Connecting the Dots:
Aligning Cross-sector Approaches to Reduce Adolescent Substance Use Disorder and Suicide

Convening Summary
October 2018

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EXECUTIVE SUMMARY

Trust for America's Health (TFAH), with support from the Conrad N. Hilton Foundation, held a convening *Connecting the Dots: Aligning Cross-sector Approaches to Reduce Adolescent Substance Use Disorder and Suicide* in Washington, DC on October 18, 2018, to begin to better understand and reduce the factors and conditions contributing to two troublesome adolescent health outcomes—substance misuse and suicide. The convening brought together 30 cross-sector thought leaders and policymakers to explore the roles of the health, justice, education and youth development sectors in reducing the prevalence of adolescent substance misuse and suicide. Participants included federal officials, researchers, foundations, service providers and advocates from the health, justice, education and youth development sectors.

Through facilitated discussion, panel presentations, and interactive exercises before and at the meeting, participants came together to:

1. Learn about and disseminate the latest research and data on the characteristics of the adolescents at highest risk for poor outcomes in each sector;
2. Identify evidence-based strategies for reducing risks and increasing protective factors for substance misuse and suicide within and across the health, justice and education sectors; and
3. Encourage cross-sector collaboration to reduce risk and increase protective factors for substance misuse and suicide through identification and alignment of multi-sector strategies.

The day-long discussion led to the development of the following policy recommendations to advance a multi-sector agenda to reduce adolescent substance misuse and suicide:

1. Leverage the role of each adolescent-focused sector in addressing common risk/protective factors for adolescent substance misuse and suicide to better align multi-sector interventions and investments.
2. Implement systems changes and build infrastructure to better align preventive efforts across adolescent-serving sectors.
3. Adopt an explicit equity and trauma-informed approach that addresses the effects of oppression, discrimination and historical trauma on substance misuse and suicide and appropriately directs resources to reduce inequities.
4. Increase funding for efforts to prevent substance misuse and suicide, relative to investments in treatment, particularly primordial and primary prevention strategies.
5. Build infrastructure and support to enable greater implementation and scaling of prevention strategies.
6. Apply a positive youth development approach across efforts, including an emphasis on empowering youth voice, enhancing youth participation in decision-making, and asserting an asset/protective-based approach rather than a deficit/risk-based one.
7. Invest in more prevention-related research, particularly focused on cross-sector impacts and implementation science, as well as research in emerging areas, such as the impacts of social media.

The following document summarizes the research presented, the discussions, and the recommendations that emerged at the convening, synthesizing both areas of consensus as well as differences. Importantly, the views expressed represent the collective perspectives of a diverse range of individuals and are not to be interpreted as universal points of agreement across the group.

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INTRODUCTION

Recent data suggest positive trends related to adolescent risk-taking.[1] Overall rates of reported illicit or injection drug use, prescription drug misuse, dating violence, and bullying among high schoolers are declining.[2,3] And after years of increases, the rate of prescription overdose among youth 15 – 24 years old declined in 2017.[4] While these trends suggest progress, there remain significant areas of concern. The two leading causes of death for teenagers 15-19 years of age are unintentional injuries, such as substance misuse overdoses and car accidents, and intentional injuries or suicide.[5] We know that most people with substance use disorders (SUDs) began using substances during their adolescence and many serious mental illnesses begin to manifest in adolescence. Therefore, the current rates of adolescent substance misuse and mental health problems represent a significant risk for continuing current upward trends in adult substance misuse. And overall trends for behaviors associated with mental health and suicide, such as feelings of hopelessness, suicide ideation and suicide attempt, *have stagnated or gotten worse* in recent years.[6] Although cigarette use continues to decline among adolescents, vaping rates are climbing, with 37.5% of 12th graders reporting vaping over the last year.[7] And importantly, data also reveal great and growing inequities despite the seemingly positive national trends when they are disaggregated by race and ethnicity, geographic location, gender, and/or sexual identity.

Decades of research have produced a strong evidence base of interventions for reducing adolescent risk factors and bolstering protective factors for these key adolescent health outcomes. Despite this evidence, interventions have not yet been adopted or implemented as widely, or effectively, as would be expected. Why hasn't more progress been made in the last few decades? One reason is that efforts to address adolescent outcomes have traditionally been siloed between multiple sectors, including the health, justice, and education sectors. Additionally, there has historically been an underinvestment in prevention, particularly primary prevention, as compared to treatment and recovery. Discussions around adolescent mental and behavioral well-being have also often been framed in the negative—preventing certain risky behaviors, rather than in the positive—bolstering and promoting positive conditions and behaviors, stifling investments in upstream prevention. Factors such as racism and other forms of discrimination have led to a criminalization and stigmatization of mental and behavioral health outcomes, creating a system in which individuals are disproportionately diverted to criminal justice systems rather than prevention and treatment services.[8] And many people believe that adolescent substance use is normal during that developmental period of risk-taking and that all substance use leads to addiction. To overcome these barriers, a cross-sector shift is needed to align and harness the strengths of each sector towards a more effective, and collective, approach to reducing risk and promoting protective factors in adolescence.

Defining Adolescence

The definition of adolescence varies across settings and organizations (see Appendix I). For this reason, no single definition of adolescence was defined for the convening; rather, participants were asked to specify an age range if relevant to the context of the discussion (i.e. in describing an intervention or dataset).

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ALIGNMENT OF PREVENTION FRAMEWORKS ACROSS SECTORS

To ground the day's discussions, participants reviewed several frameworks, both specific to adolescence, and more generally to health promotion and disease prevention (see Figures 1 – 4 below). In reviewing the various frameworks, participants began to 1) differentiate (and integrate) the social determinants of health approach from the risk and protective factors approach, 2) orient each sector with the language and framing of the others, and 3) identify similarities between each sector's approach to prevention.

Social Determinants of Health: Systems and Structures

In general terms, social determinants are the complex and integrated social structures and economic systems that are responsible for most inequities. They include the social and physical environments as well as structural and societal factors such as poverty and racism. When referred to by those in public health and health care, they usually encompass the impact non-health systems have on health and well-being. Other sectors embrace a social determinants framing as well. There are also social determinants of learning which look at factors beyond the education system and social determinants of juvenile justice which look beyond the justice system—the key idea being that environmental, structural and societal factors from one sector can impact outcomes in others. As such, the recognition of the importance of social determinants and the interdependency of determinants on outcomes across sectors make it a unifying concept across disciplines and sectors.

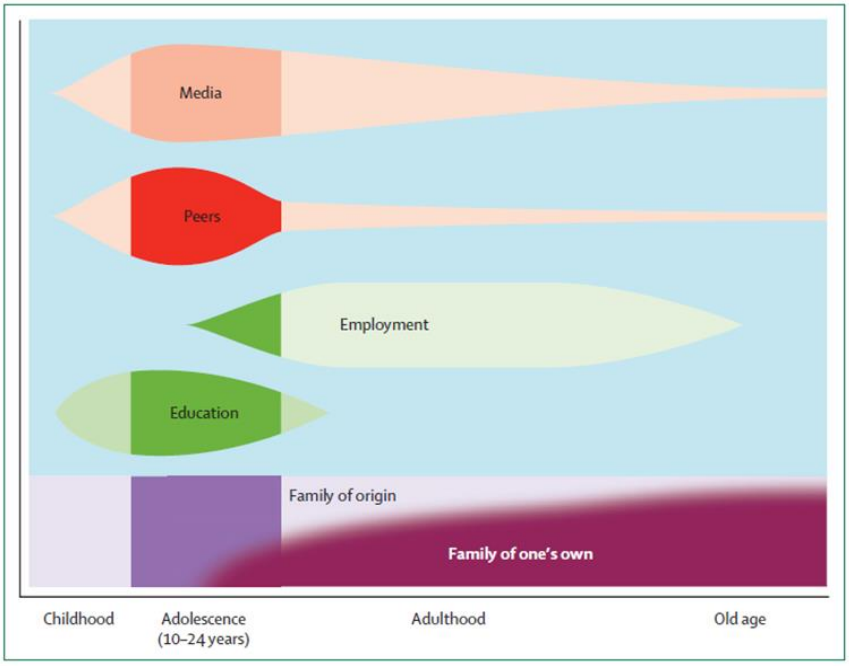

Figure 1: Changing proximal social determinants of health across the life course (Patton et al., 2016)[9]

Relative Influence of Social Determinants Across the Lifespan

As demonstrated in Figure 1, the influence of social determinants may shift through the different stages of ones' life. For example, during early adolescence, the media, peers, education and one's family of origin may have the largest impact in determining outcomes and behaviors. However, as shown by the waning size of these factors as one moves along the life course spectrum, as youth move towards middle and late adolescence, the relative influence of the education system, peers,

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and media begin to lessen. As one moves further into adulthood, factors like employment and family of one's own become larger influencers.

What is not always clear is how best to reduce the impact of a social determinant in order to prevent a negative health outcome. For example, in thinking about teen substance misuse, a social determinants approach may initially lead one to think through the effects of an unsafe neighborhood or an underfunded and neglected educational system on substance misuse. In this case, the sectors to engage and their respective roles may be clear. However, if the core social determinants are poverty or structural racism it can be harder to determine the specific influence of each sector—especially if the determinant requires a sustained and collaborative effort from multiple sectors.

Risk and Protective Factors: From Individual Level to Society

Rather than focusing primarily on systems and structures, a risk and protective factor approach to prevention targets specific, often modifiable factors that occur across all levels of the social ecological framework—from individual to interpersonal to community to societal (Figure 2). By definition, risk factors increase an adolescent's chances for negative outcomes. Examples include academic failure, favorable attitudes towards risky behaviors (such as substance misuse), family history of risky behaviors, community norms and laws favorable to risk behaviors, among others. Protective factors reduce an adolescent's chances for negative outcomes directly or indirectly by serving as a protective buffer to reduce the impact of risk factors. Examples include social and emotional competence, positive self-image, self-efficacy, opportunities for positive social involvement, and positive parenting, among others.

Risk and protective factors are multi-dimensional and can include biological, psychological, social and cultural factors. Some risk factors, like an individual's poor academic performance may be reduced with supportive interventions; the broader impact of other risk factors, like systemic racism and poverty are not so easily reduced, although actions can and should be taken to do so as well. Factors are also often correlated with each other; for example, adolescents who have an incarcerated parent are more likely to experience other risk factors for substance misuse such as living in poverty and academic underachievement.[10] In general, the more risk factors an individual has for a given condition, the greater their risk for an outcome (and vice versa for protective factors), and those experiencing some risk factors are often at greater risk of experiencing more risk factors.[11] However, it is important to remember that the presence of one or more risk factors does not necessarily mean an individual will experience a negative outcome. Two individuals with the exact same risk profiles, for example, can experience different outcomes; and individuals with less risk factors can develop negative outcomes while those with more risk factors experience positive outcomes.

Integrating Social Determinants and Risk and Protective Frameworks

Social determinants and risk and protective approaches represent congruent methods of thinking about prevention. While the social determinants approach typically focuses on policies and systems, a risk and protective factor approach to prevention narrows to more specific, often modifiable factors. Mapping to the social ecological framework in Figure 2, risk and protective factors typically correspond with the individual, interpersonal, and community levels, while social determinants, with their focus on systems, typically occupy the outer community and societal

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levels. Each of these are significant developmental contexts and represent domains in which intervention strategies can be used.

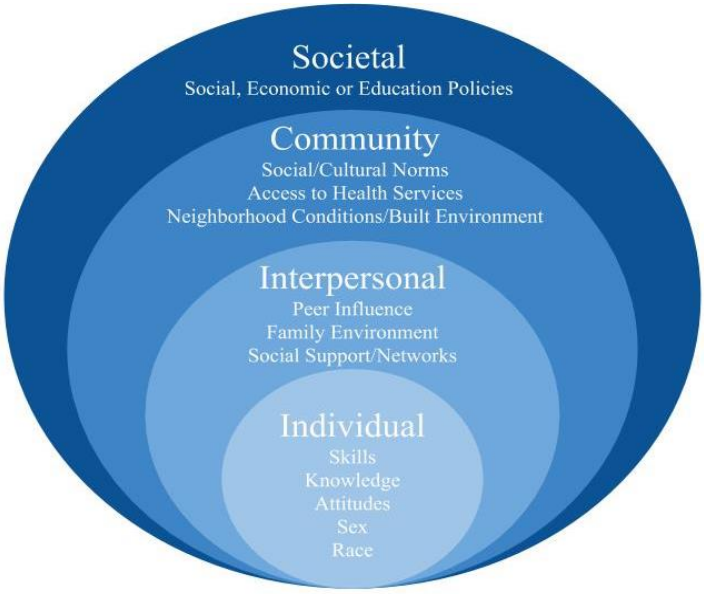

Figure 2: Social ecological framework with examples

The systems and structures underlying the social determinants, particularly inequities created by these determinants, are often reflected in risk and protective factors at the individual or interpersonal levels. For example, as shown in Figure 3, one's neighborhood or built environment (a social determinant) may contribute either positively or negatively to one's need for a sense of belonging (a protective factor). The modifiable risk factor of bullying at school or the protective factor of attendance at an accepting, faith-based youth group, in turn, may predict whether one experiences a positive or negative sense of belonging. In this way, risk and protective factors can be viewed as the more granular effects of the broader social, economic or environmental determinants.

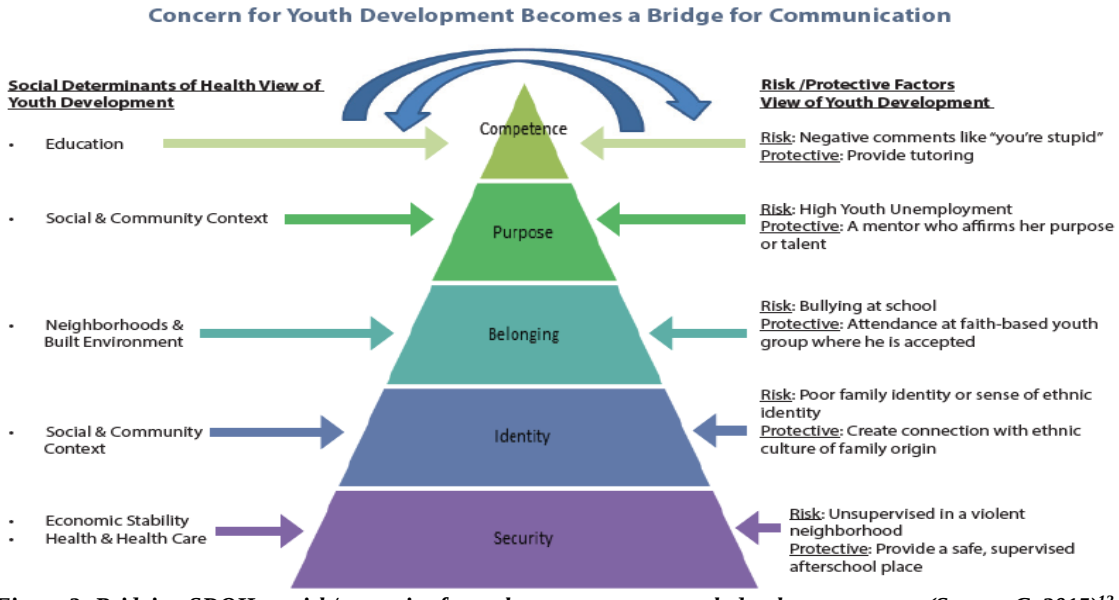

Figure 3: Bridging SDOH vs. risk/protective factor language across youth development sector (Spezza, C, 2015)[12]

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Aligning Social Determinants of Health with the Prevention Pyramid

Figure 4 expands upon the traditional three-tiered public health prevention pyramid—including primary, secondary and tertiary prevention—to include a new level: primordial prevention and health promotion, defined as: actions that inhibit the establishment of environmental, economic, social and behavioral conditions, known to increase the risk of disease; and actions that enhance individuals' developmental competency and positive sense of self-esteem, social inclusion and well-being to strengthen their ability to cope with adversity .[13,14] In doing so, the pyramid integrates the two prevention approaches—with the risk and protective factors targeted in the primary stage and social determinants of health and population level health promotion targeted in the primordial stage. Just as above, the broader social conditions and environments that make up the primordial level lay the foundation, or conditions, for the development of more specific risk or protective factors.

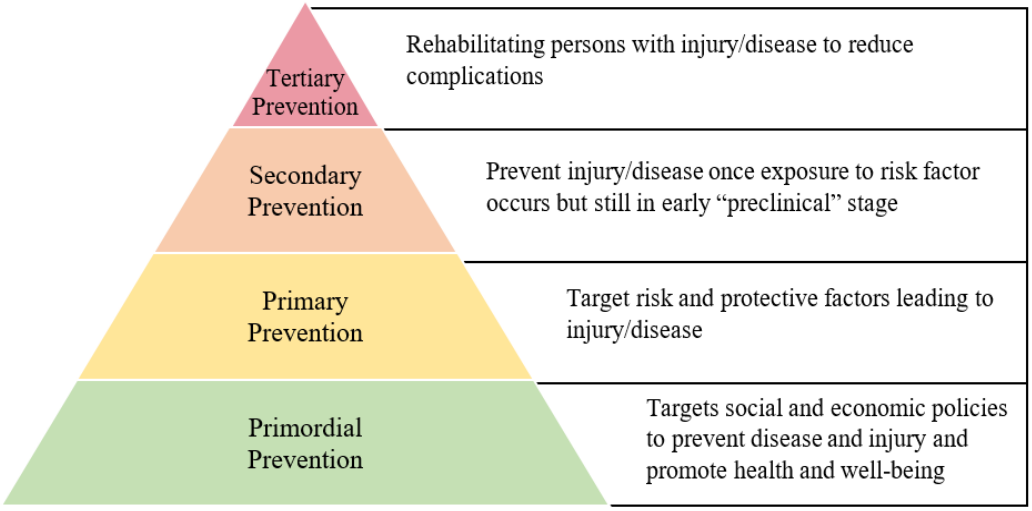

Figure 4: Primordial prevention pyramid

Cumulative Risk and Protection Across Developmental Periods

Finally, when discussing adolescent health and well-being it is useful to have a "life course" perspective, placing adolescence along a timeline between infancy and adulthood. Risk and protective factors and resulting behaviors that occur in adolescence feed directly into the outcomes observed in adulthood (and those from early childhood development feed directly into those observed in adolescence). Further, the broader health, social, educational, and economic policies and conditions outlined in Figure 5 play a key role in shaping the risk/protective factors, behaviors and outcomes experienced not only in adolescence, but across the life course—and may be ever changing both between and within the defined life stages. Risk and protective factors, therefore, may compound over time leading to widening equity gaps and also key opportunities to promote health and well-being.

Adolescent outcomes and behaviors are often deeply intertwined with early childhood conditions and environments. Supportive, nurturing early environments have been shown to foster healthy brain development and, in turn, enhance protective factors for children, such as effective coping mechanisms or positive decision-making skills. In contrast, adverse childhood experiences (ACEs), such as neglect or abuse, and childhood trauma have been shown to negatively affect brain development, resulting in poor coping skills and emotional regulation. Experiences of trauma or ACEs are embedded within the framing for social determinants and risk and protective factors.

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The number of ACEs a child experiences can be a risk factor for outcomes. The underlying factors contributing to trauma, such as abuse or exposure to community violence, can also serve as risk factors.

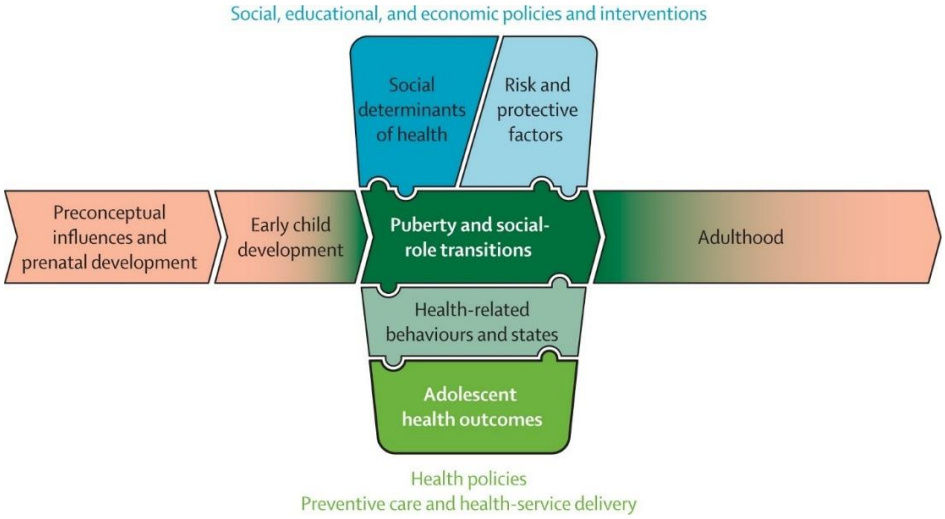

Figure 5: Effects of policies, risk/protective factors, developmental transitions, and behaviors across life course

COMMON RISK AND PROTECTIVE FACTORS ACROSS SECTORS

Risk and protective factors are often not outcome- or sector-specific. Rather, there are common or shared risk and protective factors for multiple outcomes across multiple sectors. The risk and protective factors for mental illness and SUD, for example, have significant overlap creating opportunities for collaborative interventions between those working in the mental health and substance use fields (see Figure 6). For example, protective factors like positive coping skills, supportive parents and a trauma-informed school climate are associated with positive mental health and substance use outcomes while risk factors like school failure and antisocial behavior are associated with negative outcomes.

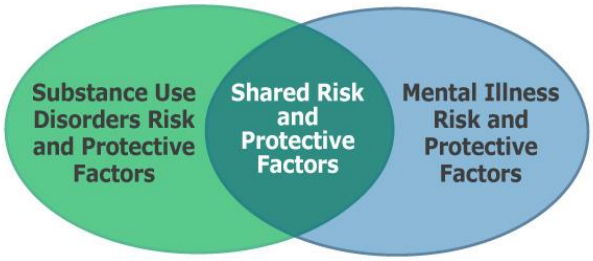

Figure 6: Shared risk and protective factors diagram (SAMHSA)[15]

This overlap of risk and protective factors, however, extends beyond the substance use and mental health fields (see Figure 7). Data compiled on Youth.gov for risk and protective factors for mental, emotional, and behavioral disorders in adolescence reveal significant overlap with negative outcomes in other sectors, such as school failure, poor academic performance, community violence, association with drug using peers, and/or child abuse, as well as other health conditions, like diabetes, obesity and hypertension.[16] Further comparison to the risk and protective factors for adolescent substance use outlined in the *Surgeon General's Report on Alcohol, Drugs, and Health*,[17] risk and protective factors for suicide outlined in the *National Strategy for Suicide*

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Prevention, and results from the then Institute of Medicines' *Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities* demonstrated similar areas of overlap.[18]

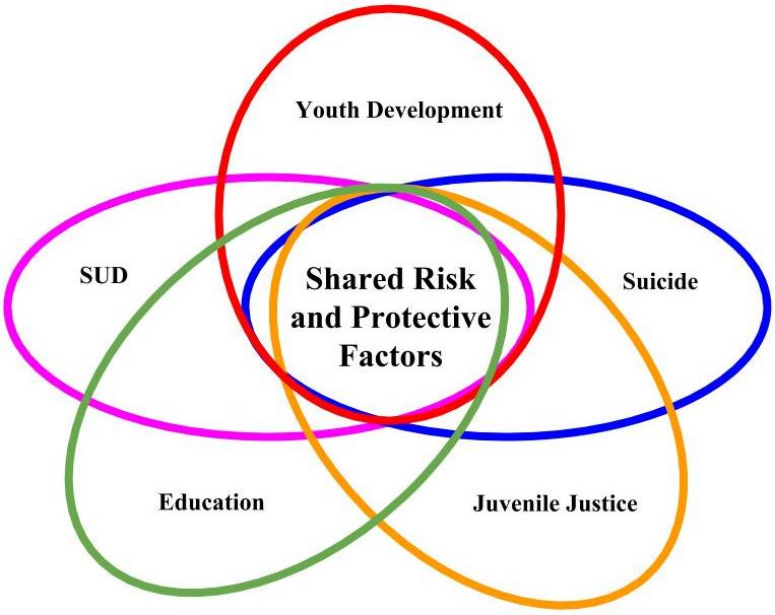

Figure 7: Shared risk and protective factors across sectors

To hone these areas of alignment across both risk and protective factors, convening participants from the justice, health, youth development and education sectors completed an interactive exercise to identify commonalities in the risk and protective factors across their sectors. In a pre-meeting survey, participants were asked to identify the top outcomes of interest to their sector based on their objective and/or subjective expertise, as well as corresponding risk and protective factors (see outcomes included in Figures 8-9). Simultaneously, the convening staff completed a literature review to identify shared risk and protective factors for adolescent substance misuse and/or suicide.

Using the results from the pre-meeting survey and literature review, a chart was generated comparing multi-sector adolescent outcomes with risk and protective factors for substance misuse and/or suicide (see Figures 8-9). At the convening, participants filled in the chart by cross-walking the common risk and protective factors for suicide and substance misuse with the outcomes from their sector, such as chronic absenteeism, high school completion and academic achievement for those in education and gang involvement and involvement in the justice system for those in the justice sector. Based on their subjective and/or objective expertise, participants were asked to place a sticker in the corresponding box if they believed the risk or protective factor impacted a particular outcome (shown as individual red dots in Figures 8-9).

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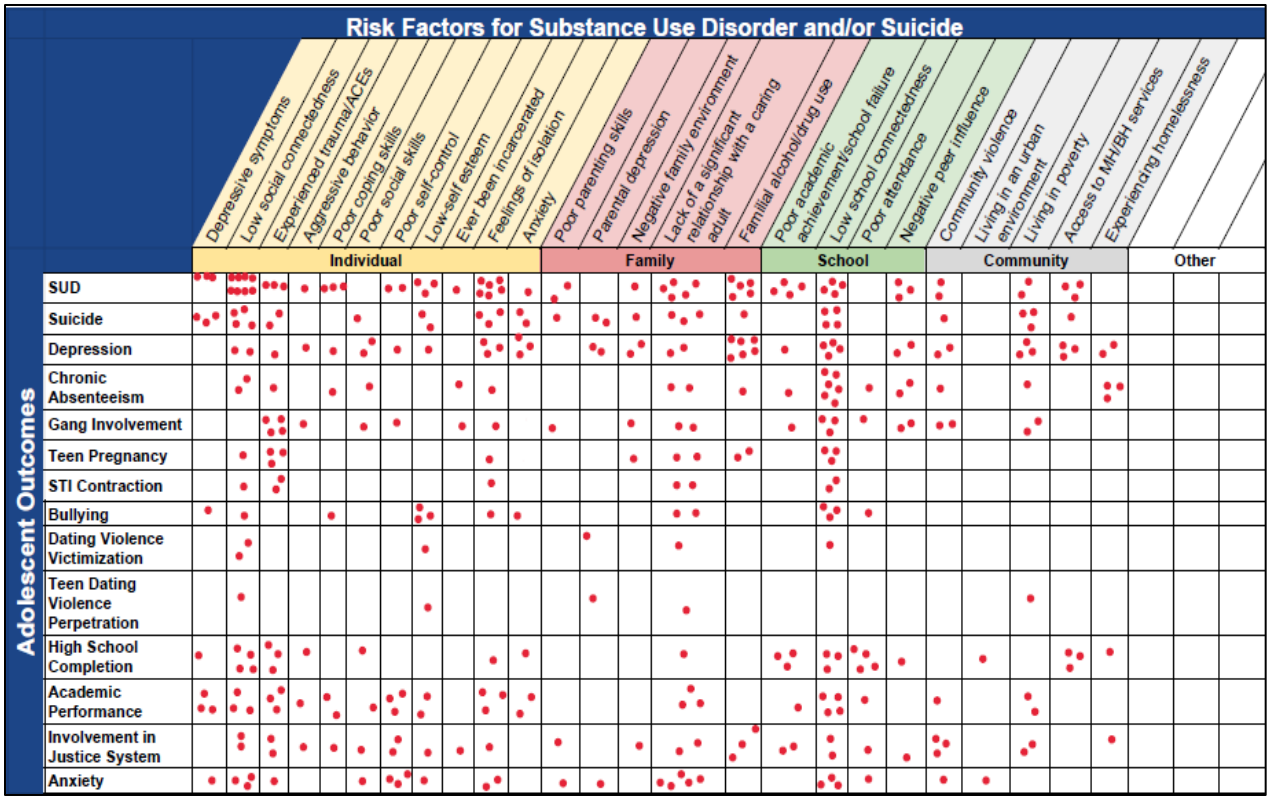

Figure 8: Chart from interactive activity at convening depicting overlap between risk factors for suicide and SUD and outcomes across participating sectors

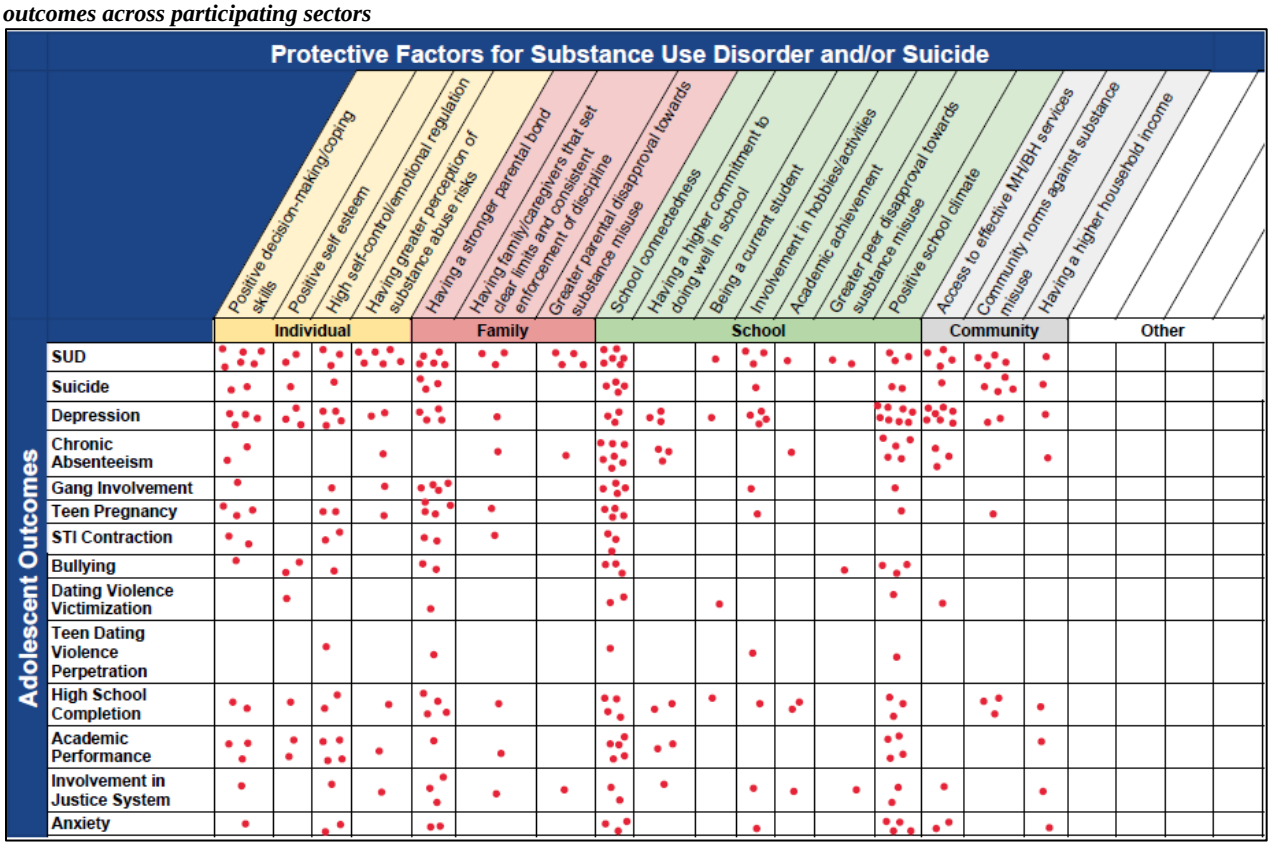

Figure 9: Chart from interactive activity at convening depicting overlap between protective factors for suicide and SUD and outcomes across participating sectors

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The activity was designed to visually depict the risk and protective factors with the greatest overlap among the various sectors to demonstrate each sector's existing roles in addressing youth suicide and substance misuse and to identify areas for cross-sector efforts. Table 1 below depicts the risk and protective factors with the greatest overlap across the multi-sector outcomes based on the literature review and exercise. This list is not meant to be definitive and does not represent all the risk and protective factors for substance misuse or suicide, nor all the shared risk and protective factors across sectors. Rather, the table is intended to point to general areas of commonality between youth-serving sectors present at the convening to begin to align the often siloed work of each sector. Risk and protective factors are listed in no particular order.

Table 1: Risk and protective factors for suicide and/or SUD with greatest overlap with cross-sector outcomes based on interactive convening activity

	Risk Factors	Protective Factors
Individual	• Low social connectedness[19] • Poor self-control[20] • Low self-esteem[21] • Feelings of isolation[22] • Poor academic achievement[23] • Adverse childhood experiences or trauma[24]	• Social connectedness[25] • Positive socio-emotional regulation[26,27] • Positive decision-making • Positive coping skills[28] • Academic achievement[29]
Family/ Interpersonal	• Interaction with social media • Lack of a significant relationship with caring adult[30] • Negative peer behaviors/influence[31] • Drug access among peers[32]	• Positive peer behaviors/influence • Mentorship/positive relationship with a caring adult[33] • Positive parental bond[34]
School	• Low school connectedness[35]	• Positive school connectedness[36] • Positive school climate[37]
Community	• Lack of sustainable funding for prevention services • Negative community norms[38] • Community violence[39]	• Positive community norms[40,41] • Access to effective mental health services[42]

Themes

Key themes emerged from the interactive activity and ensuing discussion, each of which are described below.

- Connectedness and Isolation

  The importance of connectedness and its counterpart, isolation, emerged as a central theme throughout the day's discussion, from the perspectives of the various sectors and across each level of the social ecological framework. Participants continually noted the important role strong connections with adults had in the outcomes examined—noting the association to be exponential (i.e. the more positive connections with adults a youth has the better). In

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addition to family factors, school and community-level factors can be linked to the issue of connectedness. For example, the availability of mentorship or youth development programs were noted to directly impact individual experiences of connectedness, particularly among lesbian, gay, bisexual, transgender and questioning (LGBTQ) youth and youth of color.

Participants also commented that individual experiences of connectedness can be culturally specific. There may be cultural differences in community communication style norms, such as appropriateness of discussing feelings and emotions with family, peers or other adults, which may impact feelings of connectedness among youth.

- Social and Emotional Skills
  Across the outcomes examined, risk and protective factors related to social and emotional skills rose to the top. Intrapersonal factors like emotional regulation, coping skills, self-esteem, and self-control were selected as top risk or protective factors across outcomes of interest to participants from all sectors, highlighting the critical importance of social and emotional skills in helping to improve academic, health, and justice-related outcomes.

- Importance of Schools as Hubs
  As a place where teens spend a majority of their time, schools were consistently identified by participants as a critical place for identifying and addressing trauma, social determinants and risk and protective factors. Specifically, school connectedness, defined as "the belief held by students that adults and peers in the school care about their learning as well as about them as individuals," was identified as both the top protective and risk factor during the exercise, with positive school climate as another top contender.[43] Other risk/protective factors such as connections with caring adults were also linked back to the school during the discussions, noting the importance of qualified and supportive teachers and other school staff as mentors for adolescents.

- Community and Cultural Norms
  Peer norms and behaviors were cited as important factors across the outcomes examined—including those related to substance misuse and suicide but also those specific to education or justice outcomes. Community and cultural norms around drug use or mental health were also noted as having a strong influence on decision-makers, and as a result, are reflected in local laws, regulations and institutional practices.

- Access to Mental Health Services
  Participants also noted the role of access to quality mental health services within the community (or school) as a critical factor. Many participants suggested digging deeper to identify who gets treatment in the community, particularly services in schools—noting there are large disparities across socio-economic, racial and ethnic groups, and geographic locations.[44] Participants suggested further identifying schools that provide high-quality, culturally appropriate services to determine if a protective factor relationship exists.

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- The Role of Family

  While most of the day's conversations focused on schools as the key intervention site, participants also emphasized the critical role of family—specifically parents and caregivers—in promoting adolescent well-being. Many of the top risk and protective factors identified by participants are rooted in family conditions. Factors related to emotional regulation and coping skills, for example, can be linked to positive parenting practices in early childhood and the presence of nurturing, supportive caregivers. Trauma and ACEs, including abuse, neglect or poverty, are also often connected to the family and intervening with families can be crucial to addressing deep-rooted historical trauma. For these reasons, participants stressed the importance of early intervention with caregivers to promote supportive home environments for children and adolescents.

- Intersection of Risk and Protective Factors

  Participants discussed the importance of investigating how risk and protective factors work together. Risky behaviors (and conversely protective ones) tend to cluster and are inter-related. Risk and protective factors can be viewed as "root causes"; addressing these root causes can impact multiple behaviors. Participants noted that interventions that address a single risk or protective factor should be coupled within or coordinated with interventions that also address related risk or protective factors.

  Moreover, factors transcend levels of the social ecological framework, meaning intervention on a single risk or protective factor will be most effective if it includes intervention at various levels. For example, emotional regulation is not just an intrapersonal factor—it is also interpersonal (relates to relationships with peers, family, etc.) and is subject to community-level norms and conditions that affect one's ability to positively regulate their emotions, such as a response to community violence.

- Timing and Sequencing of Risk and Protective Factors

  The timing and sequencing of risk and protective factors is also critical to consider. Youth development is not a standardized process and occurs differently for each individual. Therefore, interventions need to be designed to differentially target an adolescent's individual stage of development. Transition age youth, such as those entering middle school or high school, should be of particular focus as youth often experience elevated levels of stress during these periods of change.

  Participants also commented on a need to dig deeper into the identified risk and protective factors to discover their underlying root causes and areas of overlap. For example, terms like school climate encompass many "sub" risk and protective factors—like social connectedness or positive relationships with caring adults. Additionally, terms like school climate include elements that contribute to positive (or negative) conditions that foster other risk or protective factors, such as community norms around drug use or bullying, and classroom conditions that foster positive emotional regulation.

- Role of Social Media

  Participants noted that social media could serve as both a risk and protective factor for adolescents. Speaking from experience, one participant noted that youth often feel they can

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relate to celebrities on social media even if they cannot talk to them face-to-face, which can lessen their sense of isolation. Social media can also, however, result in cyber-bullying or feelings of low self-esteem as youth compare themselves to the photoshop, perfection culture sometimes perpetuated on these platforms.

DEFINING HIGH-RISK ADOLESCENTS

Not all adolescents who have one or more of the risk factors above are considered at high-risk for poor outcomes. Similarly, not all adolescents with one or more of the protective factors listed above are considered low-risk. However, participants noted that within each of their sectors, there are certain characteristics that define populations at disproportionately higher risk than others.

Participants heard presentations from two experts on the characteristics of adolescents at highest-risk in their sectors. The presentations illuminated several areas of commonality, as well as differences, in both the language used to describe these populations, as well as the key elements that define "risk." In the education sector, language for at-risk youth may include terms like "on-track" vs. "off-track" students or "disconnected" vs. "connected" students. Those in the justice sector similarly noted that high-risk individuals may be defined by whether they have or have not interacted with the criminal justice system. And in the health sector, high risk is sometimes defined as the extent to which adolescents have engaged in risky behaviors related to sexual health, violence victimization, high-risk substance use or suicide.

Across sectors, participants recognized the critical role discrimination and oppression play in defining high-risk populations. Those at highest risk disproportionately come from historically disenfranchised groups such as racial, ethnic or sexual minorities, as well as those in high-poverty or rural settings. Structural or institutional oppression—such as racism, classism, sexism, xenophobia, and other forms of discrimination—that are built into the policies, laws, institutions, customs, or other social, economic or political power structures can and do contribute to an adolescent's risk profile. For these reasons, there was general consensus among participants that tackling the shared risk and protective factors for substance misuse and suicide requires a health equity approach.

Health Equity
Definitions of health equity vary across sectors and within organizations. For this summary, health equity is defined by The National Academies' 2017 *Communities in Action: Pathways to Health Equity* report as: "the state in which everyone has the chance to attain their full health potential and no one is disadvantaged from achieving this potential because of social position or any other defined circumstance."[45] This framing recognizes the root causes of health inequities as "unequal allocation of power and resources" and "intrapersonal, interpersonal, institutional, and systemic mechanisms."

The following sections summarize several groups identified as at higher risk based on recent data analyses from the Centers for Disease Control and Prevention's Division of Adolescent and School Health (CDC DASH) and the Johns Hopkins *Everyone Graduates Center*. These groups do not represent all groups at high-risk, but rather those on which the convening discussions centered.

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Geographically-Isolated Youth and Youth Living in High Poverty Areas

Both the health and education sector presenters addressed geographic disparities in outcomes. Alluding back to the risk and protective factor discussion, one education expert noted that geographic isolation is hugely important in explaining high-risk populations within the education, health and justice sectors. Many of the communities with low graduation rates, he described, are in counties with a single high school that often serves as a center or hub of deep social connection and history within a community. Despite these protective factors, the community norm within these counties is often not to graduate, contributing to a cycle of low graduation.

Moreover, despite overall growth in graduation rates over the last few decades, inequities are growing. Students who do graduate from high school are not randomly distributed across schools in the US. Data from the Johns Hopkins *Everyone Graduates Center* shows that nationwide, a third of all high school dropouts are from 12% of schools which are disproportionately located in areas of concentrated poverty. The graduation rate for an economically disadvantaged student who attends a school outside of an area of concentrated poverty is 75.3%; for those whose school is in one of these concentrated poverty pockets, the rate drops to 64.7%.

Youth Performing Poorly in School

Student academic performance was identified as a second area of commonality between those at high-risk across the sectors. According to CDC's Youth Risk Behavior Survey (YRBS) data, adolescents with the lowest grades (mostly D/F's) are more likely to also have risk factors for mental health/suicide, high-risk substance use, violence victimization, and/or risky sexual behaviors. Moreover, according to the Johns Hopkins *Everyone Graduates Center*, students' potential secondary school success can be defined by three factors: attendance, behavior and course performance (the ABCs). Students with less than 90% attendance, and/or behavior issues, including at least one suspension, and/or are failing at least one core class were defined as off-track for high school graduation, and at higher risk for school failure. These trends can be identified as early as sixth grade.

Sexual Minority Youth

YRBS data revealed elevated risk factors 2-3 times higher among sexual minority youth outcomes as compared to sexual majority youth. Lesbian, gay or bisexual (LGB) students were significantly more likely to report ever misusing prescription opioids than heterosexual youth (24.3% vs. 12.9% respectively). Students identifying as LGB were also more likely than heterosexual identifying students to report missing school due to safety concerns. LGB students reported being bullied at nearly twice the rate of heterosexual students (33.0% vs. 17.1%). Disparities were even greater among mental and behavior health outcomes. Among LGB students, 63% reported persistent feelings of sadness or hopelessness compared to 27.5% of heterosexual students, and 23.0% of LGB students attempted suicide, compared to 5.4% of heterosexual students.[46]

INTERVENTIONS AND STRATEGIES TO REDUCE RISK FACTORS AND INCREASE PROTECTIVE FACTORS

Representatives from the justice, behavioral health, education, child welfare, and public health sectors provided brief remarks on their opinions of the types of interventions that produced the

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greatest outcomes within each of their sectors, as well as those that produced negative or harmful effects (summarized in Tables 2 and 3 below).

Overall, the strategies identified by experts aligned with the overlapping risk and protective factors previously recognized by the group. Participants from each sector noted the effectiveness of fostering connectedness and positive relationships with caring adults. Recent survey information presented by CDC DASH further solidified this point, indicating that efforts to increase school connectedness, in combination with increased school health services and health education, results in decreases in absenteeism due to safety concerns and decreases in illegal drug use and misuse of prescriptions. Other elements related to social and emotional development were also noted across sectors as effective strategies for reducing risk and increasing protective factors.

Table 2: Participant reports of what works to improve adolescent outcomes, by sector

Sector	What Works
Education	• Training teachers to be both an educator and mentor • Supporting development of social and emotional competencies for children and adults who interact with children • Supporting the conditions for learning • Promoting positive school climate • Family-based interventions and parent engagement
Health/ Public Health	• Early intervention • Establishing mentoring programs to connect communities with schools (i.e. community member mentoring, service learning programs) • Establishing Gay Straight Alliances (GSAs) • Connection with adults (particularly if LGBTQ) • Providing teachers with professional development on classroom management
Justice	• Using validated risk assessment for identifying high-risk youth • Quality implementation • Supporting kids in process of change • Skill-building and training programs • Helping kids control behavior and engage in pro-social activities • Counseling and therapy that establish relationships • Restorative justice programs
Child Welfare	• Opportunities for meaningful involvement • Equipping adolescents with the skills to be successful • Connectedness/bonding to family • Following shared values and beliefs • Use validated risk assessment to identifying high/low risk areas
Behavioral Health	• Theory driven interventions • Support in transition periods (middle/high school and high school/young adult) • Considering program implementation testing early on • Early intervention (including parenting programs) • Family-based interventions

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Table 3: Participant reports of what does not work to improve adolescent outcomes, by sector

Sector	What Does Not Work
Education	• Zero tolerance disciplinary practices in schools • Christmas tree approach (e.g., disconnected programs in schools that each address different but related outcomes yet are not coordinated) • Poor quality implementation
Justice	• Deterrents and discipline (i.e. trying to dramatize for kids the risks, such as juvenile boot camps)
Child Welfare	• Peer deviation • Mismatch between what's being implemented and the needs of a community or individual

Participants raised the critical, but often overlooked, elements of effective implementation and evaluation of interventions. This included strategies such as coupling interventions with sustained technical assistance and training for implementors (i.e. teachers), using validated tools and assessments for identifying high-risk youth and for measuring progress on outcomes, and utilizing existing research and principles from the implementation science field to implement an intervention with fidelity.

Several participants also commented on the availability of registries or databases of evidence-based interventions within and across each sector. Evidence-based repositories, like Crimesolutions.gov and Model Programs Guide in the justice sector or Blueprint for Healthy Development in the public health sector, are searchable by risk/protective factors, but do not necessarily capture all the outcomes and factors of interest to sectors beyond the primary stakeholders for each registry, since evidence registries are often sector-specific. Participants noted the importance of identifying or creating a registry that would allow one to search for multi-sector indicators to promote more effective cross-sector initiatives.

GAPS AND BARRIERS

Throughout the day-long discussion, participants described several gaps or barriers to creating an effective multi-sector approach to addressing suicide and substance misuse adolescent outcomes.

Making the Case for Prevention

Despite decades of evidence showing otherwise, participants described the ongoing difficulty in making the case for the effectiveness of evidence-based prevention interventions, policies and/or practices. While it is true that more prevention research is needed, we must also leverage the existing evidence to scale up what works. Yet as one participant said, there seems to be a mindset that the existing evidence is insufficient. Current evidence—including existing return on investment data—does not "sell" or make a compelling enough case to policymakers—rather it's the narrative or story that is behind that data that really matters.

Others commented that many people, including policymakers, do not understand the prevention paradox, resulting in an under investment in universal prevention. While those at high-risk are just

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that, at higher risk for negative outcomes, it does not necessarily mean they account for larger share of individuals with a given condition. In fact, most poor outcomes are experienced by low-risk or average-risk individuals, simply because there are more of these individuals (in comparison to the number at high risk). By focusing solely on high-risk adolescents, we fail to prevent low-risk individuals from becoming high-risk. There is, therefore, a need to ensure that services are provided not only to those at high-risk but to *all* adolescents through universal promotive practices and policies.

Sustainable Funding to Scale Interventions

Participants commented on the need for increased and sustainable funding streams across sectors to help seed, scale and sustain interventions aimed at addressing adolescent well-being, particularly primary and primordial prevention strategies. Foundation funding, they noted, is typically discrete, funding a single program or intervention within a narrow locality. This model fails to provide incentives or resources to facilitate integration of siloed programs within and between schools, communities, or other youth-serving organizations. Similarly, the siloed nature of federal and state funding often hinders collective action from across youth serving organizations or agencies, resulting in redundancies or short-lived initiatives. And investments often cluster, neglecting geographic areas and populations with the highest disparities.

Wrong Pocket Problem

As illuminated by the convening activity, there is substantial overlap in the risk and protective factors of interest to the primary goals of the justice, health, education and youth development sectors (see Figure 8 and 9), as well as the child welfare sector. These areas of overlap present critical opportunities for joint investments in primary and primordial prevention. However, to capitalize on these areas of synergy, the logic of investing in *another* sector to get the outcome you seek in *your* sector must be crystal clear—and mechanisms must exist to allow for this investment across siloes.

Commonly known as the wrong-pocket problem, it is often difficult to make the case for these types of out-of-sector investments, particularly where budgets are already stretched to their limits. The Good Behavior Game (GBG) demonstrates the problem: when implemented in schools as a classroom management strategy, GBG produces positive upstream outcomes across the justice, health/behavioral health, and education sectors through, for example, improved academic achievement and reductions in substance use and delinquency.[47] Given this multi-sector impact, one would expect multi-sector investments in GBG; however, to date cross-sector investment in GBG has remained limited, apart from a few examples of healthcare investments in the program.

Effective Program Implementation

Participants noted slow adoption of the programs we know work, in part because current research is misaligned with what people are capable of implementing on the ground. This gap in what can be replicated from one setting into another setting can be traced back to issues with program implementation.

Program fidelity is key to achieving results. Typically, we can only have confidence that an evidence-based program will deliver the results promised by research if the program is implemented in the same manner and conditions as the originally studied program. A multitude of

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issues can affect program fidelity—from changes in staffing to inadequate resources to implement a program as intended or differential implementation of a program across a setting (i.e. applied differently across classrooms in a school) to mismatch between program and participant characteristics (e.g., needs, culture). Moreover, many interventions are tested on homogenous populations and may require adaptations to be culturally competent for the population of interest potentially reducing program fidelity.

Another element of effective implementation is context. Many youth-serving settings are subject to strict time and resource constraints. As more programs are layered on top of each other, their effectiveness may erode as implementors, such as teachers, drop aspects or entire programs to incorporate a new and different program, for example one that is required to achieve accountability measures. The key is effective program adaption or connecting and integrating the effective elements of evidence-based programs together to prevent disjointed layering.

Finally, the sustainability and maintenance of a program after initial implementation is critical to getting the intended results. As one participant noted, if an intervention in a school district, for example, is based on one person who leads the program and the district loses that person to turnover, they must start from scratch, potentially altering the effectiveness of the intervention itself for some or all the students in the intervention.

Data and Research Limitations

Unfortunately, the results of most of the evidence-based interventions discussed above do not materialize overnight. Often, one will not see the results of youth-focused outcomes until well into adulthood. This fact can make it difficult to measure the longitudinal outcomes of interventions during adolescence and, in turn, make the case for sustained funding. Lack of data to demonstrate short-term effectiveness can, and often does, result in funding cuts, particularly in cases where funders are supporting an initiative outside of their traditional silo or sector.

Additionally, existing data sources for measuring adolescent outcomes are often disconnected, making it difficult to measure multi-sector effects or trends. CDC's YRBS, for example, only measures rates of drug use *ever,* rather than frequency of drug use, making it difficult to measure trends in drug use across adolescence. Moreover, while datasets may include measures for disaggregating data by racial, ethnic and sexual minority status, many do not differentiate by other high-risk categories that may be of interest to other sectors such as academic performance, foster care status or juvenile justice involvement.

Data may also fail to capture the full-extent of those at highest risk due to selection bias. Sources collected in school settings, for example, rely on students being present at school for data collection. Students who are chronically absent, drop out or who have died as a result of high-risk behaviors may not be represented in data trends. Many of these negative outcomes, such as high-risk substance use or suicide, occur in statistically small proportions of the adolescent population. Therefore, it may not be possible to meaningfully disaggregate data for some minority groups due to their statistically small sub-populations, potentially masking disparities within these groups.

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Overreliance on Schools

Participants warned against positioning schools as the solution to all problems discussed during the convening. While many of the interventions and strategies discussed take place in the school, the broader community and family must offer similar or complementary services to support children during out-of-school time. For this reason, many participants promoted a coalition model in which the school served as one, but not the only, resource to support adolescent development. As noted previously, participants identified the family as central in building supports and protective factors and encouraged greater integration of family into conversations on adolescent well-being.

CREATING A MULTI-SECTOR FRAMEWORK FOR IMPROVING THE HEALTH AND WELL-BEING OF ADOLESCENTS

The following policy recommendations reflect multiple perspectives and ideas, but do not necessarily represent consensus among all convening participants. As a framework, these recommendations are intended to serve as collective components of a larger system-wide, multi-tiered approach to reducing risk factors and bolstering protective factors for adolescents. They cannot (and should not) be applied piece-meal, but rather in an integrated fashion.

1. **Leverage the role of each adolescent-focused sector in addressing common risk/protective factors for adolescent substance misuse and suicide to better align multi-sector interventions and investments.**

The overlap in risk and protective factors across the justice, health, child welfare and education sectors makes it clear: interventions from one sector can achieve results in another. Funders, whether governmental or philanthropic, should therefore incentivize interventions that are designed and implemented to address common risk/protective factors across all adolescent-serving sectors—such as mentoring, social emotional learning or positive parenting programs—to encourage multi-sector investments, reduce duplication and increase efficiency. To achieve this goal, greater education is needed within and across sectors to understand the areas of overlap in risk and protective factors.

Federal and state agencies can play a critical role in furthering general understanding and awareness of shared risk and protective factors between sectors, in addition to playing the convener role. Existing structures, such as the federal Interagency Working Group on Youth Programs or the U.S. Department of Health and Human Services' (HHS) Office of Adolescent Health's Working Group on Adolescent Health, as well as state-level groups like children's cabinets, should work to align their individual agencies/sectors efforts around a common risk and protective factor approach, rather than siloed, outcome-based approaches. These cross-agency groups should create structured guidance on the risk and protective factors most pertinent to their sector's work, with an emphasis on how factors shift throughout major developmental stages to identify common intervention points for involved stakeholders.

Relatedly, the federal agencies working on adolescent issues should support the establishment of a multi-sector federal registry of evidence-based interventions targeted at adolescents that is searchable by outcomes, risk and protective factors, and sectors to allow stakeholders from across

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youth-serving sectors to identify their specific role, and the specific role of others, in reducing substance misuse and suicide.

Finally, when possible, federal agencies should align language in funding opportunity announcements (FOAs) to match the shared risk and protective factors like those described in this report (rather than including sector-specific outcomes only) to encourage multi-sector participation and application.

2. **Implement systems changes and build infrastructure to better align preventive efforts across adolescent-serving sectors.**

As the prominent role model for similar local or state efforts, the federal government should continue to support cross-agency collaborations on adolescent outcomes, such as the Interagency Working Group on Youth Programs or the HHS Office of Adolescent Health's Working Group on Adolescent Health. Additional sectors working on risk and protective factors relevant to the work of these groups should be included to ensure the input and active participation of each relevant sector. Noting the inherent complexities in tracking actions occurring between siloed agencies, states lacking a central coordinating body for adolescent issues, such as children's cabinets or state working groups, should similarly support the creation of a state-level entity to promote collaboration and more effectively coordinate state resources for youth programs to maximize outcomes. These efforts should be staffed and require a level of commitment from leaders and stakeholders to ensure sustainability.

The federal government should also support the establishment of a peer-to-peer learning collaborative between states working to address adolescent mental and behavioral health outcomes. Such an affinity group would promote cross-sector learning, sharing of best practices, and provide an opportunity to capture lessons learned for scaling and replicating practices across different communities. Similar affinity groups exist in some government agencies. Participants could include all state agencies working on adolescent issues—including education, child welfare, justice, public health, and Medicaid, among others. In cases where a coordinating body already exists, such as a working group or children's cabinet, states should be encouraged to build upon existing structures.

Developing a multidisciplinary workforce is also critical to promoting a more aligned approach to improving adolescent health and well-being. At an institutional level, post-secondary institutions that train the next generation of the adolescent-serving workforce—such as nurses, physicians (particularly pediatricians), educators, social workers, and those working in juvenile justice spaces—should establish pre-service training requirements that expose students to the interdisciplinary nature of their fields.

3. **Adopt an explicit equity and trauma-informed approach that addresses the effects of oppression, discrimination and historical trauma on substance misuse and suicide and appropriately directs resources to reduce inequities.**

As noted in the data above, the lack of fairness and opportunity in society elevates the risk of substance misuse and suicide. Many of the risk factors associated with systemic inequity

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disproportionately affect youth of color and sexual minority youth. Federal, state and local agencies working on adolescent issues should fully commit to promoting fair and equal opportunities for all grounded in culturally-appropriate, trauma-informed practices. Efforts to mitigate risk factors and enhance protective factors should include an explicit focus on addressing underlying historical and institutional oppression that perpetuates or contributes to observed inequities among high-risk adolescents. In addition to adolescent-specific interventions and services, federal, state and local agencies should be intentional in addressing the social determinants that contribute to inequities in adolescent substance misuse and suicide through policy and systems-level changes. This includes promoting equity for not only adolescents, but their families and communities who play a significant role in risk or protective factor formation.

Federal, state and local agencies should also apply an equity-informed method for directing resources and investments towards communities where the greatest inequities in outcomes and risk and protective factors exist. More funding is needed in areas with the greatest demonstrated inequities; however, this principle is not always used in current funding formulas. Federal agencies should analyze data with an equity lens, such as the *Everyone Graduates Center* that demonstrate higher need in schools in areas of concentrated poverty, to distribute resources more equitably. This includes applying an equity lens to leverage data sources from across federal agencies such as the Department of Education's *Civil Rights Data Collection* or Department of Health and Human Services *HealthyPeople2020.* Federal agencies should also recognize the ways in which current funding opportunities may unintentionally exacerbate disparities in mental or behavioral health outcomes. By requiring states to demonstrate a certain capacity or infrastructure for collaboration in funding applications, federal agencies may exclude states or communities that lack baseline capacities needed to compete in funding cycles. Federal agencies should therefore be cognizant of providing supports to not only build infrastructure in states/communities that can demonstrate capacity, but also those states/communities needing more basic infrastructure development, including those needed to succeed in the application and implementation processes.

4. **Increase funding for efforts to prevent substance misuse and suicide, relative to investments in treatment, particularly primordial and primary prevention strategies.**

The issues of adolescent substance misuse and suicide unfortunately suffer from one of the perpetual challenges of public health—the battle for issue severity. We tend to focus on the addressing the outcomes that are perceived as most severe. In the case of substance misuse and suicide, this often takes the form of overdose prevention and connection to treatment following a suicide attempt. Reducing deaths through crisis intervention is critically important; however, this attempt to contain the proverbial rising waters often redirects time, money and resources away from addressing the underlying risk and protective factors through primordial or primary prevention strategies. Reversing these epidemics and preventing future ones requires an increased investment in preventing problems from occurring in the first place.

The federal government should increase investments in evidence-based programs and practices that reduce risk factors or increase protective factors identified above as integrally tied to adolescent substance misuse and suicide—including community mentoring programs, positive parenting programs, social and emotional learning programs, Gay Straight Alliances, efforts to bolster positive school climates and support families, and trauma-informed approaches, among

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others. These increased investments should be directed at programs for the family, community and/or school as risk and protective factors are rarely limited to a single setting. States receiving funding under the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment (SUPPORT) for Patients and Communities Act should be encouraged to direct more funds towards these evidence-based prevention activities to complement investments in treatment and recovery.

To improve the health and well-being of adolescents, there is also a need for both a wide and narrow casting of prevention efforts. We need more universal, broad-based interventions that affect all populations at risk (wide), and targeted interventions for those who at elevated risk (narrow). Schools and other key community venues (such as youth-serving organizations and faith communities) can serve as critical sites for implementing these multi-tiered systems of support for students—providing health promoting activities and environments, screening, and targeted service delivery.

Finally, in addition to the need for more prevention-focused funding, more flexibility in funding is needed. To support the development and implementation of these systems, state departments of education should be encouraged to braid together existing federal funding streams from the U.S. Department of Education, Substance Abuse and Mental Health Services Administration (SAMHSA), and CDC with state funding streams to build necessary infrastructure. Examples of funding streams that can support these prevention activities include SAMHSA's Project AWARE (Advancing Wellness and Resiliency in Education) funding, CDC DASH's 1807 grants, or the Every Student Succeeds Act's (ESSA's) Title IV-A funds. At the local level, grantees (such as local school districts or community-based entities) should likewise be encouraged to braid together multiple, cross-sector funding streams. For example, to improve school connectedness, a school could braid together dedicated mentoring funding from the U.S. Department of Justice to promote supportive adult relationships with safe and supportive schools funding from CDC DASH to promote positive school climate with ESSA Title II funding to support social and emotional professional development for school staff.

5. **Build infrastructure to enable greater implementation and scaling of prevention strategies.**

Federal and state governments should strengthen policies and increase investments in upstream programs and technical assistance supports to build the infrastructure necessary to scale evidence-based prevention efforts. To promote the sustainability of prevention efforts, federal agencies should support the development of local and state infrastructure that builds the capacity of communities to deliver evidence-based prevention activities. SAMHSA's Systems of Care model provides one such example of a federal investment in this type of infrastructure. Systems of Care grants support sustainable financing, cross-agency collaboration, the development and implementation of evidence-based and evidence-informed services and supports, implementation of systemic changes, training, and workforce development, all while giving the states the flexibility they need to address their unique needs and mobilize their assets.

At the local level, community prevention coalitions, such as Communities That Care and PROSPER, may operate as the local prevention infrastructure. Such coalitions may develop

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internal capacity and expertise to examine local data, assess needs, select programs, and coordinate with stakeholders to deliver programs, monitor their implementation, evaluate their impact, and engage in sustainability activities such as fundraising.

In a similar vein, federal and state agencies should support the development of a central technical assistance entity that allows stakeholders to easily access effective assessment, implementation and evaluation supports to ensure federal, state, local and philanthropic investments are spent effectively. Evidence-based Prevention and Intervention Support Center (EPISCenter) in Pennsylvania provides one such example and is designed to provide a streamlined system to support communities in selecting, implementing and evaluating evidence-based prevention interventions developed in multiple sectors.

Government and foundations should incorporate a pre-implementation, planning phase into grants to provide adequate time and resources for grantees to build the appropriate coalition supports, identify community assets and needs, and select evidence-based strategies best suited to their issue(s) and context. Federal and state agencies can further support critical prevention infrastructure by including multi-sector coalition building as a requirement under funding opportunities, further encouraging grantees to capitalize on the assets and evidence from other sectors.

Siloed funding streams often result in a cumbersome, disjointed application process for applicants, full of redundancies in both information collected and resources provided. Federal agencies involved in adolescent health and well-being should investigate the creation of a universal prevention application that streamlines various federal application processes for prevention-related activities. The universal application could provide a bundled program of evidence-based interventions from across adolescent-serving sectors available to the setting of interest (e.g. school, youth development organization, etc.) or a menu of options of evidence-based interventions from which applicants could choose based on their needs/assets. Rather than completing multiple grant applications from multiple federal agencies, an applicant would only need to complete a single application. This would allow applicants to more effectively create a holistic approach to adolescent prevention while also encouraging applicants to engage with cross-sector partners in their community or state.

6. **Apply a positive youth development approach across all efforts, including an emphasis on empowering youth voice, enhancing youth participation in decision-making, and asserting an asset/protective-based approach rather than a deficit/risk-based one.**

Government and foundations should require meaningful youth engagement and decision-making in programs targeted at adolescents through explicit language in funding opportunities, as well as inclusion of evidence-based programs in appropriate federal registries—such as community mentoring programs, service learning/paid and unpaid internships, or Gay Straight Alliances. Funding announcements should likewise include efforts aimed at cultivating youth leaders and champions by providing supports to get champion cultivation strategies baked into organizational practices.

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7. **Invest in more prevention-related research, particularly focused on cross-sector impacts and implementation science, as well as research in emerging areas, such as the impacts of social media.**

The evidence of what works and what does not work to address outcomes *within* a sector is notably stronger than the evidence-base *between* sectors. The federal government should support additional investments in bolstering the cross-sector research base by supporting 1) additional research on the cross-sector effects of existing evidence-based strategies aimed at addressing adolescent substance misuse and suicide; 2) research on the impact of multi-program delivery on participant outcomes; 3) additional research in the field of implementation science as it relates to cross-sector implementation of prevention programs and policies, evaluation and measurement of multi-sector outcomes; and 4) creating data sources with greater intersectionality—or the ability to disaggregate data across variables from multiple sectors—to increase cross-sector applicability and identify and address inequities. For example, this may include the CDC YRBS adding an additional measure of interest to the justice sector, such as prior involvement in the justice system or foster care status, to allow for more meaningful data analysis.

Disseminating and translating cross-sector research presents another challenge. When research demonstrates similar conclusions on what works across adolescent-serving sectors, the findings are often not effectively shared with or translated for those in other sectors, stifling collaboration. The federal government should support research related to the development of better strategies for disseminating and translating cross-sector evidence into practice, both across and within youth-serving sectors.

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Appendix I

Definitions of Adolescence

Organization	Age Range for Adolescence
American Academy of Pediatrics	11 – 21 years[48]
World Health Organization	10 – 19 years[49]
U.S. Department of Health and Human Services, Office of Adolescent Health	10 – 19 years[50]
Centers for Disease Control and Prevention, Division of Adolescent and School Health (CDC DASH)	"preteen and teenage years, the middle and high school years, and the years during which puberty and maturation occur"[51]

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