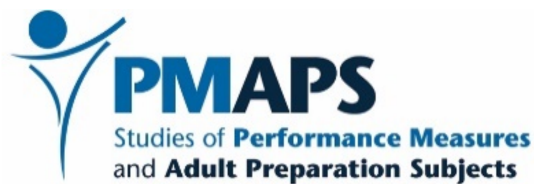
CONCEPTUAL MODELS FOR ADULTHOOD PREPARATION SUBJECTS WITHIN THE PERSONAL RESPONSIBILITY EDUCATION PROGRAM (PREP)



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III. CONCEPTUAL MODEL FOR ADDRESSING ADOLESCENT DEVELOPMENT IN PREP

For the APS conceptual models study, the study team developed conceptual models for six adulthood preparation subjects (adolescent development, educational and career success, financial literacy, healthy life skills, healthy relationships and parent-child communication). The team then developed a unified framework to identify connections across subjects. Together, the models and framework are intended to help ACF support effective programs by providing PREP grantees with guidance on what constitutes adulthood preparation programming, the infrastructure needed to support it, how to offer such programming within adolescent pregnancy prevention programs, and anticipated outcomes. Each conceptual model draws on theoretical and empirical literature. Other sources included consultations with stakeholders and experts; feedback from staff in FYSB and OPRE; and interviews with PREP grantees about their experiences designing and implementing APS programming.

> The Family and Youth Services Bureau (FYSB) and the Office of Planning, Research, and Evaluation (OPRE), both within the Administration for Children and Families (ACF), contracted with Mathematica and its partner, Child Trends, to develop conceptual models for the adulthood preparation subjects (APSs) and to determine how they fit within PREP programming.
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> PREP grantees must adhere to four program requirements: (1) implement evidence-based or evidence-informed curricula; (2) provide education on both abstinence and contraception for the prevention of pregnancy, sexually transmitted infections (STIs), and HIV; (3) educate youth on at least three of six APSs; and (4) focus on high-risk populations, such as youth residing in geographic areas with high teen birth rates, adjudicated youth, youth in foster care, minority youth, and pregnant or parenting teens. PREP grantees are also required to implement a positive youth development (PYD) approach in their programs. Grantees have discretion in how to meet these requirements. This discretion allows them to tailor their programs to fit the needs of the targeted population and their priorities.
>
> The intention of supplementing pregnancy prevention programs with APS content is to further prepare youth for the transition to adulthood. It is hypothesized that incorporating APS content will strengthen the ability of programs to reduce sexual risk behaviors and expand the range of outcomes that programs affect.
>
> This report is a first step toward helping PREP grantees understand issues of integrating and implementing APSs into their programming. The information presented herein reflects grantee perspectives and published literature on the APSs. The primary aim of this report is to provide grantees with a framework to support the implementation of APSs in their projects.

This chapter presents the conceptual model for adolescent development through a schematic and supporting narrative. It starts by defining adolescent development (Section A) and briefly describing how the study team developed the conceptual model (Section B). Then, sections C through H review each model component and the supporting literature. Section I discusses conclusions.

A. Working definition of adolescent development

The legislation authorizing PREP provided a limited definition for each APS.[3] To guide the APS study, the study team developed a working definition that built from the language included in the legislation. The study team then shared the working definition with APS consultants, librarians,

[3] https://www.ssa.gov/OP_Home/ssact/title05/0513.htm

and ACF and refined it based on their feedback. The study team continued to refine the working definition throughout the development of the conceptual model based on reviewed literature and feedback from ACF, PREP grantees, and stakeholders. Each APS is multifaceted, with a range of potential applications to youth. The working definition focuses on how the subject applies to PREP. The working definition for adolescent development is[4]:

> Physical, cognitive, social, and emotional maturation that occurs for youth roughly between ages 10 and 19. Age-appropriate programs and education can support the development of positive social behaviors and relationships; emotional well-being; academic achievement; healthy attitudes and values about adolescent growth and development, body image, racial and ethnic diversity; and related subjects.

B. Overview of the model development process

The study team developed each APS model through a multi-step process (described in more detail in Chapter II). First, the study team conducted a literature review on each individual APS. Then, they held semi-structured interviews with representatives of PREP grantees and providers to understand how they covered each APS. Finally, the team solicited feedback on each APS from additional experts and stakeholders through a series of conference calls and semi-structured interviews. Throughout development, staff from FYSB and OPRE provided feedback on the process, and on the evolving content of the developing conceptual models. Next, the study team describes the process of developing the conceptual model for adolescent development.

Primary keywords: Adolescent development

Secondary keywords: Social independence, healthy attitudes, healthy or positive values, body image, social behaviors, emotional well-being, self-esteem, empowerment, self-determination, empathy, cognitive behavior, sense of self

Research literature review. The study team started by conducting a targeted review of research literature on adolescent development. They systematically searched, screened, and reviewed articles and studies, and then extracted and summarized findings using a template that included sections for each intended component of the adolescent development conceptual model. For this topic, the team reviewed 42 documents, published from 2001 through 2016, including 21 literature reviews or meta-analyses, four empirical studies, nine theoretical articles, one program evaluation, and seven other articles, such as a resource guide, a checklist, point/counter-point articles, and a commentary in a journal supplement that synthesized recommendations from an expert panel. Many of the documents reviewed drew from foundational developmental theories such as Erickson's Stages of Psychosocial Development, Self-Determination theory, or adolescent behavioral risk theories.[5] (See Appendix A for a list of references by chapter, and Appendix B for detailed tables describing the literature review process.)

[4] The definition was intended to apply broadly to the adolescent population. There are many subpopulations of adolescents whose needs may differ based on personal characteristics, for example, race or ethnicity, sexual orientation, or disability status. Grantees and providers will need to tailor programs to the needs of subpopulations they serve.

[5] Note that most of the studies reviewed showed associations rather than causal relationships; findings that report correlations cannot be used to infer causality.

Interviews with PREP grantees and providers. The study team interviewed existing PREP grantees and providers about their APS programming and implementation. These interviews addressed APS program design and implementation, curricula or materials used to cover the APSs, and youth receptivity to APS programming. Altogether, the team spoke with 26 respondents from 19 states, across 25 PREP grantees. Respondents represented 16 State PREP, seven Competitive PREP, and two Tribal PREP grantees.[6] On average, respondents reported covering four APSs in their programs, ranging from the required minimum of three subjects to as many as six.

> Twenty-three out of 26 grantees interviewed said they covered adolescent development, and nearly all said they chose to cover it because it was relevant to all their youth populations.

Expert and stakeholder feedback. The study team engaged four groups of experts and stakeholders to provide feedback on the models. These people reviewed the models to ensure that they included relevant theories and research on the subject, and that the proposed model could enhance or expand PREP outcomes if operationalized as described. Experts and stakeholders represented four groups: (1) experts with content knowledge on specific APSs; (2) State PREP, Competitive PREP, and Tribal PREP grantees; (3) representatives of federal agencies that work on adolescent pregnancy prevention or youth programming related to the APS; and (4) representatives of selected external organizations involved with adolescent pregnancy prevention or youth programming related to the APS.

C. Adolescent development conceptual model

Figure III.1 shows the conceptual model for adolescent development. The definition of adolescent development and the theory of change are at the top, above the conceptual model. The model includes precursors that influence youth who participate in adolescent development instruction as part of PREP, such as developmental tasks and risk and protective factors. The model also identifies topics for inclusion in adolescent development programs, design and implementation features for PREP programs, and outcomes that may be affected by offering this programming. Outcomes are presented as enhanced and expanded outcomes for the PREP program. Enhanced outcomes refers to the outcomes related to the prevention of pregnancy and STIs among youth targeted by PREP: sexual activity; contraceptive use; and incidence of pregnancy and sexually transmitted infections. Expanded outcomes refers to changes in outcomes not related to the prevention of pregnancy and STIs among youth, such as social skills, mental health, or academic achievement. Sections D through H of this chapter describe each component of the conceptual model in Figure III.1, expanding on information it contains, based on the supporting literature. For some components of the conceptual model, the text presents additional detail beyond what is included in the figure.

Adolescent development is a broad field. To focus on aspects of development that are malleable through intervention, the conceptual model incorporates several prominent theoretical frameworks, noted below. In the discussion that follows, the study team highlights the ways in which these theories guided development of the conceptual model:

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[6] As reported in the 2017-2018 PREP performance measures, there are 51 State PREP, 20 Competitive PREP, and eight Tribal PREP grantees.

- The public health framework of risk, protective, and promotive factors
- Personal and social competencies that promote well-being outlined by the Committee on Community-Level Programs for Youth (National Research Council [NRC] and Institute of Medicine [IOM] 2002). These competencies are a set of qualities youth should possess for healthy development.
- The Youth Thrive Framework and Community Action Framework for Youth Development outline programmatic approaches that enhance the prospect of youth engagement and positive outcomes (Harper Browne 2014; Gambone 2004).

D. Precursors

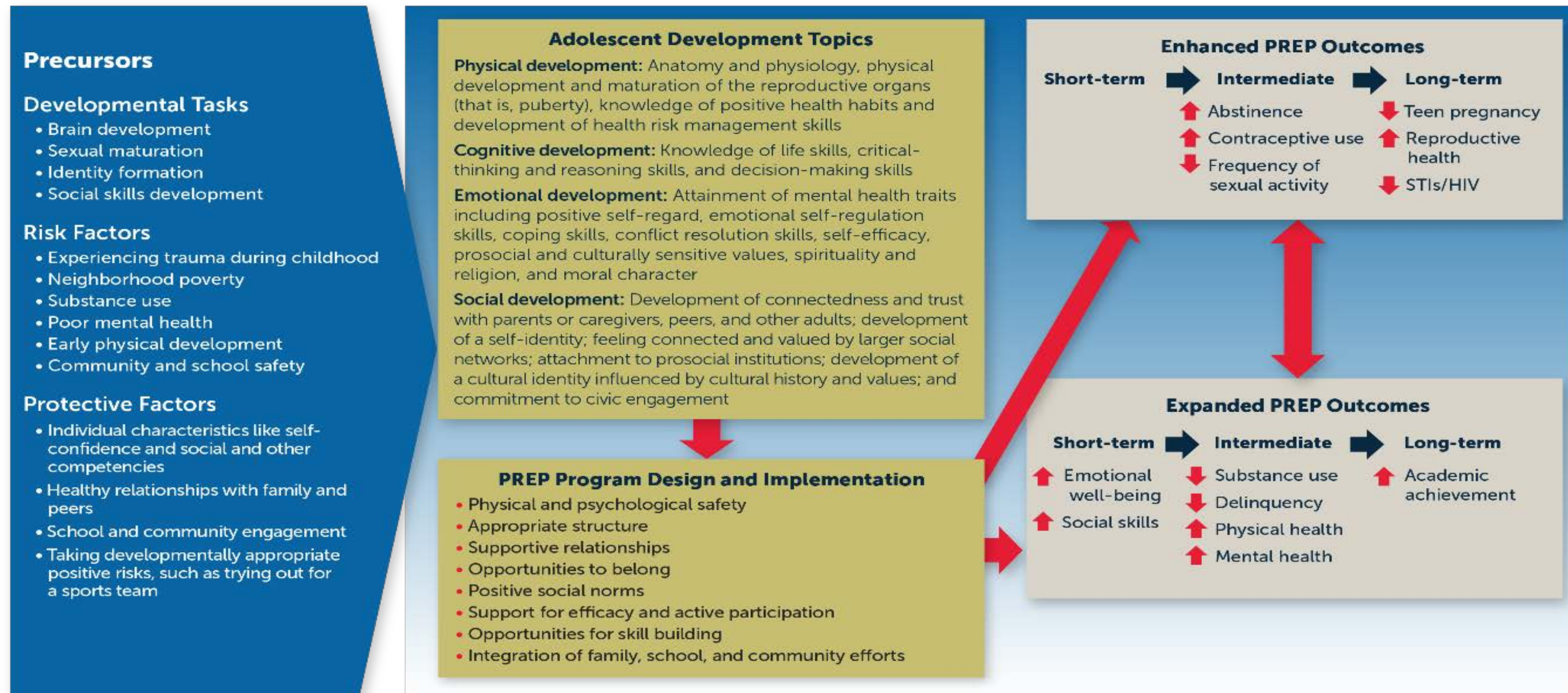
The conceptual model starts with three sets of precursors for adolescent development: developmental tasks, risk factors, and protective factors. Some individual, peer, family, school, and community factors interact and influence how youth develop. These contextual factors often reflect characteristics and experiences that youth bring to a program, but they are not factors that programs should or could expect to change through youths' participation. While not included in the conceptual model figure, programs should consider these factors for their target populations and recognize that their relevance may vary, depending on the APS. For adolescent development, relevant contextual factors include youth and parent demographic and economic characteristics (such as age, gender, sexual orientation, and socioeconomic status), parent-child dynamics,[7] family cultural beliefs and customs, family composition (such as traditional and non-traditional), and neighborhood or community resources. For example, structural racism may affect youths' access to quality health care services (Harper Browne 2014). In some cases, contextual factors can encourage youth to avoid negative or risky behaviors, while in other circumstances, these factors may place youth at higher risk for involvement in activities that contribute to poor developmental and behavioral outcomes. Certain individual-level factors like age, grade level, or sex may increase or decrease the strength of the relationship between youth's experiences in the program and their outcomes.

[7] When the model references parents, the study team recognizes that some youth may not live with a biological parent, but rather are cared for by a guardian or other trusted adult. The term *parent* intends to be broad and reflect the range of potential caregivers.

Figure III.1. Adolescent Development Conceptual Model

Adolescent development is the physical, cognitive, social, and emotional maturation that occurs for youth roughly between ages 10 and 19. Age-appropriate programs and education can support the development of positive social behaviors and relationships; emotional well-being; academic achievement; healthy attitudes and values about adolescent growth and development, body image, racial and ethnic diversity, and related subjects.

Theory of Change: Healthy adolescent development is defined as meeting the appropriate developmental milestones in the areas of physical, cognitive, social, and emotional well-being. Youth development programs aim to build strengths and respond effectively to challenges in these domains. By focusing on outcomes that improve youth assets, PREP programs can support youths' development across domains, which will help youth to improve academic achievement, social skills, and physical and mental health and reduce risky behaviors such as delinquency, substance use, and unprotected sex. Increased protective factors and decreased risk factors will support attainment of positive PREP outcomes, such as reducing sexual risk behaviors, among participating youth.



The team included developmental tasks to recognize that adolescents start at different places and progress at different rates through brain development, sexual maturation, identity formation, and social skills development. Risk factors make youth more likely to engage in negative behaviors or harder for them to develop strengths. In contrast, protective factors promote positive development by making youth less likely to engage in negative behaviors and helping them to mitigate risks and promote resilience. Although not specified in the model, promotive factors enhance positive development generally among youth, regardless of individual, familial, or community risk factors. Promotive factors overlap with protective factors (such as positive family relationships) but are more generally beneficial for all youth, whereas protective factors come into play in the context of risk (NRC and IOM 2009). Examples of promotive factors include ethnic identity, social support, and prosocial involvement.

Developmental tasks. PREP programs must consider youths' developmental needs when designing programming, as adolescence is a critical period of brain development and youth begin sexual maturation, continuing to refine their sense of identity and social skills (Patton and Viner 2007; NRC and IOM 2002). Personality traits such as self-identity, values, and social skills develop from early infancy throughout adulthood. However, there are stages of human development when these traits become more pronounced, which the conceptual model highlights. During early adolescence, around ages 10 through 14, youth begin to explore their sense of identity, and find their place in their peer group. They might adopt behaviors or a style of dress to help them "fit in" with their friends. During this time, youth develop self-regulation, interpersonal skills, and cognitive functioning that contribute to youth seeking rewards before they are able to fully grasp the short- and especially the longer-term consequences of actions. This in turn makes youth vulnerable to risk-taking behaviors (Steinberg 2007). During middle adolescence, around ages 15 through 18, youth develop personal values and a higher level of cognitive functioning. This enables them to further develop social skills and to experiment with identities that may vary from the identity of their peers. These changes prepare youth to develop a stable set of values and a coherent sense of themselves by young adulthood, starting around 19 years old (Nagaoka et al. 2015).

Risk and protective factors. Risk factors make youth more likely to engage in negative behaviors or harder for them to develop strengths. For example, experiencing trauma or poverty during childhood or adolescence increases the likelihood of poor outcomes related to mental health, physical development, and social competence in adulthood (NRC and IOM 2009; Harper Browne 2014). Poor neighborhoods may lack the resources that promote healthy development and may expose youth to risk factors such as violence and drugs and alcohol (NRC and IOM 2009). When experienced in childhood, factors such as trauma, poverty, and poor neighborhoods can also have a cumulative effect on adolescent outcomes. For example, growing up with social disadvantage and experiencing early trauma can lead to early uptake of risky behaviors during adolescence (Sawyer et al. 2012; NRC and IOM 2009; Harper Browne 2014). Trauma includes historical trauma, defined as "collective trauma experienced over time and across generations who share an identity," which can also negatively affect health outcomes among marginalized communities (Mohatt et al. 2014).

Personal characteristics such as sexual orientation, race, and disability can also put youth at higher risk of negative outcomes (NRC and IOM 2002). Substance use is positively correlated with early initiation of sexual behavior, low contraceptive use among those who are sexually

active, delinquency, and academic failure (IOM and NRC 2011). In addition, mental health problems, such as depression, anxiety, and post-traumatic stress disorder, can result in poor academic achievement, which can increase the risk of adolescent pregnancy (NRC and IOM 2009). IOM found that delinquency (engaging in crime or violence) is positively correlated with defiance, truancy, school misbehavior, problem sexual behavior, academic failing, high school dropout, adolescent pregnancy, violence, and risky driving (IOM and NRC 2011).

Youth, particularly girls who experience early onset of puberty, may be at risk of negative outcomes. Girls with early physical development were found to be at higher risk for depression, substance abuse, disruptive behaviors, and eating disorders (Steinberg and Sheffield 2001). Early-maturing boys, also subject to negative risks, were more likely to be sexually active, smoke, or take part in delinquent activities (American Psychological Association 2002). Late-maturing boys may also have lower self-esteem or stronger feelings of inadequacy than their peers (Steinberg and Sheffield 2001).

Protective factors, which include positive influences from peers, family, school, and community, mitigate risks and promote resilience and thus make youth less likely to engage in negative behaviors. For example, family upbringing contributes to the development of social competence: interpersonal skills that help youth understand feelings, thinking, and actions in social settings, such as reading social cues, solving interpersonal problems, and anticipating consequences to actions (Catalano et al. 2004). Positive family factors—such as strong parent-child communication, monitoring, setting appropriate limits, and parents' own health behaviors—are related to adolescent health-promoting behavior (Youngblade et al. 2007). In addition, the presence of at least one stable and supportive adult can protect a child from the impact of traumatic experiences, which reduces the risk they will develop serious problems later in life (Harper Browne 2014). However, some youth are in out-of-home care and are thus less likely to have these positive family factors. Peers can also positively influence youth. Researchers have found that having peers with prosocial behaviors or who achieve academically can be protective for youth (Steinberg 2007). Individual characteristics can also be protective. Guerra and Bradshaw (2008) found that youth with a strong ability to define their sense of self have more self-control and better decision-making abilities, a more refined set of moral beliefs, and greater connectedness to others. High levels of these competencies increased the likelihood of positive development, while low levels increase the likelihood of involvement in adolescent risk behaviors.

The safety of community and school environments also represents an important context for adolescent development, as both school and community safety are linked to increased social competence (Youngblade et al. 2007). Several authors discussed the potential of civic and community engagement as a protective factor. For example, one study explained that young adults need to "give back" to the social, political, or physical welfare of society to feel successful. Community engagement may also have a positive benefit on society as well as on individual youth (Scales et al. 2016). A different study found that civic engagement, such as participating in a youth advocacy group, can keep youth more fully engaged in their positive individual development (Pittman et al. 2003).

The American Psychological Association (2002) explains that experimentation in adolescence is developmentally appropriate, and that unless it threatens youths' health or life, it is a positive

sign that “adolescents feel secure enough to explore the unknown.” In positive risk-taking, where youth face situations where they may fail (for example, trying out for a sports team), it is important for them to learn from their mistakes to become responsible adults (Harper Browne 2014). Because most risk taking involves less-safe behaviors, it is important to provide youth with opportunities for positive risk taking to decrease their likelihood to participate in unsafe risks and activities.

E. Theory of change for adolescent development

Theory of change

Healthy adolescent development is defined as meeting the appropriate developmental milestones in the areas of physical, cognitive, social, and emotional well-being. Youth development programs aim to build strengths and respond effectively to challenges in these domains. By focusing on outcomes that improve youth assets, PREP programs can support youths’ development across domains, which will help youth to improve academic achievement, social skills, and physical and mental health and reduce risky behaviors such as delinquency, substance use, and unprotected sex. Increased protective factors and decreased risk factors will support attainment of positive PREP outcomes, such as reducing sexual risk behaviors, among participating youth.

Development during adolescence occurs in the physical, cognitive, social, and emotional domains. Physical development includes a range of biological changes, including physical and sexual maturation (IOM and NRC 2011). Cognitive development encompasses brain development, which—contrary to earlier thinking—occurs throughout the life span. During adolescence, brains develop the ability to make more complex decisions and understand abstract information. As part of this process, by mid-adolescence, youth generally develop better executive functioning skills, including the capacity to understand long-term consequences and exert more control over their impulses. The maturation of executive functioning and the social-emotional skills occur simultaneously and affect each other. However, not all aspects of executive function and social-emotional development may develop at the same time, and when they do not, inconsistent behavior is often observed in adolescence (IOM and NRC 2011). Social development continues during adolescence through refinement of a range of skills, including social skills, conflict resolution, empathy, relationship building, and managing conflict with parents, caregivers, or peers (Centers for Disease Control and Prevention 2015; Bell et al. 2012). Emotional development also continues when youth establish their sense of identity, learn how to regulate emotions, and develop moral values (American Psychological Association 2002).

F. Adolescent development topics

Youth development programs intend to enhance youths’ ability to develop positively and reach their full potential (NRC and IOM 2002; Zarrett and Lerner 2008; Hamilton et al. 2004). To facilitate healthy development and well-being, programs may incorporate a range of topics that address personal and social competencies. These topics align with the assets outlined by the Committee on Community-Level Programs for Youth (NRC and IOM 2002) and include:

- **Physical development:** Anatomy and physiology, physical development and maturation of the reproductive organs (puberty), knowledge of positive health habits, and development of health risk management skills

- **Cognitive development:** Knowledge of life skills, critical thinking and reasoning skills, and decision-making skills
- **Emotional development:** Attainment of mental health traits, including positive self-regard, emotional self-regulation skills, coping skills, conflict resolution skills, self-efficacy, prosocial and culturally sensitive values, spirituality and religion, and moral character
- **Social development:** Development of connectedness and trust with parents or caregivers, peers, and other adults; development of a self-identity; feeling connected and valued by larger social networks; attachment to prosocial institutions; development of a cultural identity influenced by cultural history and values; and commitment to civic engagement

While not required, competencies in each domain above benefit youth. The more competencies a youth has, the more she or he can benefit developmentally. Positive experiences, supportive people, and opportunities to gain and refine life skills can contribute to youth acquiring and building their competencies (NRC and IOM 2002).

Grantee interviews demonstrated that many PREP programs addressed these topics. For example, staff described programming related to:

- Physical health and wellness, including puberty, anatomy, and physical changes
- Cognitive development, such as critical thinking and decision making
- Emotional development, including self-esteem and emotional and mental health
- Social or behavioral development, such as relationships with peers and adults, positive role models, trust and consequences, identity, decision making, and community connections.

Staff used a range of activities to cover these topics. For example, one program led a “values auction” during which youth self-identified their priority values. Another brought in a licensed clinical therapist so youth could meet her and see what therapy might be like, and gain exposure to mental health services.

G. Program design and implementation

Grantee interviews and the literature review identified design strategies that can guide the implementation of PREP programming that aims to strengthen adolescent development. The literature suggests that programs should remain flexible and incorporate multiple types of strategies and practices, including culturally adapting programs to fit the target population. The NRC and IOM (2002) identified a list of eight recommended practices programs can use to facilitate positive adolescent development:

1. **Provide physical and psychological safety--** safe facilities free from violence and abuse and encourage health-promoting practices, such as mental health services, that increase safe peer interactions and decrease confrontational interactions
2. **Provide appropriate structure**--including clear and consistent rules and expectations, and age-appropriate monitoring

3. **Encourage supportive relationships**—caring relationships, social support, positive communication, and supportive guidance
4. **Offer opportunities to belong**-- opportunities for meaningful inclusion of all youth regardless of gender, race, ethnicity, sexual orientation, or disabilities; opportunities for positive identity formation; and support for cultural and bicultural competence
5. **Reinforce positive social norms**--support behaviors and values that promote respect, including clearly communicated expectations
6. **Encourage efficacy and active participation**--support youth autonomy, offer opportunities for youth to take on leadership roles, and encourage youth to achieve meaningful change in their community
7. **Provide opportunities for skill building--**provide opportunities for physical, intellectual, psychological, emotional, and social development that prepare adolescents to make positive decisions about their health, as well as providing educational and career opportunities
8. **Integrate family, school, and community efforts--**coordinate and collaborate with family, school, and community partners

Other authors endorsed developing prosocial relationships or bonding with others as a promising practice (Catalano et al. 2004; Family and Youth Services Bureau 2007; Gavin et al. 2010; Markham et al. 2010; Nagoka et al. 2015). In addition, others recommended engaging youth in program development so they are not just service recipients, but active participants in the design and implementation of services (Harper Browne 2014; Pittman et al. 2003). Other authors highlighted the importance of involving parents or guardians—through either parent education (Bandy and Child Trends 2012) or parental involvement in programming (Chapman and Werner-Wilson 2008; Gavin et al. 2010; Bell et al. 2012). However, not all youth live with or interact with their parents—especially youth who are incarcerated or are in the foster care system. For these youth, involving caregivers or trusted adults might be appropriate, but the literature did not address this adaptation specifically.

During interviews, PREP grantees recommended selecting curricula and staff members that can cover both sexual health, including pregnancy and STI prevention, and adolescent development. PREP grantees indicated that they typically used a curriculum for the prevention of pregnancy and STIs among youth that also included adolescent development and other APS content. In addition, most grantees used the same staff to teach all content. Selecting a curriculum that combines the prevention of pregnancy and STIs and APS content helped staff maintain student interest and allowed them to use time efficiently. Staff who deliver pregnancy and STI prevention and adolescent development content may cover overlapping topics. For example, grantees described how content on decision making, trust and consequences, and peer relationships are relevant to adolescent development, pregnancy and STI prevention, and other APSs. Programs should also ensure that adolescent development content is culturally sensitive and inclusive of all youth. For example, programs could incorporate content relevant to tribal communities and other special populations of youth.

H. Outcomes

The reviewed literature suggested several outcomes that might be realized by addressing adolescent development. The study team organized outcomes into two categories—expanded and enhanced—based on whether they focus on changes to outcomes related to the prevention of pregnancy and STIs among youth targeted by PREP (enhanced outcomes) or outcomes not related to the prevention of pregnancy and STIs among youth (expanded outcomes). The model is limited to outcomes supported by the literature review.

The team further organized outcomes as short-term, intermediate, and long-term. These categories are derived from a theoretical understanding of the logical sequencing of youth knowledge, attitudes, skills, and behaviors related to a particular outcome. *Short-term* outcomes are observed directly following a program and typically include initial changes in knowledge and attitudes, but may include immediate behavior changes. Short-term outcomes often continue to be relevant at later time points. *Intermediate* outcomes are the step between short-term and long-term outcomes. They can include the application of new skills or changes in behavior that result from the acquisition of knowledge and skills. Programs could expect to see these outcomes within six months to a year after a program. *Long-term* outcomes are observed a year or more after program completion. Depending on when youth attend the program, this could be during middle or high school or even after high school and into young adulthood. The model does not identify outcomes beyond young adulthood. The reviewed literature did not include articles on the effects of adolescent development programming in adulthood.

Enhanced outcomes. The literature suggests that interventions that incorporate adolescent development might also influence outcomes related to pregnancy and STI prevention. Youth with strong connections and positive bonds with adults —whether family members or other adults—may delay engaging in sexual activity. These connections can flourish when youth have strong social skills, emotional well-being, and strong mental health. When adults with whom youth have a positive bond model positive sexual attitudes and behaviors, youth perceive these attitudes and behaviors as normal. Several authors noted that such perceived norms encouraged youth to delay when they begin to engage in sexual activity and decrease their frequency of sexual activity (House, et al. 2010b; Gavin et al. 2010; Catalano et al. 2004). In turn, the age of sexual initiation and frequency of sexual activity influence unintended pregnancy and sexually transmitted infections. When youth initiate sexual activity at older ages, they experience fewer unintended pregnancies (NRC and IOM 2002). In addition, academic achievement is associated with higher rates of contraceptive use (House et al. 2010a).

Expanded outcomes. Addressing adolescent development in PREP may also result in changes beyond the prevention of pregnancy and STIs, including social skills, substance use, delinquency, emotional well-being, and academic achievement. Addressing adolescent development may enhance youths' competencies, such as self-control, decision-making skills, and connectedness to others, which in turn can increase their emotional well-being, social skills, and other positive behaviors (House et al. 2010a; Catalano et al. 2004; Guerra and Bradshaw 2008), as reflected in the short-term expanded outcomes. Improving emotional well-being can improve emotional attributes such as self-esteem, coping skills, and self-efficacy (Hamilton et al. 2004).

Some programs that address adolescent development have demonstrated increased social skills for youth (Bandy and Child Trends 2012; Catalano et al. 2004; Durlak et al. 2010). Increasing youths' social skills and emotional well-being can contribute to decreased engagement in harmful externalizing behaviors, such as substance use and delinquency, captured as intermediate expanded outcomes. Other programs addressing adolescent development have shown promise for reducing substance use and other problem behaviors, such as delinquency among adolescents (Catalano et al. 2004; Singson 2015; Bell et al. 2012; Bandy and Child Trends 2012). Programs that teach cognitive-behavioral skills (such as coping or emotion regulation) have shown improvements in mental and physical health outcomes for females (Bell et al. 2012). Finally, programs have shown improved academic achievement (Bandy and Child Trends 2012; Catalano et al. 2004), typically a long-term outcome. Improving academic achievement may influence other domains because academic failure is associated with adolescent pregnancy, violence, substance use, and poor mental health (Brooke-Weiss et al. 2008).

I. Conclusions

Addressing adolescent development in PREP can potentially lead youth to have increased physical, cognitive, social, and emotional well-being, resulting in reduced levels of risky behaviors and improved outcomes related to the prevention of pregnancy and STIs among youth and academic achievement. Adolescent development programming focused on youths' strengths may result in increased numbers of youth who abstain from sexual activity or reduce their involvement in risky sexual behavior. PREP programs that incorporate adolescent development programming are positioned to affect youths' outcomes related to the prevention of pregnancy and STIs as well as broader outcomes related to social and emotional well-being and academic performance.