are less able to pursue their educational and employment goals or engage in prosocial activities, all of which are critical to their continued development and sustained recovery. The most restrictive environments, particularly those imposed by

involuntary commitment to addiction treatment, almost entirely limit young adults' autonomy and may be associated with adverse outcomes, such as overdose.<sup>7,8,50</sup> Outpatient management of SUDs (even when severe) is often possible, not inferior to higher levels of care, and associated with better long-term outcomes.<sup>3,49</sup>

#### *Practice Considerations*

Providing care in minimally restrictive settings hinges largely on the availability of outpatient treatment options for young adults. In many regions of the United States, the only available addiction treatment program is an inpatient or residential facility.<sup>44</sup> Patients, families, and clinicians alike may believe that addiction treatment requires hospitalization (detox) or a 30-day residential program, yet many young adults can be safely treated in an outpatient setting.<sup>49</sup> For families with a young adult unwilling to receive addiction care, some states allow involuntary commitment to treatment, although compulsory admission to a highly restrictive environment is not without risks.

High-quality outpatient addiction treatment programs with minimally restrictive environments are needed in every community. Health care providers serving young adults can strive to expand the services offered within their practices and, also, advocate for the creation of specialty programs for the most complex patients. Outpatient delivery of care, even for young adults with a complex presentation, can be supported through numerous newly available addiction treatment and clinician education services, including telemedicine and telepsychiatry, hub-and-spokes referral systems, and Project Extension for Community Healthcare Outcomes, as several examples.<sup>51,52</sup>

**Principle 4: To Maximize Engagement, Young Adults Should Enter Care Voluntarily; External Leverage Should Be Used Strategically, but Involuntary Commitment Should Be a Last Resort and, When Used, It Must Be as Good as or Better Than Noncoercive Care**

*Guidance*

The workgroup acknowledged that young adults with active SUD who are not willing or able to engage in treatment pose a challenge for families. In such cases, the workgroup highlighted that external leverage (such as offering conditional support for education or living expenses) can be used strategically to help the young person reduce their substance use and enter treatment.

Civil commitment, in jurisdictions where it is legal, was not recommended by the workgroup, which noted that it should be used only in the most extreme of circumstances (eg, clear, imminent danger to self). Even then, families should be aware that involuntary treatment may be associated with adverse outcomes, such as subsequent overdose. When civil commitment to addiction treatment occurs, it is paramount that the care young adults receive be evidence-based to prevent harm associated with compulsory treatment.

*Evidence*

Involuntary commitment to addiction treatment is not associated with improved treatment outcomes<sup>8</sup>; in fact, involuntary commitment may be associated with increased risk of overdose.<sup>7</sup> The majority of US states have statutory provisions allowing civil commitment of individuals with SUD.<sup>53</sup> It is commonly a family member (often a parent, in the case of a young adult with SUD) who initiates the process of civil commitment and, in most states, must demonstrate that the individual with the SUD exhibits a danger to self or to others. The duration of compulsory treatment

varies widely across states, with some states allowing up to 1 month and others allowing up to 1 year or longer.

Although some may view involuntary commitment as an important way to compel a young adult with a SUD into treatment, there are reasons to be concerned about this approach. In some states, individuals who are committed are placed in jail settings where their autonomy and civil liberties are limited.<sup>54</sup> In these settings, young adults are often housed with older individuals, often including those with more severe SUD. Critically, state laws generally do not specify that evidence-based treatment must be provided in mandatory treatment facilities, and pharmacotherapy is often withheld, placing individuals with SUD (particularly those with OUD) at an elevated risk for relapse and overdose after discharge.<sup>7,50</sup> Further considerations regarding involuntary commitment are discussed elsewhere in this series (see the accompanying article by Perker and Chester<sup>55</sup>).

*Practice Considerations*

Ensuring access to high-quality outpatient services for young adults with SUDs at all stages of readiness to change can mitigate the need for involuntary treatment. Offering comprehensive medical, mental health, and harm reduction services can help engage young adults in care, even if reducing substance use is not an explicit goal, and gives young adults a place to turn when they do decide to seek addiction treatment.

The perceived need for compulsory treatment reflects the poor availability of services for young adults not ready to seek addiction care.<sup>18</sup> Young adults often view addiction treatment as punitive or requiring abstinence (and indeed, many treatment programs have such a requirement<sup>56</sup>) and, therefore, are unwilling to seek care.<sup>24</sup> Family members often feel as though they are powerless to compel young adults

into treatment without judicial support.

Evidence-based engagement strategies can help family members support young adults with SUDs who are otherwise not ready or able to seek treatment. One commonly used engagement approach, Community Reinforcement and Family Training,<sup>57</sup> capitalizes on rewards and negative consequences of substance use to influence the motivation of individuals with SUD to enter treatment. Notably, the young adult makes the ultimate decision about entering treatment. Further details on family-based interventions are discussed elsewhere in this series (see the accompanying article by Bagley et al<sup>58</sup>).

**Principle 5: A Goal of Care Should Be Continuous Engagement, Including During Periods of Relapse**

*Guidance*

The workgroup asserted that goals of care for young adults with addiction are broad, extending well beyond substance use reduction. Continuous engagement and retention in care are themselves a goal of caring for young adults with SUDs. By broadening treatment to include comprehensive medical, mental health, harm reduction services, and family-based treatments, providers can ensure that young adults have numerous incentives to continue receiving care, even during periods of relapse. Critically, many individuals disengage from care when they relapse, precisely the time that they might most benefit from clinical support. The workgroup concluded that when young adults relapse, outreach with a goal of engagement should become a priority because many patients are lost to follow-up during times of relapse and are at elevated risk of overdose and other harm.

To help support ongoing engagement and retention in care, the workgroup recommended considering integrating recovery coaches into

addiction treatment services. Recovery coaches are individuals with lived history of SUD who can provide outreach to young adults with SUDs, recovery support, and assistance with navigating systems (including health care, housing, legal, and social services).<sup>10,59</sup> The role of recovery supports in addiction treatment is discussed elsewhere in this series (see accompanying article by Xuan et al<sup>43</sup>).

### Evidence

Individuals retained in SUD treatment are less likely to experience early death, compared with those out of care.<sup>9,60</sup> Continuous engagement to keep young adults in treatment, especially during high-risk times of relapse, offers an opportunity to reduce mortality and other substance use–related harm.<sup>61</sup> Evidence-based services that can be provided during times of relapse include motivational enhancement to reduce or eliminate substance use, screening and treatment of sexually transmitted and blood-borne infections, and overdose education and naloxone provision, among other harm reduction and recovery support services.<sup>26,34,61</sup> Supplementing services with recovery coaching is associated with enhanced retention in the care of individuals with SUD and reduced emergency department use.<sup>10</sup>

### Practice Considerations

Changing the goals of addiction treatment to encompass a broader set of patient-centered objectives will require a substantial culture shift in many addiction treatment programs. In particular, the requirement for abstinence (which may be incompatible with engaging and retaining many young adults in treatment) is common in many traditional treatment settings and potentially detrimental. Abstinence-only policies may drive young adults who are unable to cease all substance to be discharged; after such

experiences, young adults may come to perceive that there are no services suitable to their needs.<sup>44</sup> Health systems might consider eliminating requirements that youth cease substance use altogether and instead promote continuous engagement by offering the full spectrum of comprehensive patient-centered services focused on the young adult's goals for care regardless of their ability to stop or reduce substance use.<sup>18,26</sup>

### Principle 6: Substance Use Care Should Be Held to the Same Evidence and Quality Improvement Standards as Those Expected in Other Areas of Medical Care for Other Chronic Health Conditions

#### Guidance

The workgroup concluded that, on the basis of the available evidence, clinicians and health systems should develop quality measures (including structure, process, and outcome measures) for young adult–focused interventions.<sup>62–66</sup> In many cases, quality measures will be the same for individuals of all ages receiving addiction treatment; however, special attention should be paid to the ways in which such measures are developmentally appropriate for young adults.

The workgroup also recommended that clinicians and health systems establish methods and incentives to implement and sustain interventions in routine clinical practice.<sup>62,65</sup> Training on interventions, measures, and quality improvement methodology is needed to support primary care clinicians and addiction specialists alike. Incentives for providers should be aligned with quality improvement to ensure implementation and sustainability.

To support quality improvement, the workgroup highlighted that researchers, public health practitioners, and policymakers will need to establish a research agenda to extend the evidence base on the

effectiveness of young adult–focused interventions.<sup>62,65</sup> Particularly important is developing an understanding of the key elements of an intervention that drive its effectiveness. As the body of evidence for young adult interventions grows, it should be systematically reviewed to inform clinical guidelines.

### Evidence

Care for a multitude of health conditions has been enhanced through attention to evidence-based principles of care and quality improvement methodologies targeting those principles. Addiction treatment, however, has lagged behind.<sup>66,67</sup> Despite a clear blueprint from the National Academy of Medicine for improving addiction treatment that applies the well-established Quality Chasm approach,<sup>62,68</sup> the quality of care for SUDs remains poor in many settings.<sup>66</sup>

Numerous organizations have developed comprehensive strategies and performance measures to improve quality in substance use treatment, although many such strategies were developed with older populations of individuals with SUD in mind.<sup>62–65,68</sup> Nonetheless, quality improvement has been successfully applied to the prevention, early detection, and treatment of other youth behavioral health conditions, such as depression.<sup>69,70</sup> Such interventions are associated with greater engagement in counseling, improved symptoms and quality of life, and higher patient satisfaction. Elements common to a successful behavioral health quality improvement intervention include primary care–based management, a collaborative care approach involving an interdisciplinary team, and continuous patient engagement, all of which are principles readily applied to addiction care.<sup>62,67–70</sup>

## Practice Considerations

Lack of quality improvement in SUD care is in part attributable to the longstanding segregation of addiction treatment from general medical care, in which quality improvement is increasingly required.<sup>68</sup> As clinicians and health systems work to incorporate addiction care into traditional medical settings, quality improvement is likely to follow.

Clinicians and health systems should be aware that addiction quality improvement is currently hampered by a lack of evidence-based substance use-related measures or, in some cases, differing definitions for measures.<sup>66,71</sup> These gaps are likely even more substantial in addiction treatment of young adults, who are likely to have a unique set of developmentally appropriate outcomes and for whom traditional measures of initiation, engagement, and retention in care are likely to require different definitions for individuals ambivalent about receiving treatment. Thus, clinicians and health systems are likely to need to develop their own young adult-specific, substance use-related quality measures, continually reassess them, and adapt them to evolving national standards.

In settings where quality measures have already been adopted, there is often insufficient infrastructure to assess, analyze, report, improve, and incentivize outcomes.<sup>66</sup> It is critical that health systems and payers partner together to provide the education and financial support needed for clinicians to incorporate quality improvement into routine addiction care for young adults.

## CONCLUSIONS

Effective addiction treatment of young adults has been hampered by insufficient evidence, poor quality of care, inadequate clinician training, siloed systems, punitive approaches, and the view that relapse is a failure

rather than hallmark of a chronic illness. The principles in this document should serve as a roadmap for addressing these numerous limitations. There is much work to do to upend the status quo, but, in the face of the unprecedented morbidity and mortality attributable to young adult substance use, action is now more urgent than ever.

## ACKNOWLEDGMENTS

We thank Maia Gottlieb, Erin Ashe, Joel Earlywine, and the Population Health Research Team at Boston Medical Center for their assistance in preparing the article.

## ABBREVIATIONS

OUD: opioid use disorder  
SUD: substance use disorder

## REFERENCES

1. Olsson M, Zhang V, Schoenbaum M, King M. Buprenorphine treatment by primary care providers, psychiatrists, addiction specialists, and others. *Health Aff (Millwood)*. 2020;39(6):984–992
2. Schuman-Olivier Z, Weiss RD, Hoepfner BB, Borodovsky J, Albanese MJ. Emerging adult age status predicts poor buprenorphine treatment retention. *J Subst Abuse Treat*. 2014;47(3):202–212
3. Hadland SE, Bagley SM, Rodean J, et al. Receipt of timely addiction treatment and association of early medication treatment with retention in care among youths with opioid use disorder. *JAMA Pediatr*. 2018;172(11):1029–1037
4. Chadi N, Rodean J, Earlywine JJ, et al. Treatment for nicotine use disorder among Medicaid-enrolled adolescents and young adults. *JAMA Pediatr*. 2019;173(11):1103–1105
5. Hadland SE, Wharam JF, Schuster MA, Zhang F, Samet JH, Larochelle MR. Trends in receipt of buprenorphine and naltrexone for opioid use disorder among adolescents and young adults,

- 2001–2014. *JAMA Pediatr*. 2017;171(8):747–755
6. Marsch LA, Moore SK, Borodovsky JT, et al. A randomized controlled trial of buprenorphine taper duration among opioid-dependent adolescents and young adults. *Addiction*. 2016;111(8):1406–1415
7. Rafful C, Orozco R, Rangel G, et al. Increased non-fatal overdose risk associated with involuntary drug treatment in a longitudinal study with people who inject drugs. *Addiction*. 2018;113(6):1056–1063
8. Werb D, Kamarulzaman A, Meacham MC, et al. The effectiveness of compulsory drug treatment: a systematic review. *Int J Drug Policy*. 2016;28:1–9
9. Sordo L, Barrio G, Bravo MJ, et al. Mortality risk during and after opioid substitution treatment: systematic review and meta-analysis of cohort studies. *BMJ*. 2017;357:j1550
10. Wakeman SE, Rigotti NA, Chang Y, et al. Effect of integrating substance use disorder treatment into primary care on inpatient and emergency department utilization. *J Gen Intern Med*. 2019;34(6):871–877
11. Woody GE, Poole SA, Subramaniam G, et al. Extended vs short-term buprenorphine-naloxone for treatment of opioid-addicted youth: a randomized trial. [published corrections appear in *JAMA*. 2009;301(8):830 and *JAMA*. 2013;309(14):1461]. *JAMA*. 2008;300(17):2003–2011
12. Dennis ML, Scott CK, Funk R, Foss MA. The duration and correlates of addiction and treatment careers. *J Subst Abuse Treat*. 2005;28(suppl 1):S51–S62
13. Substance Abuse and Mental Health Services Administration Center for Behavioral Health Statistics and Quality. *Treatment Episode Data Set (TEDS): 2005–2015: National Admissions to Substance Abuse Treatment Services*. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2017
14. Schulenberg JE, Johnston LD, O'Malley PM, Bachman JG, Miech RA, Patrick ME. *Monitoring the Future National Survey Results on Drug Use, 1975–2017:*

Volume II, College Students and Adults Ages 19–55. Ann Arbor, MI: Institute for Social Research, The University of Michigan; 2017

15. Centers for Disease Control and Prevention (CDC). Alcohol-attributable deaths and years of potential life lost among American Indians and Alaska Natives—United States, 2001–2005. *MMWR Morb Mortal Wkly Rep.* 2008; 57(34):938–941
16. Danielsson A-K, Wennberg P, Hibell B, Romelsjö A. Alcohol use, heavy episodic drinking and subsequent problems among adolescents in 23 European countries: does the prevention paradox apply? *Addiction.* 2012;107(1):71–80
17. Committee on Substance Use and Prevention. Medication-assisted treatment of adolescents with opioid use disorders. *Pediatrics.* 2016;138(3):e20161893
18. Crowley R, Kirschner N, Dunn AS, Bornstein SS; Health and Public Policy Committee of the American College of Physicians. Health and public policy to facilitate effective prevention and treatment of substance use disorders involving illicit and prescription drugs: an American College of Physicians position paper. *Ann Intern Med.* 2017; 166(10):733–736
19. Croff R, Hoffman K, Alanis-Hirsch K, Ford J, McCarty D, Schmidt L. Overcoming barriers to adopting and implementing pharmacotherapy: the medication research partnership. *J Behav Health Serv Res.* 2019;46(2):330–339
20. Roman PM, Abraham AJ, Knudsen HK. Using medication-assisted treatment for substance use disorders: evidence of barriers and facilitators of implementation. *Addict Behav.* 2011; 36(6):584–589
21. Weber EM. Failure of Physicians to Prescribe Pharmacotherapies for Addiction: Regulatory Restrictions and Physician Resistance. In: *J Health Care Law Policy*, vol. 13. 2010:49–76
22. Miller NS, Sheppard LM, Colenda CC, Magen J. Why physicians are unprepared to treat patients who have alcohol- and drug-related disorders. *Acad Med.* 2001;76(5):410–418
23. Barry DT, Irwin KS, Jones ES, et al. Integrating buprenorphine treatment into office-based practice: a qualitative study. *J Gen Intern Med.* 2009;24(2): 218–225
24. Wagner V, Bertrand K, Flores-Aranda J, et al. Initiation of addiction treatment and access to services: young adults' accounts of their help-seeking experiences. *Qual Health Res.* 2017; 27(11):1614–1627
25. Lau JS, Adams SH, Irwin CE Jr, Ozer EM. Receipt of preventive health services in young adults. *J Adolesc Health.* 2013; 52(1):42–49
26. American Society of Addiction Medicine. The ASAM national practice guideline for the treatment of opioid use disorder: 2020 focused update. Available at: <https://www.asam.org/docs/default-source/quality-science/npq-jam-supplement.pdf>. Accessed March 3, 2020
27. Carney BL, Hadland SE, Bagley SM. Medication treatment of adolescent opioid use disorder in primary care. *Pediatr Rev.* 2018;39(1):43–45
28. Mathers BM, Degenhardt L, Ali H, et al.; 2009 Reference Group to the UN on HIV and Injecting Drug Use. HIV prevention, treatment, and care services for people who inject drugs: a systematic review of global, regional, and national coverage. *Lancet.* 2010;375(9719): 1014–1028
29. American Psychiatric Association. *The American Psychiatric Association Practice Guideline for the Pharmacological Treatment of Patients With Alcohol Use Disorder*. Philadelphia, PA: American Psychiatric Association; 2018
30. Tobacco Use and Dependence Guideline Panel. *Treating Tobacco Use and Dependence: 2008 Update*. Rockville, MD: US Department of Health and Human Services; 2008
31. Marsch LA, Stephens MAC, Mudric T, Strain EC, Bigelow GE, Johnson RE. Predictors of outcome in LAAM, buprenorphine, and methadone treatment for opioid dependence. *Exp Clin Psychopharmacol.* 2005;13(4): 293–302
32. Fishman MJ, Winstanley EL, Curran E, Garrett S, Subramaniam G. Treatment of opioid dependence in adolescents and young adults with extended release naltrexone: preliminary case-series and feasibility. *Addiction.* 2010;105(9): 1669–1676
33. Krist AH, Davidson KW, Mangione CM, et al.; US Preventive Services Task Force. Screening for unhealthy drug use: US Preventive Services Task Force recommendation statement. *JAMA.* 2020;323(22):2301–2309
34. Adams JM. Increasing naloxone awareness and use: the role of health care practitioners. *JAMA.* 2018;319(20): 2073–2074
35. Walley AY, Xuan Z, Hackman HH, et al. Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: interrupted time series analysis. *BMJ.* 2013;346:f174
36. Brewer S, Godley MD, Hulvershorn LA. Treating mental health and substance use disorders in adolescents: what is on the menu? *Curr Psychiatry Rep.* 2017;19(1):5
37. Bagley SM, Hadland SE, Carney BL, Saitz R. Addressing stigma in medication treatment of adolescents with opioid use disorder. *J Addict Med.* 2017;11(6): 415–416
38. Ling W, Hillhouse M, Ang A, Jenkins J, Fahey J. Comparison of behavioral treatment conditions in buprenorphine maintenance. *Addiction.* 2013;108(10): 1788–1798
39. Weiss RD, Potter JS, Fiellin DA, et al. Adjunctive counseling during brief and extended buprenorphine-naloxone treatment for prescription opioid dependence: a 2-phase randomized controlled trial. *Arch Gen Psychiatry.* 2011;68(12):1238–1246
40. Fiellin DA, Pantalon MV, Chawarski MC, et al. Counseling plus buprenorphine-naloxone maintenance therapy for opioid dependence. *N Engl J Med.* 2006; 355(4):365–374
41. Fiellin DA, Barry DT, Sullivan LE, et al. A randomized trial of cognitive behavioral therapy in primary care-based buprenorphine. *Am J Med.* 2013;126(1): 74.e11-74.e17
42. Kimmel SD, Gaeta JM, Hadland SE, et al. Principles of harm reduction for young people who use drugs. *Pediatrics.* 2020; 147(suppl 2). e2020023523G

43. Xuan Z, Choi J, Lobrutto L, et al. Support services for young adults with substance use disorders. *Pediatrics*. 2020;147(suppl 2). e2020023523E
44. Substance Abuse and Mental Health Services Administration. Behavioral health treatment services locator. Available at: <https://findtreatment.samhsa.gov/>. Accessed October 5, 2018
45. US Department of Health and Human Services Office of the Surgeon General. *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health*. Washington, DC: US Department of Health and Human Services; 2016
46. Drug Enforcement Administration, Department of Justice.. Implementation of the provision of the Comprehensive Addiction and Recovery Act of 2016 relating to the dispensing of narcotic drugs for opioid use disorder. Final rule. *Fed Regist*. 2018;83(15):3071–3075
47. Ku L, Bruen BK, Steinmetz E, Bysse T. Medicaid tobacco cessation: big gaps remain in efforts to get smokers to quit. *Health Aff (Millwood)*. 2016;35(1):62–70
48. Mark TL, Kassed CA, Vandivort-Warren R, Levit KR, Kranzler HR. Alcohol and opioid dependence medications: prescription trends, overall and by physician specialty. *Drug Alcohol Depend*. 2009;99(1–3):345–349
49. American Society of Addiction Medicine. *The ASAM Criteria: Treatment Criteria for Addictive, Substance-Related, and Co-Occurring Conditions*, 3rd ed. Chevy Chase, MD: American Society of Addiction Medicine; 2013
50. Becker D. Is it addiction treatment or prison? A look inside a state center for involuntary commitments. Available at: <https://www.wbur.org/commonhealth/2017/09/13/civil-commitment-substance-treatment>. Accessed March 15, 2019
51. Korthis PT, McCarty D, Weimer M, et al. Primary care-based models for the treatment of opioid use disorder: a scoping review. *Ann Intern Med*. 2017; 166(4):268–278
52. Komaromy M, Duhigg D, Metcalf A, et al. Project ECHO (Extension for Community Healthcare Outcomes): a new model for educating primary care providers about treatment of substance use disorders. *Subst Abuse*. 2016;37(1):20–24
53. Christopher PP, Pinals DA, Stayton T, Sanders K, Blumberg L. Nature and utilization of civil commitment for substance abuse in the United States. *J Am Acad Psychiatry Law*. 2015;43(3): 313–320
54. Becker D. Group of civilly committed men sues Mass. alleging gender discrimination in 'Section 35' law. Available at: <https://www.wbur.org/commonhealth/2019/03/14/mass-section-35-lawsuit>. Accessed April 1, 2019
55. Perker SS, Chester LEH. Addressing substance use disorders for justice-involved young adults. *Pediatrics*. 2020; 147(suppl 2). e2020023523H
56. Haffajee RL, Lin LA, Bohnert ASB, Goldstick JE. Characteristics of US counties with high opioid overdose mortality and low capacity to deliver medications for opioid use disorder. *JAMA Netw Open*. 2019;2(6):e196373
57. Meyers RJ, Miller WR, Hill DE, Tonigan JS. Community Reinforcement and Family Training (CRAFT): engaging unmotivated drug users in treatment. *J Subst Abuse*. 1998;10(3):291–308
58. Bagley SM, Ventura AS, Lasser KE, Muench F. Engaging the family in the care of young adults with substance use disorders. *Pediatrics*. 2021;147(s2): e2020023523C
59. Bassuk EL, Hanson J, Greene RN, Richard M, Laudet A. Peer-delivered recovery support services for addictions in the United States: a systematic review. *J Subst Abuse Treat*. 2016;63:1–9
60. Dupouy J, Palmaro A, Fatséas M, et al. Mortality associated with time in and out of buprenorphine treatment in French office-based general practice: a 7-year cohort study. *Ann Fam Med*. 2017;15(4):355–358
61. Hawk M, Coulter RWS, Egan JE, et al. Harm reduction principles for healthcare settings. *Harm Reduct J*. 2017;14(1):70
62. Institute of Medicine. *Psychosocial Interventions for Mental and Substance Use Disorders: A Framework for Establishing Evidence-Based Standards*. Washington, DC: National Academies Press; 2015
63. McCorry F, Garnick DW, Bartlett J, Cotter F, Chalk M; Washington Circle Group. Developing performance measures for alcohol and other drug services in managed care plans. *Jt Comm J Qual Improv*. 2000;26(11):633–643
64. American Society of Addiction Medicine. *The ASAM Performance Measures for the Addiction Specialist Physician*. Chevy Chase, MD: American Society of Addiction Medicine; 2014
65. Pincus HA, England MJ. Improving the quality of psychosocial interventions for mental and substance use disorders: a report from the IOM. *JAMA*. 2015; 314(12):1227–1228
66. Pincus HA, Scholle SH, Spaeth-Rublee B, Hepner KA, Brown J. Quality measures for mental health and substance use: gaps, opportunities, and challenges. *Health Aff (Millwood)*. 2016;35(6): 1000–1008
67. Saitz R, Larson MJ, Labelle C, Richardson J, Samet JH. The case for chronic disease management for addiction. *J Addict Med*. 2008;2(2):55–65
68. Institute of Medicine Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders. *Improving the Quality of Health Care for Mental and Substance-Use Conditions*. Washington, DC: National Academies Press; 2006
69. Harder VS, Barry SE, French S, Consigli AB, Frankowski BL. Improving adolescent depression screening in pediatric primary care. *Acad Pediatr*. 2019;19(8):925–933
70. Asarnow JR, Jaycox LH, Duan N, et al. Effectiveness of a quality improvement intervention for adolescent depression in primary care clinics: a randomized controlled trial. *JAMA*. 2005;293(3): 311–319
71. Patel MM, Brown JD, Croake S, et al. The current state of behavioral health quality measures: where are the gaps? *Psychiatr Serv*. 2015;66(8):865–871

**Evidence-Based Treatment of Young Adults With Substance Use Disorders**  
Scott E. Hadland, Amy M. Yule, Sharon J. Levy, Eliza Hallett, Michael Silverstein  
and Sarah M. Bagley  
*Pediatrics* 2021;147;S204  
DOI: 10.1542/peds.2020-023523D

**Updated Information & Services**

including high resolution figures, can be found at:  
[http://pediatrics.aappublications.org/content/147/Supplement\\_2/S204](http://pediatrics.aappublications.org/content/147/Supplement_2/S204)

**References**

This article cites 58 articles, 8 of which you can access for free at:  
[http://pediatrics.aappublications.org/content/147/Supplement\\_2/S204#BIBL](http://pediatrics.aappublications.org/content/147/Supplement_2/S204#BIBL)

**Permissions & Licensing**

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:  
<http://www.aappublications.org/site/misc/Permissions.xhtml>

**Reprints**

Information about ordering reprints can be found online:  
<http://www.aappublications.org/site/misc/reprints.xhtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®



# PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

**Evidence-Based Treatment of Young Adults With Substance Use Disorders**  
Scott E. Hadland, Amy M. Yule, Sharon J. Levy, Eliza Hallett, Michael Silverstein  
and Sarah M. Bagley  
*Pediatrics* 2021;147;S204  
DOI: 10.1542/peds.2020-023523D

The online version of this article, along with updated information and services, is  
located on the World Wide Web at:

[http://pediatrics.aappublications.org/content/147/Supplement\\_2/S204](http://pediatrics.aappublications.org/content/147/Supplement_2/S204)

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 345 Park Avenue, Itasca, Illinois, 60143. Copyright © 2021 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®

