Prevention of Adolescent Health and Behavior Problems: Applying The Knowledge Base for Prevention Science Globally

Richard F. Catalano, Ph.D. Abigail Fagan, Ph.D., Mark T. Greenberg, Ph.D., Charles Irwin, MD, David A. Ross, Ph.D., Loretta E. Gavin, Ph.D., Daniel T.L. Shek, Ph.D.

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Promotion and Prevention Science Framework

Define the Problem

Identify Risk and Protective Factors

Interventions

Program Implementation and Evaluation

Response
Prevention Science Research Advances

Etiology/Epidemiology of Problem Behaviors
- Identify risk and protective factors that predict problem behaviors and describe their distribution in populations.

Efficacy Trials
- Design and test preventive interventions to interrupt causal processes that lead to youth problems.

Prevention Services Research
- Apply lessons learned about etiology and effective interventions in real world settings.
### Risk Factors

<table>
<thead>
<tr>
<th>Community</th>
<th>Family</th>
<th>School</th>
<th>Individual/Peer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of Drugs</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Availability of Firearms</td>
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<td>Community Laws and Norms Favorable Toward Drug Use, Firearms, and Crime</td>
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<tr>
<td>Media Portrayals</td>
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<tr>
<td>Transitions and Mobility</td>
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<tr>
<td>Low Neighborhood Attachment and Community Disorganization</td>
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<tr>
<td>Extreme Economic Deprivation</td>
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<tr>
<td>Family History of the Problem Behavior</td>
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<tr>
<td>Family Management Problems</td>
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<tr>
<td>Family Conflict</td>
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<tr>
<td>Favorable Parental Attitudes and Involvement in the Problem Behavior</td>
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<tr>
<td>Academic Failure Beginning in Late Elementary School</td>
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<tr>
<td>Lack of Commitment to School</td>
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<tr>
<td>Early and Persistent Antisocial Behavior</td>
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<tr>
<td>Alienation and Rebelliousness</td>
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<tr>
<td>Friends Who Engage in the Problem Behavior</td>
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<tr>
<td>Favorable Attitudes Toward the Problem Behavior</td>
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<tr>
<td>Early Initiation of the Problem Behavior</td>
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<tr>
<td>Constitutional Factors</td>
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</tbody>
</table>
Protective Factors

**Individual Characteristics**
- High Intelligence
- Resilient Temperament
- Competencies and Skills

**In each social domain (family, school, peer group and neighborhood)**
- Prosocial Opportunities
- Reinforcement for Prosocial Involvement
- Bonding
- Healthy Beliefs and Clear Standards
Factors Shaping Child and Adolescent Development

Parents

School

Peers

Community
Factors Shaping Child and Adolescent Development

Parents

School

Peers

Community

Snowstorm: Extended Exposure to Positive Substance Use Norms and Models of Problem Behavior without Protection

Snowball: Risk Accumulates through Early Developmental Challenges without Protection

Toumbourou and Catalano, 2005
What We Now Know About Risk and Protective Factors

- Both an individual’s level of risk and level of protection make a difference.
- Common risk and protective factors predict diverse problems and academic outcomes.
- Risk and protective factors show much consistency in effects across diverse groups.
- Different factors affect youth as they develop, some are affected by accumulated early challenges (Snowball), others by extended exposure to positive norms and models of problems with little protection (Snowstorm).
- Different neighborhoods have different levels of risk and protection.
Etiology/Epidemiology of Problem Behaviors
- Identify risk and protective factors that predict problem behaviors and describe their distribution in populations.

Efficacy Trials
- Design and test preventive interventions to interrupt causal processes that lead to youth problems.

Prevention Services Research
- Apply lessons learned about etiology and effective interventions in real world settings.
Prevention Programs and Policies Reviewed in 7 Areas

- Violence
- Substance Misuse (excluding Tobacco)
- HIV/STI
- Unintended Pregnancy
- Traffic Crashes and Risky Driving
- Obesity
- Mental Health
Prevention Program Example
Nurse Family Partnership

Problem: Poor Birth And Early Childhood Outcomes

Risk: Poor Diet And Drug Use Prot.: Parenting Competence And Bonding

Protocol for Nurse Visits During Pregnancy And 2 yrs. Post Birth

Response: Mom: Less welfare, More employment, Fewer Arrests and Subsequent Births, <Interval Between births
Child: Less Child Abuse/Neglect, Less Arrests at 15

Olds et al., 2002
Prevention Policy Example
Raising the Minimum Legal Drinking Age

Problem:
Traffic Crashes
Risky Alcohol Use

Response:
Drink Driving
Raise Min. Legal Drinking Age (MLDA)
Reduced Alcohol Consumption, Reduced Crashes, Crash Injury, and Fatalities

Wagenaar and Toomey, 2002
Wide Ranging Approaches Have Been Found To Be Effective

<table>
<thead>
<tr>
<th>Prevention Programs/Policies</th>
<th>Violence</th>
<th>Drug Use</th>
<th>HIV STI</th>
<th>Unintended Pregnancy</th>
<th>Vehicle Crash Risk</th>
<th>Obesity</th>
<th>Mental Health</th>
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<tbody>
<tr>
<td>1. Prenatal &amp; Infancy Programs (eg., NFP)</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td>2. Early Childhood Education</td>
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<td>3. Parent Training</td>
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<td>4. After-school Recreation</td>
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<td>5. Mentoring with Contingent Reinforcement</td>
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<td>6. Cognitive Behavior Therapy</td>
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<td>7. Classroom Organization, Management and Instructional Strategies</td>
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<td>8. Classroom Curricula</td>
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<th>Obesity</th>
<th>Mental Health</th>
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<tr>
<td>9. Community Based Skills Training/Motivational Interviewing</td>
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<tr>
<td>10. Cash Transfer for School Fees/Stipend</td>
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<td>11. Multicomponent Positive Youth Development</td>
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<td>12. Policies (eg., MLDA)</td>
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<td>13. Community Mobilization</td>
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<td>14. Medical Intervention</td>
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<td>15. Law Enforcement</td>
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<td>16. Family Planning Clinic</td>
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</table>
Over 30 well-researched studies, mostly of programs for 3 & 4 year olds from low income families.

Key findings:

- Improved education outcomes,
- Increased high school graduation,
- Higher test scores,
- Lower special education,
- Lower grade repetition,
- Reduced crime,
- Reduced child abuse & neglect.

Evidence of decay in early test score outcomes, but still statistically significant by high school graduation.

### Summary of Benefits and Costs (2003 Dollars)

<table>
<thead>
<tr>
<th>Dollars Per Youth (PV)</th>
<th>Benefits</th>
<th>Costs</th>
<th>B - C</th>
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<tbody>
<tr>
<td>Early Childhood Education</td>
<td>$17,202</td>
<td>$7,301</td>
<td>$9,901</td>
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<tr>
<td>Nurse Family Partnership</td>
<td>$26,298</td>
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<td>Life Skills Training</td>
<td>$746</td>
<td>$29</td>
<td>$717</td>
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<td>Seattle Soc. Dev. Project</td>
<td>$14,246</td>
<td>$4,590</td>
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<td>Guiding Good Choices</td>
<td>$7,605</td>
<td>$687</td>
<td>$6,918</td>
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<td>Multi-D Treat. Foster Care</td>
<td>$26,748</td>
<td>$2,459</td>
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<td>Intensive Juv. Supervision</td>
<td>$0</td>
<td>$1,482</td>
<td>-$1,482</td>
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<tr>
<td>Big Brothers/Sisters (all costs)</td>
<td>$4,058</td>
<td>$4,010</td>
<td>$48</td>
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<tr>
<td>Big Brothers/Sisters (taxpayer costs only)</td>
<td>$4,058</td>
<td>$1,283</td>
<td>$2,775</td>
</tr>
</tbody>
</table>

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Steve Aos, Director  
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Countries Where Trials Have Occurred

1. Prenatal & Infancy Programs – United States
2. Early Childhood Education – United States
3. Parent Training – United States, Australia
4. After-school Recreation - United States
5. Mentoring with Contingent Reinforcement - United States
6. Cognitive Behavior Therapy - United States
7. Classroom Organization, Management & Instructional Strategies - United States
8. Classroom Curricula - United States, Canada, Germany, Europe, Australia, New Zealand, Asia, Denmark
Countries Where Trials Have Occurred

9. Community Based Skills Training/Motivational Interviewing - United States, S. Africa
10. Cash Transfer for School Fees/Stipend – Malawi
11. Multicomponent Positive Youth Development – United States
12. Policies - United States, Canada, Australia
13. Community Mobilization - United States
14. Medical Intervention - United States, S. Africa, Kenya, Australia
15. Law Enforcement - United States, Australia
16. Family Planning Clinic - United States
Prevention Science Advances

Epidemiology/Etiology of Problem Behaviors
- Identify Risk and Protective Factors that Predict Problem Behaviors.

Efficacy Trials
- Design and test preventive interventions to interrupt causal processes that lead to substance abuse and other problems.

Prevention Services Research
- Apply lessons learned about etiology and efficacious interventions in real world settings.
Increasing Dissemination and Sustainability of Efficacious Prevention Strategies
Challenges in Disseminating Efficacious Programs and Policies Globally

Generalization of effects to cultures and settings
Integration with mission, schedule of services, staff competencies of implementing agency
Implementation support by program staff
Funding or funding competition with existing but untested programs
Keys to Diffusion of Innovation

- Effective Program that makes a difference
- Capacity to disseminate with fidelity
- Market demand—funders, practitioners, and consumers must want it.
But even in High Income Countries (eg., U.S.) …

- Prevention approaches that do not work or have not been evaluated have been more widely used than those shown to be effective.

Challenges in Using Prevention Science Advances

- Assessing and prioritizing local risk and protective factors and youth problems
- Matching tested, effective programs to local priorities and delivering to those targeted
- Tested, effective programs compete with “best” or usual practice
- Tested, effective programs require staff training, TA, and monitoring to be delivered with fidelity
- Achieving population wide outcomes
- Science-practice interface requires coordinated planning, funding and accountability
Scientists know best—Experts inform communities what to do

Communities know best—Providing resources to support community coalitions without a structure or process

History of Models for Science-Practice Interface

Early Models
What Has NOT Worked in Community Based Preventive Trials?

Communities Know Best

Providing resources to support community coalitions without a structure or process

Sources of failure (Hallfors et al. 2002; Klerman et al. 2005; Merzel & D'Afflitti, 2003):

- clearly defined goals based in data, with high-quality data sources to monitor progress;
- use of tested and effective programs, with attention to monitoring of implementation quality and fidelity;
- evaluation of impacts on outcomes meaningful to the community
History of Models for Science-Practice Interface
More Recent Models

**Mutual self interest**
collaboratively identifying, generating and testing potential solutions focused on locally relevant risk/protective factors

**Community capacity building**
providing the skills and tools for community decision making focused on locally relevant risk/protective factors
What Has Worked in Randomized Community-Based Prevention Trials?

**Mutual Self Interest**

- Communities Mobilizing for Change on Alcohol—(Wagenaar et al., 2000)
- Community Trials Intervention to Reduce High Risk Drinking— (Holder et al., 2000)
- Project Northland— (Perry et al., 2002)
- Midwestern Prevention Project — (Pentz et al., 2006)
What Has Worked in Randomized Community-Based Prevention Trials?

Community Capacity Building

Triple P Positive Parenting (Printz, Sanders, et al., 2009)

PROSPER - PROmoting School–community university Partnerships to Enhance Resilience- (Spoth et al., 2007)

Communities that Care- (Hawkins et al., 2009; Feinberg et al., 2007)
Example Communities that Care

Community Capacity Building

Provides the education, skills and tools to build community capacity to change youth outcomes through choosing and implementing tested, effective programs matched to their needs.
Communities That Care

- Activates community coalitions of relevant key leaders and program planners and implementers.
- Measures and prioritizes local community levels of protection and risk by surveying young people.
  - Matches the community’s profile of risk and protection with tested, effective programs and policies.
  - Monitors fidelity of implementation and measures.
  - 24 community randomized trial increased use of efficacious programs, and decreased youth tobacco and alcohol use and delinquency.
Summary

- Prevention Science has a research base of predictors of many of the leading causes of adolescent mortality.
- Efficacious prevention programs and policies address developmentally salient risk, protective or promotive factors in the individual and environment.
- Approaches that develop community capacity to change youth outcomes through implementing community appropriate efficacious prevention strategies have been tested.
- Evidence of how context and content affect efficacious prevention strategies is just beginning to develop.
- An approach that seeks to gain knowledge from multiple country/community implementation of efficacious prevention strategies could contribute enormously to global youth well being and translational science.
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