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Unleashing the Power of Prevention

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ABSTRACT

Every day across America, behavioral health problems in childhood and adolescence, from anxiety to violence, take a heavy toll on millions of lives. For decades the approach to these problems has been to treat them only after they've been identified—at a high and ongoing cost to young people, families, entire communities, and our nation. Now we have a 30-year body of research and more than 50 programs showing that behavioral health problems can be prevented. This critical mass of prevention science is converging with growing interest in prevention across health care, education, child psychiatry, child welfare, and juvenile justice. Together, we stand at the threshold of a new age of prevention. The challenge now is to mobilize across disciplines and communities to unleash the power of prevention on a nationwide scale. We propose a grand challenge that will advance the policies, programs, funding, and workforce preparation needed to promote behavioral health and prevent behavioral health problems among all young people—including those at greatest disadvantage or risk, from birth through age 24. Within a decade, we can reduce the incidence and prevalence of behavioral health problems in this population by 20 percent from current levels through widespread policies and programs that will serve millions and save billions. Prevention is the best investment we can make, and the time to make it is now.

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THE NEED FOR PREVENTION NOW

When it comes to giving young people a healthy start in life, our nation faces very different challenges than it did just 30 years ago. As a result of successful efforts to combat infectious diseases and increase investments in child health, the greatest challenge to health has shifted from communicable to noncommunicable diseases and the behavioral health problems implicated in their development. Promoting health among young people requires us to refocus to address behavioral health problems (Catalano et al., 2012).

We define behavioral health problems as behaviors that compromise a young person's mental or physical well-being. These include anxiety and depression; autism; self-inflicted injury; risky sexual behaviors; unwanted pregnancies; obesity; risky driving; alcohol, tobacco, and other drug use; delinquent behavior, violence and aggressive behavior; and school dropout. We cast a wide net because many of these behavioral health problems are predicted by shared risk factors. For example, high levels of conflict in families predict substance use, delinquency, teen pregnancy, school dropout, violence, depression, and anxiety.

Behavioral health problems in childhood and adolescence take a heavy toll over a lifetime, with significant impacts on rates of economic independence, morbidity, and mortality (Hale and Viner, 2012). According to the Centers for Disease Control and Prevention (CDC), 72 percent of all deaths among adolescents are due to motor vehicle crashes, accidents, suicide, violence, and difficulties in pregnancy. Every day, an average of 1,700 young people are treated in hospital emergency rooms for assault-related injuries. Smoking, which begins in adolescence for 80 percent of adult smokers, increases the risk of morbidity and mortality through adulthood.

The costs to our country are high. In the United States, underage drinking costs society \$27 billion per year, and delinquent behavior costs society \$60 billion per year (Kuklinski et al., 2012). More than 6 million young people receive treatment annually for mental, emotional, or behavioral problems. Treatment services and lost productivity attributed to behavioral health problems such as depression, conduct disorder, and substance abuse are estimated at \$247 billion per year (NRC and IOM, 2009). Other costs are incalculable, as parents, teachers, physicians, child psychiatrists, child welfare workers, juvenile justice probation officers, and entire communities experience the adverse effects of human suffering, lost potential, and fraying social fabric.

Behavioral health problems reflect and perpetuate social inequities. Different social groups, characterized by gender, race, ethnicity, citizenship, sexual orientation, and class, experience dramatically different levels of behavioral health. For example, almost 83 percent of the deaths of American Indian and Alaskan Natives are attributed to behavioral health problems (Hoyert and Xu, 2012). Homicide rates are more than six times higher for young males than females, and nearly 14 times higher for African American youth compared to non-Hispanic white youth.

For decades, public policies have focused on protecting, treating, rehabilitating, and, often, controlling young people with behavioral health problems. Year after year, billions of dollars are devoted to rehabilitating and confining youth who exhibit mental health difficulties or engage in delinquent, aggressive, or substance-abusing behaviors (Catalano, 2007; Hawkins, 2006; Woolf, 2008). These policies have actually increased social inequity (Gilman, 2014; Western and Pettit, 2010).

Although treatment and control are clearly necessary to protect children and ensure public safety, we now have over 30 years of research on effective programs and policies showing that we can prevent behavioral health problems from developing in the first place.

THE PROMISE OF PREVENTION

A large body of scientific evidence over 30 years shows that behavioral health problems can be prevented. Prior to 1980, few preventive interventions for behavioral health problems had been tested, and virtually no effective preventive interventions had been identified (Berleman, 1980). But the past 30 years have been filled with proof that prevention works: longitudinal studies have identified malleable individual and environmental risk factors that predict wide-ranging behavioral health problems (Catalano et al., 2011; Farrington, 1995; Hawkins et al., 1992; Loeber et al., 1998). Research has also identified positive attributes and protective environmental influences that buffer or minimize the adverse effects of exposure to risk (Lerner et al., 2005; Luthar, 2003).

These discoveries laid the foundation for developing and testing new preventive interventions. Over the past three decades, more than 50 programs have been found effective in controlled studies of interventions aimed at preventing behavioral health problems in children, adolescents, and young adults (CSPV, n.d.; NRC and IOM, 2009). Effective preventive interventions have been identified at three levels:

1. *Universal programs*, which seek to reach all children and youth without regard to level of risk exposure.
2. *Selective programs*, which focus on young people who have been exposed to elevated levels of risk but who do not yet manifest behavioral health problems.
3. *Indicated programs*, which focus on youth who evidence early symptoms of behavioral health problems (IOM, 1994).

Evaluations of youth development programs aimed at promoting positive behavior in young people also show positive effects (Catalano et al., 2002; Gavin et al., 2010). These programs seek to prepare young people to lead healthy, productive lives. Initiatives such as the CDC's Racial and Ethnic Approaches to Community Health (REACH) have reduced disparities in behavioral health by pairing a strong national vision for health promotion with local preventive interventions (Cohen et al., 2010).

Advances in technology over the past 30 years offer game-changing potential to scale preventive interventions quickly and dramatically increase access to gold-standard programs.

A critical mass of prevention science points to what's possible. The basis for this bold grand challenge is the large body of scientific findings from studies in medicine, public health, child welfare, criminal justice, disabilities, education, employment and income assistance, juvenile justice, mental health, and substance abuse. The following examples are only a small sampling of the positive impact of preventive interventions on a wide range of behavioral health problems.

Anxiety

Approximately 25 percent of 13- to 18-year-olds have had an anxiety disorder in their lifetime (Merikangas et al., in press). Studies of universal prevention strategies in school settings have revealed reductions in anxiety symptoms for all children and beneficial effects for children at higher risk for anxiety disorders (Barrett et al., 2000; Lowry-Webster et al., 2001). This shows that universal preventive interventions can also have effects on vulnerable, “at-risk” individuals. Evidence from selective prevention trials indicates that cognitive-behavioral interventions targeted to children at elevated risk are superior to other treatments in reducing anxiety and stress while also increasing self-esteem and positive behaviors (Barrett et al., 2003; Cooley et al., 2004; Rapee et al., 2005). Family-based interventions, which engage parents, can be even more potent. Evidence from indicated prevention efforts shows that cognitive-behavioral interventions can significantly reduce symptoms of anxiety and anxiety diagnoses among children already experiencing anxiety (Bernstein et al., 2005). Computer-based programs and mobile phone applications show promise in dramatically increasing access to effective preventive interventions (Barak et al., 2008).

Depression

About one in five young people experiences at least one major depressive disorder during adolescence. Depression is associated with educational and occupational underachievement, unsatisfactory interpersonal relationships, and an increased risk for suicide and suicidal behavior (Lewinsohn et al., 1998). A number of preventive interventions for depression have been tested, including universal, selective, and indicated school- and family-based programs. Preventive interventions appear to be most effective for females and for adolescents of both sexes over age 14 (Stice et al., 2009). Programs designed to prevent anxiety, substance abuse, and delinquency that show wider effects when universally administered are helpful in preventing depression, since anxiety is often a precursor of depression. Furthermore, the qualities of parenting promoted in most family-focused substance abuse and delinquency prevention interventions are also protective against depression (Yap et al., 2014). *Familias Unidas*, a selective family-focused program aimed at preventing delinquency and substance abuse among Latino children, showed reduced depressive symptoms among youth with higher internalizing symptoms and poorer parent-child communication at intake (Perrino et al., 2014). *New Beginnings*, a selective preventive intervention for parents and youth experiencing divorce, reduced rates of depression and anxiety in the children 15 years after completion of the intervention (Wolchik et al., 2013). Interventions to promote physical activity, especially in overweight youngsters, have also had salutary effects on depressive symptoms (Brown et al., 2013).

Autism

The CDC estimates that one in every 68 children has been diagnosed with autism. Autism is the fastest-growing developmental disability in the nation, increasing 119.4 percent from 2000 to 2010 (CDC, 2014b). According to the Autism Society, a 2006 Government Accountability Office Report on Autism indicated that early diagnosis and intervention can reduce the cost of lifelong care by two-thirds. Studies show that autism can be detected as early as 12-16 months of

age in children and that early intervention is key. With research showing that interventions beginning before 3 years of age have the greatest impact on a child's social communication, language, and behavior, Wetherby and colleagues at the Florida State University College of Medicine have developed Autism Navigator™ to provide early home-based interventions. They have also developed a course for primary care physicians (Florida State University Autism Institute, 2012). Similarly, recent reports by Baranek et al. (2015) and Green et al. (2015) using simple parent-mediated interventions targeting early behavioral risk-markers in children as young as 7-12 months at risk for autism resulted in a wide range of developmental outcomes consistent with reduced risk for autism later in life.

Alcohol, Tobacco, and Other Drug Use

Rates of alcohol, cigarette, and illicit drug use increase two- to threefold between grades 8 and 12 (Johnston et al., 2014). Rigorous experimental trials have identified effective interventions for preventing adolescent substance use and misuse. These include universal school-based programs such as *Life Skills Training* (LST), a 3-year middle school classroom curriculum that teaches students personal self-management, social, and drug-resistance skills. LST has been found to produce sustained effects in preventing adolescent tobacco use (Botvin et al., 1980, 2003), alcohol use (Botvin et al., 2000), binge drinking (Botvin et al., 2001), and marijuana use (Botvin et al., 1990). A high school curriculum called *Project Towards No Drug Abuse* has produced sustained reductions in cigarette, marijuana, and other illicit drug use in both general and alternative high schools (Dent et al., 2001; Rohrbach et al., 2010; Sun et al., 2008; Sussman et al., 2002).

Universal and selective family-focused prevention programs also have shown sustained effects in reducing adolescent substance use. These include *Strengthening Families*, a seven-session universal program for families with young adolescents (Spoth et al., 2009) and *Guiding Good Choices*, a five-session universal program for parents of children in middle school (Mason et al., 2007). The *Familias Unidas* program for Latino families reduced illicit drug use and alcohol dependence (Prado et al., 2012) as well as sexually transmitted infection (STI) risk behaviors (Prado et al., 2007). Universal and selective community-based preventive interventions also have reduced substance use among adolescents in controlled trials. The selective one-on-one *Big Brothers Big Sisters* mentoring program reduced illicit drug use initiation among children by 46 percent (Grossman and Tierney, 1998). The *Communities That Care* (CTC) prevention system, which mobilizes communities to use proven preventive interventions matched to community needs, reduced tobacco use initiation by 33 percent, alcohol use initiation by 32 percent, and delinquent behavior by 25 percent community-wide (Hawkins et al., 2009). Effects on initiation of these behaviors were sustained throughout high school (Hawkins et al., 2014).

Finally, universal, selective, and indicated preventive interventions have reduced substance use among college students. *InShape*, a universal, fitness-focused intervention using a self-administered behavior image survey and a one-on-one meeting with a fitness specialist, produced short-term reductions in frequent and heavy alcohol use, driving after drinking, and marijuana use (Werch et al., 2008).

Depression, anxiety, and substance abuse (alcohol, tobacco, and drugs) are behavioral health problems that can particularly affect youth experiencing physical health problems such as cancer, asthma, and diabetes. Preventing behavioral health problems in youth experiencing physical

health problems can enhance mental and physical health—for example, by increasing compliance with medication. The focus on behavioral health has become especially important because survival to adulthood has increased dramatically for many medical conditions; medical care needs to prepare these children for adulthood. According to the Standards of Care for Adolescent Medicine, preparation should include counseling on prevention of health risk behaviors (Elster and Kuznets, 1994).

Risky Driving

Traffic fatalities due to crashes are the leading cause of death worldwide for 10- to 24-year-olds (Patton et al., 2009). The leading risk factors for adolescents are inexperienced driving, non-use of seat belts, driving with other passengers—especially teenagers—nighttime driving, and drunk driving. Several universal policies have been effective in preventing traffic crashes and fatalities. Some have specific effects for teens, while others have shown effects for all drivers. For example, Wagenaar and Toomey (2002) found that increasing the minimum legal drinking age to 21 reduced traffic crashes, alcohol use, and injury among 18- to 21-year-olds. Universal prevention programs using sobriety checkpoints (Shults et al., 2001) and universal and selective parent education and involvement strategies (Haggerty et al., 2006; Simons-Morton et al., 2006) have also been effective in reducing drunk driving and auto accidents involving adolescents. In addition to preventing substance use, the school-based LST program has been shown to reduce risky driving (Griffin et al., 2004).

Aggressive Behavior and Conduct Problems in Childhood

Substantial progress has been made in preventing early conduct problems and aggression. A recent meta-analysis of 249 experimental studies designed to prevent aggressive and disruptive behavior in childhood yielded a significant mean effect size for aggression of 0.21 (Wilson and Lipsey, 2007). Universal preventive interventions produced an effect size of 0.21, with larger effects for younger children and those of lower socioeconomic status, indicating positive effects of universal preventive interventions for vulnerable populations.

A recent report from a task force of the CDC supports the efficacy of universal school-based models for preventing violence (Hahn et al., 2007). For example, the *PATHS Curriculum* is a universal program for preschool- and elementary school-aged children provided by classroom teachers and focused on emotional awareness, self-control, and social problem solving. Controlled trials have shown significant effects on prosocial behavior and reductions in aggressive/disruptive behaviors, as well as improvements in executive functioning and classroom atmosphere (Greenberg et al., 1995). Disruptive behavior disorders, such as attention deficit hyperactivity disorder and oppositional defiant disorder, cause long-term morbidity. Although symptoms are often evident before preschool, few children receive appropriate early intervention during that period. *The Incredible Years* is a selective intervention designed to reduce child conduct problems by improving parenting skills and increasing parent involvement in school (Webster-Stratton and Reid, 2010). Findings from studies in the United States and abroad (Baker-Henningham et al., 2012; Brotman et al., 2008; Scott et al., 2010) have demonstrated its effectiveness in improving parenting practices and reducing child conduct problems with selective samples, including young people at risk for maltreatment (Hurlburt et al., 2013).

Pediatric and family medicine practices are in a good position to intervene early when indicated. *The Incredible Years* has been implemented in pediatric offices through group parenting workshops. The program is offered to parents of children who have been screened for disruptive behaviors during well-health visits at ages 2 and 3. It was tested in a randomized clinical trial involving diverse pediatric practices in the Greater Boston area. Sessions were co- led by trained practice staff including nurses, nurse practitioners, social workers, pediatricians, and administrators. The study found that group parent training provided in pediatric clinics reduced negative parenting, child disruptive behaviors, and negative parent-child interactions (Perrin et al., 2014).

Delinquent Behavior

Controlled trials of delinquency prevention strategies have produced positive results in school (Durlak et al., 2011; Wilson et al., 2001), family (Farrington and Welsh, 2003), and community (Hawkins et al., 2012) settings. Effective school-based preventive interventions seek to prevent delinquent conduct by enhancing social, cognitive, and behavioral skills. A recent meta-analysis of 40 family-focused preventive interventions found that the odds of offending for young people in prevention programs were 34 percent compared to 50 percent for control youths (Farrington and Welsh, 2003). Programs that used behavioral parent-training strategies at all levels of intervention were found to be most effective over time. *Functional Family Therapy* (FFT) is a family-based intervention targeting adolescents who have already broken the law. The program has reduced substance use and delinquency among young offenders and prevented their younger siblings from engaging in delinquent behaviors (Sexton and Alexander, 2000). The *Multidimensional Treatment Foster Care Program* (MTFC) targets young people in foster care placements who are at elevated risk for residential treatment, incarceration, or hospitalization (Chamberlain et al., 2007). Youth participating in MTFC are placed with families in the community who have received intensive training in parent management skills. In addition, the biological parents of participating youth attend skills training classes in preparation for their child's return home (Eddy et al., 2004). Randomized trials of MTFC have been effective in preventing and reducing delinquency, substance use, and school dropout (Rhoades et al., 2013; Smith et al., 2010). Research assessing the effects of universal community-based prevention systems has revealed positive effects on reducing delinquent conduct. The CTC system produced significantly lower rates of delinquency through 12th grade in a longitudinal panel compared to those in the panel from control communities (Hawkins et al., 2009, 2012, 2014). Independent cost-benefit analyses found a positive benefit-cost ratio of \$3.69 for every \$1.00 spent on community-based delinquency prevention using the CTC system (David-Ferden and Simon, 2014).

Adolescent Violence

According to the CDC Youth Risk Behavior Survey, in 2013 almost 20 percent of 12th grade students had been in a fight, more than 13 percent were bullied at school, 10 percent experienced sexual dating violence, and 12 percent experienced dating violence (CDC, 2014a). Randomized trials of school, family, and community violence prevention programs have produced positive effects on reducing violence (Farrington, 2013). A recent systematic review of universal

prevention programs conducted by the Community Preventive Services Task Force (n.d.) found that preventive interventions were responsible for a 15 percent reduction in violent behavior.

Both universal school and targeted family-focused programs have reported significant and sustained reductions in violence. For example, a randomized controlled trial of *Schools and Families Educating Children*, an intervention emphasizing family support strategies aimed at helping children succeed in school, found significant reductions in violence among youth participants (Henry et al., 2012). *Safe Dates*, a universal, selective, and indicated school- and community-based curriculum for middle and high school students, reduced rates of sexually and physically aggressive behavior toward romantic partners (Foshee et al., 2004).

Self-Inflicted Injury

Suicide is the third leading cause of death for people between the ages of 10 and 24, contributing to the loss of nearly 4,600 young lives each year. Suicide death rates are four times higher among young males than young females, although girls are more likely to report attempting suicide than are boys (CDC, 2014c). Preventive interventions have been implemented in schools, community settings, and health care systems and through changes in policies (Gould et al., 2003). Universal preventive interventions that restrict access to lethal means through changes and enforcement of policy, including gun control and restrictions on pesticides and analgesics, have shown effectiveness (WHO, 2010). Restrictions on guns appear to reduce the overall suicide rate (Boor and Bair, 1990; Carrington and Moyer, 1994), with the greatest effects for adolescents and young adults (Cantor and Slater, 1995). Systematic reviews of school-based suicide prevention programs indicate moderate effectiveness in reducing suicidal thoughts (Katz et al., 2013; Miller et al., 2009). Selective and indicated family-focused interventions have shown effects in reducing suicidal behaviors (Diamond et al., 2010; Huey et al., 2004).

Risky Sexual Behavior

Rates of adolescent pregnancy in the United States remain among the highest in the world, and more than half of all new STIs in the nation occur among 15- to 24-year-olds (CDC, 2013). The most effective preventive interventions targeting risky sexual behaviors include delaying the onset of sexual activity; increasing knowledge, skills, and behavior related to effective contraception use; and enhancing relationship communication and safety strategies for young people.

School-based universal and selective programs for adolescents have increased knowledge about HIV and condom use (Albarracín et al., 2005) and reduced the frequency of sexual activity (Kirby, 2008). Universal comprehensive sex education interventions that include contraception education have yielded more effective results than abstinence-only prevention strategies (Kirby, 2008). Programs using a youth development approach to reduce risky sexual behavior have had lasting effects by promoting protective factors in classrooms and families during childhood and early adolescence (Gavin et al., 2010). For example, the *Seattle Social Development Project* used a school- and family-focused universal preventive intervention called *Raising Healthy Children* in elementary schools serving high-crime Seattle neighborhoods. When compared with controls, children in intervention classrooms delayed sexual initiation and had fewer sexual partners during adolescence (Hawkins et al., 1999), experienced significantly lower rates of teen pregnancy and childbirth among young women under 21 (Lonczak et al., 2002), and reported

significantly lower rates of STIs through age 30 (Hill et al., 2014), eliminating STI disparities between African Americans and European Americans.

School Dropout

The national high school graduation rate is 80 percent; graduation rates among African Americans and Latinos are lower (NCES, 2013). Research has identified both individual and institutional risk factors for school dropout (De Witte et al., 2013; Rumberger, 2011). Systematic reviews of interventions aimed at preventing dropout (Hammond et al., 2007; Klima et al., 2009) and meta-analytic studies of effects of dropout prevention have found significant positive effects of structured and well-implemented universal and selective programs on school dropout and completion (Wilson and Tanner-Smith, 2013; Wilson et al., 2011), high school graduation and enrollment rates (Steinka-Fry et al., 2013), and school absenteeism and attendance (Tanner-Smith and Wilson, 2013). Findings from these reviews suggest that the effects of programs on school dropout and completion do not substantially differ by program type. However, case management, school restructuring, skills training, and college-oriented programs are generally more effective than traditional approaches such as attendance monitoring.

Several preventive interventions have produced positive effects on more than one behavioral health outcome. To illustrate, Hale and colleagues (2014) recently reviewed randomized trials of interventions aimed at preventing or reducing two or more behavioral health problems. They found that 44 universal and selective prevention programs were effective in reducing several problems at once and that effect sizes were comparable to those produced by interventions targeting only a single behavioral health problem. It is important to note that young people exposed to the highest levels of risk—children and adolescents who are often disproportionately low-income and/or youth of color—often benefit most from preventive interventions (Campbell et al., 2002; Clark et al., 2005; Dodge et al., 2015; Hill et al., 2014).

The evidence of beneficial effects described above is bolstered by cost-benefit analyses that show that preventive interventions offer significant cost savings over alternatives such as incarceration or long-term treatment (Aos et al., 2011; Aos and Drake, 2013). The wide-scale implementation of evidence-based prevention is critical to reining in the escalating costs of health care. If nothing is done, the cost of health care and lost productivity from preventable disease is projected to be \$4.2 trillion by 2023. Investing in prevention and early intervention could save as much as \$1 trillion per year (DeVol and Bedroussian, 2007). Furthermore, because preventable disease has a disproportionate impact on the poor and disadvantaged, promoting evidence-based prevention has the potential to reduce health disparities. Scaling proven prevention approaches can improve health and well-being, save lives, reduce the economic burden of preventable disease, and promote health equity.

BRINGING THE POWER OF PREVENTION TO SCALE

Now that we know preventive interventions are effective, the challenge is to “scale up,” expanding them in order to achieve population-wide reductions in behavioral health problems.

This challenge is twofold:

1. Implement and sustain, at scale, effective universal promotion and preventive interventions designed to benefit all young people.
2. Provide and sustain, at scale, effective selective and indicated interventions that target children, adolescents, and young adults at elevated levels of risk or early stages of problem involvement.

Reducing risk and enhancing protection among all young people will reduce the rates of behavioral health problems. Universal prevention has the potential to reach those who are not directly involved in the formal health and social service delivery sectors. Simultaneously ensuring that preventive interventions reach the highest-risk children and youth, who will benefit disproportionately from these efforts, will promote health equity. Preventing problems before they occur reduces human suffering and preempts costly punitive responses to these problems from education, law enforcement, child welfare, mental health, or juvenile justice systems. It is imperative that strategies to bring preventive interventions to scale pursue these dual objectives of overall population health and health equity for the most vulnerable and underserved populations.

Knowing the difference we can make within the next 10 years, we share a sense of urgency and a set of clear, achievable goals to accomplish this grand challenge. We must develop effective strategies to implement tested and proven preventive interventions in ways that reach all young people, including those least privileged and most vulnerable. Meeting the challenge can significantly reduce the burden of behavioral health problems across the life course nationwide and, ultimately, worldwide (Catalano et al., 2012).

The health and human service professions, including medicine (e.g., pediatrics, family medicine, and child psychiatry), nursing, psychology, public health, education, and social work, are positioned to design, deliver, and test programs aimed at preventing behavioral health problems. It will be important to establish interdisciplinary programs and training in evidence-based prevention that involve the full complement of practice settings—including health care, education, mental health, child welfare, law enforcement, and juvenile justice. Practitioners from health and human service professions will be needed as catalysts for the work ahead—keeping the big picture in mind, “connecting the dots,” leveraging the latest prevention science, and tracking progress toward clear, measurable goals.

Using social ecological theories to guide epidemiological assessment of the social determinants of behavior provides a strong foundation for advancing policies, programs, and practices that promote behavioral health (Almgren et al., 2000; Bronfenbrenner, 1979). Interdisciplinary and multilevel practice creates opportunities for practitioners to help individuals change their wellness behaviors, for organizations to adopt and implement effective prevention programs and practices, and for communities to organize local services that promote health equity.

The health and human service professions can play a transformative role in promoting a focus on prevention in health care and education. The emphasis on prevention in the Patient Protection and Affordable Care Act (ACA)⁴ creates a major new opportunity to address this emerging grand challenge over the next decade. It creates an opportunity to advance health care’s move to integrated primary care through medical homes. In the realm of education, the

⁴ *Patient Protection and Affordable Care Act*, 42 USC 18001. 2010.

recent White House Early Education Summit underscored the critical importance of behavioral health for school success, noting the large numbers of disadvantaged children expelled and suspended from preschools for aggressive and disruptive behaviors (Samuels, 2014). Social and emotional learning is gaining visibility as a key to student attainment of the Common Core and state educational standards. It is also a key ingredient of educational reforms as championed by the Collaborative for Academic, Social, and Emotional Learning (CASEL). Health and allied professionals, like public health workers and social workers, can be the “glue” for shared efforts to prevent behavioral health problems, bringing together community residents and professionals to shape local education, health and human service delivery, and state and national initiatives to unleash the power of prevention (HHS, 2014).

If allied in unleashing the power of prevention, health and human service professionals can help ensure that effective preventive interventions are supported by initiatives in health care, education, public health, mental health, child welfare, and juvenile justice. It will be important to actively advocate for increased emphasis on preventing behavioral health problems in federal and state policies and budgets.

Detailed information about effective preventive interventions is available at the following national registries and clearinghouses:

- *Blueprints for Healthy Youth Development* (<http://www.blueprintsprograms.com>). The *Blueprints for Healthy Youth Development* initiative applies rigorous standards to assess a range of preventive intervention; 8 model programs and 36 promising programs are currently listed on the project’s website. Positive findings from two randomized trials or results from one randomized and one high-quality quasi-experimental study are necessary to be listed as a model program. Model programs must also show sustained effects for at least 12 months following intervention in one study.
- The *Office of Juvenile Justice and Delinquency Prevention’s (OJJDP’s) Model Program Guide* (www.ojjdp.gov/mpg) allows users to search prevention programs by a variety of outcomes (e.g., academic skills, truancy, bullying, and substance use). The database can be searched by type of intervention (e.g., classroom curricula, cognitive-behavioral training, and schoolwide strategies); selecting a program category provides a summary of the empirical evidence in a specific problem area and produces a list of effective programs. A description of the intervention, evaluation results, ratings of effectiveness, and targeted risk and protective factors are available for each program.
- *Crime Solutions* is an online resource provided by the Office of Justice Programs to inform practitioners and administrators of effective delinquency prevention programs (<http://www.crimesolutions.gov/TopicDetails.aspx?ID=69>). Twenty-six prevention programs are included in the list of effective programs. The website offers both brief and detailed descriptions of effective programs. Evaluation methodology, program outcomes, implementation information, and cost factors are also described and summarized.
- *The Campbell Collaboration Library and Database* (<http://www.campbellcollaboration.org/library.php>) posts systematic reviews and random clinical trials of social, psychological, criminological, and educational interventions. Critical reviews of the existing research provide practitioners, administrators, and policy makers with a synthesized summary of knowledge in a certain area. For example, the Campbell Collaboration recently reviewed school dropout

prevention programs and school-based programs for the prevention of sexual abuse. Access to full-text reviews is available to the public free of charge.

- The *California Evidence-Based Clearinghouses for Child Welfare* (<http://www.cebc4cw.org>) is a searchable database of effective preventive interventions in child welfare settings. Programs are organized by topic areas and receive a scientific rating of effectiveness.
- The *What Works Clearinghouse* (<http://ies.ed.gov/ncee/wwc>), developed by the Institute of Education Sciences, identifies effective programs, products, practices, and policies in education.
- The *National Registry of Evidence-based Programs and Practices* (NREPP), established by the Substance Abuse and Mental Health Services Administration (SAMHSA), is a searchable database of more than 210 interventions aimed at preventing and treating substance abuse and mental health problems (<http://nrepp.samhsa.gov/Search.aspx>). The NREPP includes program descriptions, participant outcomes, ratings associated with the rigor of evaluation, and assessments of training and implementation materials for each intervention.

THE PREVENTION DECADE: ACTIONABLE GOALS

This grand challenge will make meaningful and measurable progress to prevent behavioral health problems over the next 10 years. The overarching goals of this grand challenge are to reduce the incidence and prevalence of behavioral health problems in the population of young people from birth through age 24 by 20 percent from current levels and to reduce racial and socioeconomic disparities in behavioral health problems by 20 percent over the next decade. Here are desired outcomes and goals for success:

1. Develop and increase public awareness of the advances and cost savings of effective preventive interventions that promote healthy behaviors for all.

Goal: In a decade, a majority of the U.S. adult population will report in surveys that it is possible and cost-effective to prevent behavioral health problems among children and adolescents.

2. Ensure that 10 percent of all public funds spent on young people support effective prevention programs.

Goal: In a decade, at least 10 percent of all state and federal expenditures on the education, health, protection, and welfare of children will be allocated to effective universal, selective, and indicated interventions for preventing behavioral health problems.

3. Implement community-assessment and capacity-building tools that guide communities to systematically assess and prioritize risk and protective factors, and select and implement evidence-based prevention programs that target prioritized factors.

Goal 1: In a decade, at least 1,000 U.S. communities will actively monitor population levels of risk and protective factors and behavioral health problems among young people.

Goal 2: In a decade, at least 1,000 U.S. communities will implement effective health promotion approaches and evidence-based preventive interventions.

Goal 3: In a decade, at least 1,000 U.S. communities will have a multisector coalition of stakeholders who actively monitor the reach and fidelity of a comprehensive system of effective interventions to promote behavioral health for young people from birth to age 24.

4. Establish and implement criteria for preventive interventions that are effective, sustainable, equity-enhancing, and cost-beneficial.

Goal: In a decade, all 50 states in the United States will use outcome data from controlled studies and information from cost-benefit analyses to inform policy decisions regarding investments in prevention, treatment, and control of behavioral health problems.

5. Increase infrastructure to support the high-quality implementation of preventive interventions.

Goal: In a decade, 25 states will have cross-agency “backbone” organizations that provide coaching, technical assistance, and monitoring services to local community organizations that provide behavioral health promotion and prevention services for youth and their families.

6. Monitor and increase access of children, youth, and young adults to effective preventive interventions.

Goal 1: In a decade, child welfare, disability, education, employment, health, justice, and other agencies in 20 states will use integrated data structures that enable cross-agency collaboration in monitoring the provision of effective behavioral health and preventive interventions and that promote cross-agency quality assurance in providing a full range of effective programs.

Goal 2: In a decade, integrated data structures will have the capacity to be disaggregated by local community area and social group and will be used to monitor the provision of effective behavioral health and preventive interventions to promote health equity.

Goal 3: In a decade, tested technology-assisted approaches will be widely used to ensure the accessibility and reach of effective preventive interventions.

7. Create workforce development strategies to prepare practitioners in health and human service professions for new roles in promotion and preventive interventions.

Goal 1: In a decade, 20 universities will include cross-disciplinary, prevention-focused

training programs in behavioral health that will include primary care medicine, nursing, psychiatry, social work, and psychology.

Goal 2: In a decade, 25 schools of social work or schools of public health will include an evidence-based behavioral health promotion and prevention curriculum track in their master's programs.

Our goals are achievable. They are well within the outcomes evidenced in many prevention-based programs to date. For example, existing multisite trials of community-wide prevention systems using tested and effective prevention programs have produced relative reductions of 25 percent to 33 percent in delinquency and drug-use indicators (Hawkins et al., 2012; Spoth et al., 2011).

Success will be measurable. Existing national data systems are already in place to provide systematic tracking of trends in behavioral health problems to measure attainment of these goals over this 10-year span. These databases include

- *America's Children: Key National Indicators of Well-Being* (<http://www.childstats.gov/americaschildren/index.asp>). The America's Children database includes a range of behavioral health problem indicators including substance use, delinquent conduct, violent behavior, and sexual activity. Data reflecting indicators of family and social environment, economic circumstances, health care, education, and health are also available. Most measures are collected annually and date back to approximately 1980. Selected substance use measures from the Monitoring the Future survey (<http://www.monitoringthefuture.org>) are included in the database.
- *Centers for Disease Control and Prevention: Youth Risk Behavior Surveillance System (YRBSS)* (http://www.cdc.gov/HealthyYouth/yrbs/index.htm?s_cid=tw_cdc16). The YRBSS provides annual data on the prevalence of unintentional injuries, sexual behaviors, substance use, dietary behaviors, physical activity, obesity, and asthma among youth and young adults.
- *Centers for Disease Control and Prevention: National Health Interview Survey (NHIS)* (http://www.cdc.gov/nchs/nhis/about_nhis.htm). The NHIS produces detailed annual estimates of the incidence and prevalence of health conditions by age, gender, and race/ethnicity for states, major metropolitan areas, and the country. Interview data are gathered to assess health care access and health-related problems and behaviors. The NHIS is used in assessing progress toward meeting the goals of *Healthy People 2020*.
- *Substance Abuse and Mental Health Services Administration: National Survey on Drug Use and Health (NSDUH)* (<https://nsduhweb.rti.org/respweb/homepage.cfm>). The NSDUH provides annual data on the prevalence of mental health and alcohol, tobacco, and other drug use from a random sample of approximately 70,000 individuals age 12 and older.
- *Kids Count* (<http://www.aecf.org/work/kids-count>). Sponsored by the Annie E. Casey Foundation, Kids Count provides current and historical data on the educational, social, economic, and physical well-being of children and adolescents.
- *Healthy People 2020 (HP 2020)* (<http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=2>)

. The U.S. Department of Health and Human Services has set health and behavior goals for the nation; HP 2020 includes a set of indicators for monitoring progress on each goal. These include adolescent health indicators that provide national tracking of progress toward reaching goals in underage drinking, graduation rates, suicide, depression, obesity, and smoking.

- *National Survey of Children's Health* (<http://childhealthdata.org/learn/NSCH>). This survey provides a searchable database that includes indicators of children's physical and mental health status, access to health care, and family and neighborhood influences.

JOINING FORCES ACROSS DISCIPLINES

The challenge of promoting behavioral health will generate a new era of interdisciplinary and cross-sector collaboration. Making measurable progress in promoting behavioral health for children, adolescents, and young adults will require interdisciplinary and cross-sector collaboration across the vertically organized (“siloed”) agencies that currently provide health, education, social, protection, and justice services for young people. Collaboration across these service sectors to leverage the power of prevention to achieve the goal of behavioral health for all will be essential.

Big changes are needed. Some states and cities have begun by creating children's cabinets at executive levels to enhance and oversee cross-cutting prevention initiatives (Tibbits et al., 2010). Success will depend on creating, expanding, and studying data and delivery systems for public and community accountability using prevention science to promote prevention and early intervention.

Research provides a strong rationale for cross-sector support of prevention and early intervention. For example, studies have found that child maltreatment and other traumas have enduring and adverse impacts on brain and neuroendocrine development and, further, on emotional, psychological, and social well-being in adolescence and young adulthood (De Bellis et al., 2013; McCrory et al., 2011; Mills et al., 2013). Consequently, preventing child maltreatment is likely to be of common interest to the child welfare, health, education, criminal justice, and business sectors, and implementing effective prevention strategies will require collaborative efforts across these sectors.

At least three levels of collaboration must be developed: (1) state-level backbone structures, (2) community-level coalitions, and (3) agency-level interprofessional teams.

At the first level of collaboration, state interdepartmental backbone structures—blue ribbon commissions, cabinet task forces, public–private partnerships, and gubernatorial executive committees—provide organizational structures and political capital to overcome the siloed delivery of services for children, youth, and young adults. These structures serve to mobilize public support, create vision, stimulate innovation, generate fiscal resources, create data and infrastructure support for accountability and contracting, and provide technical assistance to community organizations. In part, this first level of collaboration creates the political climate for innovation in providing prevention and promotion services for youth.

A second level of collaboration will be required at the community level. As research on community-based prevention demonstrates, collaborative structures that include multisector representation to promote broader engagement among public systems and community residents provide support for significant progress in adapting prevention principles to local communities (Hawkins et al., 2010). Because risk and protective factors vary with each community's unique

and distinguishing features, multisector community-level coalitions will have central roles in developing prevention systems to reduce behavioral health problems.

One example of community-level collaboration builds community coalitions that assess and prioritize local needs by conducting school and community surveys of risk and protective factors. Community coalitions assess existing services and, drawing from menus of evidence-supported preventive interventions, develop a plan to fill gaps in existing services to address prioritized risk and protective factors (Lazar, 2012). This process of assessing and prioritizing community risks and protective factors, and filling service gaps with proven preventive interventions, is inherently collaborative and depends on building capacity to overcome disciplinary boundaries and share accountability (Shapiro et al., 2015).

A third layer of collaboration will be needed at the practice level, where service providers will have complementary roles in community assessment, screening, prevention, early intervention, and treatment. For example, in health and mental health, the ACA offers the potential to provide an integrated structure for cross-sector collaboration involving physicians, nurses, social workers, and allied health professionals. In patient medical homes, interprofessional teams will provide concurrent, often colocated, physical and mental health services including preventive interventions.

Collaborations among allied professions and community residents to improve behavioral health outcomes for children and youth already are emerging under provisions of the ACA. It is important to expand these nascent collaborations to include child welfare, schools, mental health, and justice agencies. Schools of social work, nursing, public health, and criminal justice should be active in creating these new collaborative structures and providing a workforce to sustain them.

As part of its cross-disciplinary focus, this grand challenge will help advance the move in health care toward integrated primary care. Access to adequate and affordable care, including both prevention and treatment, is a growing public health concern for children, youth, and families in the United States. Lack of access to behavioral health services is among our nation's greatest health care problems, and access is particularly problematic for transitional-age youth (16-25 years) when prevention and early intervention can have great benefit (CBHSQ, 2013). Under the ACA, the integration of behavioral and physical health care is intended to improve health outcomes for all children and youth, including those served by traditional systems of care. These include child welfare, juvenile justice, mental health, and substance abuse service systems.

Developmentally, unresolved behavioral health problems tend to cascade into more complicated health problems that have long-term effects on life-course outcomes and public expenditures for housing, education, employment, disability, income support, criminal justice, and other social welfare services (CBHSQ, 2013; Gralinski-Bakker et al., 2005; Kieling et al., 2011). In part, this is because behavioral health is correlated with mental and physical health. The risk factors that give rise to behavioral health problems are correlated with the risk factors that give rise to other health problems. These correlated risks may be incompletely addressed when services are provided within a traditional system with a legitimate but limiting mission, such as protecting children in child welfare systems or ensuring public safety in criminal justice systems.

The poor health and mental health outcomes observed in the United States are not a function of lack of knowledge. Rather they are a function of our failure to create a comprehensive services architecture that provides population-based universal care, including prevention,

screening, early intervention, and treatment. To improve developmental outcomes for children and youth, dramatic change is needed. We must build an integrated services framework that addresses the behavioral as well as physical determinants of health status in patient-centered medical homes (Adrian et al., 2014). Providing prevention and treatment services in primary care settings is intended to increase access to care by creating a single source for integrated care. This should ensure that effective prevention strategies are brought to bear before behavioral problems cascade into costly mental and physical health problems. As envisioned, a new integrated system of primary care will provide health promotion and prevention services along with treatment or intervention for physical and mental health problems, including substance abuse. It will require work to make this vision a functioning reality.

Integrating behavioral and physical health care will require grand changes in policy and practice. The key idea is that from first contact through continuing care, a team of colocated specialists will provide prevention, assessment, treatment, and referral services. From universal through indicated prevention services, a range of health promotion, education, and intervention programs will be provided to address, from early in childhood, factors known to contribute to poor health and other developmental outcomes. Interprofessional teams that include nurses, primary care practitioners, social workers, and other specialists will be deployed. Their potential activities will range from providing empirically supported preventive interventions, to case management, to providing behavioral interventions to prevent and reduce both behavioral and physical health problems. To unleash the full power of prevention in these settings, practitioners will need to understand and be able to identify risk factors for poor health outcomes, match risk profiles to a menu of evidence-supported brief interventions, and either provide interventions directly or make and monitor referrals to effective specialized services.

IGNITING INNOVATION

Solutions to the grand challenge of promoting behavioral health will require significant innovation. Promoting behavioral health and bringing preventive interventions and policies to scale across the population will require innovation in a number of spheres:

1. *Local prevention decision and implementation support infrastructures must be created to plan, implement, and monitor evidence-based behavioral health promotion systems.* Currently, few towns, cities, or states have created systems for promoting behavioral health. Some pioneering communities have established innovative efforts, including children's cabinets, city and neighborhood coalitions, interagency planning groups, and cross-cutting initiatives focused on achieving collective impact on desired outcomes (Kania and Kramer, 2011). More backbone infrastructure is needed to promote collaboration across agencies and organizations to use resources effectively to prevent behavioral health problems (Hanleybrown et al., 2012).
2. *Sustainable efficient methods will be needed to spread effective preventive interventions with sufficient fidelity to produce outcomes and sufficient adaptability to ensure widespread uptake.* Promoting widespread use of effective preventive interventions will require greater use of technology. This may involve mobile- and media-based interventions that reach entire populations, and innovations such as brief and effective systems for mental health screening in primary care settings (Gibbons et al., 2012).

Innovations in methods of training, coaching, and technical assistance to support use of interactive intervention delivery systems will be required. Data-based modeling and simulation methods used in engineering should be applied to spreading and scaling preventive interventions.

3. *Systems will need to be developed to monitor the epidemiology of risk, protection, and youth behavioral health outcomes in local communities and aggregated into national reports of trends in the epidemiology of the predictors and behavioral health of the nation's youth.* Existing data systems that monitor epidemiological data do not provide accurate community- or neighborhood-level estimates of the prevalence of behavioral health problems needed for local prevention planning. Further, these databases measure only a small number of empirically validated risk and protective factors for youth behavioral health outcomes.

A national data monitoring system is needed that provides community data on the prevalence of risk and protective factors and behavioral health outcomes for local prevention planning. Such a system would also allow these data to be disaggregated for the sake of examining and promoting health equity as well as aggregated to state and national levels for monitoring epidemiology. A national monitoring system, somewhat like the FBI Uniform Crime reporting system that aggregates local crime statistics nationally, could use anonymous school surveys both to provide local data for community prevention planning and to monitor trends in risk, protection, and behavioral health outcomes.

4. *Methods for creating demand, or "uptake," and policy support for tested and effective preventive interventions must be applied and used.* If effective preventive interventions are to affect levels of risk, protection, and behavioral health problems, they must be widely used. For this to happen, parents, teachers, social workers, doctors, nurses, and public health workers must be willing to use them. Important work with policy makers, led by the nonpartisan Coalition for Evidence-Based Policy (2011), has focused on creating support in Congress and the executive branch for investing federal resources in tested, effective prevention programs. This work is increasing the potential supply of evidence-based interventions for preventing youth behavioral health problems. Now innovations are needed to increase demand for effective preventive interventions.
5. *Health and human service professions must be prepared to take on new roles in promoting behavioral health in the population.* Public health and social work are professions well positioned to lead and coordinate the growth of preventive interventions in communities. Opportunities to help individuals change their behaviors, organizations to adopt and implement effective prevention programs and practices, and communities to organize local services for the promotion of health and health equity will increase. New experiential and community-based learning opportunities will need to be developed in master's-level training programs to ensure that health and human service professionals acquire skills in stakeholder and resource mapping, coalition building, using epidemiological data to guide community-wide prevention planning, matching community needs with suitable evidence-based interventions, and planning the

introduction, implementation, and monitoring of preventive interventions (Hoge et al., 2013; Williams et al., 2013).

Ensuring sustainable and equitable gains in behavioral health will also require a workforce skilled in providing tested and effective preventive interventions in health, education, and other service settings. Under the ACA, health and allied health professionals will be expected to participate in interdisciplinary teams in integrated primary care settings. Opportunities will emerge to provide child- and family-focused preventive services for behavioral health problems in pediatric, family practice, and other primary care contexts. School-based health clinics will increasingly provide opportunities to prevent risky sexual behavior and unwanted teen pregnancies. In both integrated primary care and school-based health clinics, the need for practitioners skilled in screening, brief intervention, and referral to treatment (SBIRT) is likely to grow (SAMHSA, n.d.). Increasing investment in effective universal preventive interventions will drive growing demand for skilled prevention specialists capable of leading preventive interventions in schools. Professional training programs need to explore new opportunities to prepare students for these emerging roles in health care and educational settings to promote behavioral health for all.

6. *Payment systems and resource allocation must be restructured to fund dissemination of tested and effective preventive interventions.* The vast majority of resources allocated to health, justice, and social services support work with those who already manifest identified problems and needs. The ACA recognizes that broad improvements in health outcomes will require shifting resources from delivering treatment services toward prevention strategies (Cantor et al., 2013). New strategies and policies are emerging to pay for prevention:
 - *Social impact bonds* provide a market-based approach to pay for evidence-based interventions to improve social, environmental, and economic conditions essential to behavioral well-being (Hernandez et al., 2012). These bonds involve raising capital from private investors to fund preventive interventions (Rosenberg, 2012). Increasing evidence of positive benefit-to-cost ratios of interventions that prevent adolescent behavioral health problems, including delinquency, violence, and substance abuse, suggests that social impact bonds can be effective in supporting the widespread use of these preventive interventions (Aos, 2010).
 - *Wellness trusts* are another emerging policy approach to sustainably generate funding for prevention (Lambrew, 2007). Trusts create a funding pool to support prevention and improve health outcomes in a population. Funds may come from a variety of sources—partnering with private foundations; taxing insurers and hospitals to support preventive efforts, as in the Massachusetts Prevention and Wellness Trust (Lazar, 2012); or using Tobacco Master Settlement funds to support prevention, as in the North Carolina Health Trust Fund (Cantor et al., 2013).
 - *Community benefit requirements*, imposed on nonprofit hospitals and health plans as a condition of their tax-exempt status, can also provide funds for promoting behavioral health. Since 2012, the Internal Revenue Service has allowed hospitals

to count economic development, environmental improvements, training for community members, coalition building, community health improvement advocacy, and workforce development as community benefit expenditures, opening new sources for investment in community-based prevention. The Cincinnati Children’s Hospital Medical Center has used community benefit resources to fund a Community Health Initiative that partners with community-based organizations to address a range of preventable illnesses and injuries (CCHMC, 2011). Community benefit requirements could be used to engage nonprofit hospitals and health plans in promoting behavioral health for young people.

- *Accountable care organizations* in the ACA provide another opportunity to support prevention as part of population health management. Accountable care organizations involve coordinated health care providers working together to provide a continuum of care for a designated population of patients. Reimbursements are tied to improved outcomes in the patient population rather than to units of service provided. Accountable care organizations create a huge interest in, and potential for, investment in effective prevention initiatives such as proven family-focused programs to prevent adolescent substance use and violence that may reduce the need and costs for health care treatment services over time (Spath et al., 2004).

HEALTHY YOUTH, HEALTHY FUTURE

Unleashing the power of prevention is a call to action that our nation can’t afford to miss. Behavioral health problems now surpass communicable diseases as the country’s most pressing concerns for the well-being of our young people. Over 30 years of evidence shows that advances in prevention and promotion research have transformative potential to prevent problems before they develop. Now our challenge is to broadly implement these recent discoveries—developing and delivering on their potential through programs and policies that reach all young people.

Given its proven ability to dramatically reduce a wide range of behavioral health problems and save billions of dollars year after year, prevention is one of our nation’s most valuable—and underused—resources. It’s time to unleash the power of prevention by creating programs, training, and infrastructures that put prevention to work nationwide for all young people, resulting in healthier lives, families, communities, and economies. *Prevention is the best investment we can make, and the time to make it is now.*

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