Suicide
Index

- Risk Mnemonics / Screen
- Importance
- Definitions
- Prevention/Treatment
Suicide
Legend:

- **FLORESCENT YELLOW** = highlight
- **DARK RED** = completion
- **RED** = attempt
- **ORANGE** = plan
- **YELLOW** = thoughts/ideation
- **DARK BLUE** = depression
- **GREEN** = prevention
- **BLUE** = males
- **PINK** = females
- **YELLOW-GREEN** = self-harm
Suicide
Index of things you will need to regurgitate:

According to the CDC 2018 data:

- **Suicide** is the 10th leading cause of death in the U.S. (48,344) or 14.2/100,000.
- **Attempts** were 1.4 million.
- **White males** make up 69.67% of all suicide deaths.
- Highest rate was in middle-aged white **men**.
- **Men** die from suicide 3.56x more often than **women**.
- **Women** report attempts 1.5x **men**.
- Average of 132 suicides per day.
- **Firearms** accounted for 50.57% of all suicide deaths.
- Adults aged 55 to 59 years was the highest rate at 21.56/100,000.
- Adults aged 52 to 64 years was the 2nd highest rate at 20.20/100,000.
- Adults aged 45 to 54 years was the 3rd highest rate at 20.20/100,000.
- The group aged 15 to 24 had a rate of 14.25/100,000.
Suicide

Index of things you will need to regurgitate:

- Suicide rates in the United States are highest in the spring and lowest in the winter.
- A common myth is the Christmas season has the highest suicide rate of all the seasons, but studies have proven that across North America, suicide rates are lower at that time of year.
- Studies suggest that the holidays can bring up some very difficult emotions, but they also tend to evoke feelings of familial bonds and these feelings may act as a buffer against suicide.
- It is important to note, however, that while suicide rates do not increase over the holiday season, depression rates do increase.
- The number and severity of calls by depressed persons increases every year through November and December, returning to normal volume towards the end of January.
Suicide
Index of things you will need to regurgitate:

A study from the University of Pennsylvania looked at 35,332 suicides from the National Violent Death Reporting System and found **suicides are more likely after midnight.**

- Between midnight and 5:59 a.m. the rate was 3.6x higher
- Rate per hour after midnight was 10.27%.
- The **peak of 16.27%** was between 2 a.m. and 2:59 a.m.
- In contrast the mean rate between 6 a.m. and 11:59 p.m. was **2.13%**.
- Researchers believe that reducing nightmares, insomnia, and being awake at night may reduce suicide.
Suicide

Index of things you will need to regurgitate:

- COVID 19 has profound psychological effects including distress, anxiety, fear, depression and insomnia.
- The Spanish flu of 1918 was associated with an increase in suicide.
- The SARS outbreak of 2003 in Hong Kong was associated with an increase in suicide.
Suicide
Index of things you will need to regurgitate:

Transgender people, both youth and adults have alarmingly high rates of suicidal thoughts AND attempts than the general population.

- In an international study looking at transgender adults who have attempted suicide was about 800/100,000.
- In the U.S. 40% of transgender people have attempted suicide.
- In 2015 about 575,000 people went to the hospital due to injuries from self-harm.
- In 2018 it was estimated that 0.5% of U.S. adults made a suicide attempt.
Leading causes of death in perspective

1. Heart & circulatory disorders
2. Cancer
3. Respiratory disorders
4. Influenza pneumonia
5. Nervous system disorders
6. COVID-19
7. CVA, Alzheimer’s
8. Kidney disorders
9. Diabetes

- War
- Congenital abnormalities
- Pregnancy & birth
- HIV
- Medical complications
- Murder
- Undetermined events
- Mental health disorders
- Transport accidents

SUICIDE
Suicide Rates: Leading causes of death in perspective (U.S. 2015 and 2016)
The 10 leading causes accounted for 74.1% of all deaths in the United States in 2016.
Suicide
IMPORTANCE – Rates: Perspective

- All-cause death rates decreased significantly for age groups:
  - 65–74 (0.5%)
  - 75–84 (2.3%)
  - 85 and over (2.1%)
Leading causes of death globally in 2015

<table>
<thead>
<tr>
<th>Disease</th>
<th>Total deaths in millions</th>
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</thead>
<tbody>
<tr>
<td>Coronary artery disease</td>
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<tr>
<td>Stroke</td>
<td>6.24</td>
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<td>3.19</td>
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<tr>
<td>COPD</td>
<td>3.17</td>
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<tr>
<td>Lung disease/cancer</td>
<td>1.69</td>
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<tr>
<td>Diabetes</td>
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<tr>
<td>Alzheimers/dementia</td>
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<td>Tuberculosis</td>
<td>1.37</td>
</tr>
<tr>
<td>Road injury</td>
<td>1.34</td>
</tr>
</tbody>
</table>

Source: World Health Organisation
Suicide Examination

Examination:

- Tox screen.

- Look for bodily injuries caused by risk taking behaviors.

- Intentional cutting or scarring, especially of wrists (hesitation marks).
  - Distinguish suicidal behavior and nonsuicidal self-injurious behavior.

- Mental status examination to assess for dysphoria or depression.
  - Direct patient interview, family and other interviews, and medical records.
Suicide Examination

- Don’t act shocked.
- Don’t ask “why”.
- Don’t be sworn to secrecy.
- Offer hope that alternatives are available.
- Don’t offer reassurances that any one alternative will work.
- Remove lethal means of suicide such as pills, ropes, firearms, and alcohol or other drugs.
- Get help from others with more experience and expertise.
- Actively encourage the person to see a mental health professional and ensure that an appointment is made.
Suicide Examination

- Previous suicide attempt(s)
- History of mental disorders
- History of alcohol and substance abuse
- Family history of suicide
- Family history of child maltreatment
- Feelings of hopelessness
- Impulsive or aggressive tendencies
- Barriers to accessing mental health treatment
- Loss (relational, social, work, or financial)
- Physical illness
- Easy access to lethal methods
- Unwillingness to seek help because of the stigma attached to mental health and substance abuse disorders or suicidal thoughts
- Cultural and religious beliefs—for instance, the belief that suicide is a noble resolution of a personal dilemma (like Shakespeare)
- Local epidemics of suicide (imitative suicide)
- Isolation, a feeling of being cut off from other people (social withdrawal)
Suicide
Risk Mnemonics: “SAD PERSONAS”

A way to remember the factors that can increase a person’s risk of committing suicide is acronym “SAD PERSONAS.” One point for each:

- **Sex**
- **Age**
- **Depressed (psych) symptoms:** Low risk 0-4, Medium risk 5-6, High risk 7-10
- **Previous attempt/personality changes/personal appearance:**
- **Excess drug or alcohol use:**
- **Rational thinking loss:**
- **Social support: Separated, divorced, widowed**
- **Organized plan or serious attempt:**
- **Nihilism helplessness/hopelessness:**
- **Availability of lethal means:**
- **Sickness sustained or chronic disease/pain:**
"Just ignore him, his shrink says he just does this stuff to get attention."
Suicide
Risk Mnemonics: “SAD PERSONAS”

Sex: Males are more likely to commit suicide as men kill themselves 4 x more often (except female physicians who have even greater lethality).
Females make 2 x the number of attempts.

Age: Ages 10 to 34 are at a higher risk of committing suicide, and suicide is the 2nd leading cause of death for this age group.
Over 65, are 4 x more likely to commit suicide than other age groups.

Depressed (psych) symptoms: Psych SXs are associated with suicide more than the general population. Unipolar, bipolar & other psychiatric disorders & family history of suicide increases risk of suicide attempts and completed suicide. Cluster B personality. Impulsive-aggressive traits.
Suicide
Risk Mnemonics: "SAD PERSONAS"

Previous attempt/personal appearance/personality changes:
A history of a suicide attempt is the strongest predictor of future suicide attempts, as well as the strongest predictor of future death by suicide. About 80% of suicides were preceded by previous attempts. Loss of interest in personal appearance. Uncharacteristic impulsiveness, recklessness, or risk-taking. Dramatic changes in mood. Anxiety, agitation, unable to sleep or sleeping all the time. Sudden calm.

Excess use of drug or alcohol: including being under the influence.
Rational thinking loss: Cognitive rigidity, brooding rumination, thought suppression. Murderers. In schizophrenia and dementia the risk is highest in early diagnosis.

Social support: Separated, divorced, widowed: Alone or perceive themselves as being so. Loss of a first love or do not have a partner. For older individuals a long-term partner or someone incredibly important. Spouseless is NOT protective for female physicians.

Organized plan or serious attempt: Exact idea of how they would end their life, giving away prized possessions, making a will.


Availability of lethal means: Access to items that are lethal.
Sickness sustained or chronic disease/pain: Close to the end of life, chronicity.
Suicide
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Suicide Prevention

- Watch those who have suffered the loss of a relative, of a child, of a spouse, retired or woman going through menopause.
Suicide

**Diagnosis:** Questions about protective factors

Factors that may decrease the risk for suicide. These include:

- Positive social support
- Spirituality, Religious prohibition
- Sense of responsibility to family
- Children in the home, pregnancy
- Life satisfaction
- Reality testing ability
- Positive coping skills
- Positive problem-solving skills
- Positive therapeutic relationship
There are an estimated 8 to 25 attempted suicides to 1 completion; the ratio is higher in women and youth, and the ratio is lower in men and the elderly.

More than four times as many men vs. women die by suicide. However, women report attempting suicide about twice as often as men.

Suicide by firearms is the most common method for both men and women, accounting for 58% of all suicides in 1997.
Suicide
Method

Suicide Deaths by Method, 2013

- Firearm: 51.5%
- Suffocation: 24.5%
- Poisoning: 16.1%
- Other: 8.0%
Suicide

Method
Suicide Method

Suicide Deaths by Method, 2013

SUICIDE METHODS
METHODS USED IN RECORDED SUICIDE, 2008-2012

TENNESSEE
- 62.6% used firearms
- 13.5% used poison
- 18.6% used suffocation
- 5.3% used other methods

GEORGIA
- 63% used firearms
- 3% used cutting/piercing
- 20% used hanging
- 12% used poison

UNITED STATES*
- 50.5% used firearms
- 24.7% used suffocation
- 7.5% used other methods

* Data from 2010 only
Interactive Chart: New Jersey Suicides 2006-10 by Cause of Death

- Suffocation or hanging: 40.1%
- Firearm: 28.5%
- Poisoning (drugs): 12.1%
- Falls: 7.3%
- Poisoning (gas): 3.8%
- Sharp object: 2.4%
- Sharp object: 2.4%
- Jumping in front of moving vehicle: 2.4%
- Fire: 2.4%
- Motor vehicle crash: 2.4%
- Other: 2.4%

Source: CDC Wonder
Suicide

SAD PERSONAS – Depression (All things Psych)

Psych disorders are associated with a high risk for suicide, and the psych disorders with the highest risk are mood disorders and anxiety disorders.

- **Unipolar** disorder (10% suicide)
- **Bipolar** disorder (36% I and 32% II attempt and 15% succeed especially in mixed episodes)
- **Schizophrenia** (25 to 50% attempt and 13% succeed)
- **Anxiety** disorders
- **Substance** use problems
- Attention deficit hyperactivity disorder (**ADHD**)
- **Eating disorders** such as anorexia nervosa and bulimia
- **Dementia**
Suicide
SAĐ PERSONAS – Depression (All things Psych)

- Panic symptoms (e.g. palpitations and fear of losing control or going crazy) are associated with a risk of suicidality among patients with panic disorder.
- Unipolar depression patients suffering from nightmares showed significantly higher suicide risk. Results concerning bipolar depression were inconclusive.
- Early child abuse is associated with both early onset mood disorders and impulsivity; so not surprisingly it is also associated with an elevated suicide risk.
Suicide
*SAD* PERSONAS — Depression (All things Psych) Completed suicides

- **Psychiatric disorders** are associated with most *completed* suicides
  - 90% of individuals who die by suicide have *psychiatric disorders* (Bertolote & Fleischmann 2002).
  - However, **more than 98%** of people with *psychiatric disorders* do **NOT** die by suicide (Nordentoft et al. 2011).
  - Some mental disorders confer higher risk for suicide than others.
  - **Depressive disorder** 30% to 87% of *completed* suicides are by people with.
  - **Substance abuse**, often as a comorbid disorder, occurs in 19% to 50% of *completed* suicides (on the other hand in one study at autopsy for suicide 73% had BAC of zero). Those who harm themselves have a much greater risk **opioid use disorders** and **mixed intravenous drug use**, and that risk is greater than that for alcohol misuse!
  - **Schizophrenia** 9% to 13% of people with this diagnosis *complete* suicide.
Increased suicide risk associated with epilepsy

- Suicide risk varies across different types of epilepsy and in relation to the severity.
Suicide
SAD ASSPEOPLES – Depression (All things Psych)

Lowest *increased* risks:
- Organic mental disorders (delirium)
- Dementia
- Mental retardation
Suicide Risks – Jake Gardener
Suicide
Risks— COVID: Are suicides on the rise?

CDC survey of 5,412 people between June 24\textsuperscript{th} and 30\textsuperscript{th}, 2020 showing a surge in mental health calls overall.

Mental health issues are rising and 40.9% of adults say they’ve had at least one mental health symptom including:

- Anxiety or depression (30.9%).
- Symptoms of trauma or stressor-related disorder (26.3%).
- Starting or increasing substance use to cope (13.3%).
- Seriously considered suicide (11%).
Suicide
Risks—COVID: Are suicides on the rise?

- Seriously considered suicide (11%).
  - Ages 18-24 (25.5%)
  - Essential workers (21.7%)
  - Minority racial/ethnic groups
    - Hispanic (18.6%),
    - non-Hispanic Black (15.1%).
Suicide
Risks—COVID: Are suicides on the rise?

Measures currently used to protect ourselves from COVID infection can contribute to increase depression and suicidal thoughts. These factors include:

- Economic stress
- Social isolation
- Decreased access to community
- Barriers to mental health treatment
- Illness
Suicide

Risks—COVID: Lorna Breen, MD
In April 49-year-old ER M.D. who during the early stages of the COVID-19 pandemic worked 18-hour days and would sleep in the hospital hallways. She caught the virus and took some time off. She recovered from the infection and returned to work but she wasn’t the same. She suffered from exhaustion. Several weeks later, she committed suicide.

Lorna had no history of mental illness, but she seemed “detached” as she described how distressing it was to have to watch so many patients die, including some who never even made it out of the ambulance.
**Suicide Risks – COVID: Lorna Breen, MD**

**“SAD PERSONAS.”** One point for each:

**Sex:** Sex *male* (except female physicians)

**Age:**
- Low risk: 0-4
- Medium risk: 5-6
- High risk: 7-10

**Depressed (psych) symptoms:**
- Low risk: 0-4
- Medium risk: 5-6
- High risk: 7-10

**Previous attempt/personality changes/personal appearance:**

**Excess drug or alcohol use:**

**Rational thinking loss:**

**Social support:** Separated, divorced, widowed

**Organized plan or serious attempt:**

**Nihilism helplessness/hopelessness:**

**Availability of lethal means:**

**Sickness sustained or chronic disease/pain:**
Suicide
Risk: Mnemonic (one point each)

SAD ASS PEOPLES
- **S** = sex (male except female physicians)
- **A** = age (elderly males)
- **D** = depression (unipolar, bipolar & other psychiatric disorders & family history)
- **A** = addiction (drug use)
- **S** = sickness (chronic)
- **S** = social supports lacking
- **P** = previous attempt
- **E** = elevation (> 3000 feet)
- **O** = obtunded (hopelessness, cognitive rigidity, brooding rumination, thought suppression)
- **P** = planning (suicide note, giving away belongings)
- **L** = lethality (method availability)
- **E** = employment type
- **S** = spouseless (protective for female physicians)
Suicide
Risks—COVID: Physician burnout

Prior to the pandemic, surveys revealed that at least 40% of physicians were suffering symptoms of burnout. Physicians have the highest suicide rate of any profession. In September the Physicians Foundation reported that the number of physicians suffering from burnout symptoms has increased to 58%. Advocates are urging the Senate and Congress to pass the Dr. Lorna Breen Healthcare Provider Protection Act. The bill would create behavioral health and well being training programs and encourage physicians to seek treatment when needed.
Suicide Risks—COVID: Physician burnout

In the U.S. about 6,000 ER physicians contemplated suicide in 2018, and nearly 400 attempted suicide. On average one physician dies by suicide every day. Doctors have the highest suicide rate of any profession. Compared to the rest of the population, physicians are more than twice as likely to die by suicide. Doctors working on the front lines against COVID-19 face unique stressors that may further increase their risk.
Suicide
Risks—COVID: Physician burnout

Barriers that prevent physicians and other health care workers on the front lines from getting the mental health treatment.
- Loss of medical licenses or facing other professional setbacks, persist in part due to a pervasive culture that sees asking for help as a sign of weakness.
- Antiquated institutional red tape that precludes health care workers from seeking treatment from a professional.
- Some state licensing boards continue to ask questions about physicians' mental health histories or past treatment that appear to violate the intent of the Americans with Disabilities Act, which prohibits discrimination against people with psychiatric disorders.
- Practicing physicians with histories of psychiatric disorders or mental health counseling have also faced discrimination with respect to receiving hospital credentials and privileges.
An ‘Unprecedented’ Number Of People Are Dying In Cook County a population of 5.2 million people

- The Cook County Medical Examiner’s Office has handled the deaths of more than 10,000 people so far in 2020 (three previous times: 1977, 1978 and 1979 but more natural deaths).
- COVID accounts for about half of the deaths recorded.
- In all of 2019 the ME investigated the deaths of only 6,274 people.
- Death rate spike is due to COVID, violent crime, drug overdoses, and suicides.
- Nearly 43 percent of COVID deaths this year are AA but make up only 30% of the population.
- Latino people account for nearly 33 percent of all COVID deaths.
- The office does not handle every death in the county, not investigating people who are elderly and die of natural causes, for example.
Suicide

Risks—COVID: Perspective in Cook County

- COVID has amplified loss of jobs, undiagnosed mental health issues, and drugs use.
- More than 5,000 people have died from coronavirus. About one-third of those victims are Black.
- Nearly 600 people have died of homicides, and 94 percent of those victims are Black or Latino.
- 282 people have died of suicide, and 63 were AA people. More AA people have already died of suicide this year than in all of 2019, and has doubled in the first half of 2020.
- About 1,400 people have died of opioid overdoses, and about half of those victims are AA.
Suicide Risks—COVID: Perspective in Cook County

- **ON THE OTHER HAND** the rise in suicides among AA residents began even before the onset of the coronavirus pandemic and the state’s stay at home order.
- Homicide levels in 2016 were more than 900.
Suicide
Risks– COVID: Perspective in Guam

- In 2019, from June to August, six lives were lost to suicide.
- In 2020, within that same three-month timespan, that number has increased to 15.
- There is an environment of fear and paranoia.
Suicide
Risks—COVID: Perspective in Guam

- Suicide in Germany pre-Holocaust, 1933–1939, increase in rate to 158 suicides per 100,000 people.
- Suicide in the ghetto of Lodz, Poland during the Holocaust 1939–1945 ranged from 22.4 to 84.6 per 100,000.
- Suicide studies post-Holocaust, 1946- found Holocaust survivors had the lowest suicide risk compared to two other groups.
Suicide
IMPORTANCE – Rates: Perspective WW-II

- Suicide became a national trend in Germany, performed by over 10,000 people.
- Suicide levels reached their maximum in Berlin in April 1945 when 3,881 people killed themselves during the Battle of Berlin.
- It was in this phase that Adolf Hitler and Ava Braun took their lives. The next day the Goebbels killed their six children with cyanide before poisoning themselves.
- One in 10 Nazi generals.
- 1,000 citizens of Demmin, Germany committed ‘selbstmord’ (meaning “self-murder”) in 72 hours. People hanged themselves, slit their wrists, shot themselves and their family members, and ingested poison.
Suicide
Nazis

- Nazis committing suicide used glass ampoules of prussic acid (hydrogen cyanide).
- Cyanide stops cellular respiration and thereby blocks aerobic energy production in these cells.
Suicide

IMPORTANCE: 2016 data (released June, 2018)

- There are **123 suicides per day**.

- National Suicide Prevention Lifeline reports that for every **1 person** who commits **suicide**, there are **280** people who think about it.
**Suicide**

**IMPORTANCE** (United States 1999 & 2016)

- **Suicide rates** in the U.S. have *risen nearly 30%* since 1999.*

- In **1999** there were approximately **30,000** suicides.

- In **2016** there were approximately **45,000 (44,965)** suicides.

- “**At what point is it a crisis?**” asked Nadine Kaslow, past president of the American Psychological Association.
Suicide IMPORTANCE (United States 1999 & 2016)

Jon Roelser, epidemiologist with the Minnesota Department of Health said April, 2011, “The reason for that rise in suicide has more to do with greater access to opioid drugs (particularly prescription painkillers) than the economy.”
Suicide

IMPORTANCE: 2016 data (released June, 2018)

- Age-adjusted suicide rate was 14 per 100,000 population in 1929
- The highest age-adjusted suicide rate on record was 22 per 100,000 in 1932 during prohibition.
- The age-adjusted suicide rate in 1938 was 17.4 per 100,000.
Suicide

IMPORTANCE:

2016 data (released June, 2018)

- Age-adjusted suicide rate was 14 per 100,000 population in 1929
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- The age-adjusted suicide rate in 1938 was 17.4 per 100,000.

1900 to 1950
(rate per 100,000 people)
Suicide and homicide rate changes during Prohibition (1920-1933) in the United States from 1900 to 1950
(rate per 100,000 people)
Suicide

IMPORTANCE:

2016 data (released June, 2018)

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The highest age-adjusted suicide rate on record was 22 per 100,000 in 1932 during prohibition.
The age-adjusted suicide rate in 1938 was 17.4 per 100,000.

Deaths by suicide per 100,000 resident population in the United States from 1950 to 2017, by gender
Suicide Treatment: WHO Mental Health Action Plan 2013-2020

- World Suicide Prevention Day, observed on 10 September every year.

- WHO Mental Health Action Plan 2013-2020 where WHO Member States have committed themselves to work towards the global target of reducing the suicide rate in countries by 10% by 2020.
Approximately 41,000 people per year

Males 4:1 (except physicians)

Peak rates for men: 80-90 years old

Peak rates for women: 50-65

Most are not being treated!

There have been more deaths in Afghanistan by suicide than by active duty.

U.S. SUICIDE RATES

PER 100,000

15

12.3%

13%

12.3%

11.5%

10.7%

11%

12.3%

*Latest data available
Source: Centers for Disease Control
Suicide
IMPORTANCE – Rates: Perspective

- Remember, these suicide rate numbers are all double digits divided by 100,000; therefore we are talking about 0.000xx%.
- The actual base rate for completed suicides is relatively low.
- Because of the low base rate, the false positive error rate for short-term prediction is high.
- At best, the prediction rate is said to be approximately 30%.
Suicide

IMPORTANCE – Rates: Perspective

Remember, these suicide rate numbers are all double digits divided by 100,000; therefore we are talking about 0.000xx%.

All-cause death rates decreased significantly for age groups:

— 65–74 (0.5%)
— 75–84 (2.3%)
— 85 and over (2.1%)
Suicide
IMPORTANCE – Rates: Perspective

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Suicide
IMPORTANCE – Rates: Perspective The Great Depression

- Suicides increased during the Great Depression.
- Suicide mortality peaked with unemployment, in the most recessionary years, 1921, 1932, and 1938.
Suicide
IMPORTANCE – Rates: Perspective The Great Depression

Crude mortality rate (per 100,000 population) for selected major causes of death.

José A. Tapia Granados, and Ana V. Diez Roux PNAS 2009;106:41:17290-17295
Suicide


- The Asian financial crisis in 1997-1998 led to over 10,000 extra suicides in Japan, Hong Kong and Korea.
Suicide

IMPORTANCE – Rates: Perspective 2008 Financial crisis

- In the U.S. and Canada, male suicides jumped by nearly 9% in 2009, while newer members of the European Union, including Poland, Hungary, Lithuania, saw their male suicide rates spike by an average of 13.3%.
- Suicides generally jumped when unemployment levels surged, particularly among men in countries that had previously healthy employment levels.
- In North and South America had the largest spike in suicides among 45 to 64-year old men.
- In Europe, the largest spike in suicides was in 15 to 24-year old men.
- There was little change in suicide levels among women.
- For every suicide 30 to 40 people make suicide attempts.
Suicide
IMPORTANCE – Rates: Perspective 2008 Financial crisis

- Suicide studies that have focused on economic crises have had mixed results.
- Studies conducted in Finland, Sweden and Switzerland found that the suicide rate actually declined during periods of economic woes.
Suicide rate after 2008 financial crisis: Milan

I Merzagora et al, Suicide Risk and the Economic Crisis, PLOS One 2016. 11(12): e0166244
Suicide
IMPORTANCE – Rates: Perspective 2008 Financial crisis

- Preti and Miotto noted that official statistics on the employment status of suicide victims might be biased.
- Relatives, and perhaps even the public authorities, might be more inclined to cover up the suicide of people in employment than unemployed people, for various reasons.
- Relatives might use the victim’s lack of employment as a justification for an event they cannot otherwise explain.
- Other people might be influenced by public opinion and the media, who often use unemployment and the economic crisis as scapegoats for these tragic events.
- These types of bias could explain why employment status appears to influence suicide risk and should be borne in mind when considering evidence on trends in suicide.
Selection bias, measurement error, and other statistical bias
(E.g., basketball doesn’t make you tall, basketball selects tall people).
The public and health professionals automatically assume depression and mental illness were presence after suicide.
## Suicide

### IMPORTANCE – Rates: Suicide by State

**United Health Foundation**

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<th>VALUE</th>
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Suicide IMPORTANCE (Data between 1999 & 2016 CDC)

Suicide Rates in the United States
(by state; per 100,000; average 2008–2014)

Data Courtesy of CDC
Suicide
IMPORTANCE (Data 2019 United Health Foundation)

Thematic Map: Suicide, 2019 Annual Report

Number of deaths due to intentional self-harm per 100,000 population (age-adjusted to data year)

SOURCE:
- CDC WONDER Online Database, Underlying Cause of Death, Multiple Cause of Death Files
Suicide Definitions:

**Suicide** – lethal self-inflicted injury

**Assault** - injury inflicted upon another

**Murder** - lethal injury inflicted upon another
Suicide
Murders: Types

Murders (most) are crimes of passion committed in rage or fear (fight or flight response).

The final year of Prohibition, 1933, had the highest murder rate with 9.7 homicides per 100,000 people.

Murder-Suicide
Suicide Murders: Types

- **Mass murder** the intentional killing of multiple victims by a single offender within 24 hours. These account for less than one percent of all violent crimes.

  - **School massacres** (subset of mass murder)
Mass murder

Adolescents
• Almost always tell friends beforehand.
• Tend to belong to a clique of misfits or a disenfranchised group.
• Usually victims of bullying which is motivational. The Columbine principal described as a “sadistic bully”.

Adults
• Never tell

Frequently proxies for a “violence coach” who teaches them (e.g. Charles Manson).
COMPARISONS BETWEEN NATIONS

2011 Norway attacks

- Norway has some of toughest firearm legislation in world
- a car bomb explosion killed eight people and injured at least 209 people, twelve of them seriously.
- two hours later at a summer camp on the island of Utøya a gunman dressed in a homemade police uniform and showing false identification killing 69 and injuring at least 110
Mass murder
Anders Behring Breivik
Mass murder
Anders Behring Breivik

Utoeya Island: Where Breivik's victims fell

Main house and camp site
Breivik arrested
Killed, Injured, Died later

Source: Televised court evidence
Image: Reuters
School massacres (subset of mass murder)

• Planned out in advance with careful deliberation and lack of emotion by “pseudo-commandos.”

• Less than 0.001% of teenagers die in such shootings.
Private suicide is insufficiently dramatic to satisfy.

- Suicide by cop
- Costumes
- Documentation of grievances
- Bombs (77 bombs in Columbine)
Suicide

Murder-Suicide

- **Murder-Suicide** The murderer will commit suicide after murdering their victim.
- **Murder** is the only crime that *regularly results* in offenders taking their own lives.
- **90%** of the perpetrators are men.
- **80-90%** of their victims are spouses or intimate partners *(SIPs)*
- Greater than **75%** of murder-suicides occur in the home.
- A large number of *(SIPs)* murder-suicides are a male caregiver killing his ailing *(SIPs)* and then himself.
- Adults aged **55+** have murder-suicides rates that are **twice** as high as younger adults.
- **25%** of murder-suicides involve more than one victim.
- **Men** tend to kill their children **AND** their spouses prior to suicide.
- **Women** tend to kill their children **but NOT** their spouses.
Suicide

Murder-Suicide Japan

• Each year hundreds of men in Japan murder their families and then kill themselves.

• This is so much a tradition of Japanese culture that it was not even a crime until fairly recently.

• Japanese murder rates remain admirably low because they exclude these "family suicides"
The main disorders associated with Bipolar Disorder that lead to a higher risk for suicide:

- Medical comorbidity
- Obesity, overweight
- Diabetes
- Childhood adversity, trauma, and abuse, particularly sexual trauma that had been perpetuated by a first-degree family member.

“DOES THE SUICIDE CLAUSE APPLY IF HE EATS HIMSELF TO DEATH?”
Suicide Definitions:

Suicidal behavior (four parts):

- **Thoughts/Ideation**
  (frequent thoughts of ending one's life).
  - **Passive** – the desire without the urge.
  - **Active** – the desire with urge and plan.

- **Plans**
  (plans to use ending one's life).

- **Attempts**
  (the actual event of trying to kill one's self).

- **Completion**
  (death occurs).
Suicide

Definitions:

- **Self-Harm (Nonsuicidal self-injury disorder)**
  (causing physical self-harm, e.g., cutting, burning, self-hitting).

- **Dictionary.com** has replaced all instances of commit suicide with die by suicide or end one’s life.
  - The expression **committed suicide** implies the act of suicide is a crime (as it historically has been) or a sin (in religion).

- **Felo-de-se**
  “a person who intentionally takes his or her own life, or commits an unlawful malicious act resulting in his or her own death.”
Suicide

Definitions: Nonsuicidal self-injury disorder

- **Self-Harm** (Nonsuicidal self-injury disorder)
  (Behavior causing physical *self-harm* without suicidal intent, e.g., cutting — mainly females burning, self-hitting — mainly males).

- The majority of people who self-injure do not have suicidal thoughts when self-injuring.

- **Self-harm** can escalate into suicidal behaviors.

- One study found that almost half of people who *self-harm* reported at least one suicide attempt.

- Usually begins between the ages of 12 to 15.
Suicide
Definitions: Nonsuicidal self-injury disorder

Behavior causing physical self-harm without suicidal intent, e.g., cutting – mainly females, burning, self-hitting – mainly males.

The majority of people who self-injure do not have suicidal thoughts when self-injuring.

Self-harm can escalate into suicidal behaviors.

One study found that almost half of people who self-harm reported at least one suicide attempt.

Usually begins between the ages of 12 to 15.
**Suicide Definitions: Nonsuicidal self-injury disorder**

Self-harm and suicide attempts are different

<table>
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<tr>
<th>FREQUENCY</th>
<th>SELF-HARM</th>
<th>SUICIDE ATTEMPTS</th>
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<tr>
<td></td>
<td>Incidents are very frequent</td>
<td>Attempts happen less frequently</td>
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<tr>
<td>METHODS</td>
<td>Cutting, burning, self-hitting</td>
<td>Self-poisoning</td>
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<tr>
<td>SEVERITY</td>
<td>Less severe</td>
<td>Much more severe, sometimes lethal</td>
</tr>
<tr>
<td>PURPOSE</td>
<td>Done to avoid suicidal impulses</td>
<td>Done with an intent to die</td>
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</table>

(Klonsky, May, & Glenn, 2014)
Suicide Definitions: Nonsuicidal self-injury disorder

People are more likely be at risk for self-harming behaviors if certain factors are present, such as:

- loss of a parent.
- childhood illness or surgery.
- childhood sexual or physical abuse.
- family substance abuse.
- negative body image perceptions.
- lack of impulse control.
- childhood trauma.
- Neglect.
- lack of strong family attachments.
Suicide Behavior: Thoughts, Plans, Attempts,

Past Year Suicidal Thoughts and Behaviors Among U.S. Adults (2016)

Data Courtesy of SAMHSA

- 9.8 million adults had serious thoughts of committing suicide
- 2.8 million adults made suicide plans
- 1.3 million adults attempted suicide
- 1.0 million adults made plans and attempted suicide
- 0.3 million adults made no plans and attempted suicide
Suicide Risk: Attempted suicides

1996 study looking at suicide attempters found:

- In 98% of the cases at least one Axis I diagnosis was made.
- A high proportion of suicide attempters (82%) suffered from comorbid psychiatric disorders.
- Depressive syndromes were more common among females (85%) than males (64%),
- Alcohol dependence was more common among males (64%) than females (21%).
The suicide attempt rate in families of suicide attempters is higher compared to families of non-attempters.

Studies suggested the existence of a common suicide phenotype that includes both attempt and completion.

In contrast, suicidal ideation, may present as a separate suicide phenotype.

People who self-harm have a much greater risk of suicide.
Suicide
Genetics

- **Suicidal ideation ± 43%**
- **Suicide plan/attempt ± 44%**
- **Serious suicide attempt ± 55%**

- The Innu people in Canada’s northeastern regions have the highest suicide rate in the world: 178 per 100,000 persons per year.
A meta-analysis of all register-based studies and all case reports aggregated shows that concordance for completed suicide is significantly more frequent among monozygotic than dizygotic twin pairs (OR 2.86).
Suicide Genetics

Molecular genetic studies have mixed results…stay tuned!
- Among 590 suicide attempt polygenes implicated
- Several developmentally important functions (cell adhesion/migration, small GTPase and receptor tyrosine kinase signaling),
- 16 of the suicide attempt polygenes have previously been studied in SB (BDNF, CDH10, CDH12, CDH13, CDH9, CREB1, DLK1, DLK2, EFEMP1, FOXN3, IL2, LSAMP, NCAM1, nerve growth factor (NGF), NTRK2 and TBC1D1).
- Single-nucleotide proteins (SNPs) from MRAP2 (melanocortin 2 receptor accessory protein 2) - a gene expressed in brain and adrenal cortex and involved in neural control of energy homeostasis, - appear to provide susceptibility to suicidality.
- These suggested the importance of a polygenic neurodevelopmental etiology in suicidal behavior, even in the absence of major psychiatric diagnoses.
Suicide Behavior: Attempts vs. Completions

- The most common method in suicide attempts, drug overdose, but it is fatal (completed) in less than 3% of cases.

- Suicide attempts with a firearm are fatal (completed) in about 85% of cases.

- Firearms are the most commonly used method of suicide among males (56.9%).
Suicide Behavior: Attempts vs. Completions

- Suicide median rate by firearm was 10 per 100,000, while the non-firearm median rate was 4.

- **Poisoning** is the most common method of suicide worldwide for females (34.8%).
**Suicide Risk: Mnemonic**

SAD ASS PEOPLES

- **S** = sex (male except female physicians)
- **A** = age (elderly males)
- **D** = depression (unipolar, bipolar & other psychiatric disorders & family history)
- **A** = addiction (drug use)
- **S** = sickness (chronic)
- **S** = social supports lacking
- **P** = previous attempt
- **E** = elevation (> 3000 feet)
- **O** = obtunded (hopelessness, cognitive rigidity, brooding rumination, thought suppression)
- **P** = planning (suicide note, giving away belongings)
- **L** = lethality (method availability, note,)
- **E** = employment type
- **S** = spouseless (protective for female physicians)
Suicide
SAD ASS PEOPLES – SEX

S = SEX
Suicide
SAD ASS PEOPLES – SEX (1999–2016)

Age-Adjusted Suicide Rates in the United States (1999–2016)

Data Courtesy of CDC
Suicide

SAD ASS PEOPLES – SEX 2016

Males versus Females

- **Male suicide** is the 7th leading cause of death for males.
- **Female suicide** is the 14th leading cause of death for females.
- **Female doctors** have a higher risk of suicide than **male doctors**
Suicide
SAD ASS PEOPLES – SEX Females 2013

- Approximately 41,000 people per year
- Males 4:1 (except physicians)
- Peak rates for men: 80-90 years old
- Peak rates for women: 50-65
- Most are not being treated!
- There have been more deaths in Afghanistan by suicide than by active duty.

Bar chart showing suicide rates per 100,000 population:
- All Women: 5.5
- Native American: 7.9
- White: 7.1
- Asian/Pacific Islander: 3.0
- Hispanic: 2.3
- Black: 2.1
Suicide

**SAD ASS PEOPLES – Sex 2016**

- American Indian/Alaska Native group* rates of suicide were highest for **males** (32.8 per 100,000) and **females** (10.2 per 100,000).
- White/non-Hispanic group suicide rates were second with **males** (26.5 per 100,000) and **females** (7.9 per 100,000).

*According to the American Foundation for Suicide Prevention: In 2016, the highest U.S. suicide rate (15.17) was among Whites and the second highest rate (13.37) was among American Indians and Alaska Natives.*
Suicide

The male gender is a specific risk factor for suicide, which suggests that androgen effects are implicated in the transition from suicidal ideation to suicide completion.
- Multiple lines of direct and indirect evidence showing that both an increased prenatal androgen load (with subsequent permanent neuroadaptations) and increased adult androgen activity are involved in suicide completion.
- Perhaps modifiable maternal behavioral traits during pregnancy contribute to the offspring’s prenatal androgen load and increase the risk for suicide completion later in life.
- It is important to meticulously differentiate between suicidal ideation, suicide attempts, and suicide completion.
- Suicide completion suggest that androgens are involved in the pathogenesis of death by suicide.

In utero androgen exposure and adult androgen levels facilitate suicide completion in an synergistic manner.
Suicide Risk In Women

- Most countries collect and report national data for suicide completion, but many countries neither record nor report national data for suicide attempts.
- Suicide data fails to fully represent the major female contribution to morbidity. If both mortality and morbidity are considered together then it is evident that the majority of suicidal behavior is clearly female.
- Asia has the highest suicide rate in women irrespective of their development status and so more Asian women commit suicide than women in any other region.
- Suicide ranks as the number one cause of mortality in young girls between the ages 15 and 19 years globally.
Suicide

Risk of suicide attempt may increase in phases of the menstrual cycle which have lower estrogen levels and in women who suffer from pre-menstrual syndrome.

Pregnancy may cause higher risk of suicidal behavior but a lower risk of suicide completion.

Evidence that suicide rates are higher in women who have abortions compared to those who carry the baby to full term.
Suicide Risk Post-partum in Finland, 1987-94

- 73 suicides associated with pregnancy.
- Representing 5.4% of all suicides in women of reproductive age.
- Suicide rate associated with:
  - Birth 5.9%
  - Miscarriage 18.1%
  - Induced abortion 34.7%
Suicide

SAD ASS PEOPLES – SEX 2016 Women Finland 1987-94

73 suicides associated with pregnancy, representing 5.4% of all suicides in women of reproductive age. Suicide rate associated with:

- Birth: 5.9%
- Miscarriage: 18.1%
- Induced abortion: 34.7%
Suicide Risk Psychiatrist Assisted Abortion Pre-Roe versus Wade New York

1. To get an abortion a pregnant woman had to see a psychiatrist.
2. She would say she was emotionally unbalanced and would commit suicide if she was NOT allowed to abort her baby.
3. The psychiatrist would order permission to have an abortion.
4. She would then take to the abortion provider.
Suicide
Transgender

A 2014 study of the National Transgender Discrimination Survey used reports from 6,456 transgender and non-conforming people in the U.S.

- 41% of transgender adults report they have attempted suicide.
- 10% to 20% lesbian, gay, and bisexual adults report they have attempted suicide.
- In comparison, 5% of the general population report they have attempted suicide.
- 78% of transgender respondents who stated they suffered physical or sexual violence at school reported they attempted suicide.
- 65% of transgender respondents who stated they experienced violence at work reported they attempted suicide.
- 69% of transgender respondents who had ever experienced homelessness attempted suicide.
- 60% of transgender respondents who had ever been refused treatment from a doctor or healthcare provider attempted suicide.
- Androgen replacement decreases the number of suicide attempts.
Suicide
SAD ASS PEOPLES – AGE

A = AGE
Suicide
SAD ASS PEOPLES – AGE

“I told my doctor I wanna stop aging, he gave me a gun!”

Rodney Dangerfield
Suicide
Age & Gender

2011 Suicide Rates across the Life-Span

Approximately 41,000 people per year
Males 4:1 (except physicians)
Peak rates for men: 80-90 years old
Peak rates for women: 50-65
Most are not being treated!

There have been more deaths in Afghanistan by suicide than by active duty.
**Suicide**

**SAD ASS PEOPLES – AGE (2016)**

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</table>
Suicide

SAD ASS PEOPLES – AGE (2016)

- The **highest** suicide rate (19.72) was among adults between **45 and 54 years**.
- The **second** highest rate (18.98) occurred in those **85 years or older**.
- The suicide rate of adolescents and young adults aged **15 to 24 years** was **13.15**.
- Physician suicide rates increase abruptly by age.
D = DEPRESSION
(All things Psych)
Suicide
Risk – Depression (All things Psych)

Psych disorders are associated with a high risk for suicide, and the psych disorders with the highest risk are mood disorders and anxiety disorders.

- Unipolar disorder (10% suicide)
- Bipolar disorder (15% especially mixed features)
- Schizophrenia (25 to 50% attempt and 13% succeed)
- Anxiety disorders
- Substance use problems
- Attention deficit hyperactivity disorder (ADHD)
- Eating disorders such as anorexia nervosa and bulimia
- Dementia
Last week I told my psychiatrist, "I keep thinking about suicide," and he told me, from now on I have to pay in advance...

Rodney Dangerfield
Suicide
Risk: Completed suicides (Schizophrenia)
Suicide
SAD ASS PEOPLES – Depression (All things Psych)

Suicidal behavior is familial.

- A family history of suicide increases risk of suicide attempts and completed suicide.
- Heritability of suicidal
  - ideation is about 43%
  - plan/attempt 44%
  - serious suicide attempt is 55%.
Depression

Unipolar verses Bipolar

Not all depressions are the same!

- The depressive episode can be bipolar or unipolar
- Treatment for unipolar depression is different than bipolar depression.
Depression and Bipolar

- Treatment failure
- Family history
- Activation
- Sleep disturbance
- Psychosis
- Atypical features

Patients with bipolar I experienced mood symptoms 47.3% of the time

Patients with bipolar II experienced mood symptoms 54% of the time

- Depression was 3.4-fold more frequent than mania
- Depression was 37-fold more frequent than mania
Suicidality in Patients With Mixed Bipolar Episodes

*P<0.001

Past, current, and recurrent suicidality were significantly more common among patients with mixed mania than among those with pure mania.

Suicide
SAD ASS PEOPLES – Depression (All things Psych)

- Panic symptoms (e.g. palpitations and fear of losing control or going crazy) are associated with a risk of suicidality among patients with panic disorder.
- Unipolar depression patients suffering from nightmares showed significantly higher suicide risk. Results concerning bipolar depression were inconclusive.
- Early child abuse is associated with both early onset mood disorders and impulsivity; so not surprisingly it is also associated with an elevated suicide risk.
Suicide
SAD ASS PEOPLES – ADDICTION

A = ADDICTION
Suicide
SAD ASS PEOPLES – ADDICTION

- Those who self-harm have a much greater risk of opioid use disorders and mixed intravenous drug and risk. This risk is greater than that for alcohol misuse!
- Suicide from alcohol misuse is greater among women than among men.
- At autopsy for suicide, 73% had BAC of zero.
- Menninger (1966) defined alcohol dependence as a chronic suicidal act; according to this definition, alcohol-dependent individuals prefer an apparently pleasurable way of destruction, rather than a direct way of suicide.
The CDC has calculated that suicides from opioid overdoses nearly doubled between 1999 and 2014.

A 2014 national survey showed that individuals addicted to prescription opioids had a 40 to 60 percent higher risk of suicidal ideation.

Habitual users of opioids were twice as likely to attempt suicide as people who did not use them.

The 2015 data from the CDC shows that 4,837 opioid-related fatalities were “intentional self-poisoning”, and another 2,553 were of undetermined cause.

Long-term opioid therapy for chronic noncancer pain was discontinued, and pain intensity during the next 12 months on average did not increase, and in some patients there was a slight improvement in pain.
Long-term opioid use

- is associated with disrupted sleep architecture and opiates act as a barrier to the deeper stages of sleep resulting in day-time fatigue and increased pain intensity.
- is associated with decreased sex hormones in men and women, and hormone imbalance is associated with increased pain, problems with sleep and mood, and irritability.
Psychological factors such as substance use and mental health disorders strongly predict that patients will receive opiates.

Veterans who are depressed or who have a substance use disorder were more likely to be prescribed opioids for chronic pain, whereas chronic pain patients who have neither diagnoses are more likely to receive nonsteroidal anti-inflammatory drugs.

Anxiety and depressive symptoms in opioid-naive patients had 37–63% reduced opioid analgesia response.
Suicide
SAD ASS PEOPLES – ADDICTION & OPIATES

The Catch 22:

- Psychopathology is associated with higher prescription opioid dose in people with chronic pain,
- People with a history of psychological distress and pathology are more likely to develop chronic pain.
- Pain often triggers automatic responses of distress and hyperarousal that may maintain or worsen pain.
Suicide
SAD ASS PEOPLES – ADDICTION & OPIATES

- Pain catastrophizing is one psychological factor known to amplify pain processing.
- Catastrophizing is a stronger predictor for pain outcomes than disease characteristics, pain intensity, or various medical interventions.
The limbic system processes emotions and modulates the amount of pain experienced for a given noxious stimulus.

The “affective” component of pain can be completely blocked by frontal lobectomy.

Lobectomized patients still recognize severe pain, but it doesn’t “bother” them.

Therefore, pain is merely a “signal” that something is wrong somewhere in the body.

However, once a pain signal reaches the emotional brain (anterior cingulate gyrus and the right ventral prefrontal cortex), the signal becomes what we feel as pain.

These emotional brain centers are also activated by social rejection.
Focusing one’s attention on pain makes the pain worse.

Distracting is highly effective in reducing pain (e.g., distracted with a virtual-reality type of video game).

Treating anxiety and providing psychological support has been shown to improve pain and reduce analgesic use.

Improving patients’ sense of control and allowing them to participate in their care is also helpful.

Distract patients with conversation about subjects that interest them, such as their hobbies or family.
Suicide
SAD ASS PEOPLES – chronic pain

- **Chronic pain** appears to be a major risk factor for suicide.
- Many pain patients say they would kill themselves if they were about to be cut off from their pain pills. These deaths are often counted as “accidental overdoses” instead of suicides.
Suicide
SAD ASS PEOPLES – ADDICTION & SICKNESS
Pain, Opioids, and Mental Health 2014 & 2015

National Violent Death Reporting System data from 18 participating states from 2003 to 2014

- There were 123,181 suicides
  - 10,789 (8.8%) had evidence of chronic pain with the most common conditions being:
    - Back pain (22.65%),
    - Cancer (12.5%),
    - Arthritis (7.9%).
  - Firearms were the most common method of suicide with or without pain
  - Opioid overdoses were the cause of death in 16.2% of persons with pain and 3.9% of suicides when pain was not present.
  - 51.9% of suicides with chronic pain tested positive for opioids.
  - 51.7% of those with chronic pain had a mental health problem.
    - 81.9% had a diagnosis of depression.
  - Benzodiazepines tested positive in 47.2%.
    - In general benzodiazepines are involved in > 30% of opioid overdose deaths.
    - Benzos interfere with opiate analgesia when both are used
  - 64.7% of suicide notes by those who have a history of pain indicate that a pain condition or the pain itself played a role in the decision to commit suicide.
  - On average, suicides associated with chronic pain were more likely to occur in older people with the highest incidence among those aged 80 years or older.
  - Among patients with chronic pain, those taking higher doses of opioids were at greater risk of death by suicide.
Suicide

SAD ASS PEOPLES – chronic pain

- Obesity is also a problem in chronic pain.
- Psychiatric morbidity is present in up to 67% of chronic pain patients.
- Personality disorders have been found in 31% to 59% of chronic pain patients.
- Among low back pain patients admitted to an inpatient pain center, 70% were found to have a hysterical conversion disorder.
Suicide

SAD ASS PEOPLES – chronic pain

- Patients who have chronic pain and comorbid anxiety disorders or depression predicts a longer time to remission of the psychiatric issue, and they should be treated with a unified treatment plan.

- Patients with pain need access to efficient, low-cost pain psychology education so they may learn about the psychological factors that either amplify or dampen pain processing in the brain.
Suicide

SAD ASS PEOPLES – ADDICTION (Opiates) 2012

Percentage With Suicidal Thoughts

- Never Users
- Former Users
- Persistent Users
- Recent-Onset Users
- Past-Year Users With Prescription Opioid Disorders

Graph shows the percentage with suicidal thoughts across different user categories.
Suicide
Risk Factors: Death Involving FENTANYL SAD ASS PEOPLES – ADDICTION (Opiates) 2002-2017

National Overdose Deaths
Number of Deaths Involving Other Synthetic Opioids (Predominately Fentanyl)

Source: National Center for Health Statistics, CDC Wunder
Suicide

Risk Factors: Death Involving FENTANYL, Heroin, Painkillers

SAD ASS PEOPLES – ADDICTION (Opiates) 2015-2018

Fentanyl deaths continue to rise, but heroin, prescription painkillers on the decline

Estimated overdose deaths in preceding 12 months, Jan. 2015 through Apr. 2018

- Fentanyl, other synth.: 30,545
- Heroin: 15,357
- Painkillers: 14,264
- Cocaine: 11,398
- Meth, other stimulants: 3,279
- Methadone: 3,279

Source: Provisional CDC data

THE WASHINGTON POST
Suicide

Risk Factors: Death Involving FENTANYL, Heroin, Painkillers

SAD ASS PEOPLES – ADDICTION (Opiates) 2015-2018

Have overdose deaths plateaued?

Estimated overdose deaths in preceding 12 months, Jan. 2015 through Apr. 2018

Source: Provisional CDC data
Suicide

SAD ASS PEOPLES – ADDICTION (Opiates) 2012

Percentage With Suicidal Thoughts

- Never Users
- Former Users
- Persistent Users
- Recent-Onset Users
- Past-Year Users With Prescription Opioid Disorders

* Asterisk indicates statistical significance.
Suicide

Risk Factors: Death Involving FENTANYL, Heroin, Painkillers

SAD ASS PEOPLES – ADDICTION (Opiates) 2015-2018

Have overdose deaths plateaued?
Estimated overdose deaths in preceding 12 months, Jan. 2015 through Apr. 2018

Source: Provisional CDC data
S = SICKNESS (chronic)
Suicide

SAD ASS PEOPLES – SICKNESS (Chronic) Life Expectancy

- Patients with a history of attempting suicide have a dramatically reduced life expectancy, and most excess deaths are due to physical health conditions.
- Life expectancy was shortened throughout the lifespan for both men (14 years) and women (9 years).
Suicide
SAD ASS PEOPLES — SICKNESS (chronic)

17 conditions associated with risk of suicide:
- Asthma
- Back pain
- Brain injury
- Cancer
- Congestive heart failure
- Diabetes
- Epilepsy
- HIV/AIDS
- Heart disease
- High blood pressure
- Migraine (cluster headaches)
- Parkinson's disease
Suicide
SAD ASS PEOPLES – SICKNESS

- Increased suicide risk associated with epilepsy
  - Suicide risk varies across different types of epilepsy and in relation to the severity.
Suicide

Comorbidity: Chronic daily headache

- Young adolescents with chronic daily headache (CDH), particularly those who have migraines with aura, are at 6 times greater risk for suicide than their headache-free peers.
Suicide

Comorbidity: MS

- MS clinic in Vancouver, Canada determined that 28.6% of deaths among its patients were due to suicide or 7.5 times higher than in the age-matched general population.

- A Veteran’s Health Administration study of MS patients in the northwestern United States found that 29.4% of survey respondents reported suicidal ideation and 7.9% reported persistent suicidal ideation (suicidal ideation on more than half the days) over the previous 2 weeks; depression severity was the best determinant of risk.
Suicide

Comorbidity: Smoking

- **Suicide Is Linked To Smoking**
  - Smoking is associated with suicide 2-10 times risk (smoking may not be causal as people who become smokers have low self-esteem, mood swings and impulsive as children)
  - Nicotine in cigarettes causes lower serotonin levels (associated with suicide and aggressiveness)
  - Smoking is a way for depressed people to self-medicate with nicotine (weak antidepressant)
  - Nicotine improves the action of antidepressants (used in Europe)
  - The gene that predisposes one to depression also predisposes to smoking
  - Smoking withdrawal causes stress and rekindles depression (data for this is weak)
  - Nicotine replacement therapy (NRT) may decrease suicide risk
  - Chantix is a partial nicotine receptor agonist
Suicide
SAD ASS PEOPLES – SICKNESS (chronic)

- Approximately **70%** of suicides are linked to chronic illness or unrelenting pain.
- **Sleep disorders** and **HIV** both doubled the risk of suicide.
- **Traumatic brain injuries** were nine times more likely to die by suicide.
- **Having more than one chronic condition** also may increase suicide risk.
- **1 out of 26 men** WITH arthritis attempt vs. **1/50** WITHOUT.
- **5.3%** of **women** with arthritis attempted suicide compared to about **3%** general population.
- **Asthma, diabetes** and **Crohn’s disease** increase the likelihood a **young** person will have suicidal **thoughts** by **28%** and make **plans** to die by **134%**
Suicide
SAD ASS PEOPLES – SOCIAL SUPPORTS (lacking)

S = SOCIAL SUPPORTS (lacking)
Suicide
SAD ASS PEOPLES – SOCIAL SUPPORTS (lacking)

Social factors
- Social transmission
- Modelling
- Contagion
- Assortative homophily
- Exposure to deaths by suicide of others
- Social isolation
Suicide
SAD ASS PEOPLES – SOCIAL SUPPORTS (lacking)

- More than 60% of physicians with suicidal ideation indicated they were reluctant to seek help due to concern that it could affect their medical license.
- Volunteering support or assistance without being asked by the physician appears like an affront. Thus, the concerned colleague or partner may say nothing.
- For a physician to admit inability to another colleague is to admit failure.
Suicide
SAD ASS PEOPLES - Previous attempt

P = PREVIOUS ATTEMPT
Suicide
Family history: Attempts vs. Completions

- Previous attempt

- The suicide attempt rate in families of suicide attempters is higher compared to families of non-attempters.

- Studies suggest two suicide-related phenotypes:
  - Common (attempt and completion) suicide phenotype that includes both attempt and completion.
  - Suicidal ideation phenotype may be a separate suicide-related phenotype.
E = ENVIRONMENT
(elevation)
Suicide
SAD ASS PEOPLES-Environment

Twin study of suicide in non-affective psychosis showed environment to be most important!
- 60% concordance with the shared-family vs 40% to the unique environment.

On the other hand:
- Nonshared (unique) environmental effects (i.e. personal experiences) also contribute substantially to the risk of suicidal behavior, whereas effects of shared (family) environment do not.
- A meta-analysis of all register-based studies and all case reports aggregated shows that concordance for completed suicide is significantly more frequent among monozygotic than dizygotic twin pairs.
Negative life events

- Childhood adversities
- Traumatic events during adulthood
- Physical illness
- Other interpersonal stressors
- Psychophysiological stress response
Suicide Rates by Geographic Region/State 2012

U.S. suicide rates appear to be highest among residents of the so-called "Intermountain West" region, but why?

- Low population density?
- More white males?
- High prevalence of gun ownership?
- High-altitude living (and the metabolic stress that results)?

- Population density, gun ownership, and race do not fully explain suicide prevalence, and after accounting for these factors, **high altitude appears to be a risk factor for suicide!**
Using U.S. national data from 1978 to 1998

- compared the 50 counties with the highest suicide rates against the 50 counties with the lowest suicide rates.
- 50 counties with the highest suicide rates should differ in elevation when compared to the counties with the 50 lowest suicide rates. We found, however, that there was an almost 8-fold difference in altitude in these two groups of counties.
- The ratio in average suicide rates between the 50 highest and lowest counties was 4.2 (30.5:7.2). Mean altitude greatly differed between the 50 counties with the highest suicide rates compared with those with the lowest rates (4684 vs. 582 ft, \( p < 0.001 \)).
There was a 12.5-fold (10.0:0.8) difference in suicide rate between the counties with the 50 highest nonfirearm suicides versus those with the lowest nonfirearm suicides, and the mean altitude in the 50 counties with the highest and lowest nonfirearm suicide rates was 3699 ft versus 954 ft (p < 0.001).
The threshold value for increased suicide rates occurred in the range of 2000–2999 ft. Similar findings were observed for firearm-related suicides, which comprise 59% (352,052 firearm suicides per 596,704 total suicides) of all suicides.
Using a different methodology, a similar, strong positive correlation between altitude and suicide rates has recently been reported by Kim and colleagues, (2011) using all counties in the United States as well as all 233 counties in South Korea.
United States Suicide Rates – Geographical Distribution (County Level)

Rates per 100,000 population
Rates appearing in this map have been geospatially smoothed

Source: WISQARS 2008-2014
Monge's (MONG hey) disease or chronic mountain sickness (CMS), a disease that develops after many years of residing at high altitude.
Altitude and the metabolic stress from the insufficient intake of oxygen?

- **Asthma and air pollution** have been linked to increased suicide rates around the world.
- People **living at an elevation of 6,500 feet above sea level** (about the average altitude found across Utah) appear to have a $\frac{1}{3}$ higher risk for suicide than those living at sea level.
- People in **South Korea** living at 6,500 feet above sea level also appeared to have a 125% higher risk for suicide than those living at sea level.
Suicide
SAD ASS PEOPLES – Obtunded (Cognition)

O = OBTUNDDED
(Cognition)
Suicide
SAD ASS PEOPLES – Obtunded (Cognition)

- Personality states versus traits
  - Hopelessness
  - Impulsivity
  - Perfectionism
  - Neuroticism and extroversion
Suicide
SAD ASS PEOPLES – Obtunded (Cognition)

- Impulsivity can be useful to predict repeated suicide attempts in individuals with personality disorder.
Suicide
SAD ASS PEOPLES – Obtunded (Cognition)

Cognitive factors
- Cognitive rigidity
- Rumination
- Thought suppression
- Autobiographical memory biases
- Belongingness
- Burdensomeness
- Fearlessness about injury and death
Suicide
SAD ASS PEOPLES – Obtunded (Children & Adolescents)

- Openly suicidal statements or comments such as, "I wish I was dead," or "I won't be a problem for you much longer."
- Changes in eating or sleeping habits
- Frequent or pervasive sadness
- Withdrawal from friends, family, and regular activities
- Frequent complaints about physical symptoms often related to emotions/pain, such as stomachaches, headaches, fatigue, etc.
- Decline in the quality of schoolwork
- Preoccupation with death and dying
- No longer future-oriented.
- Give away important possessions.
Suicide
SAD ASS PEOPLES - Planning

P = PLANNING
1974 study looking at risk of suicide using Suicidal Intent Scale of 231 attempted and 194 completed suicides

- The 33 attempted suicides who left suicide notes demonstrated significantly greater risk vs. 198 attempted suicides who did not leave notes.
Suicide
SAD ASS PEOPLES - Lethality

L = LETHALITY
Suicide Rate Among Physicians

Psychiatrists have a higher rate of suicide, even higher than colleagues from other sub-disciplines. Specialties that have better access to drugs such as anesthesiologists. Physicians working in the emergency room may also have a higher rate.

TYPES OF SUICIDE

JUMPING OFF A BRIDGE

PILLS

BECOMING AN INDEPENDENT PHYSICIAN
Suicide

SAD ASS PEOPLES – LETHALITY (Methods)

- **Hanging** predominant method in most countries. The highest proportions were around 90% in men and 80% in women, as observed in eastern Europe (i.e. Estonia, Latvia, Lithuania, Poland and Romania).
- **Firearm** suicide was the most common method in the United States, but was also prevalent in Argentina, Switzerland and Uruguay, although only men used this method in Switzerland.
- **Jumping** from a height important role in small, predominantly urban societies such as Hong Kong SAR, Luxembourg and Malta.
- Poisoning with **pesticides** is common in rural Latin American countries (e.g. El Salvador, Nicaragua and Peru), Asian countries (e.g. the Republic of Korea and Thailand) and also in Portugal, notably among women.
- Poisoning with **drugs** was common in women from Canada, the Nordic countries and the United Kingdom. It also played an important role in male suicide in these countries.
- **Charcoal-burning** suicide is a relatively new method in Hong Kong (Special Administrative Region - SAR), China and urban Taiwan.
Suicide
SAD ASS PEOPLES – LETHALITY (Methods)

SUICIDE METHODS
METHODS USED IN RECORDED SUICIDE, 2008-2012

TENNESSEE
- 62.6% used firearms
- 13.5% used poison
- 18.6% used suffocation
- 5.3% used other methods

GEORGIA
- 63% used firearms
- 20% used hanging
- 12% used poison
- 2% used cutting/piercing
- 3% used other methods

UNITED STATES*
- 50.5% used firearms
- 24.7% used suffocation
- 17.2% used poison
- 7.5% used other methods

* Data from 2010 only

Sources: Tennessee Department of Health, Centers for Disease Control
Suicide
SAD ASS PEOPLES – LETHALITY (Methods: Attempts . Completions)

- **Drug overdose** is the most common method in suicide attempts, but it is fatal (completed) in less than 3% of cases.
- **Firearm suicide attempts** are fatal (completed) in about 85% of cases.
- **Firearms** are the most commonly used method of suicide among U.S. males (56.9%).
- **Poisoning** (including overdose) is the most common method of suicide worldwide for females (34.8%).
Suicide

Availability of lethal means: Physicians
Suicide

Availability of lethal means: Physicians

- Greater knowledge of and better access to lethal means, physicians have a far higher suicide completion rate than the general public.
E = EMPLOYMENT
Suicide
SAD ASS PEOPLES – EMPLOYMENT
Farmers & Physicians
RISK FOR SUICIDE

- The highest proportional mortality rates for suicide are found in **medical doctors** and farmers.
- **Female doctors** having a higher risk of suicide than male doctors.
- There is a higher prevalence of psychiatric disorders (especially drug abuse) among physicians than in the general population.
SUICIDE RATE AMONG PHYSICIANS

- Compared with the general population male physicians have about 40% higher risk and women physicians commit suicide at 130% higher rate (female physicians have about a 3 times higher risk of committing suicide than male physicians)

- Suicidal feelings play significantly in how well they are able to find and address the warning signs of suicide in others

- Physicians, we are a strong-minded, strong-willed stoic group, and discount their own emotional state

- Women in general have more depression than men so female physicians are at risk

- Gender-based harassment and up to 50% to 75% of all women in that profession have at one point or more than once been gender-based harassed or sexually harassed
SUICIDE RATE AMONG PHYSICIANS

- Psychiatrist have a higher rate of suicide, even higher than colleagues from other sub disciplines.
- Specialties that have better access to drugs such as anesthesiologist.
- Physicians working in the emergency room may also have a higher rate.
- Psychiatry > Anesthesiology ≥ ER
SUICIDE RATE AMONG PHYSICIANS

- Psychiatrists have a higher rate of suicide, even higher than colleagues from other sub-disciplines.
- Specialties that have better access to drugs such as anesthesiologists.
- Physicians working in the emergency room may also have a higher rate.

TYPES OF SUICIDE

1. Jumping off a bridge
2. Pills
3. Becoming an independent physician
Suicide
SAD ASS PEOPLES – EMPLOYMENT (WebMD 2018)

- One doctor commits suicide in the U.S. every day — the highest suicide rate of any profession. -- 28 to 40 per 100,000* - more than twice that of the general population.
- The suicide rate in the general population is 12.3 per 100,000.

(*28/100,000 is 70% of 40/100,000)
Suicide
SAD ASS PEOPLES – EMPLOYMENT (NIOSH)

#1. Medical Doctors Odds: 1.87
- Approximately **4%** of doctors die from suicide.
- **Male** and **female** physicians are **equally** as likely to commit suicide.
- **Doctors** are approximately **1.87** times as likely to commit suicide as those working in other occupations.
- Compared to standard female occupations, **female doctors** are **2.78** times as likely to commit suicide.
- Doctors are approximately **4 x** as likely to use **drugs** as a suicide method
Suicide
SAD ASS PEOPLE: EMPLOYMENT (NIOSH)

- #2. Dentists Odds: 1.67
- #3. Police Officers Odds: 1.54
  - African-American policemen Odds: 2.55
  - Women police Odds: 2.03
  - Caucasian policemen Odds: 
  - More police get killed from felons than those who die of suicide.
- #4. Veterinarians Odds: 1.54
- #5. Financial Services Odds: 1.51
- #6. Real Estate Agents Odds: 1.38
- #7. Electricians Odds: 1.36
- #8. Lawyers Odds: 1.33
- #9. Farmers Odds: 1.32
- #10. Pharmacists Odds: 1.29
### Suicide

**SAD ASS PEOPLES – EMPLOYMENT** (Business Insider 2011)

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<th>Rank</th>
<th>Occupation</th>
<th>Suicide Rate</th>
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<th>White Male Deaths</th>
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<td>Real estate sales (1.38X)</td>
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Suicide
SAD ASS PEOPLES — EMPLOYMENT (CDC 2011)

- The CDC report November of 2018, but covers 2015 and is just from 22 states.
- CDC provides suicide data at the highest level of "major occupational group" and splits the US workforce into just 22 occupations. As a result, many different sub-occupations are lumped together in just one occupation (for example, nursing, doctors, and dentists are all in one occupation).
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<table>
<thead>
<tr>
<th>Rank</th>
<th>Professions</th>
<th>Suicide Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construction and Extraction</td>
<td>52.1</td>
</tr>
<tr>
<td>2</td>
<td>Installation, Maintenance, and Repair</td>
<td>37.8</td>
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<tr>
<td>3</td>
<td>Arts, Design, Entertainment, Sports &amp; Media</td>
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<tr>
<td>4</td>
<td>Transportation and Material Moving</td>
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<tr>
<td>5</td>
<td>Production</td>
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<tr>
<td>6</td>
<td>Protective Service</td>
<td>24.2</td>
</tr>
<tr>
<td>7</td>
<td>Farming, Fishing, and Forestry</td>
<td>18.7</td>
</tr>
<tr>
<td>8</td>
<td>Building &amp; Grounds Cleaning &amp; Maintenance</td>
<td>18.2</td>
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<tr>
<td>9</td>
<td>Architecture and Engineering</td>
<td>17.6</td>
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<tr>
<td>10</td>
<td>Food Preparation and Serving Related</td>
<td>14.8</td>
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<tr>
<td>11</td>
<td>Sales and Related</td>
<td>14.2</td>
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<td>12</td>
<td>Computer and Mathematical</td>
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<tr>
<td>13</td>
<td>Legal</td>
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<tr>
<td>14</td>
<td>Life, Physical, and Social Science</td>
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<tr>
<td>15</td>
<td>Health Care Practitioners and Technical</td>
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<td>16</td>
<td>Management</td>
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<tr>
<td>17</td>
<td>Health Care Support</td>
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<td>18</td>
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<td>Community and Social Service</td>
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<td>Office and Administrative Support</td>
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<tr>
<td>21</td>
<td>Business and Financial Operations</td>
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<tr>
<td>22</td>
<td>Education, Training, and Library</td>
<td>5.3</td>
</tr>
</tbody>
</table>
Suicide
SAD ASS PEOPLE - EMPLOYMENT (Active-Military)

- Suicide rates for military personnel have dropped since 2009 to approximately 18/100,000.
- 50% of all troops that engaged in suicide had never deployed.
- Suicide rates among troops sent to Iraq and Afghanistan had drastically increased (by double) until 2009, the rates among those who were never deployed tripled.
- It is difficult to compare military personnel to other careers because most people serve a brief stint in the military, whereas other careers tend to be lifelong.
2014

- Adjusting for differences in age and sex, risk for suicide was **22 percent higher** (HR=1.22) among Veterans when compared to U.S. non-Veteran adults.

- Of all the veterans who died by suicide, approximately 65 percent were age 50 or older.

- Overall, the veteran rates mirror those of the general population in the geographic region, with the highest rates in Western states.
Suicide
TREATMENT (“Antidepressants” & Hospitalization)

- Physician depression and suicidality require immediate treatment and confidential hospitalization.
- These measures are lifesaving—more so than in other populations.
S = SPOUSELESS
(Live alone)
Suicide
SAD ASS PEOPLES – SPOUSELESS (Live alone)

- **Marriage** is in most populations considered to be **protective** against emotional distress. This does **NOT** seem to be true for **female physicians**.
- Living alone
Kate Spade

Suicide by hanging in her room

A long struggle with bipolar disorder
Kate Spade

**Suicide** by hanging in her room.
- A long struggle with **bipolar disorder**
- Symptoms of anxiety and depression
Anthony Bourdain
Anthony Bourdain

**Suicide** by hanging in his room in France.
- Smoky voice, from his cigarette-fueled past. He walked around in that tattoo-stained body.
- Diagnosis with Parkinson’s three months prior.
- Girlfriend had recently ended their relationship.
- He struggled with drug addiction (“drink and smoke weed”)
- In a Parts Unknown episode that visited Buenos Aires, Argentina, Bourdain visited a psychotherapist. “I find myself in a spiral of depression that can last for days.”
- Friend of Bourdain, noticed the man’s mood change in the days before he died.
Suicide rates in the U.S. have risen nearly 30% since 1999, according to a report released June, 2018 from the Centers for Disease Control and Prevention.

About 10% of people with major depression die of suicide. About 15% of people with bipolar disorder die from suicide.

There are 123 suicides per day.

For every one person who commits suicide, the National Suicide Prevention Lifeline says there are 280 people who think about it.
Robin Williams

- "Suicide contagion" - experts say exposure to media coverage of a high-profile suicide, especially that which fixates on the details of a person's death, can lead to more suicides.

- Columbia University study in February showed suicides rose nearly 10% higher than expected in the months following Robin Williams' death in August 2014.

- Suicides involving the method Williams used (suffocation) spiked 32% over that time, suggesting news coverage of the actor's death may have played a role.

- A British TV hospital drama featured an overdose, and included details of drug and amount that was taken, data collected from 49 accident and emergency departments the following week showed a 17% increase in overdoses.

- Suicide attempts rose for four weeks following the suicide of a celebrity in Taiwan where the method used had received a great deal of media coverage.
Suicide
Celebrity Suicide:

Donald Cortez "Don" Cornelius
(September 27, 1936 – February 1, 2012)

He shot himself in the head. He had been suffering from seizures during the last 15 years of his life, a complication of a 21-hour brain operation he underwent in 1982 to correct a congenital deformity in his cerebral arteries. He admitted that he was never quite the same after that surgery, and it was a factor in his decision to retire from hosting Soul Train in 1993. According to his son, Cornelius was in "extreme pain"
Suicide

Celebrity Suicide:

Stephanie Adams
(July 24, 1970 – May 18, 2018)
She was the November 1992 Playboy Playmate

According to the New York City Police Department, Adams pushed her son out of a 25th-story window, before jumping herself.

police had been called to their home several times in the past few months.

She'd been dealing lately with a custody clash
Suicide
Celebrity Suicide:

August Ames
(August 23, 1994 – December 5, 2017)
She was a Canadian pornographic actress and model.
Ames' mother suffered from bipolar disorder.

Ames alleged that she was routinely sexually molested by her paternal grandfather as a child,

She had a history of bipolar depressive disorder and dissociative identity disorder due to a traumatic childhood,
Suicide

Celebrity Suicide:

David Stroh Buckel
(June 13, 1957 – April 14, 2018)

“Around February, his ritual changed, as he went from gratitude to sharing grim climate news. When he went to court, “he was impeccably color-coordinated and there was never a wrinkle or a crease in the wrong place.” His office was tidy to the point of seeming sterile. Before snapping a binder clip on a document, he folded a piece of paper over the pages, so it wouldn’t leave a mark, a former legal assistant remembered. It was meticulously organized,” “Boots
Suicide Treatment: Unintended consequences

- Soon after the start of the selective serotonin reuptake inhibitor (SSRI) era, which started in 1987, suicide rates in young adults between 10 and 24 years of age began declining steadily between 1990 and 2003.

- In 2003 and 2004, U.S. and European regulators issued public health warnings about a possible association between antidepressants and suicidal thinking and behavior.

- The FDA required a “black box” warning to package inserts for antidepressants because of increased risk of suicidal thoughts and behavior (suicidality) in children and adolescents. In 2007, the FDA extended the age range up to 24 years of age.
Suicide

**Treatment:** Akathisia

- Patients with **first-episode schizophrenia (FES)** are known to be notably sensitive for developing extrapyramidal adverse effects to dopamine blocking agents.

- **Suicidal ideation** is significantly associated with clinician observed akathisia, depressed mood, younger age, and use of propranolol.

- This suggest a **promoting effect of akathisia on suicidal ideation**
Suicide
Treatment: Unintended consequences

Results:
- SSRI prescriptions for youths decreased by approximately 22% in both the U.S. and the Netherlands after the warnings were issued.
- In the Netherlands, the youth suicide rate increased by 49%.
- U.S., youth suicide rates increased by 14% which was the largest year-to-year change in suicide rates in this population since the CDC began systematically collecting suicide data in 1979.
Suicide

Treatment: Unintended consequences

U.S. Suicide rate ages 5-19
Suicide Treatment

**Unintended consequences:** Netherlands Suicide rate up to age 19
Suicide Treatment

Unintended consequences:

For boys, the observed rate for 2005 (2.3 per 1,000) was significantly lower than the rate predicted by the 1999–2004 trend (3.8 per 1,000) ($P < 0.0001$).
Suicide is the second leading cause of death for children, adolescents, and young adults age 5-to-24-year-olds.

Among younger children, suicide attempts are often impulsive. Often associated with feelings of sadness, confusion, anger, or problems with attention and hyperactivity.

Among teenagers, suicide attempts may be associated with stress, self-doubt, pressure to succeed, financial uncertainty, disappointment, and loss.

The majority of children and adolescents who attempt suicide have a significant mental health disorder, usually depression.

Depression and suicidal feelings are treatable mental disorders.
Suicide US children 2017
Suicide and Suicide Attempts Risk Factors

- Often associated with depression
- Family history of suicide attempts
- Exposure to violence
- Impulsivity
- Aggressive or disruptive behavior
- Access to firearms
- Bullying
- Feelings of hopelessness or helplessness
- Acute loss or rejection
Ask the/your child or adolescent whether he or she is depressed or thinking about suicide.

- Are you feeling sad or depressed?
- Are you thinking about hurting or killing yourself?
- Have you ever thought about hurting or killing yourself?
Statistics on Suicide

- Up to 15% of those who are clinically depressed die by suicide.
- In 1997, suicide was the 8th leading cause of death in the United States. 10.6 out of every 100,000 persons died by suicide. The total number of suicides was approximately 30,535.
- In 1996 there were an estimated 500,000 suicide attempts.
- There are an estimated 8 to 25 attempted suicides to 1 completion; the ratio is higher in
ADOLESCENT SUICIDE

- Only accidents and homicides claim more adolescents
- About 16% of the people, who had responded to this E-mail solicitation had a history of having made a suicide attempt. 18-24-year-old age group 7:100,000 students per year
- Most common methods for young people who attempt differs by gender
  - Women predominantly take overdoses
  - A firearm for males
1997

- The suicide rate of children 10 to 14 years old was only 303 deaths out of 19,040,000 children in this age group.
- For adolescents aged 15 to 19, there were 1,802 deaths among 19,068,000 adolescents. The gender ratio in this age group was 5:1 (males: females).
- Among young people 20 to 24 years of age, there were 2,384 deaths among 17,512,000 people in this age group. The gender ratio in this age group was 7:1 (males: females).
1997

- Last several decades the suicide rate in young people has increased dramatically.
- Suicide in the 15 to 24-year-olds was the 3rd leading cause of death (11.5/100,000)
- 2nd leading cause of death was unintentional injuries
- 1st cause of death was homicide.
<table>
<thead>
<tr>
<th>Rank</th>
<th>&lt;1</th>
<th>1 - 4</th>
<th>5 - 9</th>
<th>10 - 14</th>
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<th>20-24</th>
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<tr>
<td>1</td>
<td>Congenital Anomalies 27,668</td>
<td>Unintentional Injury 7,527</td>
<td>Unintentional Injury 4,375</td>
<td>Unintentional Injury 5,268</td>
<td>Unintentional Injury 28,037</td>
<td>Unintentional Injury 42,977</td>
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<tr>
<td>2</td>
<td>Short Gestation 23,138</td>
<td>Congenital Anomalies 2,553</td>
<td>Malignant Neoplasms 2,312</td>
<td>Malignant Neoplasms 2,256</td>
<td>Homicide 10,361</td>
<td>Homicide 15,722</td>
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<tr>
<td>3</td>
<td>SIDS 11,418</td>
<td>Homicide 1,946</td>
<td>Congenital Anomalies 906</td>
<td>Suicide 1,137</td>
<td>Suicide 7,968</td>
<td>Suicide 13,630</td>
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<td>4</td>
<td>Maternal Pregnancy Comp. 8,386</td>
<td>Malignant Neoplasms 1,831</td>
<td>Homicide 625</td>
<td>Homicide 997</td>
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<td>5</td>
<td>Unintentional Injury 6,038</td>
<td>Heart Disease 833</td>
<td>Heart Disease 462</td>
<td>Congenital Anomalies 805</td>
<td>Heart Disease 1,746</td>
<td>Heart Disease 3,542</td>
</tr>
</tbody>
</table>
Corticotropin-releasing hormone (CRH) is a key neuroendocrine factor implementing endocrine, immune and behavioral responses to stress.

CRH exerts its action through two major receptors, CRH-R1 and CRH-R2.

Strong expression of CRF-R2 in human pituitaries and the ratio of CRH-R1/R2 in the pituitary is higher for controls than for suicide victims.
The prefrontal cortex of the brain is involved in inhibiting negative thoughts and controlling impulsive behavior.

SKA2 is expressed in the brain’s prefrontal cortex and involved in cortisol suppression and is linked to stress reactions via glucocorticoid receptor transactivation.

There are significantly reduced levels of the product of gene SKA2 in people with mental illness.

In a subset of subjects who died by suicide, researchers found an epigenetic modification that caused higher levels of methylation at the SKA2 gene.
In a subset of subjects who died by suicide, researchers found an epigenetic modification that caused higher levels of methylation at the SKA2 gene.

The "epigenetic" changes in DNA that occur during a person's lifetime – in this case methylation -- may be influenced by exposure to stressful situations such as combat and increase the risk of suicide!
A BLOOD TEST FOR SUICIDE

- The test (looking for methylation at the SKA2 gene) was used to predict which patients had thought about or attempted suicide, and accuracy rate was 80%.
- Among people with more severe risks of suicide, the test’s accuracy rate jumped to 90%.
Suicide

How can suicide be prevented?

Important risk factors are:
- Depression and other mental disorders
- Substance abuse
- Prior suicide attempt
- Family history of suicide
- Family violence including physical or sexual abuse
- Firearms in the home
- Incarceration (especially for homicide)
- Exposure to the suicidal behavior of others, such as family members or peers
- However, it is important to note that many people with these risk factors are not suicidal, while others who are contemplating suicide may not have any of these risk factors.
Suicide

How can suicide be prevented?

- Multiple studies show medications decrease suicidal behavior. Treating the underlying psychiatric disorder in suicidal patients is an effective way of reducing suicidality.
- There is no evidence that one class of antidepressants is better than another in preventing suicide.
- There is no association between antidepressant usage and increased suicide risk.
- HOWEVER, high-risk patients who have previously attempted suicide do NOT show a significantly decreased rate of suicidal behavior with antidepressants.
Suicide

How can suicide be prevented?

Multiple studies show medications decrease suicidal behavior. Treating the underlying psychiatric disorder in suicidal patients is an effective way of reducing suicidality.

- **Antidepressant therapy** study in 2003 on suicidal behavior in 395 depressed patients aged 65 years or older treated with paroxetine or nortriptyline.
- **At the beginning** of the study, approximately 77% reported suicidal ideation.
- **After 12 weeks** on either medication, suicidal ideation had resolved in all.
- Those having **more severe suicidal thoughts** required a longer period of time for improvement.
Suicide

How can suicide be prevented?

• **Australian study of depressed patients and suicide** found that suicidality decreased with increased antidepressant usage.
Talking about it is not protective!

“Contracting for safety” is not effective.

Alcohol/substance use

Cluster B personality

Hopelessness

Impulsive-aggressive traits

Childhood adversity

Recent adverse life events (loss of relative, of a child, of a spouse, retired or woman going through menopause).

Living alone and poor perceived social support

Sudden calm

A family history of suicide increases risk of suicide attempts and completed suicide.

Suicide Treatment

Searching for Cause and Effect

The rate of serious suicide attempts in patients taking newer (primarily SSRI) antidepressants included in the FDA’s March 2004 advisory peaked in the month before initiation of antidepressant treatment, then declined dramatically afterward. In contrast, the rate for those patients taking older (mostly tricyclic) antidepressants was highest in the 30 days immediately prior to, and following, the initial antidepressant prescription.

Newer antidepressants (included in March 2004 FDA advisory)

Older antidepressants (not included in March 2004 FDA advisory)

Suicide attempts per 100,000

Months before and after first prescription

Suicide

How can suicide be prevented?

- **In Sweden** epidemiologic data from 1990 to 1997 indicated that there was a 23% decrease in suicide rate in the population compared with previous decades.
- **SSRI antidepressants** were introduced into Sweden in 1990, and by 1997 there was a fourfold increase in antidepressant usage.
- These findings appeared to be consistent in other Nordic nations.
Suicide

How can suicide be prevented?

- The use of clozapine, especially in high-risk populations, appears to be able to reduce suicidal behavior.

- FDA gave clozapine indication for decreasing emergent suicidal behavior in schizophrenic and schizoaffective patients.

- Death from hematologic side effects from clozapine is about 1/10,000 while the estimated death rate in high-risk schizophrenic patients for suicide is 1 in 4 or 5, and the lifetime risk for suicide in all schizophrenic patients is 1 in 8 to 12.
Suicide

How can suicide be prevented?

Using linkage of national registers in Denmark, Sondergard et al. examined the association between continued mood stabilizing treatment and suicide among all patients discharged nationwide from hospital psychiatry as an in- or outpatient during 1995 and 2000 with an ICD-10 diagnosis of bipolar disorder (n = 5926).

- Bipolar patients who continued treatment with mood stabilizers (lithium, divalproex, lamotrigine, oxcarbazepine, and topiramate) had a significantly decreased rate of suicide compared to patients who purchased mood stabilizers once only.
- The rate of suicide decreased consistently with the number of additional prescriptions.
- A switch to or augmentation with lithium for patients started on antiepileptic mood stabilizers was associated with a significantly reduced suicide rate.
- A switch to or augmentation with antiepileptics for patients first started on lithium showed no additional effect on suicide mortality.
- Long-term treatment with lithium and antiepileptic mood stabilizers was associated with similar reduction in the suicide mortality.
- Lithium may have some superiority over antiepileptic mood stabilizers in preventing suicide.
Suicide Treatment: Myths

- Talking about suicide is **NOT** dangerous!
- Suicide **contract**: “Contracting for safety” is **NOT** effective!
Suicide Treatment: ECT

- **ECT** has anti-suicidal effects in patients with **unipolar depression** and **bipolar depression**.
- ECT has **NO** anti-suicidal effects in the patients with **bipolar mania** and **mixed state**.
Suicide Treatment: Unintended consequences

- Soon after the start of the selective serotonin reuptake inhibitor (SSRI) era, which started in 1987, suicide rates in young adults between 10 and 24 years of age began declining steadily between 1990 and 2003.

- In 2003 and 2004, U.S. and European regulators issued public health warnings about a possible association between antidepressants and suicidal thinking and behavior.

- The FDA required a “black box” warning to package inserts for antidepressants because of increased risk of suicidal thoughts and behavior (suicidality) in children and adolescents. In 2007, the FDA extended the age range up to 24 years of age.
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Suicide

Treatment: Unintended consequences

U.S. Suicide rate ages 5-19
Suicide Treatment: Unintended consequences

- In the U.S. There was a 14% increase in the suicide rate for youths 5 to 19 years of age between 2003 and 2004 was the largest annual increase since 1979.
Suicide Treatment

Unintended consequences: Netherlands Suicide rate up to age 19
Suicide

Treatment: Unintended consequences

- It is possible that some patients, especially young adults and the elderly, are placed at an increased risk of suicidality because of antidepressant-induced akathisia.

- Depression in some patients, particularly younger patients who experience increased suicidality and low efficacy with antidepressants, are misdiagnosed as unipolar depression instead of as a bipolar spectrum disorder.
Suicide
TREATMENT: fMRI Brain

Promising approach to identify suicidal individuals
- suicidal and non-suicidal participants have different brain activation patterns for specific thoughts,
- analyzing alterations how the brains of suicidal individuals represent death, cruelty, trouble, carefree, good and praise.
- Method can tell whether someone is considering suicide by the way that they are thinking about these death-related topics with 91% accuracy.
- Method can identify people who had made a previous suicide attempt from those who only thought about it with 94% accuracy (The program was able to accurately distinguish the nine who had attempted to take their lives).
Suicide Treatment fMRI: Brain activation pattern for "death"
Suicide
Treatment: Evaluation documentation

1) Write so the reader does not have to guess what you were thinking. Do not force the potential reader to make inferences; explain what the facts mean to you.
2) The note should be an explicit description of how the facts of the case led you to your assessment.
3) Address the risk factors explicitly.
4) Use direct patient quotes whenever possible and applicable, use as many quotes from the patient as possible, and then interpret them!
5) Get another person's opinion and document it.
6) Explain your immediate interventions: what you did, why you did it, and the results.
7) Address why you did not use certain interventions, especially hospitalization, medications, or contacts.*

*Contracts don’t work, but you may be dealing with the ignorant
Suicide Treatment: Evaluation documentation

1) Write so the reader does not have to guess what you were thinking:
   - The biggest mistake in medical note is not writing enough in the "assessment" and "plan" section.
   - Connect the dots for the potential reader.
   - E.g., "Patient denied suicidal ideations . . . was joking with staff . . . contracts for safety. . . “ (then make it obvious what you were thinking): "I was able to conclude that the patient wasn't suicidal because not only was he denying suicidality but his good affect and joking with staff reinforced that he felt better."
   - Alternatively: "With me, he was crying, but when I left the room and he thought the evaluation was over, I watched him joking and laughing with one of the nursing assistants, from which I inferred that he was exaggerating some of his symptoms." The diagnosis "Malingering; plan: discharge," Doctors are not omniscient; they can be wrong as long as they were reasonable in their judgment.
Suicide
Treatment: Evaluation documentation

- E.g., "However, given his history of impulsiveness, drug use, and past suicide attempts, it is probable that he will attempt suicide again at some point in his life when stressed. Unfortunately, this is a function of his future acute stressors—stressors over which I have no current control—not how he feels right now."
Suicide Treatment: Evaluation documentation

2) The note should be an explicit description of how the facts of the case led you to your assessment:

- **Address the risk factors explicitly.** E.g., "Based on this, I concluded that. . . ."

- **Hopelessness** and pessimism about the **future** are very important **predictors of risk**, and they should be noted explicitly. E.g., "Currently he is not suicidal, feels fairly hopeful about the future, and has made some specific future plans like. . . ."
Suicide

Treatment: Evaluation documentation

3) Address the risk factors explicitly:

- E.g., "The main risk factors for suicide in this patient include a history of previous suicidality, a diagnosis of borderline personality disorder, and alcohol abuse; however, he has not actually ever made an attempt, has been abstinent for 2 days and has a low risk for withdrawal, is highly motivated to continue treatment as an outpatient, and denies access to weapons (wife corroborates this)." However, given his history of repeated suicidal ideation, it is probable that he will attempt suicide again at some point in his life when stressed. Unfortunately, this is a function of his future acute stressors—stressors over which I have no current control—not how he feels right now."

- Admitting that the patient is likely to attempt suicide again in the future but that it has nothing to do with how he feels today is important.
4) Use direct patient quotes whenever possible and applicable., and use as many quotes from the patient as possible and then interpret them!

**E.g.,** He said, “I will never kill myself, because of my children.”
Suicide

Treatment: Evaluation documentation

5) Get another person's opinion and document it.
   - E.g., "Spoke with his wife, who agreed with my plan; she said, 'I didn't think he needed to be hospitalized.’ Or if they did not agree," "Discussed the situation with Doctor X, who also evaluated the patient, and X agreed with me.”
Suicide

Treatment: Evaluation documentation

6) Explain your immediate interventions: what you did, why you did it, and the results.

- Tie it together.

"Given the chronicity of the patient's suicidality, I have to do something that will actually help him in the long term. I believe he is not suicidal now, so my responsibility is to help decrease his suicide risk as best I can. I believe that the best way to help is to refer him for [intensive therapy/day program/psychiatric visit] for long-term follow-up so he can have somewhere to go and someone to manage him as symptoms and stressors develop. We discussed a crisis plan for future suicidality: at the first sign of distress he will call X; if this is not sufficient, he will call Y, and then Z. In addition, person A will stay with him and, if symptoms worsen, A will bring the patient to the ED."
7) Address why you did not use certain interventions, especially hospitalization, medications, or contacts.

- When the lawyer asks, "Why didn't you hospitalize him?" write the report so the jury will already be aware of the answer.

- Do not simply write that you are not going to hospitalize the patient, write why!

- E.g., "Hospitalizing Mr. X now is not going to alter that future eventuality and thus is not indicated today. In fact, recurrent hospitalization may be detrimental because it seems to have established a pattern of dependency rather than finding better ways to deal with distress."
Suicide

Treatment: Evaluation documentation

- Tie it together.

"Given the chronicity of the patient's suicidality, I have to do something that will actually help him in the long term. I believe he is not suicidal now, so my responsibility is to help decrease his suicide risk as best I can. I believe that the best way to help is to refer him for [intensive therapy/day program/psychiatric visit] for long-term follow-up so he can have somewhere to go and someone to manage him as symptoms and stressors develop. We discussed a crisis plan for future suicidality: at the first sign of distress he will call X; if this is not sufficient, he will call Y, and then Z. In addition, person A will stay with him and, if symptoms worsen, A will bring the patient to the ED."
Dear Tom Cruise, It's over.
-Katie

Goodbye cruel world

THE END
(pun intended?)
"To be, or not to be..." is the opening phrase of a soliloquy in the "Nunnery Scene" of William Shakespeare's play *Hamlet*. In the speech, Prince *Hamlet* contemplates death and suicide.

To be, or not to be--that is the question: Whether 'tis nobler in the mind to suffer the slings and arrows of outrageous fortune or to take arms against a sea of troubles and by opposing end them. *To die, to sleep-*

*no more--and by a sleep to say we end the heartache*, and the thousand natural shocks that flesh is heir to.
A Blood Test for Suicide

Metabolome* analysis of blood plasma using liquid chromatography mass spectrometry:

Five plasma metabolites (3-hydroxybutyrate, betaine, citrate, creatinine, and GABA are commonly associated with the severity of depression regardless of the presence or absence of medication and diagnostic difference.

* Metabolome refers to the complete set of small-molecule chemicals found within a biological sample.
Suicide

Treatment: Social Support

- **Courts** have determined that negative consequences are impermissible
- Resultant examinations and restrictions are based on stereotypes and are deemed discrimination under Title II of the Americans with Disabilities Act (ADA).
Suicide

Definition: Hesitation marks
specific associations exist between depression and particular physical disorders.

- **Stroke** and cardiovascular disease

- both the disability and the putative direct impact on depression neurobiology
specific associations exist between depression and particular physical disorders.

- **Stroke**
  - both the disability and the putative direct impact on depression neurobiology
  - association between depression and the left frontal pole regions, and euphoria and right hemisphere lesions
  - patients recruited from the community, in the 12 months after stroke, “emotionalism” occurred in 10% to 20% and was associated with left-sided anterior lesions but there were few cases of major depression.
  - lesions in the region of the left basal ganglia have been suggested to be more specifically associated with depression.
- **Poststroke depression.** Is there a pathoanatomic correlate for depression in the postacute stage of stroke?
Physical illness increases the risk of developing severe depressive illness via two broadly different mechanisms

- most common, and is usually described as having a psychological or cognitive mechanism. "common cold" of psychiatry.
- the threat that any severe and/or chronic illness may pose to an individual's sense of purpose and meaning in life.

The mechanisms may be both genetic and nongenetic
Physical illness increases the risk of developing severe depressive illness via two broadly different mechanisms

- In 222 patients interviewed between 5 and 15 days following the MI and followed up for 6 months, depression was a significant and independent predictor of mortality from cardiac causes (95% confidence interval [CI], 4.61 to 6.87). The effect was confirmed at 18 months.

- Depressive symptoms are also associated with increased medical comorbidity post-MI, which is a further mechanism likely contributing to a poor outcome.

- The depressive syndrome following MI one small study has suggested atypical features.
Physical illness increases the risk of developing severe depressive illness via two broadly different mechanisms

- evolving evidence that depressive symptoms can predict an elevated risk of MI many years before it occurs and/or in the few weeks before an acute admission.
- Baltimore cohort of the Epidemiologic Catchment Area (ECA) study showed that, compared with respondents with no history of dysphoria, the odds ratio for MI associated with a history of dysphoria was 2.07 (95% confidence interval [CI], 1.16 to 3.71), and with a history of major depressive episode was 4.54 (95% CI, 1.65 to 12.44), independent of coronary risk factors.