Youth Suicide Prevention: A Network Health Approach

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I. Youth Suicidal Behavior
  • Diverse perspectives

II. Need for “Upstream” programs embedded in social systems

III. Network Health Diffusion Model: Three Applications
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- NIMH R01 R01MH091452 Effectiveness Trial of Youth Suicide Prevention Delivered by Teen Peer Leaders. (PI: Wyman, P) University of Rochester
- Department of Defense W81XWH-13 Promoting Healthy Family Role Transitions for Military Personnel. (PI: Wyman, P) University of Rochester
- SAMHSA SM57405-01 Evaluating Success of a Gatekeeper Program in Linking Suicidal Students to Treatment. (PI: Wyman, P) University of Rochester
- New York State. Comprehensive Youth Suicide Prevention Program. (PI: Wyman, P)

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Suicide Deaths: Age of Onset

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Leading Causes of Death in 10-14 Years Olds

(Centers for Disease Control and Prevention, 2015)
Youth Suicide Rates vary by sex/time/culture

- Rates:
  - 2-5 times higher in rural regions (Brown, Wyman 2007)
  - Males: 84% of deaths; Females: 2-4 X more attempts suicide
  - Asian youth attempt more than white, black (CDC 2015)

- Methods: firearms most deaths (2000s > strangulations)

- High risk groups vary by community
  - Young male Native Americans entering adulthood
  - Mid adult females in some Asian countries
Risk Factor Perspective

Biological: e.g., serotenergic function, neurochemical regulators

Predisposing: e.g., MDD, psychosis, substance abuse, abuse/neglect

Proximal: e.g., thwarted belonging, hopelessness

Triggering: e.g., relationship disruption, intoxication, shame

Social X Biological: e.g., trauma altering gene expression: emotional & cognitive phenotypes (Turecki 2012)
Developmental Perspective

Adolescence healthy period, yet increased self-harm

• Reorganization in Developmental Systems
  • Adolescent Vulnerability Hypothesis

• ‘Executive’ Functions (PFC) Lag Emotion Systems
  • Emotional reactivity, risk-taking

• Emotional/Behavioral
  • Depression, substance abuse

• Caregiver Relationships Evolving
  • Autonomy striving – LOW HELP SEEKING, TREATMENT SEEKING

• Social & Self Development – Complexity, Risks
  • Disruptions (breakups); aggression; peer behaviors (drug use)
  • Identity challenges; fulfilling key tasks (work, love)

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Significance as Prevention Target

- **Adolescence**: suicide prevention window

- Convergence of risks (psychiatric, behavioral, social, familial domains)

- *Suicide is Outcome of Behavior* (not a condition)
  - ‘Signal’ of distress in community and setting
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Need to Expand Youth Suicide Paradigm

• Strategies to identify high-risk youth widely used (GLSMA 2005)
  ▪ Gatekeeper training, screening; lives saved 2005-2015 (Walwrath et al 2015)

• Yet **22% increase** in suicides ages 15-19 in US since 2000
  ▪ 8/100,000 in 2000 to 9.76/100,000 in 2015

• Consensus growing --> expand suicide prevention further ‘upstream’

• Promising but relatively unexplored approach is intervening through youth social networks
Social Network – Key Concepts
Network Structure and Health

- **HIV Transmission** sexual contact networks (Morris, 2004)
  - Structure influences ‘spread’ potential

- **Substance abuse** (Friedman et al., 1997; Valente, 2004)
  - Like individuals tend to affiliate (homophily) and adopt behaviors of others to whom connected

- **Suicidal Behavior – more work needed**
  - Relational Needs (Thwarted needs, Joiner 1995; Disruptions)
  - Suicidal Behavior Exposure (contagion potential; Gould 2001)
  - Structural Cohesion (Bearman & Moody 2004)
Effectiveness Trial of Sources of Strength

40 High Schools
65-1,168 students; N=13,600
Rural & Micropolitan NY, ND; 4 Native Am. Reservations

Wait-list Control n=20
Sources of Strength n=20

Population Assessment (n=11,160): Networks, Behavior
M=84% participation

Training-Implementation

3 Population Assessments
3 Population Assessments
Suicidal Youth Network Position in Illustrative School: Centrality, homophily, structural cohesion

[Diagram showing network with nodes and connections, indicating attempted and ideation attempts, with notes on network size and shading for suicide homophily.]

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Youth-Trusted Adult Ties in Illustrative School Network: Higher SA w/ more isolates and hierarchical network

<table>
<thead>
<tr>
<th>School</th>
<th>Size</th>
<th>Ad Odg Cent</th>
<th>SA Rate</th>
<th>ID Rate</th>
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<tbody>
<tr>
<td>10076 (L)</td>
<td>83</td>
<td>4.0</td>
<td>2.8/100</td>
<td>8.0/100</td>
</tr>
<tr>
<td>10092 (R)</td>
<td>54</td>
<td>7.4</td>
<td>10.0/100</td>
<td>8.2/100</td>
</tr>
</tbody>
</table>
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Network Health Diffusion Model (Wyman et al., 2014)
Sources of Strength

- Active training for ‘Key Opinion Leaders’ [below R, dark nodes] (LoMurray, 2005)
- Strengthen protective bonds, coping [below L] and disseminate practices school-wide
- Social Connectedness (CDC, 2007), Diffusion of Innovations (Rogers, 2003) models

Tested w/ RCT in 18 secondary schools, 2500 students

- 25% more healthy adult relationships; 4x more engaging adult help for suicidal peers
- Positive effects spread to un-trained (Wyman et al., 2010); replicated 2nd study
- 1st Peer Leader program to change school-wide factors associated with reduced suicide

National Field Project Award-APHA (2005); NREPP 2012
Suicide and Substance Use Prevention: Integrated via Network Based Interventions

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Above the Influence (ATI)

- Youth-targeted, media based prevention program (2005)
  - Office of National Drug Control (ONDCP & Partnership for Drug Free
  - Strong ‘peer based’ tonality – aspirational, rise above negative influences

- ATI contributed to decline in marijuana use 2005 – 2008
  - 3 independent studies: more exposure to ATI, less use
  - ATI campaign reduced marijuana use by increasing goal aspirations and
    autonomy (Slater et al. 2011 Prevention Science)

- Scientific Rationale: Targeting Substance Use for Suicide
  Prevention
  - Substance abuse major risk factor for young adult suicide
  - Triggering & predisposing risk factors

2013 Partnership Drug Free collaboration w/ U Rochester

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ATI Training

- **Peer Leader role** - engaging group, influence, role, partner w/adults

- **Rising Above** – Reasons, Who Supports Me, What to Say

- **FACTS** - accurate substance use rates in 8th grade

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ATI Peer Leader Program Results
Trained Middle Schools Jan-May 2014 (N=410)

*Intentions to use substances decreased among students w/more PL friends*

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Wingman-Connect: Universal Suicide Prevention for Air Force Trainees

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Col Tracy Neal-Walden
US-Air Force Surgeon General’s Office

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Video of Strong 4-Cores
“Class Legacy”

- Each member contributes – how strengthening a core relationship
  - Reinforced cohesion, proliferation of healthy relationships
  - > 75% view video after training ends
  - 40% shared with family and friends
  - Multi-media resonates with millenial cohort
  - Create a second video after transition to operational AF
Network Health Diffusion Model (Wyman et al., 2014)

- Change Agents: members of population
- Leverage influence via Network Position
- Diffusion of healthy norms/practices
- Promote Integration to Network
Thank you.