Adolescent Suicide: Risk Factors & Prevention

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Background on Suicide
Epidemiology:
World, United States, Utah
Suicide Rates Worldwide

Map of suicide rates (per 100,000; most recent year available as of 2011)
Utah vs. U.S Suicide Rates

Rate of suicides per 100,000 population by year, Utah and US, 1981-2012 (age-adjusted)
Center for Disease Control 2010
Suicide Rates

• US Suicide Rate decreased 1990-2000, then increased from 2000-2010
• Regional Suicide Rates
  – West 13.6, South 12.6, Midwest 12.0, Northeast 9.3
• Method
  – Firearm 50%
  – Suffocation (hanging) 25%
  – Poisoning 17%
  – Misc 8%
US Suicide Rates

Figure from CDC
Topographic map of USA
Altitude and Suicide

- Perry Renshaw, MD, PhD, University of Utah
  “The Altitude Hypothesis”
  - In the United States, Above 2000 feet, suicide rates go up exponentially!
  - Changes in brain metabolism — not every brain adapts
  - Evidence consistent — multiple studies

- Korean collaborators find the same association
  - Korea University College of Medicine
Center for Disease Control 2010 Suicide Rates

- **U.S. Rates**
- For 2010
- Whites have the highest US suicide rate (14.1)
  - = 14.1 per 100K/year
- Native American have the 2nd highest US suicide rate (11.0)
  - Rates vary by tribe, each tribe is like a separate nation
- Asian/Pacific Islanders (6.2)
- Hispanics (5.9)
- African Americans (5.1)
Utah Teenagers

• Survey of Utah teens*
  – 27% sad or hopeless
  – 14% considered suicide
  – 12% made a suicide plan
  – 7.2% attempted suicide
  – 3.1% required medical attention after an attempt

*CDC Youth Risk Behavior Surveillance System
How Does a Child Psychiatrist become a Suicidologist?

Utah Department of Health
“We just need your help with one question”
U.S. Suicide Rates
15-24 Year-Olds

Rate per 100,000

1950  1970  1990
Becoming a Suicidologist

• The “Three Davids and the Madelyn”
  – David Shafer, MD, Columbia University
    • “We are hopeful the psychological autopsy method will give us some of the answers we need.”
  – David Brent, MD, University of Pittsburgh
    • “We don’t have good programs because we don’t do the research needed to design them”
  – David Clark, PhD, Rush University
    • “Once good controlled study is worth a thousand expert opinions!”
  – Madelyn Gould, Ph.D., Columbia University
    • “People want to do something immediate, but research takes time.”
Surprise, Research is Funded!

- Every Utah Agency serving children and adolescents agreed to turn over every piece of data prospectively for three years.
  - Utah Youth Suicide Prevention Task Force
    - All Utah government agencies and non-profit agencies serving children and adolescents
      - Utah Department of Health
      - University of Utah Department of Psychiatry
(22) Now I am going to read a list of symptoms to you, please tell me if you noticed (name of decedent) struggling with any of these symptoms in the last two months?

<table>
<thead>
<tr>
<th>a) Sadness</th>
<th>1-Yes 2-No 3-Don't Know</th>
<th>i) Impulsive Behavior</th>
<th>1-Yes 2-No 3-Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) Mood Swings</td>
<td>1-Yes 2-No 3-Don't Know</td>
<td>j) Hallucinations</td>
<td>1-Yes 2-No 3-Don't Know</td>
</tr>
<tr>
<td>c) Hopelessness</td>
<td>1-Yes 2-No 3-Don't Know</td>
<td>k) Appetite Change</td>
<td>1-Yes 2-No 3-Don't Know</td>
</tr>
<tr>
<td>d) Irri</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Ani</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Agg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Ani</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Pat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r) Did</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(31) a) Did (name of decedent) ever receive any psychiatric medication? 1-Yes* 2-No 3-Don't Know
b) *(if YES) Who prescribed these medications? (circle all that apply)
   - Family Doctor 1-Yes 2-No 3-Don't Know
   - Internal Medicine MD 1-Yes 2-No 3-Don't Know
   - Physician Assistant 1-Yes 2-No 3-Don't Know
   - Nurse Practitioner 1-Yes 2-No 3-Don't Know
   - On-line provider 1-Yes 2-No 3-Don't Know
   - Other____________ 1-Yes 2-No 3-Don't Know

c) Was he/she taking any prescribed psychiatric medication in the last two months?

(41) a) Was (name of decedent) ever physically abused? 1-Yes* 2-No 3-Don't Know
b) *(if YES) by whom? (circle all that apply)
   1-BIOLOGICAL MOTHER 2- BIOLOGICAL FATHER 3-STEP MOTHER 4- STEP FATHER
   5-BROTHER 6-SISTER 7-RELATIVE 8-NEIGHBOR
   9-LEGAL GUARDIAN-FOSTER PARENT 10-STRANGER
   11-OTHER______________________________

c) If Yes. When was the most recent incidence of abuse?
   1-Last week 2-Last Month 3-Last Six Months 4-Last Year 5-# of Years___________

(42) a) Was he/she (decedent) ever sexually abused? 1-Yes 2-No 3-Don't Know
b) *(if YES) by whom? (circle all that apply)
   1-BIOLOGICAL MOTHER 2- BIOLOGICAL FATHER 3-STEP MOTHER 4- STEP FATHER
   5-BROTHER 6-SISTER 7-RELATIVE 8-NEIGHBOR
   9-LEGAL GUARDIAN-FOSTER PARENT 10-STRANGER

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Medical Examiner’s Data

• 151 Consecutive Youth Suicides, 3 years
  – 89% Males, 11% Females
  – 58% Used Firearms
  – 60% Died at Home
  – 93% Caucasian
Mental Health and Child Protection Services

• **Most suicides not in treatment or on medication**
• Public Mental Health Service:
  – Only 27% had lifetime contact
  – Only one subject in treatment at time of death
• **Contact with Child Abuse Services?**
  – 19% had referral
  – age of referral 12.3 (older than standard referral)
  – physical abuse most common
  – mostly male (n=25)
Toxicology of Youth Suicide

• Utah Youth Suicide Study (ages 13-21)
  – toxicology on 151 Suicide Completers
  – Only 3% of suicides had any psychotropic medication in their blood at autopsy
  – Only 1.5% of decedents an Selective serotonin reuptake inhibitors

• New York City (17 years and younger)
  – 44 youth suicides, 36 had toxicology within 3 days
  – Only 1 of the 36 = 3% with a detectible SSRI
    • Leon AC, J Am American Academy Child Adolescent Psychiatry, 2006, Sept 45(9):1054-8
Youth Suicide: Juvenile Courts

“Are there other places to find teenagers at risk”

Utah Youth Suicide Study looked at the government records of all suicides ages 13-21

Findings:

63% of suicide completers had a referral to Juvenile Courts (n=95 of 151)
  - Most for minor offenses ie truancy, MJ, cigarettes, curfew
  - Living at home with parents (only 12% ever in corrections)

Doug’s “Rule of Thirds”
Utah Youth Suicide Study

• Psychological Autopsy
• Interview 49 families of suicide completers
• Interview 270 community contacts
  – Siblings, relatives, friends, school teacher, coach, others.
• What are the Barriers to getting help?
  – Insurance? Transportation? Language?
Parent Report: Moderate or Large Barriers

Parent Report: Moderate or Large Barriers to Treatment
N=49 Suicides, 71 Reports

Barriers to Treatment
Believed | Reluctant | Denied | Afford | Bad Experience | Parent | Idea | Advised | Illness | Daycare
---|---|---|---|---|---|---|---|---|---
79% | 74% | 69% | 67% | 40% | 38% | 32% | 30% | 29% | 22% | 22% | 15% | 11% | 7% | 4% | 2%
<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Believed</td>
<td>He/she believed nothing could help</td>
</tr>
<tr>
<td>Weakness</td>
<td>Seeking help was a sign of failure or weakness</td>
</tr>
<tr>
<td>Reluctant</td>
<td>He/she reluctant to admit having problems</td>
</tr>
<tr>
<td>Embarrassed</td>
<td>He/she was too embarrassed</td>
</tr>
<tr>
<td>Denied</td>
<td>He/she denied his/her problems</td>
</tr>
<tr>
<td>Where</td>
<td>He/she did not know where to go</td>
</tr>
<tr>
<td>Afford</td>
<td>Couldn’t afford help</td>
</tr>
<tr>
<td>Insurance</td>
<td>Insurance won’t cover help</td>
</tr>
<tr>
<td>Bad Experience</td>
<td>He/she had bad experiences seeking help before</td>
</tr>
<tr>
<td>Community</td>
<td>Nothing available in his/her community</td>
</tr>
<tr>
<td>Parent</td>
<td>Parents fear, dislike, or distrust professionals</td>
</tr>
<tr>
<td>Waiting</td>
<td>Waiting list for services</td>
</tr>
<tr>
<td>Idea</td>
<td>Hard for family to accept the idea of getting help</td>
</tr>
<tr>
<td>Transportation</td>
<td>Transportation problems</td>
</tr>
<tr>
<td>Advised</td>
<td>Family/friends advised him/her not to get help</td>
</tr>
<tr>
<td>Rights</td>
<td>Parents anticipation of our of home placement loss of rights</td>
</tr>
<tr>
<td>Illness</td>
<td>Physical illness/disability made it too hard</td>
</tr>
<tr>
<td>Language</td>
<td>Foreign language or language barrier</td>
</tr>
<tr>
<td>Daycare</td>
<td>Problem arranging daycare for children</td>
</tr>
</tbody>
</table>
What do other U.S. studies tell us about risk factors for youth suicide?
Mental Illness Psychological Autopsy Studies

- >90% of youth who suicide have mental illness
- Most common
  - Mood Disorders, Substance Abuse, Conduct Problems
  - Often co-morbid--multiple disorders increase risk
    - Shaffer D, Arch Gen Psychiatry, 1996;53(4);339-48
    - Shafii M, J Affect Dis, 1988;15(3);227-33
Firearm Availability

- Multiple methodologies: Firearm availability increases suicide rate
- David Brent: Case control study
- Match suicide completers with serious attempters (Hospitalized)
- Firearm availability double c/w attempters
- Handgun availability also double
  - Brent D, Journal of the American Medical Association, 1991;266:2989-95
# Additional Risk Factors

## Risk Factors
- Past Suicide Attempts
- Suicide Plan
- History of Inpatient Psychiatric Admission
- Personality Disorder
- Acute stressor, especially romantic breakup

## Risk Factors
- Psychosis
- Victim of Abuse
- Stopping medication
- Lack of Treatment
- Social isolation
Difference Between Youth Suicide Attempters and Completers

- **Attempters**
  - 80-90% Female
  - Peaks at 16 years old
  - Hispanics: High Rates
  - Non-Lethal Means
  - Common among teens
    - 8,000/100 K (self-harm)
    - 2,000/100 K (to Emergency Room)

- **Completers**
  - 80-90 % Male
  - Peaks in 45-64 y/o Range
  - Caucasian: High Rates
  - Lethal Means
  - Uncommon among teens
    - 15 per 100,000 per year
U.S. Effects of Gender

- Research: gender---teens read vignettes
- Males who attempt suicide: little empathy from their male peers
- Males who complete: Yes—empathy
- Attempting is culturally accepted for females, not males
  - Canetto SS, Suicide and Life Threatening Behavior, 1997;27:339-51
Caution! Cluster Suicide

- Teenagers and young adults are particularly vulnerable to cluster suicide (to age 24)
- 1-2% of youth suicides are caused by a “Contagion”
- Clusters occur with at-risk youth
- Media reporting can lead to a cluster?--yes
  - Ref Madelyn S. Gould, Ph.D, MPH
  - Center for Disease Control recommendations for Media
Research: Control for Mental Illness

- Family relationship problems and parent-child conflicts are a significant factor in youth suicide, compared with community controls.
- However,....
- Parental Divorce: risk attenuated when you control for parental psychopathology
- Parent-Child Conflict: in some studies, no longer associated with suicide once you control for the youth’s psychopathology
  - Brent D, Acta Psychiatr Scand, 1994;89:52-58
Can Suicide Research Cause Suicide?

• Does asking about suicidal thoughts or behavior during a school screening program increase risk? No. Not even with those adolescents at higher risk.

• How about with adults who participate in an intensive research protocol where they were asked about psychiatric and suicidal symptoms? No.
Prevention

• What works?
• Does anything work?
Garrett Lee Smith Substance Abuse and Mental Health Services Administration Grant: Suicide Prevention

• Pilot Study
  – Screen and treat at risk teenagers in the Juvenile Court
    • Psychiatric care
    • In home behavioral management
  – Outcomes
    • Improve mental health
    • Reduce number and seriousness of offenses
    • Reduce Cost!
Prevention: What Works?

- Programs that work involve collaboration and the entire system working together
  - Gotland Sweden
    - Intensive training of General Practitioners
    - Reduced suicide rate, Reduced psychiatric hospitalization
  - Henry Ford Health System
  - Air Force Suicide Prevention Program
  - VA Hospital System
Suicide Prevention Organizational Multilevel

- US Air Force (Air Force Suicide Prevention Program, Knox et al)
- Integrates 11 strategies for suicide prevention
  - Education
  - Gatekeeper training
  - Policy changes
  - Public education campaign
  - Additional Mental Health services
  - Leadership buy-in and vocal support
  - Integration of Mental Health into all medical clinics
Suicide Prevention in Public Schools

Is it effective? Are there some good programs out there?
National Programs

- Columbia Teen Screen
- Yellow Ribbon Program
- Surviving the Teens
- Signs of Suicide
- Sources of Strength
“Sources of Strength”

• 18 High Schools!
• Peer leader training with set curriculum:
  – Youth Leaders chosen from diverse social cliques
    • Leaders include at-risk youth
    • 2% of all students
  – Goal to change normal beliefs in high schools
    • Message based teaching over several months
      – Approach a peer leader when you are struggling
      – Help from trusted adults is needed
      – Don’t struggle alone
      – Coping strategies
  – Changes in “social norms” were noticed within the first three months of implementation.
“Sources of Strength”

• Program Results:
  – Increased help seeking behaviors, increased adult connectedness, and school engagement.
  – Peer Leaders who were struggling the most, benefited the most!
  – Protective factors developed during the program have been previously associated with reduced risk of substance abuse, depression, and suicidal behavior.
  – 25% of Peer Leaders did not stay engaged in the program.
  – Long term effects unknown.
  
Utah Suicide Prevention Programs for Schools

• NAMI (National Alliance on Mental Illness), Hope for Tomorrow
  – Education program. Videos and workshop materials.
  – Developed by University of Utah Faculty

• Power in You
  – First Lady Mary Kay Huntsman
  – School assemblies, website, goal to reduce stigma.

• Hope4Utah
  – Peer mentors = “Hope Squad”, with adult support
  – Collaboration: Schools and Mental Health Center
  – Started in the Provo School District.
  – Current application for Substance Abuse and Mental Health Services Administration Grant (Hudnall)
Utah Youth Suicide Study: Selected Publications

- The Utah Youth Suicide Study: best practices for suicide prevention through the juvenile court system. Psychiatry Services, December, 2011, 62(12):1416-8, Gray D, Dawson KL, Grey TC, McMahon WM.
- Utah youth suicide study: barriers to mental health treatment for adolescents, Suicide Life Threat Behavior. 2007 Apr;37(2):179-86