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

I. Suicide Facts and Figures

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)
  - Japan 23.8 (2011): 21.9 (2012)
  - Mesa County, CO 34.5 (2011): > 35 (2012)
    - 1992 – 1996, range 15.6 to 28.6
    - 2007 – 2011, average = 32.1

WHO, CDPHE/OSP, Mesa County Coroner's Office data. 2011, 2012

Suicide: Recency of Healthcare Contacts

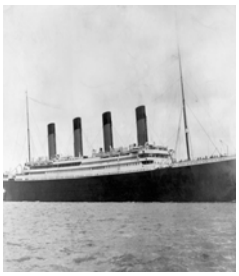
- Most who complete make contact:
  - 10% die within 1 hour following discharge
  - 20% in the week before
  - 40% within the month before

Institute of Medicine (2002), In: Reducing Suicide: A National Imperative, Goldsmith SK et al., eds. Washington, D.C.: National Academy Press; *Mayo Clinic Proceedings* (August 2011)

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)

http://www.hcup-us.ahrq.gov/reports/statsbriefs/sb92.pdf.




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

CDC, NIMH, 2002; Doshi, et al. Ann Emerg Med 2005

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

Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) Jan 2012

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

Centers for Disease Control and Prevention. *Youth Risk Behavior Surveillance – United States, 2009*. Surveillance Summaries, June 4, 2010.

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

ACHA, 2008; Kadison R, et al. NEJM 353(11)1089-1091,2005; ACHA, 2002

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)

CDPHE, 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

NSSP, 2001; NIMH, 2001, 2008; Lancet, 2007

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, Hwang I, McLaughlin KA, Sampson NA, Zaslavsky AM, Kessler RC.
JAMA Psychiatry. 2013 Jan 9:1-11. [Epub ahead of print]

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

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

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

Copelan, Am J Emergency Medicine, 2006; Consensus Report, Columbia University, Journal of American Academy Child and Adolescent Psychiatry, 2007

Operational Criteria for the Assessment of Suicide

	Intent	Act	Resulting in Death
Suicideless state	No	No	No
Suicideless death	No	No	Yes
Suicidal ideation	Yes	No	No
Suicide attempt	Yes	Yes	No
Call for help or DSH	Yes	Yes	No
DSH with fatal outcome	Yes	Yes	Yes
Completed suicide	Yes	Yes	Yes
Nonideation suicide attempt	No	Yes	No
Nonideation suicide	No	Yes	Yes

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

Society of Neurosciences, 2006; Copelan et al., 2006; Laje et al. Am J Psychiatry, 2007

NIS Critical Features

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

Copelan et al., 2006

Differences Between DSH and Nonideation States

	Deliberate Self Harm	Nonideation State
Impulsivity	"On a whim"	Motor
Pathology	Present	Absent
Attempt	Repetitive	Isolated
Lethality	Low	High
Neuro signs	Nonspecific	Specific
Neuro tests	Nonconfirming	Confirming
Syntony	Egosyntonic	Egodystonic

Nonideation Suicidality Groups

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

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

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

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

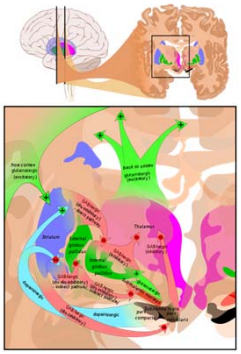
Selective feed forward and feedback loops

Neurobiologic underpinnings

Implicated Prefrontal Circuits

The prefrontal areas of the frontal lobe are necessary but not sufficient to carry out these activities:

1. Executive function, e.g., mental flexibility
2. Empathic responses, e.g., emotional regulation
3. Procedural learning, e.g., tutor for new skill learning



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.

Pelkonen M, Marttunen M, Henriksson M. Suicidality in adjustment disorder, clinical characteristics of adolescent outpatients. Eur Child Adolesc Psychiatry. 2005;14:174–180. Kryzhananovskaya L, Canterbury R. Suicidal behaviour in patients with adjustment disorders. Crisis. 2001;22:125–131. Lonnqvist JK, Henricksson MM, Isometsa ET. Mental disorders and suicide prevention. Psychiatry Clin Neurosci. 1995;49:S111–S116.

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

Centers for Disease Control and Prevention. *Youth Risk Behavior Surveillance – United States, 2009.* **Surveillance Summaries, June 4, 2010.**

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

Zito JM, Tobi H, de Jong-van den Berg LT, Fegert JM, Safer DJ, Janhsen K, Hansen DG, Gardner JF, Glaeske G. Pharmacoepidemiology and Drug Safety. 11. Vol. 15. 2006. Antidepressant Prevalence for Youths: a Multi-national Comparison; pp. 793–798. 2005-2008 Center for Disease Control and Prevention's (CDC's) National Health and Nutrition Examination Survey (NHANES)

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

Reuters, 2009; 2005-2008 Center for Disease Control and Prevention's (CDC's) National Health and Nutrition Examination Survey (NHANES)

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

Hamilton & Opler, J Clinical Psychiatry 1992; Pharmacoepidemiology Drug Safety, 1993; Psychopharmacology, 1997; Healy, Primary Care Psychiatry, 2000; American Journal of Child and Adolescent Psychiatry, 2006; GlaxoSmithKline, 2006; Reuters, 2009; Turner et al. New England Journal of Medicine, 2008; CDC, 2012

IV. Research

Developmental Timeline

- August 1982 — Background Research, First Expert Panel
- July 1986 — Project Start
- September 1986 — First Prototype Version, Second Expert Panel, Test
- September 1989 — Second Prototype Version, Third Expert Panel, Test
- September 1992 - — Results, Publications, Replication

Feasibility Study Design Options

- Can it work? Practice derived hypothesis.
  - Basic research mimics treatment
- Does it work?
  - Measures reliably and validly.
- Will it work?
  - Efficacious and effective

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)
  - Longitudinal research 1985 - 1994 (Copelan R, et al. Amer J Emer Med 2006, 24, 582-594) n = 2414
  - 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

	Combined Threat Group		Non-Threat Group	
	Ideation (%)*	Attempt (%)†	Ideation (%)	Attempt (%)
Late onset	60.7	89.3	0	0
Early onset	53.3	81.3	0	0

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;
Copelan RI et al. (2006). Am J Emerg Med 24(5):582-594

VISTA™: Nonideation Subsets

Sample	N	Ideation (%)	Attempt (%)
Acute adjustment (AD)	91	32.3	95.9
Drug-induced (DI)	29	46.5	92.1
Deliberate Self Harm (DSH)	50	100.0	76.2
		88.2a	85.7
		12.8b	66.7

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 rescue/low 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)