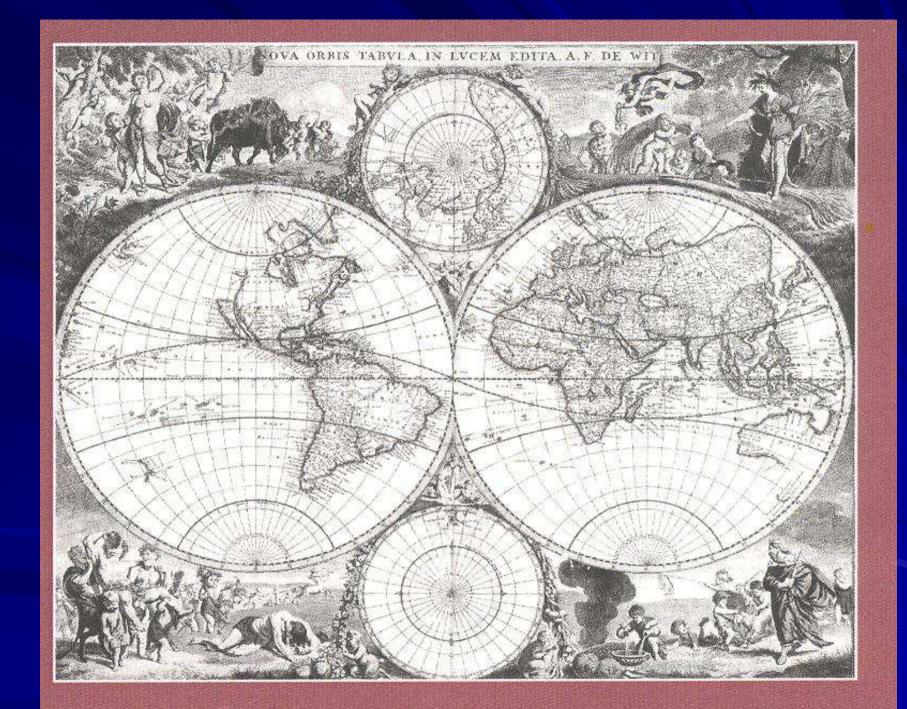
# Suicide in Children and Adolescents

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Adele D. Hofmann Donald E. Greydanus

### ADOLESCENT MEDICINE

third edition



## Sigmund Freud and Suicide (Pfeffer, 1986)

- Epidemic of Youth Suicide after publication of:
  - Early 1800s publication
  - Goethe's: The Sorrows of Young Werner
  - Hero shot himself after losing his love
- Vienna Psychoanalysis Society:
  - --1910 Youth Suicide Conference
- Freud: Main risk factor: Love Conflicts

## Sigmund Freud and Suicide (Pfeffer, 1986)

- Others: School Pressure
- Conclude: Need more research on Youth Suicide
- 1989 Surgeon General Report: Need research
- Feb, 2011 Peds Clinic No Amer: More research!

## Suicide: A Global Problem (Mann, JAMA, 2005)

- 2002: 877,000 suicides in the world
- Up to 200,000 are 15-24 years of age
- Rates from around the world
  - Eastern Europe: 10+: 27+/100,000
  - Latin America + Muslin: Under 6.5
- '02: 31,655 deaths in the United States (11/100,000)
- 2000 are 15-19 years of age + 2000: 20-24

- Mental Illness noted in 90% (Depression [MDD, BPD]: 60%)
- More teens & young adults die from suicide than from combo:
  - Cancer and heart disease
  - AIDS, chronic lung disease
  - Birth defects, CVA, Pneumonia, FLU
- Prevention is the Key Principle:
  - Improved Primary Care Screening
  - Improved Depression Treatment

## Childhood Suicide Rates: 5-14 Year Olds

- Has increased over the past 30 years in the US: (doubled from 1979 to 1992)
  - -0.4/100,000 in 1979
  - -0.8/100,000 in the 1990s (0.7 0.9)
  - Approximately 300 suicides per year in the 90s (324 suicides in 1998)

■ Worldwide: 0.5/100,000 in females & 0.9 in males

■ 10-14 years: same male as female numbers

■ 5-14: Male to female is 3:1

■ 15-24 year olds: 6:1 ratio

#### **Childhood Suicide**

- Limited Research and Discussion
- Data usually looks at adolescent suicide
- Data often hidden in stats on 10-14 or 5 to 14 year olds
- Some conclude children do not commit suicide
- Failure to understand death is final
- Onset of puberty varies widely

### Children and Concepts of Suicide (Mishara, 2003)

- Preschool children first feel death is like sleeping
- By 6-7 years of age: 67% know everyone "dies"
- Before puberty, often not clear on finality of death

### Children and Concepts of Suicide (Mishara, 2003)

- Often learn of death via death of animals and from relatives
- By age 12: 80% do not know death can occur to healthy person
- 1995 study of 1528 parents: 4% of children threatened suicide
- Greydanus et al, 2010

### May Only Learn of Suicide From the Media (not Family or School)

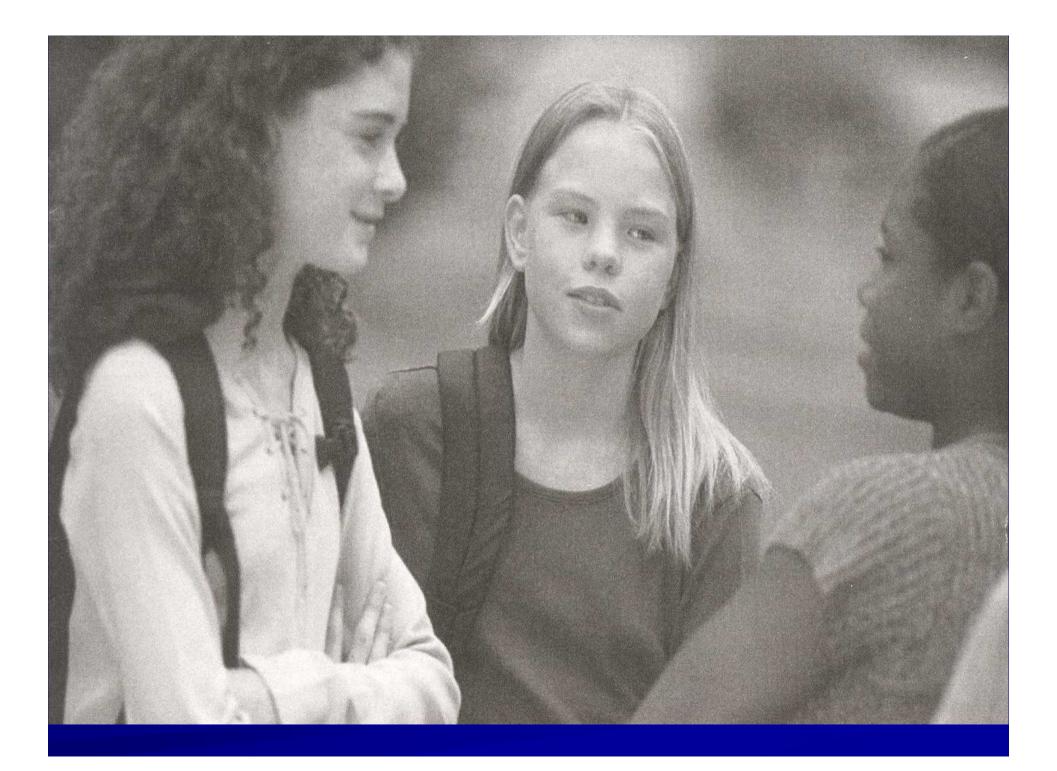
- Cartoon or real character commits suicide after loss of love
- Learn suicide is done if one gets angry or frustrated
- Suicide is done when one does not get one's way
- Suicide may come out of need for revenge
- Depression is not part of suicide

#### Reasons for Childhood Suicide

- Depression
- Family & Environmental dysfunction
- Disruptive Behavior (males)
- Substance abuse (males)
- Schizophrenia
- Suicide behavior as child predicts suicide as teen or adult (3 to 6 times increased risk)
- Combo of suicidal ideation and violent behavior
  - Increases suicide risk (Pfeffer, '86)

### Adolescence

THE TIME OF THE MOST
EXTRAORDINARY AND UNEXPECTED
CHANGE IN LIFE IS JUST BEFORE
AND THEN DURING THE YEARS OF
ADOLESCENCE





### Joy of Being Young

■ Longfellow, Morituri Salutamus, 1875

How beautiful is youth! How bright it gleams with its illusions, aspirations, and dreams!
Book of beginnings, story without end!
Each maid a heroine, each man a friend!

### Causes of Death 15-24 yr olds: 2000

31,307

Unintentional Injuries	14,113
Homicide	4,939
Suicide	3,994
Malignant Neoplasms	1,713
Cardiac Causes	1,031

All Causes

- Overview: 15-19 year olds
  - Third leading cause of death (2000 per year)
  - 12% of annual deaths
  - Doubled from 1960 to 2001
  - 250% increase 1960's to 1980s (1977)
  - Increase in 15-24 year olds born post WWII (Baby Boomer Cohort)
  - 2008 rates: 12.9 in males vs. 2.7 in females

## Historical Change in Suicide: 15-24 Year Olds

- 1930's High rates
- 1940's to 1950's Decreased rates
- Mid 1950's to 1980's Increased rates
- 1990's to 2004 "**Stable**"

(Holinger, 1989; Kessler, 2003)

3rd leading cause of death: 15-19 yr. age group

- Fifth (Sixth) leading cause of death in 5-14 yr. age group
- Estimated suicide rate in 2000: 10 per 100,000
  - 14.6 in 15-19 yr old males; 2.9 in females
  - 5%-10% of depressed teens complete suicide w/in 15 yrs
  - 4,135 suicides for 15-24 year olds in 1998

- See more females with suicide attempts
- See more males with completed suicides
- Choice method with females: pill (s) OD or cut wrist
  - More deadly methods since the mid-1990s
- No national registry for suicide attempts

- Choice of method with males: gun, hanging, MVAs
- Methods vary around the world: India: well-jumping
- Severe intent is acute problem that can resolve with support
- Population based surveys: 50-500 attempts to 1 suicide (40-60)

#### MMWR, 2004 (10-19 year olds)

- Death from Firearms: 49% (most common for both sexes)
- Suffocation (mainly hanging): 38%
- Poisoning: 7%
- Others: Burning, run into traffic, car accidents

#### Suicide in the World: Ages 15-24 Yrs

- Highest rates: >30/100,000
  - Finland
  - Latvia
  - Lithuania
  - New Zealand
  - Russian Federation
  - Slovenia

UNICEF/WHO: http://www.unicef.org/pon96/insuicid.htm

#### Suicide in the World: Ages 15-24 Yrs

- Four times as many males as females:
  - Industrialized nations
- Under-reporting due to religious/social issue
- Japan and most Western European nations
  - relatively low rates: <15/year/100,000</p>

UNICEF/WHO: http://www.unicef.org/pon96/insuicid.htm

#### The Suicide Index

	<u>Males</u>	<u>Females</u>	M/F Ratio (Rounded)
Bulgaria	15.4	5.6	3
Czech Rep.	16.4	4.3	4
Poland	16.6	2.5	7
Ukraine	17.2	5.3	3
Hungary	19.1	5.5	3

Http://www.unicef.org/pon96/insuicid.htm

### The Suicide Index

	<u>Males</u>	<u>Females</u>	M/F Ratio (Rounded)	
Austria	21.1	6.5	3	
Ireland	21.5	2.0	11	
United States	21.9	3.8	6	
Belarus	24.2	5.2	5	
Canada	24.7	6.0	4	
Switzerland	25.0	4.8	5	
Australia	27.3	5.6	5	
Norway	28.2	5.2	5	
Http://www.unicef.org/pon96/insuicid.htm				

#### **The Suicide Index**

	<u>Males</u>	<u>Females</u>	M/F Ratio (Rounded)
Estonia	29.7	10.6	3
Finland	33.0	3.2	10
Latvia	35.0	9.3	4
Slovenia	37.0	8.4	4
New Zealand	39.9	6.2	6
Russian Fed.	41.7	7.9	5
Lithuania	44.9	6.7	7

Http://www.unicef.org/pon96/insuicid.htm

# **Suicide Rates for US 15-24 Year Olds**

	Males	<u>Females</u>
Whites	19.3	3.5
African-American	15.0	2.2
Hispanic	13.4	2.8

### **Suicide Ideations & Attempts: Grades 9-12**

- 2009 CDC Youth Risk Behavior Survey
- 19% of teens have suicidal ideation; N= 13,601
- Suicidal ideation: 19.0%; with plan: 14.8%
- Suicide attempt: 8.8%; with med attention: 2.6%
- Suicide attempt: ages 15-19 yrs: 0.008%

#### Suicide (Olfson, 2003)

- Suicidal behavior is a symptom of depression
  - 35-50% of depressed teens make a suicide attempt
  - 5-10% of MDD Teens: complete suicide in 15 yrs

SRs down with increase in antidepressant prescriptions

# Suicidality in Depressed Children and Teens

At Time of Diagnosis

Studies 6

Subjects 1265 Ideation 60%

Attempt 30%

**During Follow-up** 

Studies 3

Subjects 466 Ideation

Attempt 24%

Andrews & Lewinsohn 1992

## Later Suicide in Teens Hospitalized for Suicide Attempt

	<u>Studies</u>	<u>N</u>	Average <u>Follow-up</u>	<u>Suicides</u>
Males	14	2012	3.6 years	1.3%
Females	14	5189	3.6 years	0.2%

**Safer 1997** 

# Known Attempts Before a Teen Suicide

Study N M F T

Brent et al. 1999 140 37% 62% 41%

Martunnen et al. 1992 53 34%

Shaffer et al. 1996 112 28% 50% 33%

# Suicide Ideations & Attempts: Grades 9-12

Rates per 100,000

■ MALES Deaths Attempts Ratio
13 6,200 1:470

FEMALES Deaths Attempts Ratio

3 11,200 1:3,700

(Anderson & Smith, 2003; 2001 YRBS)

# Psychiatric Diagnosis in Teen Attempters

	Males %	Females %
	(N=31)	(N=90)
Major depression/dysthymia	71.0	64.5
Alcohol abuse/dependence	19.4	14.4
Drug abuse/dependence	29.0	13.3
Disruptive behavior disorder	32.3	12.2
Anxiety disorder	9.7	18.9
Adjustment disorder	6.5	10.0
Eating disorder	0.0	3.3
Any disorder	87.1	77.8

Andrews & Lewinsohn 1992

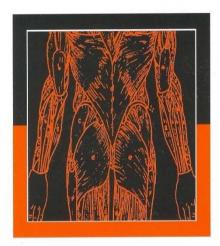


# The Adolescent and Substance Abuse: Current Concepts

Donald E. Greydanus, MD, FAAP, FSAM, FIAP (H)
Dilip R. Patel, MD, FAAP, FACSM, FAACPDM, FSAM

# ease-a-Month



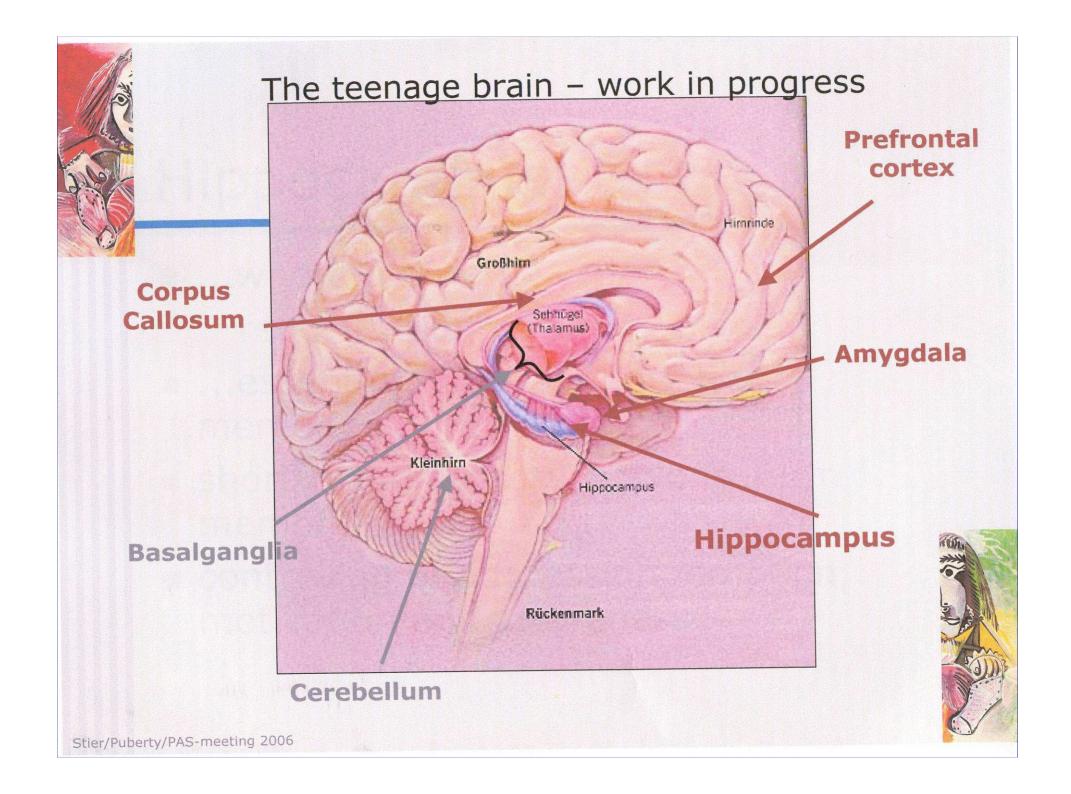


### Attention Deficit Hyperactivity Disorder Across the Lifespan

Donald E. Greydanus, MD Helen D. Pratt, PhD Dilip R. Patel, MD







# WHO World Mental Health Surveys: '01-'03 (Mood Dis) 60,463 Adults in 14 Countries: 12 Month Prevalence

- USA: 9.6% (vs. 26.4% for any mental disorder)
- Germany: 3.6% (vs. 9.1%)
- **Spain**: 5.9% vs. 9.2%
- Netherlands: 6.9% (vs. 14.9%); France: 8.5% vs. 18.4%
- Urkraine: 9.1% vs 20.5%; <u>Italy</u>: 3.8% vs. 8.2%

Prevalence of Mental Disorders, World Mental Health Surveys, JAMA 6/04

# Methodology for Epidemiology of Mental Disorders In Children and Adolescents Study in USA:

- 6.2% have mood disorders
- 13% have anxiety disorders
- 10.3% have disruptive disorders
- 2% have substance abuse disorders
- TOTAL: 20.1% with 1 or more mental health problems

Committee on School Health, Am Acad Pediatrics, Pediatrics, 6/04

### Prevalence of Depression

- MDD (Major Depressive Disorder)
  - Children about 2.0%
  - Adolescents about 6.0%
- Dysthymia
  - Children about 1.0%
  - Adolescents about 5.0%
- Bipolar Disorder
  - about 1%

### **Major Depressive Disorder**

- 2-3% of children and 5-8% of Teens
- 70% with recurrence within 5 years
- Persistent post-recovery impairment
- 5-10% of MDD Teens: complete suicide in 15 yrs
- 20% develop Bipolar disorder (BAD)
- 70% of dysthymia becomes MDD

# New York Psychological Autopsy Study (Shaffer, 1988)

- Evaluation of 173 youth suicides
- Risk Factors for Males
  - Previous Suicide Attempt: ↑↑↑
  - Major Depression: ↑
  - Substance Abuse: ↑

# New York Psychological Autopsy Study (Shaffer, 1988)

- Risk Factors for Females
  - Major Depression: ↑↑↑↑
  - Substance Abuse: ↑
- Family History of Suicide
  - 5 Times increase in males
  - 3 times increase in females

# Adolescent Suicide: Many Risk Factors

- Acceptability of suicide
- Social isolation and rejection (homosexual youth, bullying)
- Community dysfunction
- Stressful life events
- Substance abuse
- Widespread availability of firearms and suffocation methods

### **Mental Illness**

- Depression
- Schizophrenia (delusional or hallucinating)
- Violent youth
- Severe irritability or agitation
- Psychiatric hospital (33% pre-teens and young teens had suicide attempt) (Pfeffer, 2002)

### Risk Factors for Youth Suicide

- Previous attempt (30 fold+ increase in males)
- Depression
- Substance abuse
- Aggressive or disruptive behaviors (conduct)
- Females: Depression (20 fold increase) and previous attempt
- See clustering of risk factors & copy cat suicides

# **Natural Course of Depression**

- 7-9 months: average duration (Elliott, 2006)
- 90% have remission in 2 years
- Up to 50% relapse in first year
  - 40% in 2 years
  - 70% in 5 years
- 6-19%: chronic course (Weissman, '99; Greydanus, 2011)

### **Adolescent Suicide**

- Risk factors during depression:
  - Chronic depression
  - History of abuse (sexual or physical)
  - Same-sex attraction + sexually active
  - Increases with increased youth population (? Increased competition)
  - Increases with firearm availability

# Suicide Risk Factors During Depression:

- Co-morbid substance abuse
- Impulsivity and aggression
- Previous personal or family history of suicide (attempt)
- Access to guns or other final means
- Psychiatric hospital (9 times increased suicide over general community

# Other Suicide Risk Factors (Edelsohn, 2006)

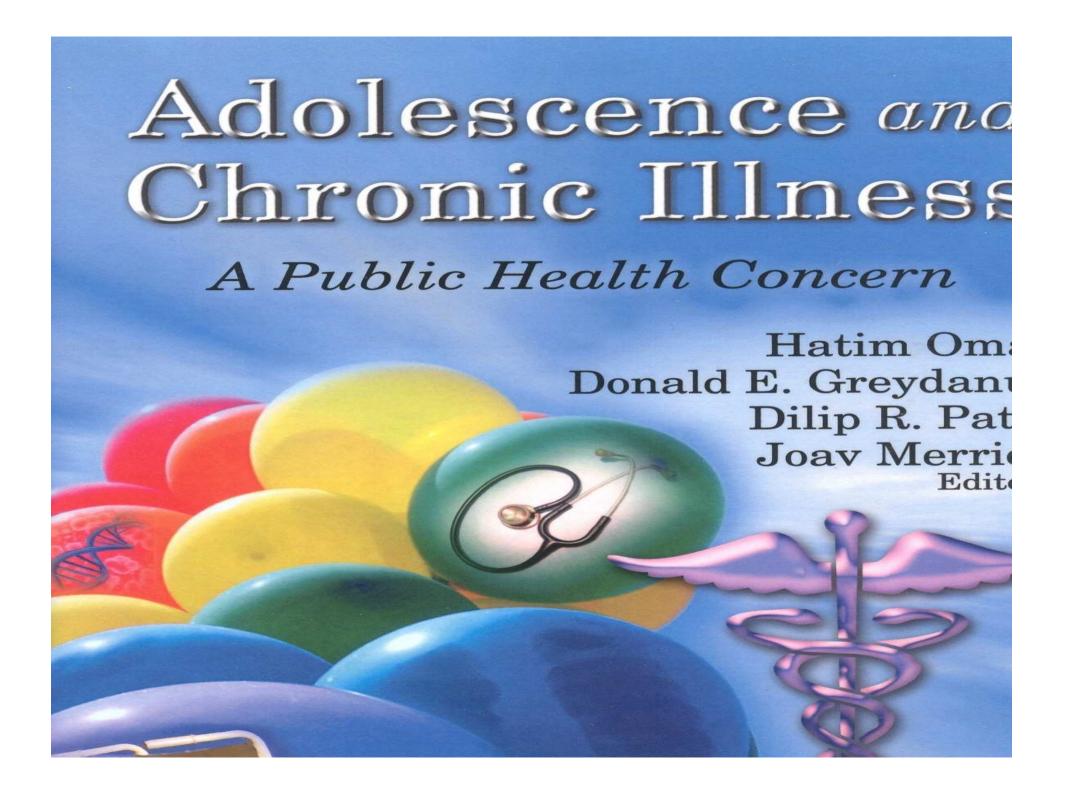
- Personality disorder (borderline, antisocial)
- Non-adherence with mental health treatment
- Academic failure
- Family history for completed suicide
- Positive family history for mental illness
- Psychosis

# Suicide w/o Psychiatric DXs

- Legal problems
- Narcissistic traits
- Recent withdrawal from milieu
- Intense personality conflicts
- Firearm availability

(Marttusen, 1993)

- Homosexual male (20% to 42% attempt suicide)
- Abuse or neglect
- Social isolation
- CNS damage
  - Chemotherapy
  - Trauma
  - Infection
  - Seizures
- Other Chronic Illnesses



### **Evaluation: Adolescent Suicide**

- Not all have depression hx: **ALWAYS ASK**!
- Asking can prevent, not precipitate suicide (Elliott, 2006)
- Teens w/ suicidal ideation oft relieved with ask/education ("Someone does care!")
- Ask about **Guns** + **Drugs** in the house; most fail to ask (Greenhill, 1997)

### **Adolescent Suicide**

- Recruit parents/legal guardians as allies
- Best RX: protect the teen and start therapy
- <10% of teens complete suicide post 1st attempt</p>
  - Risk increased with presence of major affective disorder
- Symptom (not a psychiatric diagnosis)

### **Evaluation**

- Hospitalization:
  - acutely suicidal
  - substance abuse
  - unable to comply with outpatient management
  - psychosis present
  - manic

# **Hospitalization Role**

- No evidence hospitalization stops *serious* suicide
- Agitated, manic, intoxicated, unmanageable
- Psychotic teen
- Often done for medical-legal issues
- Best option for some families to provide education

# Teen Suicide Attempt: When to Hospitalize

- Medical necessity
- Abnormal mental state
- History of active attempt to avoid being found
- Persistent death wish
- Suicide method was highly lethal or unusual

# Adolescent Attempters: Repeat Often

■ 2001 CDC Youth Risk Behavior Survey; N=13,601

■ 1 attempt per year: 53%

■ 1 attempt increases risk of another by 15-fold

**2 or 3** attempts/year: **30%** 

■ 4 or More/year: <u>17%</u>

# Adolescent Suicide: Repeat Attempters

- 5% of teens report over one suicide attempt a year
- Increased rates of depression (13x vs if 1 attempt)
- Increased rates of sexual assault (7 times)
- Increased rates of substance abuse
- Increased violent behavior noted in boys
- Report increased weight problems

(Rosenberg, 2001 New Hampshire YRBS)

# Variety of Depression Scales

- Beck
- Zung
- Hamilton
- Childhood Depression Inventory
- Others

# Assessment Instruments

- State-Trait Anger Expression Inventory (STAXI)
- Multidimensional Anxiety Scale for Children (MASC)
- Yale-Brown Obsessive/Compulsive Scale for Children (CY-BOCS)
- Pediatric Symptom Checklist (PSC)
- Child Behavioral Checklist (CBCL)

### **Assessment Instruments**

- Child Depression Inventory (CDI)
- Reynolds Childhood Depression Scale (RCDS)
- Reynolds Adolescent Depression Scale (RADS)
- Suicidal Ideation Scale (SIQ) and Suicidal Ideation Scale for Jr. High Students (SIQ-Jr.)

# Initial Evaluation in Teen With Suicide Attempt

- Often difficult to clearly establish <u>Intentionality</u>
- Mental status—especially <u>agitation</u>
- Presence of stressors: peers, family, other
- Chain Analysis around the incident
  - What are the stressors
  - What are the teen's feelings
  - What are the teen's thoughts

# **External Factors**

- Family separation and divorce
- Death (family, friend, other)
- Loss of a friend (including girl/boyfriend)
- Academic concerns
- Financial concerns

# **Internal Factors**

- Feeling of being unloved (family, friend)
- Limited coping skills
- Inappropriate goals
- Others (Greydanus et al, 2010)

# **Downward Spiral Due To:**

- Painful Precipitators
- Limited Coping Abilities
- Negative Thinking
- Failure to Seek Help
- **■** Failure to Be Asked & Offered Help

# Biological Factors in Suicide (Pfeffer, 1997; 2002)

- No biological test for suicide
- Low CSF levels of 5-OH-indoleacetic acid (Serotonin Metabolite)
- Low platelet imipramine binding sites
- Non-suppressed plasma cortisol with Dexamethasone challenge test
- Abnormal hypothal-pituitary-adrenal axis
- Abnormal sleep EEG (decreased REM+)

Dilip R. Patel · Donald E. Greydanus Hatim A. Omar · Joav Merrick Editors

Neurodevelopmental Disabilities

Clinical Care for Children and Young Adults



### Teen Suicide Attempt: Risk Incr:

- Positive family history for suicide (2 times increases risk)
- Male gender (10 times increases risk)
- Prior attempts (15 times increases risk)
- History of aggressive outbursts
- Substance/alcohol abuse (increases risk for males)
- Inadequate home care/supervision

## **Teen Suicide Attempt**

- 31% of multiple attempters had previously signed a safety contract
- 17% of caregivers buy new firearm after teen's attempt
- Caregivers 3 times more likely to improve home factors if given education by clinicians
- 16%-59% of SAs do not receive follow-up treatment
- Dialectical-Behavior Therapy best results

# Teen Suicide Attempt: Does Medication Help???

- Antidepressant medication if MDD exists
- Antidepressant meds <u>not</u> for <u>acute</u> RX phase
- Flupenthixol (Navane) used for multiple attempters
- Lithium used for adults with bipolar disorder
- Clozaril used for adults with schizophrenia

## Pediatric Psychopharmacology in the 21<sup>st</sup> Century

GUEST EDITORS

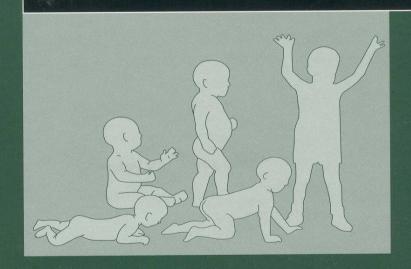
Donald E. Greydanus, MD

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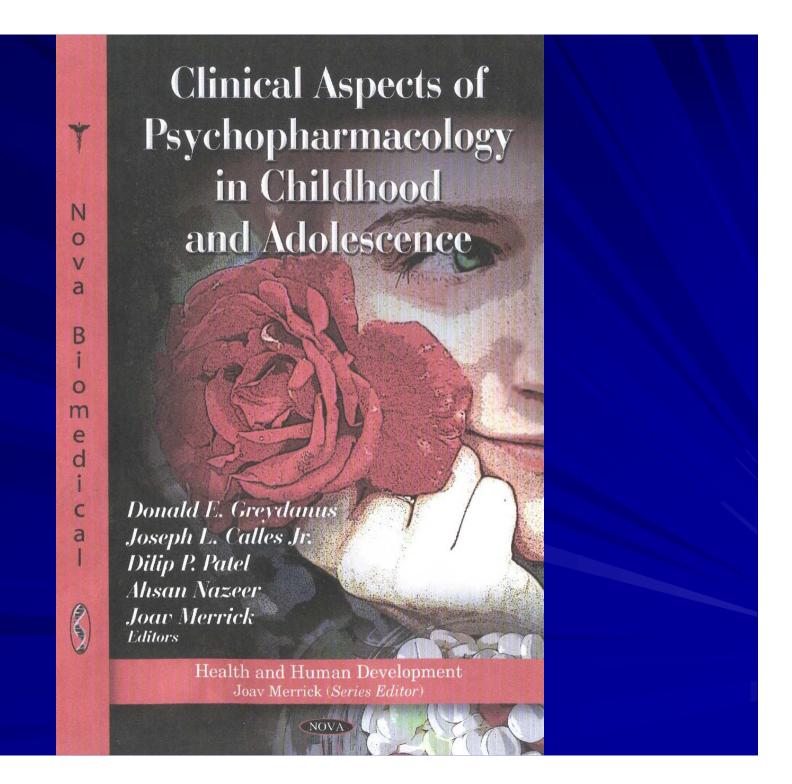
Cynthia Feucht, PharmD, BCPS

#### PEDIATRIC CLINICS

OF NORTH AMERICA



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## **Management of Depression**

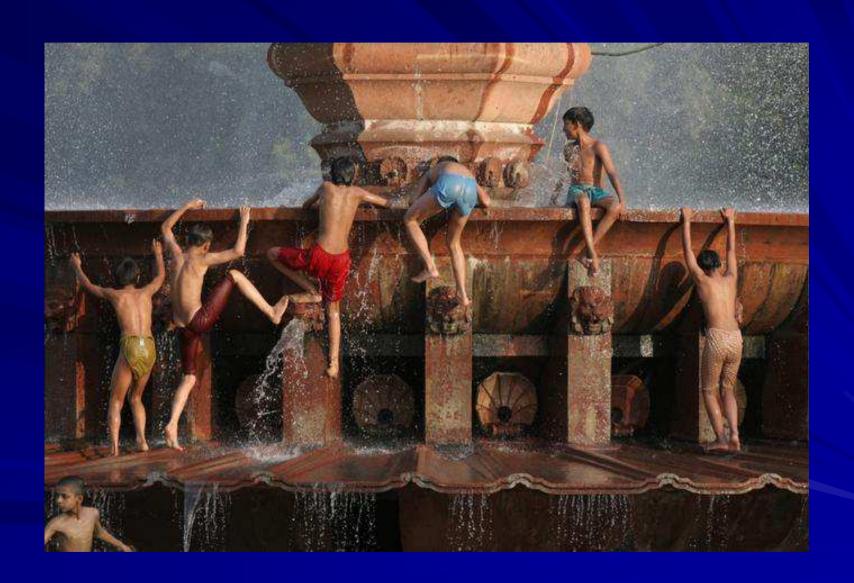
- Supportive
- Psychotherapy
  - Cognitive-Behavioral Psychotherapy
  - Behavioral Psychotherapy
  - Psychodynamic Psychotherapy
- Family Therapy
- Pharmacological Management (Greydanus, 2011)

## Helping a Friend Who is Suicidal

- Note You are Also Concerned
- Is There a Specific Plan, How Far Advanced
- Get Professional Help Now:
  - Suicide Prevention Hotline
  - Hospital ER (ED)
  - Local Crisis Center
- Make a Contract: No Suicide & Help to be Arranged

## **Things Not to Do:**

- Don't Assume the Situation will Take Care of Itself
- Don't Leave the Teen Alone
- Don't be Sworn to Secrecy (Some Friends Do)
- Don't Act Shocked or Surprised at What a Friend May Do
- Don't Challenge, Dare or Use Verbal Shock Treatments
- Don't Argue or Debate Moral Issues



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