ENGAGE

Evidence-Based Strategies to Prevent Youth Substance Use

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Prepared by:

Douglas R. Roehler, PhD, MPH

Vanessa C. Mallory, MPH

Christine L. Mattson, PhD

Pierre-Olivier Cote, MPH

Alana M. Vivolo-Kantor, PhD, MPH

2025

Division of Overdose Prevention

National Center for Injury Prevention and Control

Centers for Disease Control and Prevention

Atlanta, Georgia

Centers for Disease Control and Prevention
Susan Monarez, PhD, Director

National Center for Injury Prevention and Control
Allison Arwady, MD, MPH, Director

Division of Overdose Prevention
Grant Baldwin, PhD, MPH, Director

Suggested Citation: Centers for Disease Control and Prevention (2025). *ENGAGE: Evidence-Based Strategies to Prevent Youth Substance Use*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

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Acknowledgments

We would like to acknowledge the following individuals who contributed to the development, review, and support of this publication. First, we give special thanks to our project formation team from the Division of Overdose Prevention (Andrew Terranella, Cherie Rooks-Peck, Elizabeth Hazelwood, Hanna Schurman, Jenelle Mellerson, Lace DePadilla, Madhumita Govindu, Michelle Culbert, Michelle Putnam, Olga Costa, Parul Parikh, Starrlett Johnson, Zoe Thanawala) and the steering committee comprising staff from across CDC (Alice Asher, Carissa Holmes, Grant Baldwin, Karen Voetsch, Kristin Holland, Laura Kollar, Marci Hertz, Marissa Esser, Natalie Wilkins, Sarah Bacon, Sarah Lee). Critical review and input by Allison Arwady, Greta Massetti, Kelly Holton, Holly Williams, Chris Harper, Jean Ko, Brittany Curtis, Valerie Daniel, and Parul Parikh was also appreciated. We also thank Jaime Grimes for editorial review and Melanie Jankun and Mylaica Henry for their assistance with graphics and layout. Finally, we extend gratitude to Division and Center leadership for their helpful feedback and support.

ENGAGE

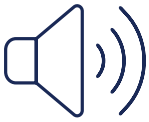
Evidence-Based Strategies to Prevent Youth Substance Use

Enhance Knowledge and Skills

Nurture Family Environments

Give Youth Access to Resources and Activities

Amplify Protective Community Environments



Guide Efforts to Lessen Immediate and Long-Term Harms

Encourage Provider and Health System Engagement

OVERVIEW

What Is A Prevention Resource For Action?

ENGAGE: Evidence-Based Strategies to Prevent Youth Substance Use resource for action offers strategies from the best available evidence to assist in planning to prevent or delay substance use initiation, decrease substance use, and encourage substance use cessation.

These prevention strategies are intended for youth before they reach 18 years old. They are not specific to any one substance; instead, strategies apply to all youth substance use.

Preventing Youth Substance Use is a Priority

Youth substance use is a significant public health problem in the U.S.[1] To prevent youth substance use before harm arises, upstream, evidence-based efforts are needed. When harm from substance use has already happened, services and support are needed. A comprehensive public health approach helps prevent youth from using substances by protecting and encouraging health and well-being of both individuals and communities.[2]

Youth Substance Use in the United States

Youth substance use is continually evolving, and prevention efforts should evolve with any changing circumstances. For example, in 1991, 55% of 10th graders had ever used cigarettes, compared to 8% in 2024.[3] However, as prevalence decreases for one substance, it sometimes increases for another. Youth nicotine vaping began in the U.S. with the introduction of the e-cigarette in the early 2010s,[4] and as of 2024, 21% of 12th graders reported experience with nicotine vaping.[3]

While youth substance use decreased over the last decade, youth continue to use illegal substances. In 2024, 9% of 8th graders, 17% of 10th graders, and 26% of 12th graders in the U.S. used illegal substances in the past year, such as cannabis, LSD and other hallucinogens, cocaine or heroin, other narcotics, amphetamines, sedatives, or tranquilizers not under a doctor's orders.[3] About 27% of youth have ever used illegal substances, with this percentage increasing with age.[3,5]

Additionally, new, more potent substances have entered the market, such as illegally made fentanyl, often found in counterfeit pills, and highly concentrated tetrahydrocannabinol (THC) products, the main psychoactive component in cannabis.[6-10] From July-December 2019 to July-December 2021, median monthly overdose deaths involving illegally made fentanyl increased 182% among people ages 10 to 19 years old.[8] Unregulated and potentially dangerous novel psychoactive substances, such as synthetic and semi-synthetic cannabinoids and psilocybin mushrooms, are increasingly being sold online and often marketed for appeal among youth.[11,12]

Along with products changing over time, youths' perceived risk of harm from substance use is changing. For example, the perceived risk of regular cannabis use has decreased over time even though cannabis products are becoming more intoxicating and more hazardous to people's health.[6,13-15]

The Need To Prevent Youth Substance Use

Adolescence is a crucial time to prevent substance use, as behaviors developed during this period may lead to long-term physical and mental health consequences.[16,17] Beginning substance use early and using multiple substances are both strong predictors of negative outcomes, such as impaired brain development, poor academic performance, increased school absences, increased likelihood for later substance use, and increased risk of premature death,[16,18-20] creating a cycle of unpredictable substance use throughout a person's lifetime.[21,22]

Early substance use exposure during critical points in development may disrupt healthy brain growth, potentially increasing the chance of starting substance use sooner and developing a substance use disorder.[23] Substance use disorder is linked to developing chronic illnesses such as hypertension, diabetes, heart disease, or mental health conditions.[24] In addition to physical and mental health effects, youth with a substance

use disorder are more likely to attempt and die by suicide compared to peers who do not use drugs.[25] Substance use disorders are strongly tied to involvement in the juvenile justice system.[26]

Youth substance use has multiple possible causes and motivators. For example, some individuals may use substances to cope with emotions, to escape or numb undesirable feelings (emotion-focused coping), or reduce stressors (problem-focused coping).[27,28] During adolescence, parts of the brain responsible for controlling behavior continue to develop,[29] so youth may struggle to make healthy decisions concerning substance use (either for pleasure/avoidance or because of peer influence, for example).[30]

Early youth substance use can also affect relationships with peers. For example, youth substance use is strongly associated with experiencing and perpetrating violence, as well as increasing the risk for violent behavior as teenagers and adults.[31,32]

Youth substance use poses risks to communities by increasing the likelihood of motor vehicle crashes.[33-35] In the U.S., motor vehicle crashes are the second leading cause of death among teens.[36] Factors such as lack of driving experience, distracted driving, inconsistent seat belt use, and substance use make this group particularly vulnerable.[37] These risks become even more severe when multiple substances are used together.[38,39]

Various social factors also influence youth substance use. Research shows that individuals may repeat behaviors that produce pleasure or reward and stop behaviors that cause discomfort.[40] Youth may mimic the substance use behaviors of influential figures if they believe the behavior will produce rewards, such as increased social importance.[40] Additionally, if a youth's peer group uses substances, youth may feel a need to conform to their peers.[41]

Environmental factors, such as access to substances,[42] affordability of substances,[43-45] or if substances are marketed to youth,[46] can influence youth substance use.[46] Access to recovery support also helps form substance use patterns and their consequences.[47]

Youth Substance Use And Mental Health

Youth in the U.S. are currently experiencing a mental health crisis.[48] In 2023, one in four high school students reported feeling sad or hopeless.[49] When teenagers are struggling with their mental and emotional health, they may resort to using substances to try to numb their feelings, like adults do. However, this coping mechanism can be especially harmful for youth due to the ongoing development of the brain until around age 25.[23] As the pathways between different parts of the brain are still forming, the brain can quickly become accustomed to substances, leading to increased risk for developing a substance use disorder.[50,51] In a large study of over 10,000 adolescents ages 13 to 18, researchers found those with prior mental health disorders used alcohol and engaged in behaviors associated with substance use disorders.[52] Studies show that a majority of youth with a substance use disorder also have a mental health condition.[53,54] When youth have a substance use problem and mental health condition at the same time, drug use may become a way to self-medicate to alleviate distress.[55] While substance use may appear to offer short-term relief, use may worsen mental health symptoms such as anxiety, hopelessness, and negative thoughts over time.[55] When designing substance use interventions for youth with a mental health disorder, proper mental health management and treatment are essential for success.

Strategy Format

This guide provides youth substance use prevention strategies that can be tailored to address various communities' needs. It includes six strategies to prevent youth substance use, each with several approaches, and evidence to support each approach. A strategy is a broad action that can help prevent youth substance use, while an approach is a specific way to implement that

strategy. Specific intervention or program names will only be used in the evidence sections to support the strategy and approach. Each strategy includes a set of associated outcomes from the studies reviewed in that strategy. The outcomes include substance use risk and protective factors, along with substance use behaviors. This is not an exhaustive list, and not every intervention, program, or policy included in that section addresses each of the included outcomes. A list of strategies and programs mentioned can be found in *Appendix I*.

Assessing the evidence

Evidence for this resource was identified through search inquiries from national databases and evidence-based resource guides (e.g., *CrimeSolutions*,[56] *Blueprints*,[57] *the Evidence-based Resource Guide on Substance Misuse Prevention for Young Adults*[58]). See *Appendix II* for a comprehensive list of national clearinghouses, databases, and evidence-based resource guides reviewed.

Programs, practices, and policies were assessed to identify effective strategies and evaluated based on their demonstrated impact on changing youth substance use behaviors. Only programs currently active and available for implementation were reviewed. See *Appendix III* for a complete list of programs and interventions that were reviewed.

Then up to three evaluation studies were assessed. If fewer than two evaluation studies met the criteria, the program was excluded from this resource. Required criteria included:

1. A well-defined sample size. The study needed sufficient power to yield convincing findings. While no specific sample size was required, if study groups included fewer than 25 youth participants, the review team consulted with the study evaluation lead to determine if inclusion was appropriate on a case-by-case basis.
2. Studies published in 2000 or later. Studies published before 2000 were considered for inclusion if an associated follow-up study was published after 2000. Studies published before 2000 were excluded due to the changing landscape of substance use and the need for updated and culturally relevant programs, practices, and policies.

3. No evidence of associated harms or risks. Specifically, the program did not increase substance use behaviors or beliefs.
4. Evidence from a rigorous evaluation. Studies must have used a randomized controlled trial or quasi-experimental design that demonstrated impact on substance use behavior or related outcomes.
5. The study must have a minimum follow-up period of six months from the start of the intervention.
6. Substance use behavior was measured and evaluated as a dependent variable or outcome measure.

While the studies were not limited to the U.S., most included studies were completed there; so the findings in this report are most applicable to the U.S. If a study was conducted outside the U.S., demonstrating the feasibility of U.S. implementation was required.

When up to three evaluation studies were identified, each study was assessed based on the following criteria:

- Design quality: Research design, follow-up period, and potential authorship bias (i.e., whether an external team or the original program developers conducted the evaluation)
- Outcome evidence: Demonstration of significant effects on youth substance use behavior outcomes (e.g., cannabis use, substance use initiation, alcohol use) and secondary outcomes (e.g., risk or protective factors)
- Program component: Number of substances measured in the study, whether the interventions were tested across different racial or ethnic populations or outside of the primary study population, and public availability of the implementation resources

Then programs with evidence of effectiveness were categorized into strategies. Each strategy includes relevant approaches or the specific ways the strategy is advanced. The nature and quality of youth substance use prevention efforts range widely within and across approaches. While some approaches have been extensively evaluated, more novel approaches, such as technology-based interventions, show promising evidence but may lack sufficient evidence in the literature for inclusion here. Also, most research on youth

substance use focused on alcohol and tobacco. As the substance use landscape evolves, so do the substances that youth can find and use. Some substances, such as cannabis, nicotine vaping, and hemp-derived cannabinoids, have fewer evaluation studies, indicating that more research is needed for these substances.

The evidence-based programs, practices, and policies presented in this resource are not intended to be a comprehensive list of approaches for each strategy, but rather examples of the best available evidence that has been shown to decrease and prevent youth substance use and related outcomes. The methods employed for this resource were not intended to serve as a comprehensive systematic review and assessment of *all* youth substance use programs and interventions, but rather to identify effective strategies. There may be strong and effective interventions for preventing youth substance use not included in this resource.

The remainder of this resource is organized according to the following youth substance use prevention strategies and approaches.

Strategy	Approach
Enhance Knowledge and Skills	• School-based interventions
Nurture Family Environments	• Early childhood home visitation • Parenting skills and family relationship programs
Give Youth Access to Resources and Activities	• Extracurricular activities and after-school programs • Mentorship programs
Amplify Protective Community Environments	• Community-level programs to create healthier communities
Guide Efforts to Lessen Immediate and Long-term Harms	• Services and supports for youth exposed to violence and other adverse experiences • Treatment and services for youth with early substance use behaviors
Encourage Provider and Health System Engagement	• Addressing substance use during primary care visits • Screening combined with intervention


ENHANCE
Knowledge and Skills

STRATEGY 1:
Enhance Knowledge and Skills

Rationale

Enhancing youth knowledge about substance use's long-term effects and risks, as well as developing drug refusal skills and social skills, can help them make healthy decisions. This strategy includes school-based interventions that develop youth skills to prevent substance use initiation and to engage in healthy behaviors.

Approach

School-based interventions

School-based intervention programs aim to enhance drug refusal skills, knowledge of the risk of substance use, social and emotional support, and communication skills.[59,60] These interventions educate youth about substance use, seek to change the way youth think and feel about substance use, and provide opportunities to practice and reinforce skills. These programs offer the intervention to many students simultaneously.[60]

Effective intervention programs include protective factors such as:

- **Drug refusal skills**, or social resistance skills, teach youth how to navigate situations where they may feel pressured to use substances and ways to avoid these situations.[60]
- **Normative education** discusses and reduces potentially inaccurate beliefs about how many youth and how often youth in their community use substances.[60]
- **Competence enhancement** skills training increases youths' self-esteem, decision-making skills, coping strategies for stress and anxiety, and social skills.[60]

School-based interventions typically incorporate at least one or more of these components or combine them into one component.[60] School-based intervention content and formats vary based on the curriculum and model implemented and the characteristics of the school and community. School-based intervention programs incorporate training and informational material for teachers and other school personnel who implement and sustain the program. Teachers and school personnel are vital to implementation because they reinforce the skills that youth learn, monitor behavioral changes, and help promote an environment that reduces substance use initiation while promoting school involvement and academic success. School-based interventions are typically implemented for students in a particular grade or throughout the entire school.[60]

Outcomes

- Reduced initiation, use or frequency of any tobacco product
- Reduced alcohol initiation, use, or frequency
- Reduced marijuana initiation, use or frequency
- Reduced substance initiation, use or frequency
- Reduced lifetime alcohol misuse/dependence
- Reduced lifetime drug use
- Reduced problem behavior
- Reduced aggressive behavior
- Reduced delinquency and frequent fighting

Evidence

Evidence shows that school-based interventions reduce youth substance use, including substance use initiation, and other related behaviors.

School-based interventions

LifeSkills Training (LST) is a school-based intervention that has three components: critical drug refusal skills, personal self-management skills (i.e., goal setting and self-esteem) and social skills.[60] The program has three different curricula for students in elementary school, middle school, and high school.[60] Students typically attend

classroom sessions that teachers, peer leaders, or health professionals lead, and they participate in group discussions, activities, and role-playing scenarios.[60]

In a 13-year post-intervention evaluation of the *LST* program, participants who received the program in middle school reported lower rates of lifetime illegal drug use, cannabis use, and non-medical pill use.[61] In another study among a rural midwestern sample of middle school students, researchers found participation in the *LST* program had a positive impact on the rate of intention to refuse drugs and delayed substance use initiation.[62]

Good Behavior Game (GBG) is a classroom-based intervention that helps teachers and students develop positive class rules aimed at reducing disruptive classroom behavior among children ages 5 to 11 years old.[63] Students are assigned to teams and given cards that are only taken away if one of the students violates the assigned class rules.[63] Teachers encourage students to manage their own behavior as well as their teammates in their assigned groups.[63] If teams have at least one card at the end of the game, they are rewarded.[63]

Randomized controlled trials of *GBG* show effective program impacts on tobacco use.[63,64] One study found that *GBG* program participants had a lower likelihood of starting tobacco use between the ages of 10 and 13.[63]

Project Towards No Drug Abuse is a school-based intervention designed for alternative or continuation high schools that has also been evaluated in traditional high schools.[60] *Project Towards No Drug Abuse* targets key risk factors for youth substance use and problem behaviors by enhancing motivation, social skills, self-control, coping strategies, and decision-making abilities, while educating participants about misconceptions, consequences of substance use, and cessation strategies.[60] Participants interact in small group discussions, play video games, and participate in activities to practice drug refusal.[60] In randomized controlled trials of the *Project Towards No Drug Abuse* program, results show reduced use of marijuana,[65] alcohol[66] and other drugs.[66,67] A randomized controlled trial across 18 high schools in California showed a 42% reduction among participants in the number of times drugs were used over the past month, compared to the control group.[67]

NURTURE
Family Environments

STRATEGY 2:
Nurture Family Environments

Rationale

Enhancing parent and caregiver skills and providing safe, supportive, and nurturing family and home environments can prevent youth substance use.[68-71] This can be accomplished through family-based programs that focus on communication skills and family relationships and help families set consistent rules and expectations.[68-70] Effective programs also encourage parental and caregiver disapproval of substance use, reduce intentions for youth to use substances, and monitoring youth activities and friendships.[68-70]

Approach

Approaches in these programs are offered to specific age groups, and their content reflects the appropriate developmental needs of children at different developmental stages.

Early childhood home visitation programs

Early childhood home visitation programs often include healthcare professionals, mainly nurses, visiting families in their homes to provide education, information, and support to help parents, caregivers, or guardians. They learn about child health and development, develop positive parenting and effective childcare practices, and improve school readiness and family functioning.[72] Some programs begin during pregnancy and are aimed at low-income, first-time mothers, while others begin after birth and continue until the child enters elementary school.[72] Such approaches can help reduce youth substance use in early adolescence and rates of recent maternal smoking, alcohol, and marijuana use.[72]

Parent and caregiver skills and family relationship programs

These programs help build skills of parents and caregivers and youths' substance use prevention skills and practices.[68,69] Content varies by program

and age of youth. Interventions are delivered in the home, school, or community via individual or small group sessions, web-based modules, or printed instructions. Many programs focus on building healthy parent- or caregiver-child relationships, such as developing communication strategies, encouraging positive discipline methods, setting clear rules and expectations, and encouraging parental or caregiver monitoring of youth. These goals promote healthy growth and development and can improve multiple outcomes (e.g., reduce childhood aggression and improve relationships with peers and adults).[68,70,73-76] Other interventions provide information on substance use risks and harms, set expectations about not using substances, or teach refusal skills (e.g., strategies to say "no" to substances when offered or avoid situations where substance use might occur).[68,70]

Outcomes

- Reduced smoking, initiation, use, or frequency
- Reduced alcohol initiation, use, or frequency
- Reduced cannabis initiation, use, or frequency
- Reduced illegal substance initiation, use, or frequency
- Reduced initiation or frequency of using more than one substance at a time
- Reduced conduct problems
- Improved parent-child relationships
- Evidence

Interventions that support healthy family environments and improve parenting and caregiver skills have been shown to prevent youth substance use.

Evidence

Early childhood home visitation

Programs that involve early home visitation, typically during infancy or early childhood, have been extensively studied, help improve positive parenting and caregiver practices, boost school readiness, and reduce child maltreatment and family violence. However, because youth substance use typically occurs later in childhood or adolescence and requires long-term follow-up studies to identify, few early visitation programs have evidence of reducing youth substance use.[70,71]

One program that has shown success in reducing youth substance use is the *Nurse-Family Partnership® (NFP).*[76-78] This program trains nurses to visit first-time, low-income mothers in their homes to provide ongoing education to support and improve pregnancy outcomes, encourage child health and development, and strengthen parenting skills. The program begins during the second trimester of the mother's pregnancy. Visitations typically last 60 to 90 minutes every other week and continue through the child's second birthday. One study found that children whose mothers were visited by nurses reported fewer days using tobacco, alcohol, and marijuana at age 12 compared to those who were not visited.[76] In a 15-year follow-up study, youth whose mothers participated in *NFP* used cigarettes less and consumed less alcohol than those whose mothers did not participate.[79] However, a 19-year follow-up study found no statistically significant differences in illegal drug use or binge drinking among youth whose mothers were visited by nurses compared to those who were not.[77]

Parent and caregiver skills and family relationship programs

Family-based interventions that teach positive caregiving skills and preventive skills for children can reduce substance initiation and use.[68-70] Most of these programs focus on families of youth between 10 to 17 years old. When delivered to youth between the ages of 10 and 14 years old, these programs have been shown to reduce initiation of cannabis, alcohol, tobacco, illegal substances, and misuse of prescription drugs.[68,69]

Strengthening Families Program (SFP 10-14) promotes positive parenting and caregiving and family relationships through group classes, with seven separate training sessions for caregivers and children 10 to 14 years old. Weekly sessions are conducted in community settings such as schools or community centers, followed by a family session where caregivers and children practice their skills, work on conflict resolution, and complete activities to increase family cohesiveness. Multiple studies have evaluated the *SFP 10-14* in rural U.S. communities and shown

reductions in tobacco, alcohol, and drug use up to nine years after the intervention.[80-82] The program has shown reduced prescription drug misuse up to 13 years after program completion.[83]

Strong African American Families (SAAF), adapted from *SFP 10-14*, can help deter alcohol use among rural African American children.[84] It is designed for late childhood (5 to 11 years old) and early adolescence (12 to 14 years old) and their families to strengthen family relationships and teach parents to help youth develop skills to reach positive goals. Fewer *SAAF* participants initiated alcohol use than those in who did not take the program. Of those who did use alcohol, the rate of use increased more slowly over time.[84]

Familias Unidas is a family intervention for preventing drug use and sexual risk behavior among Hispanic youth ages 12 to 16 years old. Through eight in-person multiparent group sessions and four family sessions, *Familias Unidas* is designed to help parents or caregivers understand how to help protect adolescents from risky behaviors and teach parents and caregivers more about children's health and well-being. The program has been shown to lower substance use or delay initiation.[85,86] Researchers found youth who participated in *Familias Unidas* had a lower rate of past 30-day substance use compared to youth who did not participate.[85] Since early substance use can negatively affect brain development and increase risk of substance use problems during adolescence and adulthood, delayed initiation can be an important part of youth substance use prevention.[16,17,21,22,87]

GIVE

Youth Access to Resources and Activities

STRATEGY 3:
Give Youth Access to Resources and Activities

Rationale

Youth are at increased risk for substance use when they are not being supervised by a parent, caregiver, or other responsible adult.[88,89] When not in school and without caregivers around, risky behaviors may increase due to a lack of structure and supervision, and the presence of peers.[90] When youth are with caring adults who can serve as a resource, the likelihood of engaging in many risky behaviors, including substance use, decreases.[91] By connecting youth to activities and opportunities to interact with caring adults, youth can positively engage with their community, which can protect them against some substance use risk factors.[88] These activities outside school may include sports, and organized activities such as honor societies, band, volunteering, robotics, part-time employment, or other clubs and programs. Depending on the context, some of these activities have both positive and negative implications for youth substance use.

Approach

Extracurricular participation and after-school programs

Extracurricular activities and after-school programs have many benefits. The Positive Youth Development framework supports activities outside of school that, for example, help youth develop leadership and academic skills, and promote physical activity, responsibility, and plans for the future.[92,93] Organized activities, such as sports, arts, and community service clubs promote growth, caring relationships with non-parental adults, and strong positive peer networks.[94] Typically, these activities happen after school but before their parents or guardians return home for the day, at a time when youth may otherwise be unsupervised and at risk for problematic behaviors.[95] These activities also provide fewer opportunities for engaging in problematic behavior with peers.[96] Plus, researchers have found when youth report satisfaction with these activities, they are also

more likely to have a positive view of school and increased school connection, both of which may help decrease substance use.[97,98] Activities such as service clubs, performing arts, and academic clubs can help youth improve academic performance, self-esteem, leadership skills, and civic engagement.[99,100]

However, while researchers have repeatedly found sports participation is associated with lower use of tobacco and illegal drugs during adolescence, this is not the case for alcohol, suggesting there may be substance-specific interactions between sports participation and substance use.[101] These findings vary by sex, race and ethnicity, and type of sport. Most sports participation happens during a developmental stage when experimentation with alcohol and drugs emerges and when sports participation is highest, making the relationship between them challenging to untangle.[101]

Mentorship programs

Participating in mentoring programs is consistently associated with lower substance use among youth. A youth's strong, caring relationship with non-parental adults encourages healthy development.[102] According to Attachment Theory, youth develop mental concepts of relationships with responsible adults, influencing interpersonal behaviors later in life. A relationship with respected non-parental adults helps build social support and positive connections with others.[103] This allows youth to observe qualities and behaviors to imitate, further supporting the development of positive self-esteem, independence, and positive plans for the future.[104] Mentorship programs also help youth share activities and talk with more advanced thinkers and communicators than their peers. These relationships have been found to develop advanced cognitive skills, information processing, and self-regulation.[105]

Outcomes

- Reduced tobacco initiation, use, or frequency
- Reduced marijuana initiation, use, or frequency
- Reduced alcohol initiation, use, or frequency
- Reduced substance use initiation
- Improved prosocial behavior
- Improved academic performance
- Improved family relationships
- Increased school connectedness
- Improved self-regulation

Evidence

Extracurricular participation

Youth participating in extracurricular activities and after-school programs are in structured, organized activities during a time when parents or guardians are often unable to supervise them due to other commitments, such as work.[95] Consequently, youth in these activities have less time to participate in risky behaviors.[96] In a systematic review of 17 longitudinal studies related to sports participation and youth substance use, approximately 80% of the studies found sports participation to be associated with decreased illegal drug use. However, 82% found sports participation to be associated with alcohol use.[101] While more research is needed, including studies using a standardized definition of substance use, an explanation of these findings may be related to the stage of development when youth are most likely to engage in sports.[101] This period of life aligns with the time in one's life when youth begin to explore alcohol use.[106] Despite mixed findings related to youth substance use and sports participation, other extracurricular activities and after-school programs have found protective effects related to reductions in alcohol and cigarette use.[106]

Mentoring programs

Big Brothers, Big Sisters of America (BBBS) is a one-to-one mentoring program that pairs adult volunteers with youth, fostering a relationship through regular meetings and recreational and social activities multiple times a month. Mentors are matched to youth based on multiple criteria such as shared interests. A large study examined 950 youth from across the country who met with their mentors on average three times a month.[107] After spending time with their mentors over 18 months, the youth were 46% less likely to initiate illegal drug use, 27% less likely to initiate

alcohol use, more confident in their academic performance, and got along better with their families, compared to matched peers who did not participate in the program. Another study of 189 youth in the *BBBS* program matched to a mentor for more than 12 months found mentoring to be associated with lower frequency of substance use and higher youth perceptions of their parental relationships, compared to a group of peers who did not participate in the program. Furthermore, improvements in perceived parental relationships were also directly related to decreased substance use.[105]

The *Raising Healthy Children Program* promotes positive youth development through educational and family support systems. It incorporates school, family, and individual programs, focusing on building strong connections to help create success in school and life. While the program is designed for 1st through 12th grades, the middle and high school programs include after-school tutoring, study clubs, and social skills booster retreats. In a study of 959 students, youth who participated in the program in 1st and 2nd grade reported lower alcohol and marijuana use in middle and high school, compared to those who were not exposed to the program.[108] In another study, children of individuals who had previously participated in the *Raising Healthy Children Program* as youth had lower substance use initiation than children of parents who did not participate in the program.[109]

AMPLIFY

Protective Community Environments

STRATEGY 4:
Amplify Protective Community Environments

Rationale

Programs that build protective community and social environments can prevent youth substance use and substance use initiation while also improving health and well-being. Evidence-based interventions that build healthier communities and promote positive social norms can provide strong community and social environments for youth to resist substance use.[60,110] Interventions described in this strategy often involve multiple sectors and partnerships for success.

Approach

The evidence for this strategy focuses on creating community environments that protect against youth substance use

Community-level programs to create healthier communities

Community-level programs help create healthier communities by building social skills and support networks to prevent youth substance use.[105] Community coalitions that lead evidence-based prevention programs in school and community settings support healthy choices, reduce youth substance use and create healthier communities.[111-117] By working together toward the common goal of preventing youth substance use through coordinated efforts and shared resources, partners can maximize their public health impact and help create healthier communities.[118]

Outcomes

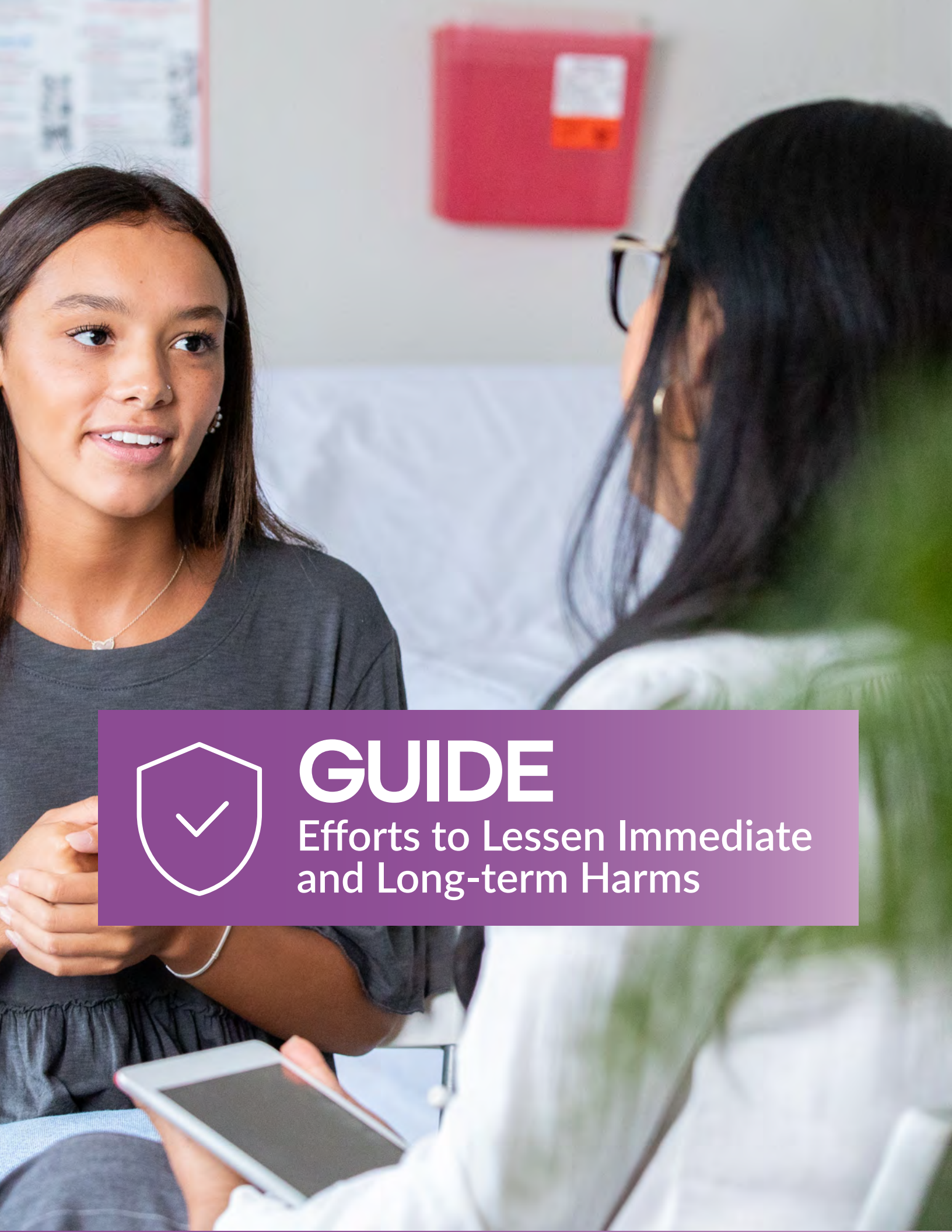
- Reduced smoking initiation, use, or frequency
- Reduced alcohol initiation, use, or frequency
- Reduced cannabis initiation, use, or frequency
- Reduced illegal substance initiation, use, or frequency
- Reduced delinquent behavior
- Reduced violent behavior

Evidence

Community-level programs to create healthier communities

Communities that Care (CTC) is a prevention approach that helps communities develop or enhance a partnership coalition to assess specific community needs. These coalitions select and implement evidence-based interventions that promote healthy development and reduce problem behaviors. *CTC* provides tools to prevent youth substance use by focusing on risk and protective factors unique to each community.[119] *CTC* helps community coalitions create a prevention plan, create partnerships, and continuously evaluate and adjust program needs. A randomized controlled trial with 24 communities across seven states showed that between 5th and 10th grade, students engaged in *CTC* had fewer risk factors associated with the use of alcohol and other drugs. Also, the incidence of alcohol use in 10th grade was lower compared to the control group.[114] In *CTC* evaluations, researchers found that a science-based approach to youth substance use prevention is linked to fewer problem behaviors, such as drug use and other delinquent behaviors.[113] Creating a healthier community can also help shift community norms against drug use, leading to reduced substance use among youth.[113]

PROSPER (PROmoting School-community-university Partnerships to Enhance Resilience) implements evidence-based prevention programs through community partnerships between researchers, practitioners, and public school systems. These partnerships focus on implementing one school-based and one family-based intervention and are supported by *PROSPER* implementation coaches.[120] A randomized controlled trial with 28 public school districts found lower rates of lifetime substance use and initiation among middle-school-aged youth in communities that participated in *PROSPER*.[115,116] A follow-up study that assessed *PROSPER's* impact among 19-year-olds, over seven years after they were introduced to the *PROSPER* program showed lower lifetime substance use, highlighting the program's long-term effectiveness.[117]



GUIDE

Efforts to Lessen Immediate and Long-term Harms

STRATEGY 5:
Guide Efforts to Lessen Immediate and Long-term Harms

Rationale

While preventing youth substance use is important, supporting youth at increased risk for using substances and reducing and stopping use in those already using substances is also crucial. The risk of substance use is not evenly distributed among all youth, as youth from communities and populations that have social and economic challenges are disproportionately affected by substance use and its associated harms.[121,122] Youth who are at greatest risk for substance use and poor health outcomes often have additional challenges, such as limited access to substance use treatment, mental health services, and quality healthcare.[123-126]

Approach

Providing services and support for youth exposed to violence and other adverse experiences can support youth at increased risk for substance use, as well as providing treatment and services to youth with early substance use behaviors. For all approaches to lessen the harms of youth substance use, it is important to incorporate principles of trauma-informed care, or support for how trauma affects an individual (e.g., peer support, collaboration, and emotional and psychological safety).

Services and supports for youth exposed to violence and other adverse experiences

Adverse childhood experiences (ACEs) are potentially traumatizing experiences that occur between 0 and 17 years old and may include witnessing or experiencing parental violence or neglect; instability due to parental separation, death, or incarceration; and mental health or substance use problems in the home.[127] ACEs are associated with an increased risk of developing chronic health conditions and engaging in negative health behaviors such as substance use.[127,128]

When youth experience violence, either directly or in their community, they are at an increased risk for substance use (e.g., use as a coping response).[129]

Interventions may include providing services and support to youth exposed to violence and other adverse experiences to decrease the likelihood of developing harmful health outcomes later. This may include offering counseling with peers or mentors aimed at establishing positive relationships, setting goals, or problem-solving strategies. Interventions for parents or guardians of youth encourage developing healthy skills and actions, such as encouraging positive behaviors and maintaining stability in the home. Evidence suggests that even among children who have experienced several ACEs, positive experiences during their childhoods may reduce some negative ACE impacts. For example, studies have shown that positive childhood experiences such as feeling supported by friends or feeling a sense of belonging in high school, may help protect children against ACEs.[130,131]

Among youth who have experienced violence, it is important for them to easily access basic services such as counseling and social services to begin the healing process.[132,133] If these services are easily accessible, harmful coping behaviors, such as substance use, become less likely.[132]

Treatment and services for youth with early substance use behaviors

Treatment and services for youth who are using substances early can reduce substance use disorders and unhealthy behaviors later in life.[134] In addition to screening to identify substance use behaviors,[135] intervention may also focus on modifiable risk factors, such as lack of youth school involvement or truancy.[136] They may also aim to increase protective factors, such as improving social skills, confidence, and problem-solving skills.[137]

Outcomes

- Reduced alcohol initiation, use, or frequency
- Reduced tobacco initiation, use, or frequency
- Reduced cannabis initiation, use, or frequency
- Reduced delinquent behavior

Evidence

Evidence has shown the benefits of supporting youth who have been exposed to violence or other adverse experiences and have early substance use behaviors.

Services and supports for youth exposed to violence and other adverse experiences

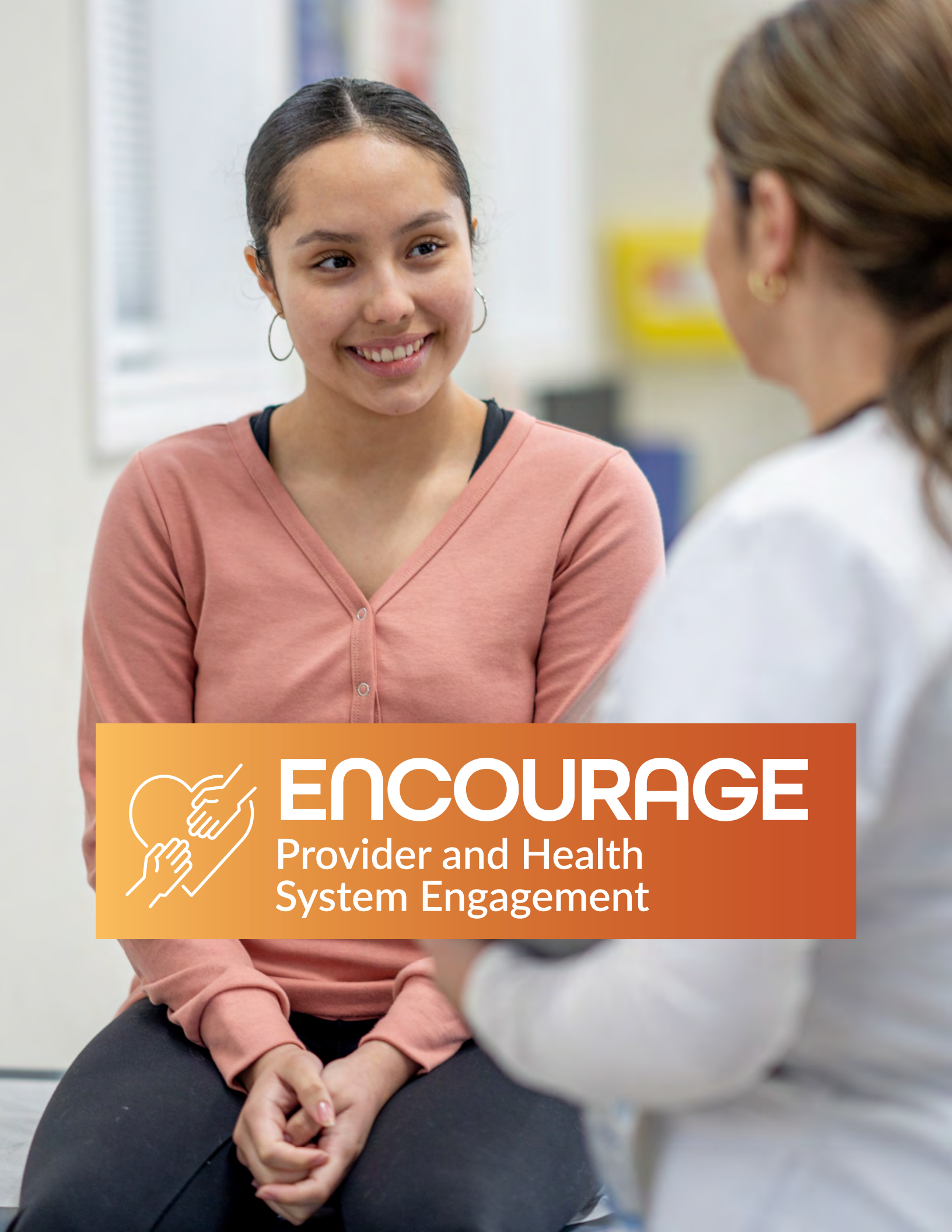
The *KEEP SAFE* program is an intervention designed to lessen the impact of ACEs among children in foster care.[138] Paraprofessionals administer the program during the summer before middle school starts. The program involves group sessions for children in foster care to help them develop goal-setting and problem-solving skills, establish positive relationships among peers and adults, and build confidence. It also involves group sessions for the children's foster parents to develop behavioral reinforcement techniques, create realistic expectations, and prepare their children for middle school. A randomized controlled trial conducted among 259 youth (ages 11 to 17) in foster care observed significantly reduced substance use (alcohol, tobacco, and marijuana) among youth in the *KEEP SAFE* treatment group through 18 months after they started the program.[139]

Treatment and services for youth with early substance use behaviors

The *Coping Power* program builds a sense of school connection and offers coping skills for aggressive behavior–two important risk factors for youth substance use.[98,140,141] *Coping Power* is a 16-month program that helps parents and their children build skills toward the goal of preventing behavioral problems during middle school, high school, and beyond.[142] *Coping Power* is delivered in the 5th and 6th grades and focuses on social competence, self-regulation, self-control, learning to care

about and bond with their school, and improving caregiver involvement. A randomized controlled trial conducted among 183 boys with aggressive behavior found that those in the *Coping Power* intervention group had lower rates of delinquent behavior (e.g., assault, fraud, destruction of property, theft) one year after the intervention.[143] Also one year after the intervention, parents of those in *Coping Power* also reported lower rates of substance use—which is a strong predictor of youth substance use.[143]

For youth affected by mental illness, managing the illness and having access to proper support is critical. Some interventions support youth with mental health issues and, by doing so, decrease their risk of substance use. *Multidimensional Family Therapy (MDFT)* is an integrated mental health treatment program that helps families respond to individual, family, and environment factors associated with youth substance use.[144,145] *MDFT* builds coping, communication, and problem-solving skills to help youth ease mental health strains, improve academic performance, and reduce substance use. The program has a secondary goal of improving parental skills related to youth substance use risk factors (e.g., parental stress, family communication, parenting skills). This approach is a promising alternative to more intensive treatment options, such as residential treatment programs.[146] A randomized controlled trial found, at one-year follow-up, *MDFT* showed greater improvements in substance use and delinquent behaviors among youth with a substance use disorder and mental health conditions, when compared to residential substance use disorder treatment.[147] Compared to cognitive behavior therapy, *MDFT* was found to be just as effective at decreasing delinquency among youth with a cannabis use disorder and more cost-effective.[148,149]



ENCOURAGE

Provider and Health System Engagement

STRATEGY 6:
Encourage Provider and Health System Engagement

Rationale

This strategy combines healthcare professional interaction, screening, and intervention to help youth develop healthy behavioral skills and prevent substance use initiation.

Approach

Addressing substance use during primary care visits

Healthcare providers interact with youth throughout important developmental milestones, creating opportunities to discuss problem behaviors among youth.[150] Youth view primary care providers as a dependable resource about drugs and alcohol[151] and are also typically open to talking about substance use with their primary care provider.[151] During primary care visits, youth can learn about these behaviors and their associated risks.[152] School-based health centers and childcare services offer additional opportunities for preventive care screenings and promoting healthy practices among families.

Screening combined with intervention

Youth with undiagnosed mental health conditions may be at increased risk of substance use and substance use dependence.[153,154] Early screening combined with intervention can help ensure that youth have access to treatment and support services to lower their likelihood of engaging in negative health behaviors such as substance use.[155] Screening tools, such as BASC-3 Behavioral and Emotional Screening System (BASC-3 BESS),[156] the Screening to Brief Intervention (S2BI),[157] the Brief Screener for Tobacco, Alcohol and Drugs (BSTAD),[158] those from the National Institute on Alcohol Abuse and Alcoholism, and those from the American Academy of Pediatrics, may also help identify youth at higher risk of substance use.[156,159]

The screening tools may ask the youth about substance use and other problem behaviors, such as difficulties in their family, school, and social life. They can be asked during routine pediatric wellness, emergency department, or other health and wellness support visits. However, screening alone is not a treatment for youth substance use. These screening tools allow service providers to assess youth's substance use and other problem behaviors and offer youth the most appropriate intervention or treatment option.

Outcomes

- Reduced substance use (i.e., cannabis, tobacco, alcohol or other substances)
- Reduced delinquent behaviors

Evidence

Evidence shows that combining healthcare provider interaction at primary care visits, screening, and interventions reduce youth substance use and other associated behaviors.

Addressing substance use during primary care visits

Bright Futures is well-child and adolescent care guidance developed by healthcare professionals and subject matter experts for use with primary care providers.[160,161] The guideline framework was created to establish health promotion and recommendation consistency that can be implemented in various settings such as school-based health centers, community health centers, Indian Health Service clinics, and other primary care facilities.[161] *Bright Futures* provides educational handouts that primary care providers can use during well-child visits throughout infancy, childhood, and adolescence.[162] The topics included in handouts developed for patients ages 11 to 14 span five categories related to overall well-being, healthy behavior choices, physical development, emotional well-being, and safety.[163] Examples of topics included in the handouts for patients ages 15 to 17 are concerns about substance use, problem-solving and making good decisions, avoiding situations where substances are being used, and avoiding risky sexual behaviors.[164]

Bright Futures created a toolkit that contains multiple health screening tools.[165] After evaluation, multiple *Bright Futures* screening tools were found to accurately identify youth with substance use and substance use disorders.[166-168] The *Bright Futures* Adolescent Supplemental Questionnaires for Early, Middle, and Late Adolescent Visits help screen to improve adolescent health and evaluate topics such as substance use and family violence.[169] The *Bright Futures* screening tools emphasize the importance of asking youth about any health issues they are experiencing and their behavioral attitudes. Health issues and behavioral attitudes developed during adolescence can follow youth into adulthood.

Screening combined with intervention

Training health professionals to identify possible risk for substance use can help them refer youth to services and treatment sooner.

The *Substance Use Screening, Brief Intervention, and Referral to Treatment (SBIRT)* is recommended as a part of youth's routine health care.[151] For example, incorporating this screening tool into primary care visits can allow service providers to screen youth for substance use and other risky behaviors.[151] *SBIRT* helps identify if youth have never used, are experimenting, or are currently using substances.[151] The *SBIRT* can help service providers briefly intervene, address potentially harmful behaviors, and assess if youth require further evaluation and treatment.[151] If additional services are needed, youth are referred to more comprehensive treatment.[151] In a randomized controlled trial among 1,871 youth ages 12 to 18 years old, participants who received *SBIRT* were less likely to have a mental health diagnosis and a substance use diagnosis, compared to participants who received their typical treatment.[170]

PARTNERSHIPS AND COLLABORATIONS

Partnerships are critical in public health because they encourage people and organizations to improve community well-being together. Creating environments that protect against youth substance use is a complex public health challenge that needs various partners, such as government agencies, school systems, nonprofit organizations, faith-based organizations, and community groups. These partners can share their unique strengths and perspectives to build capacity that may sustainably improve a community's health.[118]

The role of public health

Public health agencies can provide expertise and leadership and help select evidence-based strategies that prevent substance use among youth. By studying risk and protective factors linked to substance use initiation, public health agencies can help develop and implement interventions based on a community's unique situation and population. By analyzing local data and identifying potential partnerships, public health professionals can implement data-driven interventions, and provide training, technical assistance, and resources based on school and community needs. Public health agencies can also evaluate youth substance use prevention interventions, and those findings can help guide and improve future prevention strategies.

Partners and people with particular interest

The following highlights key partners that may help implement specific strategies and approaches in this resource.

Schools and school systems: Strong partnerships help create protective school environments and implement school-based interventions that strengthen students' knowledge and skills about substance use covered in Strategy 1. Schools can establish a supportive environment that discourages substance use.[171] For example, supporting conflict resolution practices through dialogue and empathy rather than punishment can improve the school climate and reduce suspension rates.[172] Positive, supportive school environments that increase student participation and improve relationships can reduce youth substance use.[136]

Non-governmental and community-based organizations: Partnering with respected community organizations can lead to greater substance use prevention program support and ultimately help with their implementation. The Drug-Free Communities (DFC) Support Program provides $125,000 in annual grants to community coalitions to build capacity within communities and reduce youth substance use. The community-based coalitions are represented by 12 required sectors: youth; parents; business; media; schools; youth-serving organizations; law enforcement; civic or volunteer organizations; religious or fraternal organizations; healthcare professionals or organizations; state, local, and tribal government agencies; and other local organizations involved in reducing substance use.[173] DFC coalitions, which are key to this program's success, recruit members from the 12 sectors to build comprehensive youth substance use prevention strategies. While creating an annual action plan, coalitions can incorporate the strategies, approaches, and evidence outlined in this resource and explore new partnerships to enhance their work.

Local, state, and federal government: Government agency collaboration can help accelerate implementation and provide important resources to create new or expand existing youth substance use prevention interventions. Overdose Data to Action (OD2A) is a CDC-funded cooperative agreement that helps prevent overdose deaths by improving data collection, analysis, and sharing to inform prevention work. The program helps state and local governments implement evidence-based strategies such as enhancing prescription drug monitoring programs, promoting safe prescribing practices, enhancing public health and public safety partnerships, and linking individuals with substance use disorder to care and prevention resources.[174] Many state and local health departments receiving OD2A funding partner with community organizations and local communities to implement interventions, including those that reduce youth substance use and associated harms, and ultimately, overdose deaths.

Health systems and clinicians: Partnering with health systems and educating healthcare professionals about opioid prescribing risks and alternative pain management strategies may help limit opioid use and improve patient outcomes among youth. For instance, research

indicates that receiving an opioid prescription following a wisdom tooth extraction is linked to a higher likelihood of persistent opioid use.[175] The American Dental Association has developed guidelines for children and adolescents, recommending the use of nonopioid medications, particularly nonsteroidal anti-inflammatory drugs, alone or in combination with acetaminophen, for managing acute dental pain.[176,177] Additionally, the American Academy of Pediatrics has issued a clinical practice guideline for opioid prescribing in cases of acute pain, emphasizing the importance of utilizing nonpharmacologic therapies and nonopioid medications, and a multimodal approach that only includes opioids when necessary. The clinical practice guideline also recommends that clinicians provide naloxone and offer guidance to patients and their families on recognizing and responding to the signs of an opioid overdose.[178]

Policymakers: Support from local or state policymakers is often key for implementing youth substance use prevention strategies, including many policies highlighted in the Policy Considerations section of this document. For example, many laws and policies that reduce exposure to community-level risks and create healthier communities require familiarity with local, state, and federal tax policies and regulations. Policymakers can also create an environment that supports public health officials in implementing effective youth substance use prevention interventions across various settings such as schools, communities, and families.

Complementary resources

CDC's Community Guide Program supports the Community Preventive Services Task Force, which is a nonfederal, independent task force that provides recommendations and findings on programs, services, and other intervention approaches to protect and improve population health.[179] The Community Guide Program conducted a series of systematic reviews (updates) on youth substance use prevention intervention types. The task force recommended family/parent-based and community- and coalition-based interventions for youth substance use prevention.

POLICY CONSIDERATIONS

Reducing youth's access and exposure to substances through laws and policies is important to prevent youth substance use.[180] This section does not provide a comprehensive list of all laws and policies that can help prevent youth substance use, but offers examples of effective ways to reduce youth exposure to community-level risks. These evidence-based policies include those that focus on reducing the accessibility, availability, and affordability of substances, such as alcohol and other drugs, to youth.

Restricting Access

Enforcing laws that restrict youth from purchasing substances, such as alcohol and tobacco, can reduce youth exposure to community-level risks. For example, raising the minimum legal drinking age to 21 and enforcing it has helped significantly decrease alcohol use and alcohol-related fatal and nonfatal motor vehicle crashes among youth.[181] Additionally, laws that restrict alcohol use in young drivers, such as lower blood alcohol concentration laws for young and inexperienced drivers[182] have been shown to decrease both fatal and nonfatal motor vehicle crashes and the number of crashes involving alcohol.[181] Future research could assess whether similar laws could have an impact on cannabis-impaired driving, since cannabis use can slow reaction time and impair a person's coordination, perception, and ability to make decisions.[183,184]

Limiting availability

Many states have laws that limit alcohol availability by setting limits on the number of places that sell alcohol (e.g., bars, liquor stores, convenience stores) and the distance between them.[185,186] This can be done through licensing or zoning requirements.[187] Research shows that these restrictions can reduce underage drinking rates.[187-190] Evidence suggests that limiting the location of alcohol outlets near schools can reduce youth alcohol use.[191] Policies to limit days and hours for alcohol retailers to legally sell or serve alcohol can also reduce alcohol-related harms.[192] Further research is needed to determine whether similar restrictions can impact the use of other substances like cannabis; however, there is some evidence to indicate that greater access to cannabis retail stores is related to increases in cannabis-related emergency department visits, hospitalizations, or poison control center calls and cannabis use in adults and young adults.[193]

Raising price and decreasing demand

Raising the price of alcohol through excise taxes has been shown to reduce demand.[194] Specifically, several studies that examined youth's price sensitivity to alcohol have shown that price increases are associated with lower rates of use.[43-45] Additionally, some states choose to use the revenue generated from these tax increases to support public health programs that can have other positive, indirect impacts.[195] Minimum unit pricing, which sets the minimum sale price of alcohol per standard drink, can also increase alcohol prices, reduce drinking, and help save lives.[196] Other pricing policies, such as restrictions on happy hour and alcohol price promotions, are less effective in reducing drinking than alcohol tax increases and minimum pricing policies; however, they may help decrease underage drinking among college students.[187]

Laws restricting the marketing and advertising of substances to youth may also decrease demand. Evidence has shown that tobacco advertising is associated with smoking initiation and tobacco use among youth,[197] and early research suggests that marketing has a similar impact on youth cannabis use.[198]

IMPLEMENTATION

Successful implementation of an evidence-based strategy is critical to prevent youth substance use. Research has found that higher levels of fidelity throughout the implementation process are significantly related to program outcomes.[199] Incorporating implementation frameworks and guidance may also enhance an organization's readiness and overall support for evidence-based programs.[200,201] A successful prevention program often has several implementation phases, which are all equally important. They include planning and assessment, building partnerships, understanding capacity, selecting the best available strategies and approaches, and implementing and evaluating potential adaptations.[201,202] These phases can be completed in order or serve as standalone activities.[202]

Planning allows organizations to define the problem and assess any related risk and protective factors.[201,202] Following a community needs assessment, the Strategic Prevention Framework[201] recommends researching and building local capacity, including implementation readiness, and then organizing and preparing community members to act. Engaging stakeholders, building a strong team with subject matter expertise, and raising awareness in the community are also key steps to build local capacity.[201]

To initiate the planning phase, consider the specific setting the program is tailored for (e.g., school-based, community-focused), populations of focus (e.g., youth from communities that have economic challenges), cost (e.g., are the resources all free and accessible online), and potential sector involvement.

There are certain community- and societal-level factors that are important to consider before implementing youth substance use prevention programs.[201,202] Community-level factors include collaboration and partnerships, the perceived need for a youth substance use prevention program, and whether the approach fits the community's needs.[202] Societal-level factors to consider are the social beliefs and attitudes around youth substance use, current policies that support youth substance use interventions, and resource availability.[202]

Certain sectors may be involved in the implementation process, depending on the program's setting, which requires considering the community's capacity.[202] Capacity assessments clarify what exists within the community and where any gaps are.[202] To assess community capacity, identify organizations in the community that are already focusing on youth substance use and find subject matter experts.[202] Adapting specific components of programs and practices may ensure fit within communities.[202]

These implementation phases can be condensed into **five steps**, which allow public health organizations to bring together their approaches to youth substance use prevention.[201,202]

1

The **first step** involves defining the problem, collecting data on youth substance use, and identifying further information (i.e., who, what, where, when, and how). This step also involves identifying the specific risk and protective factors relevant to certain communities and populations. Organizations will explore reasons that certain communities and groups are disproportionately impacted by youth substance use as compared to others. The risk factors may be specific to communities and groups and increase their risk for youth substance use, while protective factors reduce the likelihood of youth substance use. The goal of youth substance use prevention work is to decrease these risk factors and increase the protective factors among communities, then reduce youth substance use.

2

The **next step** is to ensure community readiness and support for implementing and evaluating prevention work. This also includes reviewing resources needed to address the problem by engaging with diverse stakeholders, developing and sustaining a prevention team, and raising awareness in a community about how to discuss, identify, and reduce substance use concerns.

3

The **third step** identifies prevention strategies for youth substance use based on the information gathered in the previous steps. Depending on time and resources, organizations can develop and test prevention strategies or identify youth substance use prevention strategies that are rigorously evaluated and fit the needs of their community.

4

The **fourth step** is delivering the program(s) selected and monitoring for program support, any adaptations made to core program content, and establishing ways to help with successful program implementation through training and other support.

5

The **last step** focuses on evaluation of both process (e.g., Did we complete all modules in the curriculum?) and outcome (e.g., Did we see decreases in substance use behaviors?). This step can be an ongoing process due to the need to evaluate and assess effectiveness on youth substance use outcomes that will continue post-implementation.

Public health organizations can use implementation frameworks to guide their implementation and evaluation process and ensure these criteria are met throughout implementation. The Knowledge to Action Framework is a conceptual framework that helps organizations translate knowledge and deliver sustainable evidence-based interventions.[203] There are two key components of the Knowledge to Action framework: (1) Knowledge creation, which includes knowledge inquiry, incorporating the information, and creating products and tools, and (2) Action cycle, which focuses on applying the knowledge gained.[201] The action cycle of the framework emphasizes organizations tailoring the knowledge to their local community, assessing barriers, and adjusting the intervention to fit their communities' needs.[203]

Another useful implementation framework is RE-AIM, which focuses on five different aspects that aid in implementation.[204] The RE-AIM acronym stands for (R)eaching the target population, (E)ffectiveness or efficacy, (A)doption of the program by the surrounding community, (I)mplementation consistency, adaptations, and cost associated with delivery, and (M)aintenance of the intervention over time and its sustainability.[204] The RE-AIM framework is a planning and evaluation tool that addresses concepts on individual- and community-level outcomes related to program impact and sustainability.[205] Evidence suggests that the RE-AIM framework serves as a roadmap for planning program implementation,[203] and that it's useful for analyzing the program's context, setting, and potential public health implications.[205]

An expansion of the RE-AIM framework is the PRISM framework.[204] The PRISM acronym stands for (P)ractical, (R)obust, (I)mplementation and (S)ustainability (M)odel.[206] The PRISM framework focuses on multilevel contextual factors such as recipient characteristics, recipient perspectives about specific programs, external environment, and implementation and sustainability.[204] The PRISM framework also examines contextual factors as barriers to and assistance for program implementation.[205,206] PRISM emphasizes the importance of having partners' perspectives during implementation and assessing the external environment's sustainability infrastructure.[204] Emphasis is also placed on assessing the initial resources needed for implementation and the resources needed to sustain consistent program delivery. Due to changes in the community environment, the infrastructure and external environment factors should be evaluated continuously.[204]

Like the Knowledge to Action Framework, the Interactive Systems Framework is a conceptual model that outlines three interconnected systems that work together to promote evidence-based intervention adoption, implementation, and sustainability.[207] The three interconnected systems are the prevention synthesis and translation system, prevention support system, and prevention delivery system. The prevention synthesis and translation systems help disseminate information about programs, practices, or policies and matching themes that the target audience can use. The prevention support system aids in supporting the work of individuals who will implement the programs, practices, or policies. The prevention delivery system focuses on implementing and delivering the programs, practices, or policies.[207]

These frameworks can be used to implement the various approaches outlined in this resource. Failure to implement evidence-based programs exactly as planned may jeopardize the program's success.[208] Using implementation support improves planning, reflecting, and evaluating processes that aid in high-quality implementation.[200] The level and quality of implementation approaches directly impact program outcomes.[199] Maintaining support throughout the intervention process is crucial to delivering high-quality implementation of an evidence-based program. More information on what to consider during the evaluation process can be found in the Monitoring and Evaluation section.

MONITORING *and* EVALUATION

Continuously evaluating programs and interventions can help identify how to improve the intervention, determine policy improvements, compare costs against benefits, ensure no unexpected harms to the population of focus, assess which parts of the intervention produce the most meaningful change, and improve strategies to increase participation.[209]

For improved program success, consider how well a program or intervention is implemented as intended by its developers. Evidence shows that the more closely a program follows its intended goals and actions, the more likely the program is to show improved outcomes.[210] A high-quality implementation of a less promising intervention can be more effective than a low-quality implementation of a proven intervention.[210] There are several methods to monitor program adherence, for example, 1) direct observations in person or through video, 2) facilitator self-assessment after each session, and 3) facilitator self-assessment after the program ends. Additionally, tools may be used, including program adherence checklists, quality ratings, participant responsiveness ratings, and attendance data.

Given the nature of youth substance use programs and interventions, program-specific evaluations are important. Unless an intervention or policy is implemented at a community level, it is difficult to demonstrate population effects. Instead, evaluating those directly involved in the intervention is most appropriate. This could be accomplished, for example, by self-reported pre-intervention surveys, followed by an end-of-intervention survey, and post-intervention survey(s), ideally at least six months after the intervention's completion to determine lasting effects. The survey should include assessing the primary substance use outcome of interest and other risk and protective factors for substance use.[211-213]

In implementing evaluation activities, it is important to include local community members and organizations who are equipped with firsthand knowledge of community needs and lived experiences. These individuals are best positioned to interpret the data and provide meaning to the findings.[214] The focus of the evaluation, data collection methods, analysis, and translating data to action can be informed by a diverse group of community members—including the community's youth.

Regularly sharing evaluation results with community members enhances the understanding of findings through local knowledge and expertise. The youth substance use outlook constantly changes based on new substances in the legal and illegal drug supply (e.g., cannabis products, novel synthetic opioids, psychedelic substances), routes of administration, and combinations of polysubstance use, requiring communities to adapt their response. This approach allows interventions to be tailored to meet the community's needs.

LIMITATIONS

The **ENGAGE: Evidence-Based Strategies to Prevent Youth Substance Use** resource for action presents six evidence-based strategies, each with several approaches, to prevent youth substance use. As described in the Assessing the Evidence section, programs with the strongest evidence were included in this guide. However, the strength of evidence and intended populations for the interventions vary within and across approaches. While programs are often developed and evaluated for youth of a specific age or demographic group, more work is needed to establish effectiveness of programs that were not assessed among youth who represent different groups or communities.

As technology evolves rapidly, it will become increasingly important to identify how to leverage it to reach youth and deliver interventions. While several innovative and promising programs were identified, evidence was insufficient for inclusion in this guide. As evidence continues to grow, this should be reassessed.

As the substance use landscape continues to shift dramatically, more work is needed to evaluate if existing interventions reduce vaping initiation and use of cannabis and nicotine, polysubstance use, including counterfeit pills and other forms of illegally made fentanyl, and as well as hemp-derived and other synthetic cannabinoids. It is important to note that the **ENGAGE: Evidence-Based Strategies to Prevent Youth Substance Use Prevention** resource for action does not include approaches solely focused on preventing tobacco use.

Appendix I: Strategies, Approaches and Best Available Evidence

Strategy	Approach/Program, Practice, or Policy	Best Available Evidence		
		Youth Substance Use Prevention*	Youth Substance Use Initiation*	Risk/Protective Factors for Youth Substance Use*
Enhance Knowledge and Skills	**School-based interventions**			
	Good Behavior Game	x	x	
	LifeSkills Training	x	x	x
	Project Towards No Drug Abuse	x		
Nurture Family Environments	**Early childhood home visitation**			
	Nurse-Family Partnerships	x	x	
	Parenting skills and family relationship programs			
	Strengthening Families (SFP 10-14)	x	x	x
	Strong African American Families	x	x	x
	Familias Unidas	x	x	x
Give Youth Access to Resources and Activities	**Extracurricular activities and after-school programs**			
	Extracurricular participation	x		x
	Mentorship programs			
	Big Brothers, Big Sisters of America	x	x	x
	Raising Healthy Children Program	x	x	x
Amplify Protective Community Environments	**Community-level programs to create healthier communities**			
	Communities that Care (CTC)	x	x	x
	PROSPER (PROmoting School-community university Partnerships to Enhance Resilience	x	x	x

Strategy	Approach/Program, Practice, or Policy	Best Available Evidence		
Guide Efforts to Lessen Immediate and Long-Term Harms	**Services and supports for youth exposed to violence and other adverse experiences**			
	KEEP SAFE	x		x
	Treatment and services for youth with early substance use behaviors			
	Multidimensional Family Therapy	x		x
	Coping Power	x		x
Encourage Provider and Health System Engagement	**Addressing substance use during primary care visits**			
	Bright Futures			x
	Screening combined with intervention			
	Screening, Brief Intervention, and Referral to Treatment (SBIRT)	x		

*Youth substance use prevention is defined as program, practices, or policies that are designed to stop youth from using substances for the first time or prevent them from using substances anymore. Youth substance use initiation is defined as preventing youth from using substances for the first time. Risks and protective factors for youth substance use are outcomes that either increase or decrease youth's chances of using substances.

Appendix II: List of Clearinghouses, Databases, and Resources Reviewed

1. CDC STRYVE Registry
2. Crime Solutions
3. Center for Technology and Behavioral Health
4. Office of Juvenile Justice and Delinquency Prevention
5. Penn State Prevention and Intervention Support
6. Pew Results First Clearinghouse Data
7. RAND
8. Rhode Island Department of Health Master List of Evidence Based and Innovative Interventions for Drug Overdose Prevention
9. Evidence-Based Resource Guide Series: Substance Misuse Prevention for Young Adults
10. Social Programs That Work
11. The California Evidence Based Clearinghouse for Child Welfare
12. What Works Clearinghouse
13. ATHENA Excellence in Prevention Strategy List
14. Blueprints

Appendix III: List of Interventions Considered for Review

- Blues Program
- Communities That Care
- Cooperative Learning
- Coping Power
- Effekt
- Familias Unidas
- Family Check-Up
- Good Behavior Game
- Guiding Good Choices
- I Hear What You're Saying
- Keep Safe
- Learning Together
- LifeSkills Training
- Linking the Interests of Families and Teachers
- Multidimensional Family Therapy
- Multisystemic Therapy – Problem Sexual Behavior/Substance Abuse
- Nurse – Family Partnership
- Positive Action
- Positive Family Support
- Project Chill
- Project Ex
- Project Northland
- Project Star (Midwestern Prevention Project)
- Project Toward No Drug Abuse
- Project Toward No Tobacco Use
- Project Venture
- PROSPER
- Raising Healthy Children
- RealTeen
- School Health and Alcohol Harm Reduction Project
- SPORT Prevention Plus Wellness
- Staying Connected with Your Teen
- Strengthening Families Programs: For Parents and Youth 10-14
- Strong African American Families
- Teen Intervene
- Thinking Not Drinking: A SODAs City Adventure

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