Youth Nonideation Suicidality

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Learning Objectives

• By participating in this session, you will be able to:
  – Review suicide facts and figures
  – Outline suicide definition
  – Describe suicide phenotypes, atypical presentations, short term risk factors
  – Differentiate nonideation suicidality (NIS) from deliberate self harm (DSH)
  – Define assessment developmental timelines

WHO: List of Countries by Suicide Rate

• Suicides per 100,000 people/year (base rate)
  – Lithuania 34.1 (2009): 31.6 (2011)
  – South Korea 31.2 (2010): 31.7 (2011)
  – Mesa County, CO 34.5 (2011): > 35 (2012)
    • 1992 – 1996, range 15.6 to 28.6
    • 2007 – 2011, average = 32.1

WHO, CDHIE/OSP, Mesa County Coroner’s Office data. 2011, 2012

Suicide: Recency of Healthcare Contacts

• Most who complete make contact:
  – 10% die within 1 hour following discharge
  – 20% in the week before
  – 40% within the month before


Detailed ED Use for Mental Health

• Nearly 12 million visits made to US hospital EDs in 2007 involved people with a mental disorder
  – Approximately 1 - 2 million youth visits
• This accounts for one in eight of the 95 million visits to EDs by adults
  – (65% MD; 25% SUD; 10% MD + SUD)

Youth Suicide: U.S. Fact Sheet

- Approximately 15 youth (8-24-years) die every day by suicide
- Annual attempt estimates surpass 1 million
- Correspond to an attempt every 3 minutes; a completion every 90 minutes


Data and Demographics (2009)

- Rates of suicide are highest for older youth: male to female deaths 4:1.
  - Young adults 20 to 24 - 12.5
  - Teenagers 15 to 19 - 7.8
  - Youth 10 to 14 - 1.3


National Youth Risk Behavior Survey

- 6.3 percent reported having attempted one or more times in the previous 12 months.
- 30% of high school students felt sad or hopeless with ideation > 2 weeks


2008 National College Health Survey

- Second leading cause of death
- 30 percent reported criteria of AD
- > 25 percent prescribed antidepressants
- 2 out of every 100 students have attempted


Colorado Youth Suicide Rates Teenagers (15 – 19 years)

- No significant change since 2000
- 13.4 per 100,000
- (U.S average 8.4 for this group)

CDPHE, 2008
Colorado Youth Suicide Rates
Young Adults (20 – 24 years)

- Even higher risk than adolescents
- Average rate for this group (1999 – 2005) 17.8 per 100,000
- (U.S average 12.3 for this group)

COPHIE, 2008

Diagnostic and Treatment Inefficiency

- Majority have a diagnosable mental disorder, 1/3 to 1/2 diagnosed or treated appropriately
- Evidence about the value of available risk assessments is not encouraging
  - Depression is common
  - Ideation hard to determine


Ineffectiveness of Therapy for Suicidal Youth

- 55% of suicidal teenagers had received some therapy before they thought, planned, or attempted
- Contradicts the widely held view that suicide is due in part to a lack of access

Prevalence, Correlates, and Treatment of Lifetime Suicidal Behavior Among Adolescents: National Comorbidity Survey Replication Adolescent Supplement
Nock MK, Green JG, Huang J, McLaughlin KA, Sampson NA, Zaslavsky AM, Kessler RC.

II. Definitions

Suicide Definition

- Self-inflicted self-murder with willful intent or a response to internal compulsions or disordered thinking

Suicide Components

- A vector with direction and strength
  - Intentioned act (conscious and deliberate)
  - External factor incapable to control
  - Convincing or compelling command
Suicide Phenotypes

- Organic: e.g., alcohol, PCP, cocaine, DRI
- Functional: e.g., MDD, schizophrenia
- Characterological: e.g., APD, BPD, DSH
- Neurologic: e.g., SSRI and AD akathisia

Nonideation Suicidality (NIS)

- Self murder without forethought
- Acute, state dependent (AD, SSRI cohorts)
- Distinct from impulsive, ‘on a whim’ DSH
- Alarmingly high lethality/attempt rates
- Rapid transition, unpredictable, unobvious

Operational Criteria for the Assessment of Suicide

<table>
<thead>
<tr>
<th></th>
<th>Intent</th>
<th>Act</th>
<th>Resulting in Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicideless state</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Suicideless death</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Suicidal ideation</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Suicide attempt</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Call for help or DSH</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>DSH with fatal outcome</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Completed suicide</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nonideation suicide attempt</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Nonideation suicide</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

DSH Case History

- 18-year-old Asian American male
- Diagnosed with mixed personality disorder
- History of early onset conduct disorder
- Fine and coarse cutting self-mutilation
- Repetitive outbursts of impulsive behavior
- Games of relationship brinkmanship

NIS Explosive Mixture

- Vulnerable youth
- Terrified parents
- Unformed clinicians

NIS Research to Effective Clinical Delivery

- Acute neurologic dysfunction
- Altered executive and motor functions
- Modifications persist for hours or days

PCP = phencyclidine; DRI = dopamine reuptake inhibitor; MDD = major depressive disorder; APD = antisocial personality disorder; BPD = borderline personality disorder; DSH = deliberate self harm; SSRI = selective serotonin reuptake inhibitor; AD = acute adjustment
**NIS Critical Features**

- Intense motor restlessness
- Great intrapsychic distress
- Irresistible suicidality
- Confirmed neurologically, not psychologically

*Copelan et al., 2006*

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**Differences Between DSH and Nonideation States**

<table>
<thead>
<tr>
<th></th>
<th>Deliberate Self Harm</th>
<th>Nonideation State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impulsivity</td>
<td>“On a whim”</td>
<td>Motor</td>
</tr>
<tr>
<td>Pathology</td>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td>Attempt</td>
<td>Repetitive</td>
<td>Isolated</td>
</tr>
<tr>
<td>Lethality</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Neuro signs</td>
<td>Nonspecific</td>
<td>Specific</td>
</tr>
<tr>
<td>Neuro tests</td>
<td>Nonconfirming</td>
<td>Confirming</td>
</tr>
<tr>
<td>Syntony</td>
<td>Egosyntonic</td>
<td>Egodystonic</td>
</tr>
</tbody>
</table>

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**Nonideation Suicidality Groups**

- Atypical presentations highest in 2 subsets
  - Acute adjustment disorder akathisia (AD)
  - SSRI drug-induced akathisia (DI)

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**AD NIS Case History**

- 16-year-old Caucasian female
- Acute interpersonal humiliation
- No psychiatric, substance or suicide history
- School contract for safety
- Motor restlessness; denied ideation
- Within 4 hours, horizontal hanging attempt

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**SSRI NIS Case History**

- 12-year-old Hispanic male
- SSRI monotherapy initiated for social anxiety
- No depression, substance or suicide history
- Follow-up in 2 weeks
- Irresistible motor compulsion; no ideation
- Within 24 hours, walked into traffic

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**Conditions with Similar Neural Basis**

- PANDAS/PANS
  - Juvenile obsessive-compulsive disorder
  - Acute onset youth anorexia nervosa
- Deep brain stimulation (STN DBS)
  - Parkinson’s Disease
  - OCD
  - Depression

*J Neurology Neurosurgery Psychiatry, 2008; Expert Review of Medical Devices, 2007; Neuroscience 2011; Depress Anxiety 2012; European J Neurology, 2012*
Selective feed forward and feedback loops

Neurobiologic underpinnings

Selective forward and feedback loops

III. Summary of AD and SSRI Evidence

Detailed ED Use for Mental Health

Due to the low symptom threshold for diagnosing major depression, it is easier to make a diagnosis of this condition rather than adjustment disorder.


Detailed ED Use for Mental Health

• Up to 25% of adolescents with a diagnosis of adjustment disorder (AD) engage in suicidal behavior
• AD is the diagnosis in up to one third of young people who die by suicide
• Among adults with this disorder the figure is 60%

Adjustment Disorder (AD) Diagnosis

• Adjustment disorder cannot be diagnosed in the absence of a stressor
• The event must be external and occur in close time proximity to the onset of symptoms
• The absence of clear symptom criteria for AD in either DSM-IV or ICD-10 means that greater weight is attached to clinical judgement
National Youth Risk Behavior Survey

- AD diagnosis in 10 – 20% of youth suicide cases
- AD diagnosis 12 times rate of suicide
- 50% of 18 – 24 youth reported interpersonal problems within 2 weeks of their deaths

Prevalence of SSRI Use in US Youth

- Between 1988 and 1994 SSRI use among 2 to 19 year olds rose from 3.9 per 1000 to 17.9
- In a more recent study, 16.3 per 1000 for children 0 to 19
- New CDC data show 3.7 percent of youth between 12 and 17 report taking antidepressants

Summary of Evidence Found (SSRI)

- In 2008, more than 164 million SSRI prescriptions were written in U.S.
- In 2010, about 254 million SSRI prescriptions were written

Summary of Evidence Found (SSRI)

- “Lilly’s data insufficient to prove safety.” (FDA, Sept. 1990; Eli Lilly, 1984)
- ‘Suicidal ideation’ to describe akathisia associated suicidality “misleading.” (Opler, 1992)
- Pediatric MDD (FDA, 2004)
  - Suicidality increased 80%
  - Hostility/agitation increased 130%

Summary of Evidence Found

- SSRI suicidality: 1 in 50 pediatric patients (FDA Alert Update, July 2006)
- Healthy volunteer studies
- Drop out rates compared to placebo

IV. Research

## Developmental Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Event/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 1982</td>
<td>Background Research, First Expert Panel</td>
</tr>
<tr>
<td>July 1986</td>
<td>Project Start</td>
</tr>
<tr>
<td>September 1986</td>
<td>First Prototype Version, Second Expert Panel, Test</td>
</tr>
<tr>
<td>September 1989</td>
<td>Second Prototype Version, Third Expert Panel, Test</td>
</tr>
<tr>
<td>September 1992</td>
<td>Results, Publications, Replication</td>
</tr>
</tbody>
</table>

## Feasibility Study Design Options

<table>
<thead>
<tr>
<th>Question</th>
<th>Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can it work? Practice derived hypothesis.</td>
<td>Basic research mimics treatment</td>
</tr>
<tr>
<td>Does it work?</td>
<td>Measures reliably and validly.</td>
</tr>
<tr>
<td>Will it work?</td>
<td>Efficacious and effective</td>
</tr>
</tbody>
</table>

## Research Questions

- What risk factors predominate early?
- What risk factors predominate late?
- What combination of factors signals danger?
- Is there a shared suicide/homicide pathway?

## Research Questions

- Is the absence of ideation a benign finding?
- What is the impact of ideation and nonideation on attempt rates?
- What is the correlation of neurological findings on attempt rates among nonideation subsamples?

## Development of ACUTE™/VISTA™

- Assessment instrument models required:
  - Study of relevant research
  - Consensus among experts
    - Crisis decision tool
    - Acceptable to clinician and patient
    - Different versions
    - Constructed on evidence-based factors

## Feasibility Studies – Dissemination Will it Work?

- Earlier phase trials (practice derived hypotheses efficacy testing)
  - Cross cultural efficacy in new population 1997 (Taranaki Base Hospital, New Plymouth, NZ) $n = 175$
  - ED, provider, school district data 2005 - 2013 (Psychological Assessment Resources, Inc.) $n > 50,000$ world-wide assessments
- Full Scale effectiveness testing 2007 (integration, practicality, expansion into existing ED program, Memorial Hospital, Colorado Springs, CO) $n = 270$
Content (Logical) Validity Factors

- Early significant
  - Substance use
  - Self-mutilation
  - Suicide attempt
  - Dyadic stressor
  - Medical history
  - Psychiatric history
  - Ideation*

- Late significant
  - Illogical thinking
  - Cognitive distortions
  - Motor restlessness
  - Insomnia
  - Anxiety
  - Angor animi
  - Akathisia

Caveat 1

- The identification of late onset factors, alone or in combination, in the presence or absence of a “pure” disorder, with or without ideation, lowers the violence threshold and signals significant danger

Adolescent and Child Urgent Threat Evaluation (ACUTE™): Attempt and Ideation

<table>
<thead>
<tr>
<th></th>
<th>Combined Threat Group</th>
<th>Non-Threat Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ideation (%)</td>
<td>Attempt (%)</td>
</tr>
<tr>
<td>Late onset</td>
<td>60.7</td>
<td>89.3</td>
</tr>
<tr>
<td>Early onset</td>
<td>53.3</td>
<td>81.3</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

N=290; Late onset indicates endorsement of 1 or more of the late precipitating factors cluster items; Early onset indicates endorsement of 1 or more of the early precipitating factors cluster items; *Although transitory, fleeting or impermanent thoughts of death and dying were generally excluded as positive ideation, where circumstances surrounding the attempt increased the actual risk (i.e., irresistibility + expectation and likelihood of death), ideation was endorsed.* Actual, aborted or interrupted attempt with available or accessible means, and expected likelihood of death;

VISTA™: Nonideation Subsets

<table>
<thead>
<tr>
<th>Sample</th>
<th>N</th>
<th>Ideation (%)</th>
<th>Attempt (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute adjustment (AD)</td>
<td>91</td>
<td>32.3</td>
<td>95.9</td>
</tr>
<tr>
<td>Drug-induced (DI)</td>
<td>29</td>
<td>46.5</td>
<td>92.1</td>
</tr>
<tr>
<td>Deliberate Self Harm (DSH)</td>
<td>50</td>
<td>100.0</td>
<td>76.2</td>
</tr>
<tr>
<td></td>
<td>88.2a</td>
<td>85.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.8b</td>
<td>66.7</td>
<td></td>
</tr>
</tbody>
</table>

Copelan et al. (2006), Am J Emerg Med 24(5):582-594; β field test 2005 – 2007 AD n = 25; DI n = 12; DSH n = 17 (a: worsening of existing, new onset, “on a whim” impulsive attempt, with associated repetitive, high rescuelow lethality risk behavior; b: impulsivity plus death expectation/likelihood with accessibility to means)

Studies of Effectiveness

- Youth and adult patients (n = 270) were tracked through a monitoring system post ED/hospital discharge
  - 24 hrs; 1 week; 1 month; 3 months
- None of the patients committed suicide or homicide within 3 months after ACUTE™, ACTA™, or VISTA™ assessment

Copelan et al. (2006), Am J Emerg Med 24(5):582-594; efficacy testing ages 8 to 65 years; 2005 – 2007 (n = 270)