

YOUTH SUICIDE PREVENTION

PROMOTING HEALTHY SOCIAL CONNECTIONS AND SUPPORT

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Presenter Disclosure

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- Ovi Therapeutics, Scientific Advisor & Stockholder
 - American Foundation for Suicide Prevention:
Scientific Advisory Council

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Suicide is Second Leading Cause of Death among Adolescents in United States



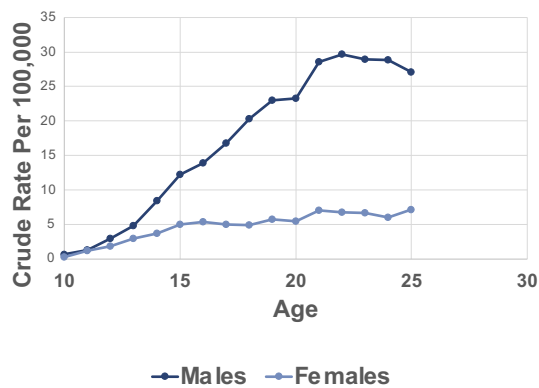
- In 2023, 6,417 young people, ages 10-24, died by suicide in US
- Males accounted for ~ 80% of adolescent suicides



Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. *Web-based Injury Statistics Query and Reporting System (WISQARS)*: Available at: <https://www.cdc.gov/injury/wisqars/index.html>

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Suicide Deaths – Ages 10–25 – U.S. Crude Rate per 100,000



Centers for Disease Control and Prevention.
Web-based Injury Statistics Query and Reporting System (WISQARS)

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Prevalence of Suicidal Ideation and Suicide Attempts among Adolescents

- **Converging Data from Three Large Cohorts**
 - Adolescent Brain Cognitive Development Study (ABCD): 2016-2022
 - Youth Risk Behavior Survey (YRBS): 2021
 - Children’s Hospital of Philadelphia Emergency Dept. Cohort: 2013 – 2020
- **Self-Report Data (different questions & timeframes)**
- **Total: 38,380 Non-Hispanic Black & Non-Hispanic White youth**

Cooper AM et al., Prevalence of Suicidal Ideation and Suicide Attempts by Race and Gender in Three Large U.S. Adolescent Cohorts. Am J Psychiatry 182:10, October 2025

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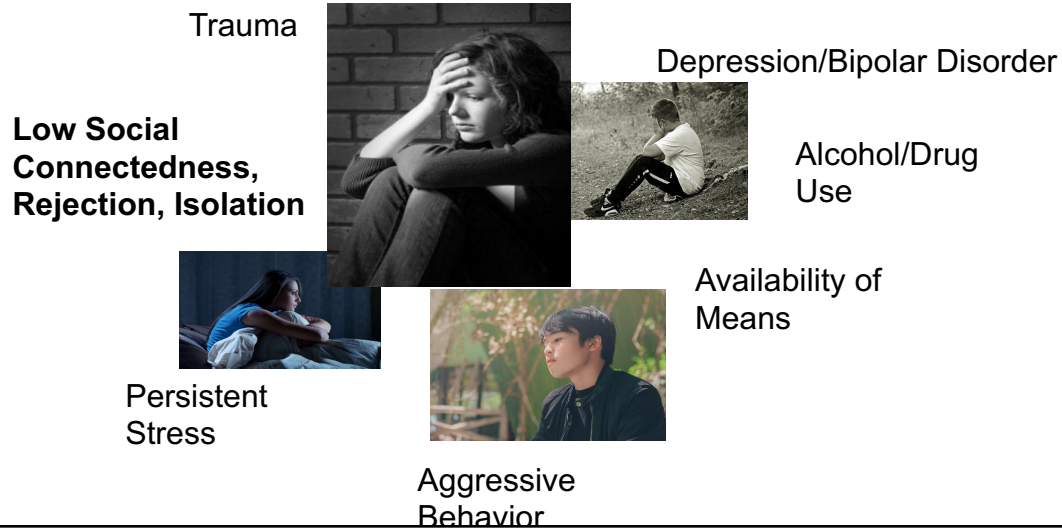
Prevalence of Suicidal Ideation and Suicide Attempts among Adolescents

<ul style="list-style-type: none">• Cooper AM et al., <i>Prevalence of Suicidal Ideation and Suicide Attempts by Race and Gender in Three Large U.S. Adolescent Cohorts.</i>• Am J Psychiatry 182:10, October 2025	Suicidal Ideation	Suicide Attempt	Black Girls
	Overall Rate 22.5%	Overall Rate 8.6%	Reported Highest Rates of Both <ul style="list-style-type: none">• In each cohort• Compared to White youth & Compared to Male Youth

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Suicide Risk Factors

Clinical, Interpersonal, and Environmental Risk Factors
(with Biological Vulnerability)



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Social Connectedness

- A Sense of Belonging, Being Cared For, and Feeling Supported
 - Social Connectedness linked with more positive youth trajectories
 - Disconnection, thwarted belongingness, perceived burdensomeness linked with suicide risk



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School Connectedness and Suicide Risk

- **Systematic Meta-Analysis**

- Examined associations between school connectedness and suicidal thoughts/behaviors among students, grades 6 to 12
- Examined moderators of effect sizes (e.g., region, race/ethnicity, gender, characteristics of connectedness measure)
- 16 study samples

Marraccini & Brier, *Sch Psychol Q.* 2017

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School Connectedness and Suicide Risk

- **Systematic Meta-Analysis – FINDINGS**

- HIGHER School connectedness associated with lower suicidal thoughts and behaviors for general, high-risk, and sexual-minority students.
- Consistent for suicidal ideation and suicide attempts (Odds Ratios ~ 0.5 to 0.6)
- Stable across different School Connectedness Measures
- Stable across student samples that varied in % white and % female.

Marraccini & Brier, *Sch Psychol Q.* 2017.

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Adolescent Connectedness and Adult Outcomes

- **National Longitudinal Study of Adolescent to Adult Health** ($n = 14,800$); Steiner et al., *Pediatrics*, 2019
 - Examined long-term protective role of connectedness across health outcomes: mental health, sexual behavior, substance use, violence
 - Nationally representative data
 - Wave 1 Data (1994-1995): Students Grades 7-12
 - Wave 4 Data (2008): Adults 24-32 years

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Adolescent Connectedness and Adult Outcomes

- **School Connectedness**
 - Protective in reducing suicidal ideation, emotional distress, physical violence, victimization, multiple sex partners, sexually transmitted disease, prescription drug misuse, illicit drug use
- **Family Connectedness**
 - Protective in reducing emotional distress, physical violence, victimization, multiple sex partners, sexually transmitted disease, prescription drug misuse, illicit drug use

Steiner et al., *Pediatrics*. 2019

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Changes in Social Connectedness and Outcomes Following Hospitalization for Suicide Risk

- **Study Aims**

Determine if post-hospitalization changes in connectedness with family, peers, non-family adults predict suicide attempts, severity of suicidal ideation, and depression across 12-months

- **Sample**

- 338 psychiatrically hospitalized, suicidal adolescents
- 13-17 years; 71% female; mean age = 15.6 years (SD = 1.3)

Czyz, Liu, & King (2012). Social connectedness and one-year trajectories among suicidal adolescents following hospitalization, *Journal of Clinical Child and Adolescent Psychology*.

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Changes in Social Connectedness and Outcomes Following Hospitalization for Suicide Risk

- **Longitudinal Study with 12-month Outcomes**

- **Results**

- Improvements in Peer Connectedness : Lower likelihood of suicide attempt across 12 months;
- Improvements in Family Connectedness: Less severe depression across 12 months.

Czyz, Liu, & King (2012). Social connectedness and one-year trajectories among suicidal adolescents following hospitalization, *Journal of Clinical Child and Adolescent Psychology*.

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Challenge of Predicting Adolescent Suicide Attempts

- Single risk factors do poorly (Franklin et al., 2017)
- Many clinicians emphasize suicide ideation
 - Not a strong predictor of suicide attempts & does not capture all adolescents at risk (King et al., 2014)
- Multi-variable risk models may improve risk recognition and enable us to target modifiable risk factors

Franklin et al. (2017). Risk factors for suicidal thoughts and behaviors: a meta-analysis of 50 years of research. *Psychological Bulletin*, 143(2), 187-232.

King et al. (2014). Suicidal ideation of psychiatrically hospitalized adolescents has one-year predictive validity for suicide attempts in girls only. *Journal of abnormal child psychology*, 42(3), 467-477.

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Predicting Risk among Adolescents seen in Emergency Departments

- **ED-STARS: Large National Institute of Mental Health study**
 - 14 Pediatric Emergency Departments
 - Universal Suicide Risk Screening of youth, ages 12-17 years
 - Identified Predictors of Suicide Attempts within 3-months of emergency department visit for 2,104 youth

King CA, Grupp-Phelan J, Brent DA, et al. Predicting 3-month risk for adolescent suicide attempts ... *J Child Psychol Psychiatry*. 2019; 60(10): 1055-1064

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ED-STARS Study One Research Design

- **Suicide Risk Survey -- Large Item Bank**
 - History of suicide attempt, history of non-suicidal self-injury, suicidal ideation/intent, depression, hopelessness, alcohol/drug abuse, bully perpetration/victimization, impulsive-aggression, sleep disturbance, low peer or family connectedness, among others
- **2,902 Youth (sample enriched for moderate/high risk)**
 - 3- and 6-month Telephone follow-ups
 - Medical record review of ED visits and hospitalizations
- **Primary outcome:** Suicide Attempts

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ED-STARS Study Prediction of Suicide Attempts: 3-Month Follow-Up

- **Examined multivariate prediction of suicide attempts during the 3-months following adolescents ED visits**
- **N= 2,104 adolescents completed follow up**
 - 63.1% female
 - 53.3% white

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Predictors of Suicide Attempt at 3-Month Follow-Up

- Past week SI
- NSSI # of methods
- NSSI # of incidents
- Lifetime suicide attempts/behavior
- Thoughts of self harm
- Duration of suicidal thoughts
- Depression
- Alcohol use
- Cannabis use
- Anxiety
- Homicidal thoughts

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Predictors of Suicide Attempt at 3-Month Follow-Up

- Sex, sexual minority identity, gender minority identity
- Additional Clinical predictors
 - Hopelessness
 - Agitation
 - Sleep disturbance
 - Physical and sexual abuse
 - Poor daily functioning
 - Low family, social, school connectedness
 - Impulsive aggression
 - Impulsivity
 - Peer victimization
 - Bully Victimization
 - History of physical fighting
 - Negative life events

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Predictors of Suicide Attempt at 3-Month Follow-Up

- **Putting it Together – A combined, multivariate model**
 - Recent (Past Week) Suicidal Ideation
 - Lifetime Severity of Suicidal Ideation
 - Lifetime History of Suicidal Behavior
 - School Connectedness (or Social Connectedness)
- **AUC=.86; 95% Confidence Interval: 0.82-0.89**

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School Connectedness: How I Feel about School

Please read each item and select how much you agree with it.

Please select one answer for each question.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
You feel close to people at your school	1	2	3	4	5
You feel like you are part of your school	1	2	3	4	5

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SOCIAL Connectedness: How I Feel about FRIENDS

Please read each item and select how much you agree with it.

Please select one answer for each question.

	Not at All	Not Really	Sort of	True	Very True
I have friends I'm really close to and trust completely.	1	2	3	4	5
Spending time with my friends is a big part of my life.	1	2	3	4	5

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What can we do? A Sampling of Possible Next Steps

CDC Guide for Schools – Enhancing School Connectedness

Enhancing Natural Connections with Peers/Adults

Supportive/Caring Contact Interventions for Youth at Risk

Youth-Nominated Support Team Intervention (YST)

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CDC recommendations for schools to promote connectedness

- **Provide professional development on classroom management.**
Reinforcing positive behavior through praise and establishing rules, routines, and expectations ...promotes higher levels of school connectedness.
- **Support student led-clubs at school.**
These create a safe space for students to socialize, support each other, connect with supportive school staff.
- **Facilitate positive youth development activities.**
Mentoring programs, opportunities to volunteer in community; or connecting students to community-based programs -- can provide a network of supportive adults.
- **Provide parents and families with resources that support positive parenting practices,** such as open, honest communication and parental supervision.
- <https://www.cdc.gov/healthyouth/protective/youth-connectedness-important-protective-factor-for-health-well-being.htm>
- Centers for Disease Control and Prevention. *School Connectedness: Strategies for Increasing Protective Factors Among Youth*. Atlanta, GA: U.S. Department of Health and Human Services; 2009.

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Sources of Strength Enhancing connections with peers and adults

- School-wide, universal suicide prevention program
- Prepares adolescent peer leaders (from “diverse social cliques”) to change norms and behaviors through messaging activities (with adult mentoring)
- Peer leaders “model and encourage friends to”
 - Engage trusted adults to increase communication ties
 - Create & reinforce expectancy that friends ask adults for help for suicidal friends
 - Identify and use interpersonal and formal coping resources

<https://sourcesofstrength.org>

Wyman et al. 2010, *American Journal of Public Health*

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Sources of Strength Evaluation findings

- 18 high schools from 3 states (Georgia, New York, North Dakota);
Random assignment of Schools to Training versus Wait List Control
 - **Impact on Peer Leaders**
 - More positive expectancies re: adult helpfulness with suicidal students;
 - More rejection of “codes of silence”
 - Increased support for help-seeking from adults at school
 - # identified trusted adults, support to peers
 - **Impact on Student Population**
 - Perception of adult help for peers with suicidal ideation
 - Norms for help-seeking from adults - acceptability

Wyman et al. 2010, *American Journal of Public Health*

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Suicide Risk Recognition and Then What?

EVIDENCE-BASED RESOURCE GUIDE SERIES

Treatment for Suicidal Ideation, Self-Harm, and Suicide Attempts Among Youth

Substance Abuse and Mental Health
Services Administration (SAMHSA):
Treatment for Suicidal Ideation, Self-harm,
and Suicide Attempts Among Youth.
SAMHSA Publication No. PEP20-06-01-002
Rockville, MD: 2020.



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Youth-Nominated Support Team (YST)

- **Based in Social Support & Health Behavior Models**
- **Psychoeducational, social support intervention**



Funding: NIMH R01-MH-104311

King, C. A., Klaus, N., Kramer, A., Venkataraman, S., Quinlan, P., & Gillespie, B. (2009). The Youth-Nominated Support Team—Version II for suicidal adolescents: A randomized controlled intervention trial. *Journal of Consulting and Clinical Psychology*, 77(5), 880-893.

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YST for Teens at Risk

- **Adolescents nominate “caring adults” to provide regular supportive contact after hospitalization**
 - Parents approve nominations/sign releases to share information
 - On average, 3.4 (SD = 0.85) caring adults (per adolescent)
- **Caring adults**
 - Parents, extended family, family friends, fictive kin, school personnel, activity group leaders, adults from places of worship
 - Attend a tailored orientation and training session, then continue to receive resources and support for 3 months
 - Encouraged to have weekly, meaningful contact with youth

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YST II Study – Adolescent Participants

- **448 adolescents from two psychiatric hospitals (2002 – 2005)**
 - 13 – 17 years
 - Suicidal ideation (frequent or with plan) or recent suicide attempt
 - 84% White, 6% Black, 2% Hispanic, 8% Other
 - 34% Mothers and 27% Fathers - Some College
- **Assigned to YST + Usual Care or Usual Care using computerized balanced allocation strategy (sex, age, history of multiple suicide attempts)**

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YST Intervention Baseline Between-Group Characteristics

Characteristic	No./Total No (%)	
	YST Group (n=223)	TAU Group (n=225)
Age at baseline, mean (SD)	15.6 (1.2)	15.6 (1.4)
Female, No (%)	159 (71.3)	160 (71.1)
Depression, CDRS-R, mean (SD)	60.8 (13.6)	60.9 (12.6)
Suicidal Ideation, SIQ-JR, mean (SD)	46.6 (21.7)	45.8 (21.2)
Single SA history, No. (%)	77 (34.5)	76 (33.8)
Multiple SA history, No. (%)	92 (41.3)	86 (38.2)
Alcohol use, No. (%)	146 (65.5)	137 (60.9)
Marijuana use, No. (%)	115 (51.6)	96 (42.7)
Other drug use , No. (%)	71 (31.8)	50 (22.2)

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YST II Study Findings at 12 Months

- **Positive effects modest across 12 months**
 - More rapid decrease in suicidal ideation
 - More treatment across 1-year: psychotherapy, med follow-up, drug treatment
- **29 Suicide attempts in TAU+YST-II group; 35 in TAU group**
- **One suicide in TAU group**

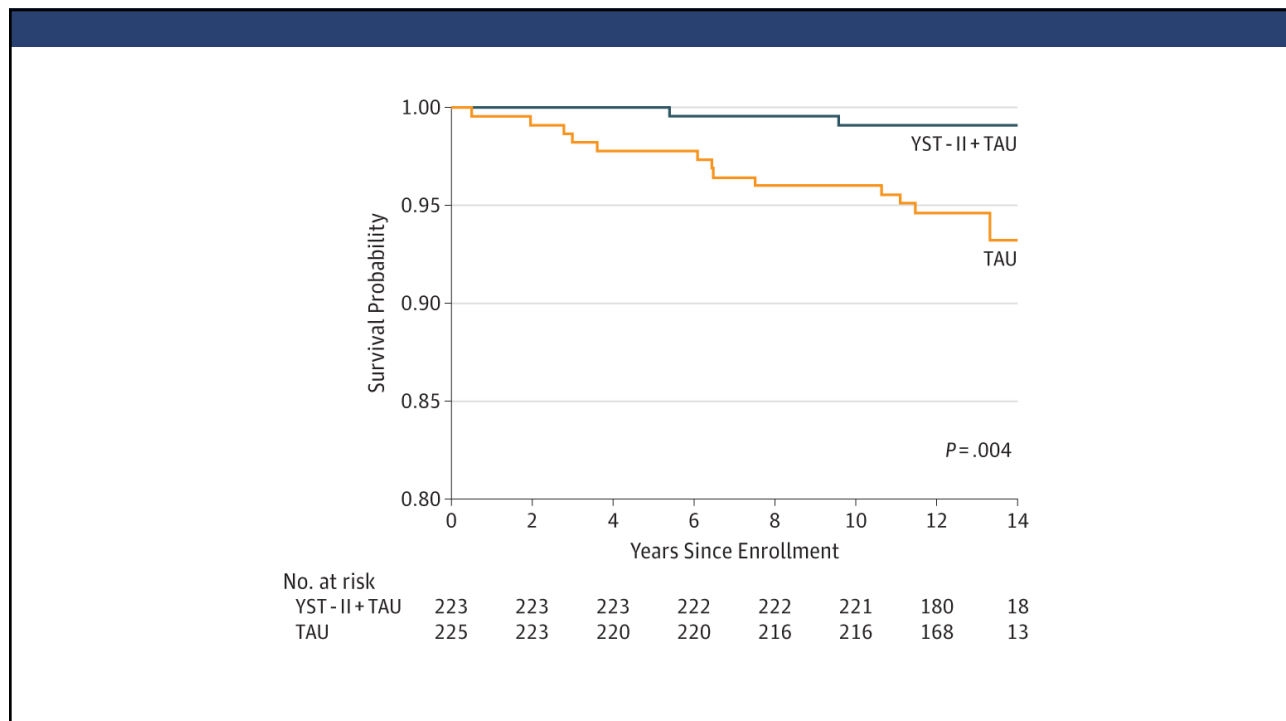
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YST 11-14 Years Later

- **National Death Index (NDI) data**
 - Two staff, blind to group, independently evaluated records (CDC criteria)
 - NDI data confirmed with state death certificates
- **15 deaths – Confirmed with state death certificates**
 - 13 deaths in TAU group versus 2 deaths in YST group
Hazard Ratio = 6.62; 95% Confidence Interval: 1.5 - 29.4; P = 0.004
 - Also significant for deaths by suicide or drug overdose with unknown intent: 8 deaths in TAU group versus 1 death in YST group

King et al. (2019). Association of the Youth-Nominated Support Team Intervention for suicidal adolescents with 11-to 14-year mortality outcomes. *JAMA Psychiatry*.

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YST for Teens at Risk

• A 3-month intervention --- How might we understand?

- YST brings caring adults in extended family and community closer, in terms of understanding adolescent's mental health challenges and needs
- These adults obtain tailored information and an improved understanding of how to talk with and support them (e.g., treatment follow-through)



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Recent Pilot Study

Enhanced Safety Plan + Supportive Text Messages

- **Study Design**

- 80 adolescents hospitalized for suicide risk
- Randomized to a Motivational Interview-Enhanced Safety Plan alone or with daily supportive text messages
- Re-randomized two weeks later to added booster call or no call

Czyz, E.K., et al., Adaptive intervention for prevention of adolescent suicidal behavior after hospitalization: a pilot sequential multiple assignment randomized trial. Journal of Child Psychology and Psychiatry, 2021. 62(8): p. 1019-1031.

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Recent Pilot Study

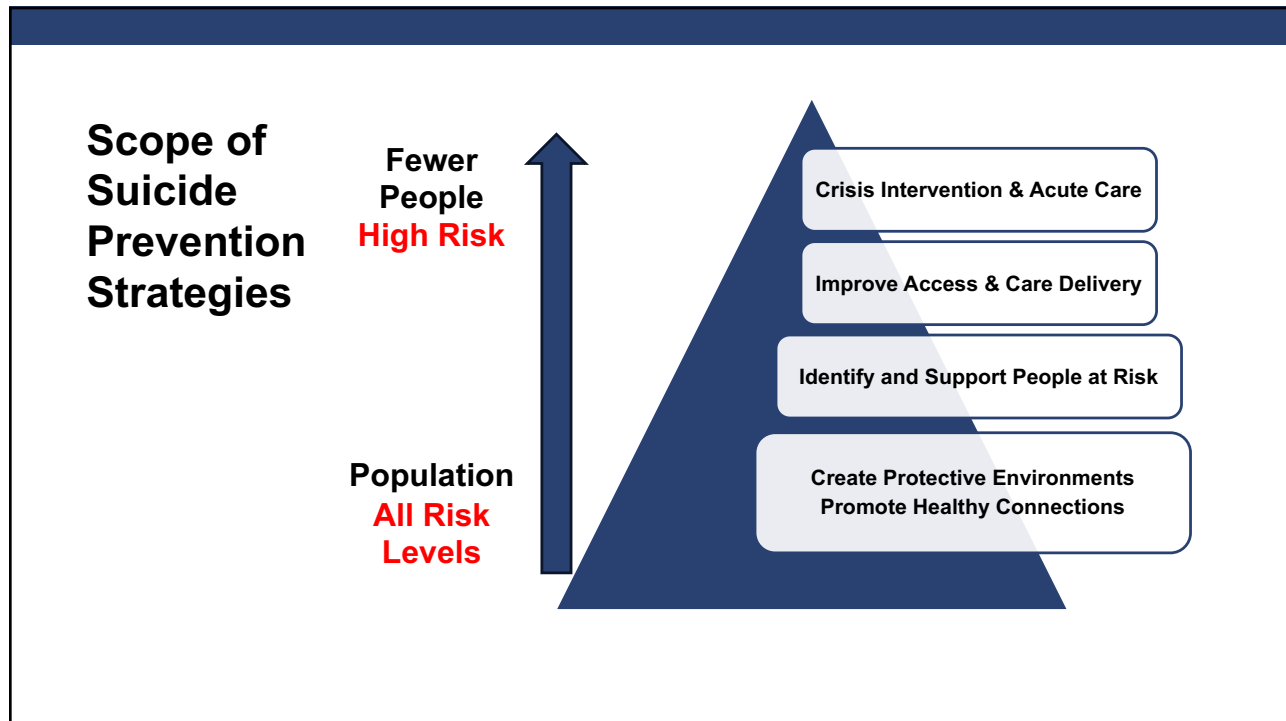
Enhanced Safety Plan + Supportive Text Messages

- **Results**

- Adolescents receiving supportive text messages showed improved safety plan use, self-efficacy to refrain from suicidal action, and coping by support-seeking, as did youth randomized to booster calls.
- Supportive texts associated with lower intensity of daily suicidal urges and greater coping self-efficacy.

- **Another Type of CARING CONTACT**

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Identify and Support Young People at Risk



Active listening, validation of distress, challenges, and strengths; provide needed emotional support.



Help with problem-solving, perspective regarding challenges, knowledge of available help and treatment



Encourage, de-stigmatize, support, and provide instrumental help with getting mental health or other needed services

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Crisis Intervention & Acute Care



Express care and concern, validate and de-stigmatize strong emotions, de-stigmatize engaging with professional help



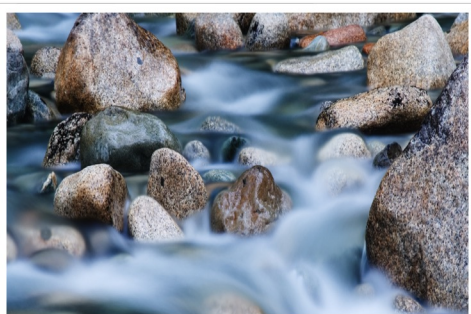
Recognize warning signs, provide immediate support, and take steps to get professional help

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Social and School Connectedness Matter



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Acknowledgments

- Participating Teens and Families
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- Members, Youth Depression and Suicide Prevention Research Program (YDSP), University of Michigan



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Thank You

For additional
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 Adobe Spark

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