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Prevention policies that target structural risk factors can be implemented broadly from the local to the national level.

**\$2 to \$42**

return on every dollar spent for preventive interventions, resulting in savings of as much as \$31,000 per participant.

Programs targeting school and individual risk factors have shown positive effects across adolescent development and continue to show favorable outcomes one to 15 years after the intervention.

*In 2012, the Lancet published a special series that made the case for focusing attention and resources on adolescence, a critical stage when significant gains in health can be made and when lifelong patterns of health behavior are established. This set of three fact sheets summarizes the key data and messages from selected articles in the series.*

The third article in the *Lancet* series highlights the development, effectiveness, and future outlook of prevention science and its potential to improve adolescent health. Prevention science has the potential to prevent negative health outcomes later in life by identifying and addressing harmful behaviors during adolescence.

## Prevention Science

Prevention science addresses the structural factors (social, economic, and political contexts) and the proximal factors (circumstances of daily life), as well as the individual risk and protective factors that affect the health of adolescents and in turn, adult health. Adolescence has been a major focus of prevention science since the 1960s, and has evolved from a focus on single adolescent problem behaviors to an approach that targets predictors of multiple problem behaviors and promotes positive youth development.

Prevention science improves health by defining the health problem, identifying its corresponding risk and protective factors, intervening to effectively address these factors, and assessing their impact. Interventions fall into three categories: universal interventions for all populations regardless of risk, selective interventions for at-risk groups, and indicated interventions for those already showing problem behaviors. Interventions may target a single factor or multiple factors at once. Experts agree that interventions that address risk factors linked to multiple problems are likely to yield the best results.

There are two important clusters of risk that affect adolescent health: an early accumulated risk cluster and an adolescent risk cluster. Childhood or early risk accumulation occurs when young children's developmental needs are not met, thus increasing the likelihood that a child with one risk factor will develop another. For example, an unstable home environment may negatively affect a child's school performance, and decrease his or her academic achievement.

Adolescence, a period of increased risktaking and greater independence, has its own risk factors. Those who enter adolescence with accumulated childhood risk are especially vulnerable to these new adolescent risks.

## Preventive Interventions

Based on an extensive literature review, Richard Catalano and colleagues highlight preventive interventions that have significantly improved adolescent problem behaviors for a year or more after implementation. For instance, prevention policies that increase taxes on alcohol, increase the minimum legal drinking age, and provide minors (under age 18) with better access to contraception were shown to reduce harmful drinking, traffic accidents, crime, and teen pregnancies. Prevention policies that target such structural risk factors can be implemented broadly from the local to the national level.

Prevention programs that address family and individual risk factors during adolescence have shown positive effects into adulthood, resulting in a reduction in alcohol and drug use, crime, and risky sexual activity. These interventions targeted adolescents and their families, and include programs that strengthen parenting skills, improve parent-child communication, and foster positive relationships.

Researchers also discovered that certain programs targeting school and individual risk factors have shown positive effects across adolescent development and continue to show favorable outcomes one to 15 years after the intervention. Examples include classroom-based curricula to improve cognitive, social, and emotional competencies of students; and programs that enhance the teaching and classroom management skills of educators. Other programs offered cash incentives for students to remain in school. These interventions have reduced aggression, crime, drug use, and unwanted pregnancies; and have increased school completion rates and household income later in life.

These examples demonstrate the potential effectiveness of prevention science in adolescent health. While these interventions took different forms (such as policies, outreach services, and educational materials), they successfully engaged a variety of populations including parents, teachers, health providers, and youth. But most of these interventions were implemented and evaluated in high-income countries; less prevention research has been carried out in low-income and middle-income countries.

### Many Barriers to Progress

Current policies and programs mainly focus on correcting behaviors instead of proactive and preventive approaches. Prevention is needed throughout the developmental period from childhood to adolescence. Early intervention is the best approach to limit risk accumulation, but interventions during adolescence are also important to counterbalance risktaking patterns in this period.

Realizing the potential of prevention science requires translating research into practice and implementing proven interventions on a broad scale. This is especially important for low-income and middle-income country settings.

Every dollar spent for preventive interventions garners returns of \$2 to \$42, and a savings of as much as \$31,000 per participant. Yet funding for prevention science is limited, perhaps due to lack of political will and limited awareness of the potential cost savings and effectiveness. Other barriers include a lack of training in prevention and evidence-based practices among youth-serving professionals, as well as a lack of knowledge and support for prevention strategies from the general public. These challenges hamper future progress and the success of preventive interventions.

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### Reference

Richard F. Catalano et al., "Worldwide Application of Prevention Science in Adolescent Health," *The Lancet* 379, no. 9826 (2012): 1653-64.

## Recommendations

- Dedicate greater attention and resources to adolescent health, and make young people and their concerns a priority across all government sectors.
- Increase the visibility and knowledge base for adolescent health issues through better data collection and information systems at the national, regional, and local levels:
  - Standardize and improve measurement and collection of data on adolescent health conditions and behaviors.
  - Expand knowledge of the role of social determinants of health and of risk and protective factors.
  - Build the evidence base around effective preventive interventions.
  - Apply this knowledge to guide the development of policies and programs.
- Increase the capacity, through advocacy and training, of health care providers, researchers, policymakers, and others to appropriately and effectively identify and respond to adolescent health needs.
- Strengthen the voices and participation of young people to ensure relevant policy and program development and to empower them to shape their own health.

## Specific Actions

- Improve knowledge among policymakers and other government officials about the importance and effectiveness of preventive policies and programs.
- Increase support for long-term, stable funding to ensure the success and maximum impact of preventive interventions.
- Bolster and strengthen existing knowledge and information on the adoption, feasibility, and sustainability of prevention efforts across countries, especially in low- and middle-income countries:
  - Conduct more research on preventive science, and build the capacity of researchers to transform research findings into practical applications.
  - Foster collaboration between researchers, providers, and policymakers.
  - Develop a process to effectively translate and modify interventions to accommodate different contexts and settings.



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