Preventing Child and Adolescent Problem Behavior

Advances, Evidence, and Methodological Approaches

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Preventing Child and Adolescent Problem Behavior

Part 1

• Prevention Practice and Policy in the US, 1960-2014
  – Evolution of programs and approaches
  – Models and frameworks
  – Risk, protection, and public health models
  – Public health to prevention science
  – Efficacy of preventive interventions
  – Current challenges
Preventing Child and Adolescent Problem Behavior

Part 2

• Methodological and Analytical Issues in Prevention Science
  – Applying principles of intervention research to prevention science
  – Developing and testing preventive interventions
  – Research design and assignment
  – Analytic approaches
  – Methodological and analytical challenges
Current and Historical Patterns of Childhood and Adolescent Behavior

- Indicators assessing the health of America’s children and youth reveal both positive news and challenging trends
  
  - Positive trends
    - Certain problem behaviors (e.g., violence) have decreased in the past decade
    - Rates of volunteerism and interest in civic engagement among young people have increased
  
  - The challenges
    - Many young people experience individual, family, social, and environmental adversity
      - Exposure to adversity varies considerably by gender, race, ethnicity, and sexual orientation
    - High levels of many problem behaviors persist over time
Note: Percentage of children under 18 living below the federal poverty level. Source: Annie E. Casey Foundation, Kids Count Census Data, 2014.
Adolescents Who Are Not in School and Are Not High School Graduates by Race and Ethnicity, 2012

Note: Percentage of 16–19 year-olds who are not in school and are not high school graduates by race and ethnicity. Source: Annie E. Casey Foundation, Kids Count Census Data, 2014.
Lifetime Prevalence of Illicit Drug Use by 12th Graders, 1975–2013

- Any Illicit Drug Use
- Any Illicit Drug Use Other than Marijuana
Violent Crime Index Arrest Rates for Juveniles, 1980–2010
Summary of Recent Trends in Child and Adolescent Problem Behavior

• Rates of problem behavior among children and youth illustrate both challenges and positive trends
  – School drop-out rates remain high, particularly among Latino/a and African-American youth
  – Drug use declined to a record low in the early 1990s and has since moderated to late 1980s levels
  – Violent and property crime decreased significantly between 1995 and 2005; persistent reports of aggression and violence at school have tempered optimism about general reductions in crime

• Variations in etiological factors and in behavior by gender, race, ethnicity, and sexual orientation pose intervention challenges

• Early onset and persistently high rates of problem behaviors suggest that prevention should be a practice and policy priority
The Evolution of Prevention
What have we learned since 1960?
Early Prevention Approaches

- *Information dissemination* approaches were common in the 1960s and 1970s
  - Media was often used to provide information to children and youth
    - *Johnny Smoke:* [http://www.youtube.com/watch?v=NWm6PUGpfVU&list=PLA0227EF ECC244572](http://www.youtube.com/watch?v=NWm6PUGpfVU&list=PLA0227EF ECC244572)
    - *The Man with the Goodies:* [http://www.youtube.com/watch?v=6yS_IJl_BkE](http://www.youtube.com/watch?v=6yS_IJl_BkE)
    - *Sony Bono antidrug film:* [http://www.youtube.com/watch?v=mkgHBWgJl3c](http://www.youtube.com/watch?v=mkgHBWgJl3c)
  - More recent examples can be seen in the form of commercials aimed at preventing methamphetamine use
    - *Meth, Just Once:* [http://www.youtube.com/watch?v=IgkptoSNQ-w](http://www.youtube.com/watch?v=IgkptoSNQ-w)
Early Prevention Approaches

• *Fear arousal* programs exposed children and youth to the consequences of crime and drug use during the 1970s
  – *Scared Straight:*
    [http://www.youtube.com/watch?v=gXRIR_Svgq4](http://www.youtube.com/watch?v=gXRIR_Svgq4)

• *Alternative school* programs and early forms of *affective education* surfaced in the 1970s

• Collectively, these strategies had little or no effect on school, drug use, or delinquent outcomes
Prevention Approaches, 1980–1990

- Poor outcomes from early studies led to new prevention strategies in the 1980s
  - *Social learning* and *cognitive-behavioral* theories were used to develop interactive and skills-based programs in schools
    - *Life Skills Training* (Botvin, 1984)
    - *Seattle Social Development Project* (Hawkins & Catalano, 1986)
    - *Promoting Alternative Thinking Strategies* (Greenberg & Kusche, 1993)

- Early controlled trials of these approaches revealed significant effects in preventing or delaying the onset of problem behaviors
  - Implementation of tested strategies was largely limited to funded and short-term investigations

- A unifying conceptual model of prevention was still lacking
Prevention Approaches, 1990–2000

• A unifying prevention framework came with the adoption of a public health approach in the 1990s

The Public Health Approach to Prevention

- Define the problem: Surveillance
- Identify causes: Risk & protective factor research
- Develop and test interventions
- Implement interventions
- Evaluate interventions

Note. Adapted from the Centers for Disease Control and Prevention, http://www.cdc.gov/
## Risk Factors for Child and Adolescent Problem Behavior by Level of Influence

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Substance Abuse</th>
<th>Delinquency</th>
<th>Violence</th>
<th>School Dropout</th>
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<tbody>
<tr>
<td><strong>Individual Factors</strong></td>
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<tr>
<td>Early behavior problems</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Rebellious attitudes</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Favorable attitudes toward problem behaviors</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Sensation-seeking orientation</td>
<td>x</td>
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<tr>
<td>Impulsivity</td>
<td>x</td>
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<tr>
<td>Attention deficits</td>
<td>x</td>
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<tr>
<td>Biological and genetic factors</td>
<td>x</td>
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<tr>
<td><strong>Interpersonal Factors</strong></td>
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<tr>
<td><strong>Family Factors:</strong></td>
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<tr>
<td>Favorable parental attitudes toward problem behavior</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Family history of involvement in problem behavior</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Inconsistent supervision, monitoring, and discipline</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Family and parent-child conflict</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Poor attachment with parents</td>
<td>x</td>
<td>x</td>
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<tr>
<td><strong>School Factors:</strong></td>
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<tr>
<td>Poor academic performance in early grades</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Low commitment to school</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Low school engagement</td>
<td>x</td>
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# Risk Factors for Child and Adolescent Problem Behavior by Level of Influence

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<th>Risk Factors</th>
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<th>Delinquency</th>
<th>Aggression</th>
<th>School Dropout</th>
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<tbody>
<tr>
<td><strong>Peer Factors:</strong></td>
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<tr>
<td>Associating with deviant peers</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Rejection by conforming peers</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td><strong>Environmental/Community Factors:</strong></td>
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<tr>
<td>Laws and norms favorable to antisocial behavior</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Availability and access to drugs and firearms</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Poverty and limited economic opportunity</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Community disorganization</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
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<tr>
<td>Media portrayals of antisocial behavior</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
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<tr>
<td>Transitions and mobility</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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</tbody>
</table>

This table is adapted from the Social Development Research Group (Catalano, Haggerty, Hawkins, & Elgin, 2011; Hawkins, 2006; Hawkins, Catalano, & Miller, 1992) and from Jenson & Bender (2014); Jenson, Alter, Nicotera, Anthony, & Forrest-Bank (2013); Jenson & Fraser (2011); and O’Connell, Boat, & Warner (2009).
Protective Factors for Child and Adolescent Problem Behaviors by Level of Influence

**Individual Factors**
- Emotional self-regulation
- High self-esteem
- Communication and language skills
- Positive attitude
- Temperament
- Low childhood stress

**Interpersonal Factors**

*Family Factors:*
- Reliable support and discipline from parents or caregivers
- Family provides structure, limits, and predictability
- Caring relationships with siblings
- Attachment to parents or caregivers
- Support from extended family members
Protective Factors for Child and Adolescent Problem Behaviors by Level of Influence

School Factors:
Support for early learning
Access to supplemental educational services
Positive teacher expectations
Effective classroom management
School practices and policies to reduce bullying
High levels of school engagement

Peer Factors:
Ability to make friends and get along with others
Relationships with positive and prosocial peers

Environmental/Community Factors
Opportunities for education, employment, recreation
Presence and availability of mentors
Positive social norms about behavior
Physical and psychological safety

This table is adapted from Jenson, Alter, Nicotera, Anthony, & Forrest-Bank (2013); Jenson & Fraser (2011); and O’Connell, Boat, & Warner (2009).
Levels of Prevention in the Context of a Public Health Approach

- Interventions based on a public health approach apply risk and protective factors at three levels of implementation:
  - Primary/Universal
  - Secondary/Selective
  - Tertiary/Indicated
Levels of Preventive Interventions

• *Universal* programs are aimed at general child and youth populations without regard to level of risk
  – Social and emotional learning programs
  – Bullying prevention programs

• *Selective* programs target youth with elevated levels of risk, but few or no specific problem symptoms
  – Social and emotional learning
  – Tutoring or mentoring

• *Indicated* programs target children and adolescents with evidence of problem symptoms and young people who are involved in antisocial conduct
  – Individual or family interventions
  – Juvenile justice diversion
Early Leaders in Risk, Protection, and Prevention

- The *Social Development Research Group* (SDRG) at the University of Washington was among the earliest research centers to apply knowledge of risk and protection to the design and testing of preventive interventions.

- The Social Development Strategy used by SDRG researchers incorporated elements of risk and protection in the development of school, family, and community interventions.

SDRG: [http://www.sdrg.org](http://www.sdrg.org)
Risk and Protection in the *Youth Matters* Bullying Prevention Program

**Targeted Risk and Protective Factors**

**Risk Factors**
- Early aggressive behavior
- Poor impulse control
- Rebelliousness
- Poor academic performance
- Low commitment to school
- Rejection by conforming peer groups
- Association with deviant peers

**Protective Factors**
- Effective emotional regulation
- Social and problem-solving skills
- Positive attitude
- Ability to make friends
- Relationships with positive peers
- Support for early learning

**Youth Matters Intervention**

- Emotional regulation training
- Social, cognitive, and behavioral skills training
- Positive classroom norms

**Outcomes**

**Intermediate Outcomes**
- Reduce risk and increase protection
- Increase social, cognitive, behavioral, and emotional regulation skills

**Long-Term Outcomes**
- Prevent and reduce bullying and victimization

*Note. This figure is adapted from Jenson (2010) and Jenson & Dieterich (2007).*
From Public Health to Prevention Science

• The adoption of a public health framework based on risk and protective factors contributed to what has become recognized as a science of prevention (Coie, et al., 1993)
What is Prevention Science?

• Prevention science includes these common characteristics
  – Risk and protective factors associated with a problem behavior must be changed to prevent that behavior
  – Malleable risk and protective factors identified in empirical studies are recognized as the targets of prevention
  – Preventive interventions should be rigorously tested in efficacy trials
  – Efficacious programs should be replicated, implemented with fidelity, and tested in large-scale effectiveness trials
  – Effective interventions should be the focus of systematic translation efforts
From Public Health to Prevention Science

• There has been increasing interest in prevention science since the late 1990s
  – The Society for Prevention Research was established in 1991
    http://www.preventionresearch.org
  – Prevention Science journal created in 2004

• A number of efficacious programs aimed at preventing drug use and delinquency have been identified since 1990. Some programs are both efficacious and cost effective when compared to alternatives (Aos, 2012/handout)
  – Nurse Family Partnership Program (Olds et al., 2008)
  – Seattle Social Development Project (Hawkins et al., 2009)
  – Project Northland (Perry et al., 2008)
Preventing Mental, Emotional and Behavioral Disorders Among Young People: Progress and Possibilities

A summary of the progress of prevention science
The Evidentiary Base for Prevention

• What do we know about the effectiveness of preventive interventions in schools, families, and communities?
  
  • Evidence-Based Practices Series edited by David Biegel and Elizabeth Tracy

# Ineffective and Effective Prevention Programs by Level of Intervention

<table>
<thead>
<tr>
<th>Ineffective Programs</th>
<th>Effective Programs</th>
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<tbody>
<tr>
<td><strong>Universal</strong></td>
<td><strong>Universal</strong></td>
</tr>
<tr>
<td>Information dissemination</td>
<td>Early childhood education</td>
</tr>
<tr>
<td>Fear arousal</td>
<td>Anti-bullying programs in schools</td>
</tr>
<tr>
<td>Peer counseling and mediation</td>
<td>Classroom management and school organization strategies</td>
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<tr>
<td>Peer leadership</td>
<td>Social and emotional learning</td>
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<tr>
<td></td>
<td>Changing community norms</td>
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<td></td>
<td>Community prevention systems</td>
</tr>
<tr>
<td><strong>Selective</strong></td>
<td><strong>Selective</strong></td>
</tr>
<tr>
<td>Fear arousal</td>
<td>Prenatal and infancy home visitation</td>
</tr>
<tr>
<td>Gun buyback programs</td>
<td>Social and emotional learning</td>
</tr>
<tr>
<td>Firearm training</td>
<td>Parent training</td>
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<tr>
<td>Redirecting antisocial behavior</td>
<td>Increasing parent-child bonding</td>
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<tr>
<td>Altering peer group norms</td>
<td>Reducing family conflict</td>
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<tr>
<td></td>
<td>Mentoring</td>
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<tr>
<td><strong>Indicated</strong></td>
<td><strong>Indicated</strong></td>
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<tr>
<td>Social casework</td>
<td>Social and emotional learning</td>
</tr>
<tr>
<td>Individual counseling</td>
<td>Wraparound services</td>
</tr>
<tr>
<td>Boot camps</td>
<td>Youth employment with education</td>
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<tr>
<td>Waivers to adult court</td>
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</tbody>
</table>
Implementation of Effective and Ineffective Programs

- Efforts to implement *effective* programs have increased through evidence-based practice and translational research.

- There is a long history, however, of implementing *ineffective* programs in the US:
  - *Drug Abuse Resistance Education (D.A.R.E)* uses police officers to speak to elementary, middle, and high school students about alcohol and other drugs; it was implemented in 80% of the nation’s schools by the early 1990s.
  - The program was not evaluated in its early years.
  - Randomized trials of D.A.R.E. subsequently revealed little or no effects on deterring alcohol or drug use (Dukes et al., 1996; Ennett et al, 1994; Lyman et al., 1999).
School-Based Prevention Programs

• Types of school-based programs
  – Social and emotional learning curricula
    • *Life Skills Training* (Botvin & Griffin, 2004)
    • *PATHS* (Greenberg, 2004)
    • *Youth Matters* (Jenson & Dieterich, 2007)
    • *Second Step* (Brown et al., 2012)
  – School-wide strategies
    • *Olweus Bully Prevention Program* (Olweus, 1993)
  – Comprehensive and integrated programs
    • *Incredible Years* (Webster-Stratton & Reid, 2010)
    • *Seattle Social Development Project* (Hawkins et al., 2008)
How Effective are School-Based Prevention Programs?

• We reviewed 34 meta-analyses or systematic reviews of school-based programs between 1996 and 2011
  - Substance abuse prevention (n=18)
  - Violence, aggression, and bullying (n=6)
  - School dropout (n=5)
  - Delinquency prevention (n=5)

• Findings
  - Effect sizes vary from .10 to approximately .40, and by outcome or problem area addressed
  - Effect sizes are often higher for selective or indicated programs than for universal programs
Characteristics of Effective School-Based Prevention Programs

Intervention Elements

*Effective programs...*

- Target known risk and protective factors for problem behavior
- Use behavioral and cognitive-behavioral intervention strategies
- Encourage and provide opportunities for interaction
- Build social, emotional, and cognitive skills
- Recognize and reinforce positive behavior
- Reduce negative social influence and antisocial peer pressure
- Provide comprehensive and multimodal intervention components

Implementation Elements

*Effective programs...*

- Specify target populations and levels of intervention
- Provide developmentally appropriate program content and activities
- Offer interventions frequently and for long periods of time
- Provide booster sessions to reinforce training and prolong positive effects
- Carefully consider, choose, and monitor who leads prevention activities
- Attend to issues of program adaptation that are necessary to address cultural, gender, and other factors
Locating and Selecting Effective School-Based Prevention Programs

- Information about effective school-based prevention programs is available at:
  - Blueprints for Healthy Youth Development; [http://www.blueprintsprograms.com](http://www.blueprintsprograms.com)
  - National Registry of Evidence-Based Programs and Practices, Substance Abuse and Mental Health Services Administration; [http://www.nrepp.samhsa.gov](http://www.nrepp.samhsa.gov)
  - Campbell Collaboration Library and Database; [http://www.campbellcollaboration.org](http://www.campbellcollaboration.org)
Family-Based Prevention Programs

• Types of family-based programs
  
  – Prenatal and perinatal interventions
    • *Nurse-Family Partnership Program* (Olds et al., 2007)

  – Behavioral parent training strategies
    • *Coercive Family Process* (Patterson et al., 1982)
    • *Triple P-Positive Parenting Program* (Sanders et al., 2008)
    • *Strengthening Families for Parents and Youth 10-14* (Spoth et al., 2001)

  – In-home and outpatient family intervention
    • *Multidimensional Treatment Foster Care Program* (Chamberlain et al., 2007)
    • *Multisystemic Therapy* (Henggeler et al., 1992)
    • *Functional Family Therapy* (Alexander & Parsons, 1982)
How Effective are Family-Based Prevention Programs?

• We reviewed 11 meta-analyses or systematic reviews of family-based programs between 1996 and 2011
  – Substance abuse prevention (n=4)
  – Violence, aggression, and bullying (n=3)
  – Child development (n=1)
  – Delinquency prevention (n=3)

• Findings
  – Effect sizes vary from .20 to approximately .40, and by outcome or problem area addressed
  – Effect sizes are highest for parent training programs
  – Variation in program types that were included in our review pose interpretation challenges
Characteristics of Effective Family-Based Prevention Programs

Intervention Elements

*Effective programs*...
- Target family risk and protective factors for problem behavior
- Use empirically-supported theoretical frameworks to inform program design
- Involve parents and children in intervention activities
- Use behavioral and cognitive intervention strategies to teach social, emotional, and cognitive skills to parents, children, and other family members
- Teach parenting skills that increase competencies in communicating, monitoring, and supervising children
- Include interactive sessions that allow for practice of newly acquired skills
- Include program activities aimed at improving parent-child relationships

Implementation Elements

*Effective programs*...
- Specify target populations and levels of intervention
- Offer interventions frequently and for long periods of time
- Receive organizational and infrastructure support from a sponsoring community-based agency or school
- Carefully consider, choose, and monitor who leads prevention activities
- Attend to issues of program adaptation that are necessary to address cultural, gender, and other factors
Community-Based Prevention Programs

• Community-based prevention strategies can be traced as far back as the *child saving* movement in Chicago during the late 1800s
  – Early social work advocates and reformers like Jane Addams and Mary Richmond laid the foundation for community-based prevention

• Other early influences:
  – The *Chicago Area* studies of the 1930s and 1940s by Shaw and McKay stressed the need to understand relationships among poverty, social disorganization, immigration, and deviance
  – *Mobilization for Youth* projects in the New York during the 1950s focused on improving community and economic opportunities for youth

• Early programs produced little in the way of positive outcomes; they did, however pave the way for later advances
Community-Based Prevention Programs

• Today’s community prevention programs are often part of a comprehensive approach that includes school and family interventions
  – The *Harlem Children’s Zone* and the *Promise Neighborhood* initiatives exemplify multimodal forms of prevention
  – Other examples come from work being conducted at centers like those at the Mandel School that address poverty, community development, and violence

• Common program elements include:
  – Mentoring
  – Community policing
  – Afterschool interventions
  – Structured media campaigns
  – Policy and environmental strategies aimed at enforcing minimum drinking ages, limiting access to drugs and weapons, and regulating the taxation and costs of alcohol and tobacco
How Effective are Community-Based Prevention Programs?

• Few randomized trials of community-level prevention programs have been conducted

• Two substance abuse prevention programs have been tested in randomized controlled trials
  – *Midwestern Prevention Project* implemented media, school, and parent strategies and found positive effects in preventing and reducing substance abuse among middle school students (Pentz et al., 1998)
  – *Project Northland* is a universal prevention program that includes a school curriculum and family and community components; significantly lower rates of drinking have been found among experimental subjects in several controlled trials (Perry et al., 1996)
Community-Based Prevention Systems

• Community prevention systems have been developed in the past two decades as a way to increase the dissemination and translation of prevention research to local communities.

• Prevention systems guide community leaders and coalitions through a series of structured steps that include:
  – The establishment of a community board composed of local leaders, parents, and youth
  – A systematic assessment of risk and protective factors for child and adolescent problem behaviors
  – A review of prevalence data pertaining to problem behaviors
  – A process of prioritizing problem areas and setting program and community goals
  – The selection, implementation, and evaluation of evidence-based preventive interventions
Community-Based Prevention Systems

- Two community *prevention systems* have received recognition in recent years
  - *Communities that Care (CTC)* developed by David Hawkins, Richard Catalano, and colleagues at SDRG
  - *PROSPER: Promoting School-Community-University Partnerships to Enhance Resilience* developed by Richard Spoth and colleagues at Iowa State University

- *CTC* and *PROSPER* adhere to principles of prevention science, though differences exist in implementation
  - *CTC* offers extensive key leader and community board training, assessment and survey instruments, and ongoing support to communities
  - *PROSPER* relies on existing county extension and family or consumer agents in local settings to implement many system components

- *CTC* is now available through SAMHSA
  [http://store.samhsa.gov/product/Communities-That-Care-Curriculum/PEP12-CTCPPT](http://store.samhsa.gov/product/Communities-That-Care-Curriculum/PEP12-CTCPPT)
Communities that Care Model

CTC Implementation and Technical Assistance

- Adoption of Science-based Approaches
- Collaboration
- Community Support
- Community Norms
- Social Development Strategy (Skills, Opportunities, Recognition, Bonding)

System Catalyst

System Transformation Constructs

System Outcomes

- Appropriate Prevention Program Selection and
- Decreased Risk and Enhanced Protection
- Positive Youth Development

Note. This figure is adapted from Brown, Hawkins, Arthur, Briney, & Fagan (2011). The social development strategy is from Catalano & Hawkins (1996) and Hawkins & Weiss (1985).
How Effective are Community-Based Prevention Systems?

• *CTC* and *PROSPER* have been evaluated in group-randomized trials, *CTC* at the community level of assignment and *PROSPER* at the school district level
  – Both “systems” have yielded significant effects in preventing or reducing drug use
  – *CTC* has also shown positive effects on delinquency and antisocial conduct

• Characteristics of effective prevention systems
  – Adopting principles of prevention science that include the systematic assessment of risk, protection, and problem behaviors
  – Building committed and sustained community boards and coalitions
  – Selecting and implementing evidence-based preventive interventions with fidelity
Randomized Trial of Communities That Care

- 24 incorporated towns
  ~ Matched in pairs within state
  ~ Randomly assigned to CTC or control condition
- 5-year implementation
- Longitudinal panel of students

This slide is from the Social Development Research Group: http://www.sdrg.org
Findings from the 
**Communities that Care Trial**

April ’03
Start of Study

**Spring ’06**

**Youth Outcomes in Grade 7:**
- Lower levels of targeted risk
- Lower rates of initiation of delinquency

**Spring ’07**

**Youth Outcomes in Grade 8:**
- Lower rates of initiation of alcohol, cigarettes, smokeless tobacco, and delinquency
- Lower prevalence of alcohol, binge drinking
- Fewer delinquent behaviors

Spring ‘08
~ Completed Year 5 of the study
~ Ended CYDS funding and technical assistance

Spring ‘09

**Youth Outcomes in Grade 10:**
~ Lower rates of initiation of use of alcohol and cigarette, and delinquency
~ Lower prevalence of smoking, delinquency, and violence

This slide is from the Social Development Research Group: [http://www.sdrg.org](http://www.sdrg.org)

CTC Prevention Coalition Sustainability

• By 20 months after study support ended:
  – 11 of 12 CTC coalitions continued to meet and to conduct community assessment, prevention planning, and intervention
  – 10 of the 11 existing coalitions obtained funding to continue implementing tested, effective programs
  – 7 of the 11 coalitions maintained funding for a paid CTC coordinator
  – CTC coalitions continued to achieve more of the CTC benchmarks than prevention coalitions in control communities

This slide is from the Social Development Research Group: http://www.sdrg.org
Communities across the US are using the CTC system

This slide is from the Social Development Research Group: http://www.sdrg.org
Cost-Effectiveness of Prevention

• Findings from cost-benefit analyses reveal significant financial savings associated with the implementation of preventive interventions

• Aos and colleagues at the Washington State Public Policy Institute have conducted several cost-benefit analyses of prevention programs (http://www.wsipp.wa.gov/BenefitCost)
  – Many evidence-based preventive interventions show a positive benefit to cost ratio
  – Interventions implemented in juvenile justice and child welfare systems reveal significant cost savings
Summary of Part 1

• Prevention has evolved from a pattern of loosely-organized ideas, beliefs, and programs to a science based on principles of risk, protection, public health, and carefully specified interventions

• Evidence from longitudinal studies dating to the 1980s indicates that theoretically-based preventive interventions are effective in preventing the onset of problems like substance abuse, aggression, bullying, school-dropout, and delinquency
  – Effect sizes for preventive interventions are in the small to moderate size for universal level programs and moderate to high range for selective and indicated programs
  – Significant cost savings are associated with the implementation of tested preventive interventions
Summary of Part 1

• Efforts to translate research evidence to practice and policy and to bring effective preventive interventions to scale are among the next set of challenges.

• Other specific challenges
  – Increasing the adoption of effective programs in school, family, and community settings
  – Adapting interventions to better address the needs of child and youth subgroups
  – Bringing prevention to social work education and practice!
Preventing Child and Adolescent Problem Behavior

Part 2

• Methodological and Analytical Issues in Prevention Science
  – Applying principles of intervention research to prevention science
  – Developing and testing preventive interventions
  – Research design and assignment
  – Analytic approaches
  – Methodological and analytical challenges
Intervention Research and Prevention Science in Social Work

• *an intervention is an attempt to induce change selectively* ... *[based] not only on the experiences of caseworkers* ... *but on a broad range of studies bearing on the problems of induced change*
  
  --Briar & Miller, 1971, p. 173

• Interventions include systematic practice and policy efforts that target individuals, families, schools, organizations, neighborhoods, counties, states, countries, and other aggregations
What is Intervention Research?

• NIMH (2011) defines it as “research to evaluate the effectiveness of pharmacologic, psychosocial, somatic, rehabilitative, and combination interventions on mental and behavior disorders…”

• Interventions are tested in a variety of populations and settings and with various degrees of methodological rigor

• When science posits that an intervention is “effective” we generally assume it has been tested under controlled (randomized) conditions
Relevance of Intervention Research in Prevention Science

- Children, youth, and families deserve effective preventive interventions and solutions to their problems.

- A steady volume of empirical evidence is necessary to identify new, and modify existing, evidence-based prevention practices.

- Findings from intervention trials are critical to diffusion and translational research efforts.

- Efficacious preventive interventions are often cost-effective.

- Results from intervention trials inform prevention practice and social policy.
A Primer on Intervention Research

• Intervention research is an extension of earlier attempts to assess the effects of individual treatment and social interventions
  – *Boulder Model* in psychology, 1949
  – Early controlled trials of casework interventions (e.g., Cambridge-Somerville Project) and youth employment programs (Mobilization for Youth)
  – Introduction of the scientist-practitioner model in social work, 1970s and 1980s
  – Thomas, Rothman, and others define a process for developing and testing interventions, 1980s
  – Rosen and colleagues report that less than 15% of published studies in social work journals are tests of an intervention, 1999
  – Fraser and colleagues publish *Intervention Research: Developing Social Programs*, 2009
Applying Elements of Intervention Research to Prevention Science

• Intervention research implies a *process* that encompasses the design, development, and testing of social (preventive) interventions
  
  – The process of developing interventions in the social work literature dates to Thomas (1978) and Rothman (1974)
  
  – In recent years, investigators have created specific steps in designing, developing, and testing interventions (Fraser et al., 2009, 2011)
Steps in Intervention Research*

- Defining the problem
- Risk and protective factors
- Theory and risk mechanisms
- Prior intervention research

Steps in Intervention Research

Steps in conducting intervention research (Fraser et al, 2009):

1. Specify the problem and develop program theory (theory of change)
2. Create and revise program materials
3. Refine and confirm program components
4. Assess effectiveness
5. Disseminate findings and program materials
Design and Analysis Strategies for Testing Preventive Interventions

- Asserting cause and effect
- The importance of mediation and moderation in understanding the effects of preventive interventions
- Selecting alternative designs
- Assignment options
- Analysis strategies
Asserting Cause and Effect: Steps to Generalized Causal Inference

**Statistical**
Is there a statistically significant association between the intervention and the outcome?

**Internal**
Is the relationship causal?

**External**
Can we generalize to other places, populations, outcomes & times?

**Construct**
Can we generalize to the higher-order constructs?

**VALIDITY**
Asserting Cause and Effect: The Counterfactual Framework

- **Counterfactual**: What would have happened to the treated subjects, had they not received treatment?

- The **counterfactual framework** argues that individuals selected into treatment and control groups have potential outcomes in both states: the one in which they are observed and the one in which they are not observed. This framework is expressed as:

\[
Y_i = W_i Y_{1i} + (1 - W_i) Y_{0i}
\]

- The idea conveyed in this equation is that to infer a causal relationship between \( W_i \) (the cause) and \( Y_i \) (the outcome) you cannot directly link \( Y_{1i} \) to \( W_i \) under the condition \( W_i = 1 \); instead, you have to consider the outcome of \( Y_{0i} \) under the condition of \( W_i = 0 \), and compare \( Y_{0i} \) with \( Y_{1i} \).
Explanatory Causal Inference in Prevention Research

Where,

\[ X = \text{intervention} \]
\[ Y = \text{outcome} \]
\[ M = \text{mediator} \]

\[ c = \text{total effect} \]
\[ c' = \text{direct effect controlling for } a \times b \]

\[ \text{Note. Mediation is said to occur when } c' < c \]

Mechanisms of Change: Mediation in Preventive Interventions

• A mediator is a variable that is intermediate in the causal process relating an independent to a dependent variable (Baron & Kenny, 1986; Sobel, 1990; MacKinnon, 2013)

• Mediators can be viewed as the latent processes or the “active ingredients” that are hypothesized to produce positive outcomes
A Single Mediator Model

- Independent Variable: X (skills)
- Mediator: M (intentions)
- Dependent Variable: Y (drug use)

Pathways:
- X → M
- M → Y
- X → Y

Path coefficients:
- a
- b
- c'
Mediation Statements

• If children are successful at school they will be less likely to commit crimes
• If positive parent-child communication increases, young people will be less likely to use drugs
• If social norms become more tolerant of sexual orientation, prejudice toward gay and lesbian youth will decrease
Specifying Mediators in Preventive Interventions

• Specifying and measuring the effect of mediators in intervention trials is intended to optimize the effect of preventive interventions.

• Select mediating variables that are causally related to an outcome variable:
  – The prevention program or intervention should be designed to change these mediators.

• If mediators are causally related to the outcome, then an intervention that changes the mediator will change the outcome.
If the mediators are causally related to $Y$, then changing the mediators will change levels of $Y$.

Coefficients in mediation regression equations may be obtained using methods such as OLS regression, covariance structure analysis, or logistic regression (MacKinnon, 2013).
An Example of Mediating Mechanisms
(What is potentially malleable in intervention?)

Source: Gershoff, E. et al. (2007). Income is not enough. Child Development, 78(1), 70-95, fig. 3.
An Example of Mediating Mechanisms: *Making Choices* Program

**Induced Change in the Mediators**

- Social Competence
- Encoding Skill
- Hostile Attribution
- Goal Formulation
- Response Generation
- Enactment

**Outcomes**

- Overt Aggression
- Social Aggression
- Social Contact
- Task Concentration

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An Example of Mediating Mechanisms: *Youth Matters* Program

**Induced Change in the Mediators**
- Social, Cognitive, and Behavioral Skills
- Emotion Regulation Skills
- Positive classroom norms

**Outcomes**
- Bully Victimization
- Bullying Behaviors

Mediation Statements

• What are common mediators in the substantive or problem area you are investigating?

• Provide an example of one or more mediating variables in an intervention you are testing, or are interested in creating
A Word on Moderation

• *A moderator* is a variable that modifies the strength of the relationship between an independent and dependent variable (MacKinnon, 2013)
  – The effect of one factor depends on the level of another factor

• Theory and prior empirical evidence may predict which persons (subjects) will be be most affected by an intervention
  – For example, intervention effects may differ for females and males or for children who are risk takers compared to children who are not risk takers

• Moderation differs from a mediator in that there is not a causal sequence such that the variable transmits the effect of an IV to a DV
Importance of Moderation

• Moderation acknowledges individual or subgroup differences

• Some groups may be hypothesized to experience larger intervention effects than other groups

• Investigators can consider tailoring preventive interventions to subgroups or to relevant contexts
Small Group Exercise: Articulating a Theory of Change!

• Think about a problem you are interested in preventing, or a healthy behavior you are seeking to promote

• Describe an intervention and theory of change you are interested in developing and testing
  – What is your target population?
  – What are your primary outcomes?
  – What are the key features of your intervention?
  – Identify moderator and mediator variables in a proposed intervention model (theory of change)
  – Conceptualize and “draw” your model
  – Be prepared to present your proposed intervention and theory of change
Selecting a Research Design!!
Selecting and Implementing Research Designs: Preparing for a Randomized Trial

• Testing preventive interventions requires extensive planning
  – Eliciting organizational (setting) support
  – Site recruitment, preparation, and coordination
  – Funding and incentives
  – Consent and assent protocols
  – Putting together a team

• When developing or testing preventive interventions, consider
  – Age and developmental phase of participants
  – Program length and duration
  – Gender, race, ethnicity, sexual orientation and other factors
Selecting and Implementing Research Designs

- Randomized controlled trials are the standard for assessing interventions in prevention science.
- A randomized experiment is comparative research in which investigators study two or more interventions among participants (or groups of participants in group or “cluster randomization” trials) who are randomly assigned to intervention and control conditions.

Diagram:
- Meta-analyses & Systematic Reviews
- Randomized Controlled Trial
- Quasi-Experimental Design
- Observational & Case Studies
- Expert Judgment
What is a Randomized Controlled Experiment?

• Comparative research in which investigators study two or more interventions among participants (or groups of participants in group or “cluster randomization” trials) who are randomly assigned to intervention and control conditions

• Assignment is not determined by investigators, funders, or participants

• Inclusion/exclusion criteria must be applied equally to all participants (i.e., both treated & controls)
Common Experimental and Quasi-Experimental Designs

- A variety of experimental and quasi-experimental designs are available to test preventive interventions (See Shadish, Cook, & Campbell, 2001)
Special Factors in Random Assignment: Nested Designs and Clustering

• In many settings, potential outcomes are related to multiple levels of influence

• In schools,
  • Principals and classroom teachers may not consistently present prevention content

• In child welfare agencies,
  • Caseworkers may differ in how they select and present required treatment or intervention components
Design and Analysis Strategies for Group-Randomized Trials

• Group- or cluster randomized designs can be used to enhance cause and effect in some intervention trials
  • In such cases, randomization occurs at the group level (schools, neighborhoods, or communities, etc.)

• Sampling requires attention to *schools* as common unit of analysis, clustering of observations, effect size, and intraclass correlations (ICCs)

• Multilevel analytic strategies are necessary to partition random and fixed effects at the student, classroom, and school levels
Your Turn! Select a Research Design for Your Proposed Theory of Change

• Consider the intervention and theory of change you drafted in the earlier exercise...
  – Choose a research design to test your intervention
  – Indicate how participants will be assigned to condition
    • What barriers can you expect when considering assignment options?
  – Identify the measures you will use to assess your outcomes
  – What are the strengths and limitations of your chosen design with regard to maximizing internal validity?
  – Be prepared to present your research design
The *Youth Matters* Denver Public Schools Prevention Trial

**Selected Findings**

1. Intervention Effects from Grades 4-6
2. Invariant Findings
3. Effect of YM on Patterns of Bullying and Victimization
The Denver Public Schools Study: A Group-Randomized Trial

All public elementary schools in urban Denver, Colorado

Schools were stratified by risk criteria and geography

Randomly assigned 28 schools to Youth Matters or to a no-treatment condition

Measures

- Bullying and victimization (Olweus Revised Bullying Questionnaire)
- Self-reports of antisocial attitudes, peers, antisocial conduct, depressive symptoms, school commitment

Analyses

- Multilevel linear growth modeling to examine intervention effects across 5 waves
- LCA & LTA to assess patterns of bullying

27 classrooms in 14 control schools

36 classrooms in 14 experimental schools

The YM Intervention

• YM includes instructional modules that address issues (topics) and skills related to preventing aggression and bullying
  – Issue modules are intended to strengthen classroom norms against bullying by increasing awareness of bullying behaviors, building empathy, and identifying risks and norms about aggression
  – Skills modules teach social competency and social resistance skills (asking for help, standing up for yourself and others)

• Each curriculum module includes a 30-40 page story that is linked to class sessions and a culminating classroom project

• Four YM curriculum modules were implemented in grades 4 and 5; each module includes 10 sessions for a total of 40 sessions
Analyzing YM Outcomes

- Multilevel growth models were fitted to bullying and bully victimization outcomes to assess the main effects of the YM intervention.

- Latent growth curve analyses were used to assess the effects of gender, ethnicity, age and baseline ratings of antisocial attitudes, classroom friction, delinquent behavior, and school commitment on bullying and victimization.

- Person-centered analyses were used to assess the effects of YM on patterns of participation in bullying behaviors and victimization during the transition from elementary to middle school (grades 4 to 6).
Selected YM Intervention Effects

- **Multilevel Growth Modeling**
  - Data structure included 5 measurement occasions with 1,300 students
  - Students changed classrooms, but not schools in year two. Thus, the analytic approach for our data uses a cross-classified model:
    - Measurement occasion is at level 1 and level 2 is a cross-classification of classrooms by students that is nested within schools at level 3

- The cross-classified model fitted to the continuous measure of bully victimization is (see paper):
  \[ y_{i(j_1,j_2)k} = (XB)_{i(j_1,j_2)k} + v_k + u_{j_1k} + u_{j_2k} + e_{i(j_1,j_2)k} \]

- The cross-classified model for the binary outcome of bullying others is (see paper):
  \[ \text{logit}(\pi_{i(j_1,j_2)k}) = (XB)_{i(j_1,j_2)k} + v_k + u_{j_1k} + u_{j_2k} \]
Selected YM Intervention Effects

- Findings from multilevel growth models:
  - Students in experimental schools reported significantly less overall and relational bully victimization than youth in control schools at times 4 and 5.
  - Bullying behavior decreased in both groups over time; decline in bullying was greater in YM schools at the end of the study (time 4) and one-year follow-up (time 5).

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## Continuous Growth Model of Bully Victimization at Time 4

<table>
<thead>
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<th>End-of-study-centered (Time 4)</th>
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<td>.022</td>
<td>.045</td>
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</tr>
</tbody>
</table>
Predicted Bully Victimization Curves for Intervention and Control Schools through Time

\[ \log(\text{bully victim scale} - 0.7) \]

- **Control**
- **Intervention**

\[ \beta_{YM} = -0.171, \ t\text{-value} = -2.074 \]
Predicted Bully Victimization Curves for Intervention and Control Schools at One-Year Follow-up (Time 5)

\[ \log(\text{Bully Victim Scale} - .7) \]

Control

Intervention

\[ \beta_{YM} = -0.132, \ t-value = -1.953 \]
Invariant Effects of the YM Trial

• To understand the relationship between individual and social characteristics and YM outcomes,
  – Separate linear latent growth curve models were estimated for victimization and bullying
  – Intercept and slope terms were regressed onto gender, ethnicity, age and baseline ratings of antisocial attitudes, classroom friction, antisocial conduct, and school commitment
Invariant Effects of the YM Trial

• **Victimization**
  – Higher levels of classroom friction and antisocial attitudes at baseline were associated with more rapid declines in victimization at times 4 & 5

• **Bullying**
  – Levels of bullying among female students decreased at a slower rate than males at times 4 & 5
  – Students with higher initial levels of antisocial attitudes and antisocial conduct reported more rapid declines in bullying at times 4 & 5
Person-Centered Approaches and Patterns of Bullying and Victimization during the Transition to Middle School

• Our recent analyses extend prior YM investigations to better understand patterns in bullying and victimization over time
  – Examined the effects of YM on prevalence and transition patterns associated with bullying and victimization (Jenson et al., 2013)
  – Examined the effects of depressive symptoms, antisocial attitudes, and empathy on patterns of bullying and victimization between elementary and middle school (Williford et al., 2014)
Person-Centered Analyses in the YM Trial

• Latent Transition Analysis (LTA) was used to establish bully and victim subclasses
  – Models contained between 2 and 5 and classes were compared according to the Akaike Information Criterion (AIC) and the sample-size adjusted Bayesian Information Criterion (BIC; Raftery, 1995)
  – Models were estimated using full-information maximum likelihood (FIML)

• Multinomial Logistic Regression Analyses was used to examine the influence of covariates on transitional patterns over time
  – A conditional model was run in which the bullying classes were regressed on the covariates, with a *No Bullying* group as the reference group
Person-Centered Findings from the YM Trial

• Item probabilities led to a four-class solution:
  – *Bully class* endorsed higher frequencies on all bully items but low frequencies on victim items
  – *Victim class* endorsed higher frequencies on all victim items but low frequencies on the bully items
  – *Bully-Victim class* endorsed higher frequencies on both the bully and victim items
  – *Uninvolved class* endorsed lower frequencies on both the bully and victim items

• Participants in YM transitioned to the *uninvolved* class at significantly higher rates than controls
• Elementary school bullies with higher levels of depressive symptoms and antisocial attitudes were less likely to move to the *uninvolved* class
• Empathy was not a significant predictor of group status
Summary of Findings from the YM Trial

• Findings reveal significant effects on the rate of change for bully victim and relational victim scales
  – Bully and relational victimization decreased by approximately 20% in intervention schools

• Reduction in victimization in YM schools is consistent with findings from other skills-based prevention programs

• Lack of a significant effect on bullying may be influenced by changes in bully and victim status over time
Summary of Findings from the YM Trial

- **Victimization**
  - Higher levels of classroom friction and antisocial attitudes at baseline were associated with more rapid declines in victimization at times 4 & 5

- **Bullying**
  - Levels of bullying among female students decreased at a slower rate than males at times 4 & 5
  - Students with higher initial levels of antisocial attitudes and antisocial conduct reported more rapid declines in bullying at times 4 & 5

- **Transition patterns**
  - Participants in YM transitioned to the *uninvolved* class at significantly higher rates than controls
  - Elementary school bullies with higher levels of depressive symptoms and antisocial attitudes were less likely to move to the *uninvolved* class
Other Methodological and Program Issues in Prevention Science

- Alternative intervention effect estimates
- Internal validity in experimentation
- Implementation and fidelity
- Adapting interventions to race, culture, gender, and context
- Using propensity score analysis to adjust for pretest group differences
- Handling missing data
Considering Alternative

Intervention Effect Estimates

Average treatment effect (ATE): What is the average effect of the treatment if all subjects fully complied with their assigned treatments?

Intent to treat (ITT): What is the average effect of the treatment per person assigned to the intervention group, regardless of how many subjects received it?

Local average treatment effect (LATE): What is the average effect of the treatment per person induced by randomization to receive it?

Treatment on the treated (TOT): What is the average effect of the treatment per person actually receiving it when there are no cross-overs?

Have we focused too much on internal validity in experimentation?

- Recently, some investigators have argued that the emphasis on internal validity in experiments has minimized broader questions of reach, effectiveness, implementation, and maintenance (Bonell et al., 2012; Glasgow et al., 2006)

- Advocates of realist intervention trials aim to examine the effects of components separately and in combination, test mechanisms of change, and explore how interventions interact with context to produce outcomes (Bonell et al., 2012)

- Proponents also argue that an overemphasis on testing interventions for the purpose of being “accredited” on list of EBPs is counterproductive

- The realist framework has been applied to what have been labeled complex social interventions in recent years
Implementation and Fidelity in Preventive Intervention Trials

• Implementing preventive interventions with *fidelity* is a frequent topic of discussion in prevention science

• Fidelity is an indicator of how closely an intervention follows the substantive content and activities of an original program (Fixsen et al., 2005)

• In recent years, an entire field of implementation science has developed out of concern for adherence to intervention protocols and evidence-based practices
  – National Implementation Research Network; [http://nirn.fpg.unc.edu](http://nirn.fpg.unc.edu)
Implementation and Fidelity in Preventive Intervention Trials

• Concern about fidelity comes from prior examples of interventions that have experienced considerable drift over time
  – What are some examples of interventions that have experienced drift?

• Interventions implemented with high fidelity are more likely than other programs to produce positive outcomes for participants (Wilson & Lipsey, 2007, 2009)
Implementation and Fidelity in Preventive Intervention Trials

• Monitoring implementation fidelity is accomplished in two primary ways
  – Intervention specialists report their program activities and adherence to the core elements of a program using a predesigned checklist
  – Direct behavioral observations of intervention sessions are made by a trained evaluator who rates adherence to program content and activities
Monitoring Fidelity in the YM Trial

- Trained observers were used to rate the fidelity of curricula sessions in the YM trial (handout)

Youth Matters Prevention Trial
Denver Public Schools

Rater Observation Form
Lesson: *Mean Talk, Mean Acts*

Trainer:
School:
Classroom Teacher:
Rater:
Date:
Implementation and Fidelity in Preventive Intervention Trials

• Schools and community agencies find it difficult to implement tested programs with fidelity
  – Reluctance to use manualized interventions
  – Lack of resources or training about the importance of implementing evidence-based programs in their original formats

• Adaptation of program content is a common reaction to concerns about program fit
Strategies to Increase Fidelity

**Community-Level Strategies**
Select programs that target salient risk and protective factors of children, youth, and families

Include community members, elected officials, practitioners, teachers, parents, and students in program selection and planning processes

**Agency-Level Strategies**
Increase receptivity to evidence-based preventive interventions

Promote organizational involvement in decision-making and planning

Enhance and reward leadership that supports evidence-based programs

**Instructional-Level Strategies**
Secure a commitment from teachers and practitioners to use evidence-based preventive interventions

Provide training before implementation

Provide opportunities for technical assistance and support

Offer training booster sessions

**Program-Level Strategies**
Use manualized curricula

Provide adequate time and structure for prevention programming

Make minimal changes to evidence-based programs

Track and monitor necessary adaptation or program changes
Program Adaptation

• Adaptation in prevention science refers to the process of changing program content to better serve one or more sub-groups of children or youth
  – A social and emotional learning program may be modified to include cultural content that is relevant to Latino or African American students
  – In other cases, programs may be altered to adjust for gender, sexual orientation, or socioeconomic status

• There is considerable tension between implementing preventive interventions with fidelity and adapting programs to meet the needs of sub-groups
Program Adaptation

• Factors to consider in adaptation decisions
  – Empirical evidence pertaining to the effects of a preventive program on the outcomes of youth from different races and ethnicities
    • Is there evidence to support the effectiveness of a prevention program for youth of all races and ethnicities?
    • Do modified or adapted interventions increase the effectiveness of tested programs for children and youth of different races and ethnicities?

• Evidence is mixed with regard to adaptation
  – Many universal prevention programs are equally effective for participants of diverse backgrounds
  – Limited evidence also suggests that adaptation can also improve program outcomes for children of color
Adaptation Principles and Strategies

• Program modification is common but the prevention field is in the early stages of understanding ways to identify aspects of interventions that should be considered for adaptation
  – Few frameworks for adaptation exist
  – Agencies and personnel often make adaptation decisions on the basis of practice wisdom and local conditions

• An alternative to adaptation is to create culturally relevant interventions through a developmental process
  – The *keepin’ it REAL* substance abuse prevention program is one example (Marsiglia & Hecht)
Advancing Prevention in Schools, Families, and Communities

• Schools and communities should select and implement evidence-based prevention programs that address salient risk and protective factors
• Effective programs should be implemented with fidelity and evaluated over time
• The decision to adapt an evidence-based prevention program for one or more population subgroups should be considered in the context of available empirical evidence
• Findings from efficacy trials of preventive interventions should be brought to scale and tested in effectiveness trials
Advancing Prevention in Schools, Families, and Communities

• Findings from cost-benefit analyses revealing significant financial savings of preventive interventions should be disseminated and used to advance prevention practice, policy, and research

• Positive results generated by evidence-based programs should be used to prioritize prevention policy and practice at the local, state, and national levels
Advancing Prevention in Social Work

• Empirical evidence supporting preventive interventions should be used to increase prevention science content in social work education
  – Training modules or certificates in social work education that emphasize the *prevention* of negative developmental outcomes and the *promotion* of healthy behavior (well-being) in people should be created
  – Is it time for a paradigm change in support of the prevention and promotion of well-being?

• Link elements of intervention research to evidence-based practice and translational research

• Adopt successful educational strategies from public health, (emerging) prevention science, and other fields
References

• References are available in a supplemental handout