Chapter 8
Prevention

Banku Jairath, Laura Duda, and Leslie R. Walker-Harding

Types of Prevention

In a 1994 report on prevention research, the Institute of Medicine (IOM 1994) proposed a new framework for classifying prevention based on Gordon's (1987) operational classification of disease prevention [1]. The three types of prevention are universal, selective, and indicated.

Universal

Universal prevention targets an entire population (national, local, community, school, or neighborhood) with messages and programming aimed at preventing or delaying the use of alcohol, tobacco, and other drugs. The goal of universal prevention strategies is to avert the onset of substance use by providing information and necessary skills. The entire adolescent population is considered at risk and able to benefit from this type of prevention programming. Prevention materials are delivered to large groups (e.g., in school or primary care physician offices) without any prior screening for substance use risk [1].

B. Jairath (✉)
Department of General Pediatrics, Penn State Hershey Children's Hospital at the Milton S. Hershey Medical Center, Hershey, PA, USA
e-mail: bjairath@pennstatehealth.psu.edu

L. Duda
Department of Pediatrics, Penn State Children's Hospital at the Milton S. Hershey Medical Center, Hershey, PA, USA

L. R. Walker-Harding
Department of Pediatrics, Penn State Children's Hospital, Hershey, PA, USA

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Selective

Selective interventions are directed toward individuals with a higher-than-average risk for substance use. Selective prevention measures target subsets of the adolescent population that are considered at risk for substance use disorder by virtue of their membership in a particular segment of the population. Selective prevention focuses on the entire subgroup, regardless of the degree of risk of any individual within the group [1].

Indicated

Indicated interventions target individuals who are already using substances or are engaged in other high-risk behaviors in order to prevent heavy or chronic use. Indicated prevention measures are designed to prevent the onset of regular substance use in individuals who do not yet meet the medical criteria for a substance use disorder but are showing early warning signs. The mission of indicated prevention is to identify individuals who are exhibiting problem behaviors and to involve them in special programs [1].

The aforementioned levels of prevention occur as a continuum from universal to indicated prevention (Fig. 8.1).

Risk Factors and Protective Factors

Research has identified numerous individual-level factors that are associated with the likelihood of substance use [2]. Risk and protective factors are organized into community, school, family, and individual/peer factors (Fig. 8.2).

Risk factors are qualities of a child or adolescent, or his or her environment, which increase the likelihood of later substance use [3]. The availability of substances varies, with some communities having greater availability (e.g., more liquor stores or marijuana dispensaries). Communities with higher availability have

Fig. 8.1 Prevention levels as a continuum

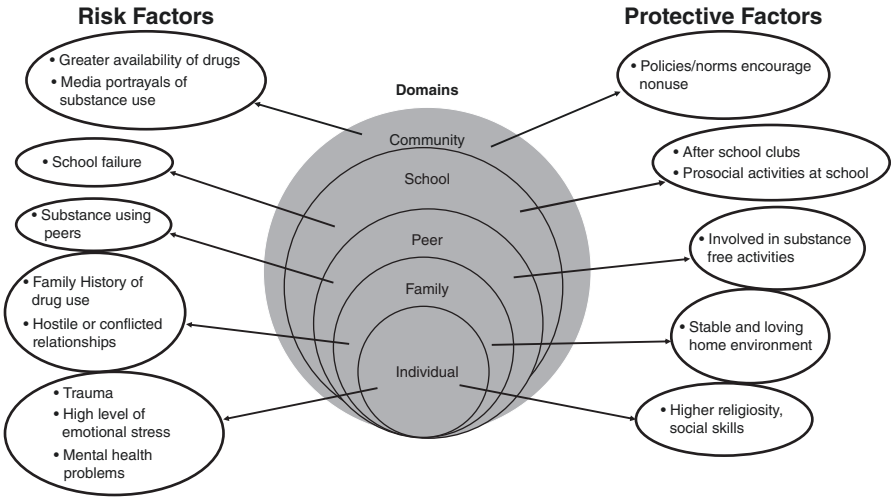

Fig. 8.2 Risk and protective factors in different domains

typically demonstrated elevated rates of adolescent substance use [4]. Perhaps influencing an adolescent's perception of substance availability or acceptability, media portrayals of substance use (ranging from alcohol advertisements to movies featuring substance use) have also been linked to earlier initiation of substance use [5].

In the family domain, parental attitudes toward drug use are similarly predictive of later adolescent use. Adolescents are more likely to engage in substance use behavior when their parents have favorable or approving attitudes toward drug or alcohol use. Additionally, adolescents raised in families with high levels of conflict are also more likely to use substances and later develop substance use problems [3].

In the individual and peer domains, several constitutional factors have emerged as consistent predictors of later substance use. Individuals characterized as having a higher degree of sensation-seeking, risk-taking, impulsivity, or low harm avoidance are more likely to engage in substance use behaviors [3]. Similarly, adolescents who display more frequent and higher levels of childhood aggressive behavior, and antisocial behavior in early adolescence, are also more likely to engage in substance use behaviors [3]. Having friends who engage in antisocial behaviors, and being friends with peers who use substances, also predicts later substance use. The earlier an adolescent initiates substance use, the more likely he or she is to develop substance use problems later in life [3].

Protective factors are qualities of children and their environments that promote successful coping and adaptation to life situations and change. Protective factors are not simply the absence of risk factors; rather, they may reduce or lessen the negative impact of risk factors [6]. All children have a mix of risk and protective factors. An important goal of prevention is to change the balance between these so that the effects of protective factors outweigh those of risk factors. Risk and protective factors may be *internal* to the child (such as genetic or personality traits or specific behaviors) or *external* (i.e., arising from the child's environment or context), or they may come from the interaction between internal and external influences.

Opportunities for prevention exist in programs that seek not only to decrease risk factors but also to increase protective factors. For example, during adolescence, opportunities for prosocial involvement, such as after-school clubs, youth organizations, and community events, act protectively against substance use [7]. Similarly, recognition for involvement in prosocial activities at school is also protective against substance use behaviors [7]. At the family level, a similar trend emerges, where opportunities for prosocial involvement in the family, such as game nights, and opportunities to help with chores are similarly associated with fewer substance use behaviors, as is family recognition of involvement in healthy activities [7]. Finally, at the individual level, higher religiosity and social skills are all protective factors for adolescent substance use.

Examples of Programs (Table 8.1)

Community Programs

Prevention programs aimed at the general population of children and adolescents during key times of transition, such as the progression to middle school and high school, can produce beneficial effects even among high-risk families and children. In most cases, prevention programs do not single out high-risk

Table 8.1 Summary of prevention programs

Name of program	Type of program	Program description
Communities That Care	Community-based	Assesses risk and protective factors in a particular community and recommends programs
Prosper	Community-based	Evidence-based delivery system for programs for sixth and seventh graders
Positive Action	School-based	Targets preschool and elementary students to promote positive educational environment and cooperative learning
The Botvin Life Skills Training	School-based	Three-year program for middle schoolers that focuses on peer relations, decision-making, goal setting, and substance use
Michigan Model for Health	School-based	Health education curriculum for kindergarten through 12th grade promoting healthy behaviors
Preventure	School-based	Counseling sessions for high-risk youth targeted to personality types
Nurse-Family Partnership	Family-based	Nurse visits for first-time, single mothers from prenatal until the child is 2 years old
Strengthening Families	Family-based	Counseling sessions with family to improve resiliency and address behaviors
Guiding Good Choices	Family-based	Parent training sessions that focus on improving communication

Additional information for the programs in this table can be found at https://www.samhsa.gov

populations and serve not only to prevent the initiation and progression of substance but also to reduce stigma and promote bonding of adolescents to their schools and communities [8].

Evidence-based substance use prevention programs delivered to entire communities typically have multiple components. These often include school-based, family, and parenting components, along with mass media campaigns, public policy initiatives, and other types of community organization and activities. These interventions require a significant amount of resources and coordination, given the broad scope of the activities involved. Program components are often managed by a coalition of stakeholders including parents, educators, and community leaders. Research has shown that community-based programs that deliver a coordinated, comprehensive message about prevention can be effective in preventing adolescent substance use [9].

Although a full review of all community-based prevention programs is beyond the scope of this chapter, here we review two commonly used evidence-based programs, Communities That Care and PROSPER.

Communities That Care (CTC)

Communities That Care is a model of evidence-informed community practice to improve school functioning and reduce high-risk behaviors including substance use. Communities are empowered to use their own local data on levels of risk and protection as diagnostic information to guide the selection of preventive interventions that address the community's profile [6]. Through this program, community members receive assistance collecting data on risk and protective factors among constituents in order to develop what is referred to as a "community profile." Using these data, communities then select prevention services focusing on the highest-risk geographic areas. Within these targeted areas, the most prominent factors are identified and prioritized, and evidence-based prevention interventions are selected for implementation. This approach is most effective due to its implementation of prevention interventions tailored to local risk and protective factors. The programming also empowers the community to choose from a growing number of tested interventions suited to the community demographic composition. This enhances community ownership and commitment to implementation of the preventive interventions selected [6]. A full review of CTC, a complex community-based intervention, is beyond the scope of this chapter, but further details are available at https://www.communitiesthatcare.net.

PROSPER

PROSPER (PROmoting School-community-university Partnerships to Enhance Resilience) is one of the few childhood interventions that has demonstrated enduring effects in the prevention of substance use progression through young adulthood.

PROSPER is a delivery system that utilizes an outreach arm, the Cooperative Extension System (CES), to catalyze community teams to deliver evidence-based school- and family-focused interventions targeting middle school students.

The PROSPER delivery system model consists of:

1. Teams of community stakeholders linked with public schools and led by local CES staff
2. Prevention Coordinators (PCs) connected with the CES
3. A team of state-level researchers and CES faculty

PCs serve as liaisons between the community and university teams, providing ongoing, proactive technical assistance, implementation oversight, and evaluation to community teams to optimize team functioning and program delivery [10]. A full review of PROSPER is beyond the scope of this chapter, and further details are available at www.helpingkidsprosper.org.

School-Based Programs

School-based prevention programs have varied approaches depending on the targeted age group. Effective programs typically incorporate one or more of the following components: substance use education, teacher instruction and classroom management, cognitive and social development, and tutoring [11]. School-based prevention programs may also focus on reducing risk factors such as academic underperformance or increasing protective factors such as school involvement, parental involvement in schools, and offering positive after-school activities.

Positive Action is a program that targets students in preschool and elementary years. The curriculum promotes a positive educational setting and cooperative learning and has been shown to reduce substance use in adolescence. Positive Action's programming is implemented from kindergarten to sixth grade and has a unit in each grade focusing on various concepts such as "managing yourself responsibly" and "telling yourself the truth" [12].

The Botvin Life Skills Training is a 3-year program implemented in middle school that focuses on peer relations, decision-making, goal setting, and education about substance use. This program involves 15 classes in the first year of the program, 10 in the second year, and 5 in the third year. Five- and 6-year follow-up demonstrates a cost-effective reduction in substance use; participants had a 21% decrease in smoking initiation, 23% decrease in marijuana use, and 11% decrease in alcohol intoxication [13]. Long-term follow-up of participants in Life Skills shows sustained reductions in prescription substance use persisting well into young adulthood [14].

The Michigan Model for Health is a school-based program that delivers short classroom lessons from kindergarten through 12th grade. The lessons cover aspects of healthy lifestyles including nutrition and substance use. Research has shown that this program reduces initiation and alcohol use in students who participated [15].

Preventure is a school-based targeted intervention for high-risk adolescents. Tailored interventions are delivered based on a student's scores in higher-risk personality dimensions including anxiety, hopelessness, and impulsivity. Students with scores one standard deviation or above the school mean are offered to participate in two 90-min workshops. Participants of these workshops have demonstrated lower rates of drinking and binge drinking at 6- and 24-month follow-up [16].

Project ALERT is a series of 11 lessons focused on developing motivation and skills to resist drugs, alcohol, and tobacco. The curriculum is implemented in seventh and eighth grade students. The program was effective in decreasing marijuana and cigarette use in eighth graders, but these decreases were not sustained into high school [17].

The Drug Abuse Resistance Education (DARE) program was widely implemented in schools in the 1980s and 1990s and is still being used in some settings despite lacking evidence. The curriculum includes 16 weeks of protocol-driven instruction delivered in elementary school. However, 5- and 10-year follow-ups have demonstrated no reduction in substance use when compared to similarly aged peers who did not participate in the program [18].

Family-Based Programs

Family-based interventions focus on the relationship between child and parent(s) to prevent substance use. Parenting styles that include lax monitoring and/or harsh consequences can contribute to adolescent substance use [19]. Additionally, parenting styles that are overly rigid or uninvolved can diminish open and effective communication about substances. Parent/adolescent communication plays a large role in prevention of substance use. Adolescents who feel a high level of bonding and support from their families are approximately half as likely to develop a substance use disorder [19].

Most family-based programs focus on parenting skills to establish clear expectations for behavior, manage conflicts and anger, and build healthy family bonds. Like the school-based programs, these programs target a range of ages. Nurse-Family Partnership provides support and education for first-time, single mothers from the prenatal period until the child is 2 years old. The program is currently implemented in 31 states across the nation and has demonstrated a significant reduction in substance use among 15-year-olds [20].

Strengthening Families is a family training program implemented at ages 3–16 years. It involves 14, 2-h weekly training sessions that focus on increasing resiliency and reducing behavior problems. Guiding Good Choices is a similar program that targets the parents of students aged 10–14 years. This program involves 5–7 parent training sessions that focus on improving the communication between the child and parent, conflict resolution, and parent-child bonding. A reduction of substance use in the participants through adolescence has been demonstrated from both of these programs [21].

Medical practitioners should also help guide parenting styles and discuss communication between parent and child. They can also refer families to participate in family-based programs. Information about the availability of these programs can be accessed through the individual websites for each program.

Peer and Individual Prevention Interventions

Association with peers who use substances or have deviant behavior is a strong predictor of substance use in adolescence. Conversely, having a peer group that does not use substances is strongly correlated with an adolescent's abstinence from substance use [19]. It is unclear if adolescents choose peer groups that correspond to their individual desire to initiate or abstain from substance use or if they are influenced by their peer group. College students who have high school peers with pro-drinking norms are more likely to engage in heavy drinking by the end of their first semester in college [22].

Data demonstrates that adolescents overestimate their peers' substance use [23]. This is also seen in social media perceptions of use [24]. It is unclear if this overestimation of peers' substance use results in increased personal use. The social norms theory suggests that adolescents who overestimate their peers' use of substances will increase their own use. Programs such as the social norms approach that focus on correcting these misconceptions have been implemented to attempt to decrease substance use in adolescents [25]. However, there is a relative lack of data supporting efficacy of this approach. There is evidence that peer-led prevention programs can be effective in decreasing tobacco and alcohol use by adolescents, but more research is needed to clarify the impact of peers in prevention programs [26].

Children with psychiatric conditions such as mood or anxiety disorders have a higher risk of substance use. Eleven to 48% of adolescents with substance use disorders have co-occurring depression or anxiety, with depression being the most common [27]. Prevention programs that use cognitive behavioral therapy have been successful at reducing symptoms of anxiety and depression in high-risk groups of adolescents [28]. Effective short-term treatment of depression in adolescents has also demonstrated a reduction in the rates of substance use disorders [29]. Identifying and treating depression and anxiety in adolescents may prove to be a valuable substance use prevention tool. Prompt referral to a clinician skilled in the treatment of anxiety and depression can be important in the prevention of future substance use.

Conclusion

There are a variety of different prevention programs that target adolescent substance use. Areas for intervention include not only an adolescent's school—where interventions are most commonly implemented—but also community and home

environments. Evidence not only supports mitigating risk factors but also enhances protective factors in an adolescent's life. Knowledge of the available local prevention resources is essential when working with families. More information about specific prevention programs can be found on the Substance Abuse and Mental Health Services Administration (SAMHSA) National Registry of Evidence-Based Programs and Practices (www.samhsa.gov/nrepp). Historically, this registry included only programs with a positive effect and strong supporting evidence; more recently, this registry has also included programs with a less clear evidence base, so careful assessment of any program is critical prior to implementation.

All clinicians who care for children and adolescents have a unique opportunity to guide utilization of prevention programs by their patients. Please refer to Table 8.1 for a list of prevention programs covered in this chapter. Understanding the details of programs and their evidence-based effectiveness is paramount to helping all youth.

Take-Home Points

- Prevention interventions are classified as universal (targets entire population), selective (targets at-risk individuals), or indicated (targets individuals showing early signs and symptoms of the illness).
- Numerous community-, school-, and family-based prevention programs can reduce substance use with potential effects enduring into early adulthood.
- Effective communication between parents and adolescents is associated with decreased substance use.
- Individual- and peer-level prevention interventions may also reduce the onset of substance use and preventing its progression to a use disorder.
- Evidence-based treatment of anxiety and depression in adolescents may also decrease substance use.

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