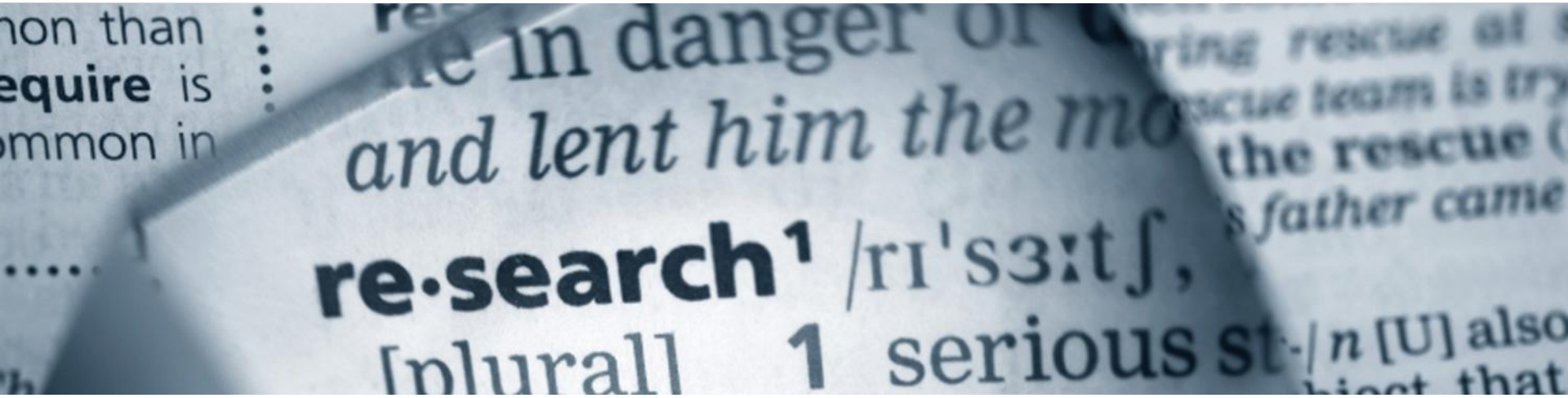

Depression and Suicide

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Depression Outline

1. Depression case studies
2. Brief overview of psychiatric illnesses and timeline history of mood disorders
3. Problems with depression as an impairment
4. Mood disorder definitions, epidemiology
5. Serotonin
6. Beck Depression Inventory (BDI)
7. Suicide: epidemiology, risk factors
8. Key points
9. Recap of depression case studies

Case Study 1

- Male age 36 Nonsmoker Applying for $100,000
- Occupation is OB/GYN
- Current labs, build and BP all favorable
- Family history grandfather died of asphyxiation (? Suicide)
- Fifteen years ago sought treatment for depression, wanted to lie in bed, weight loss 10-15 #, anhedonia, sadness, wished he would die. Rx Imipramine and was discharged from care. He had a leave from medical school at this time.
- Five years later he had returned during his residency with recurrent symptoms and rx Imipramine again; He was tempted to take phenobarbital but reported he decided against suicide. He look a leave of absence from his residency, tapered off meds within 6 months and reported doing well.

Case Study 1 (continued)

- Two years later his wife phoned his MD and said he was in a tail spin; reportedly suicidal. Rx Imipramine and went into remission after which meds were tapered again.
- Five years later he had a mild recurrence of depression that responded to one MD visit and a few weeks of meds. This was the last documented occurrence of depression and treatment; no further information on this condition in three years prior to application.
- Other medical history includes GERD, endoscopy for food obstruction many years ago, hemorrhoidectomy, chest pain 5 years ago with a negative cardiac evaluation.

- Offer?

Case Study 2

- Male age 48 Nonsmoker Applying for $200,000
- Occupation is Attorney
- Current labs, build and BP are all favorable
- Rare alcohol use, no drug use
- Suicide attempt 10 years ago with an aspirin overdose due to marital and job stress, inpatient monitoring 48 hours and discharged to see a psychiatrist as an outpatient. He was seen and Rx Paxil 20 mg. He later divorced.
- Eight years ago during a physical exam he had discontinued Paxil, history of MVP, WPW – asymptomatic and an echo showed moderate mitral regurgitation.

Case Study 2 (continued)

- Seven years ago he had an episode of transient global amnesia while on vacation/honeymoon in Mexico. An MRI of the brain was normal.

- Offer?

Case Study 3

- Male age 47 Nonsmoker Applying for $1,000,000
- Occupation is Anesthesiologist
- Current labs, build and BP are all favorable
- Twelve years ago noted history of daily cocaine and alcohol use but none since then. Psych APS verified this history. He had been followed by Psych and maintained on Wellbutrin 150 md qd and Prozac 40 mg qd. Diagnosis was depressed mood without suicidality.
- Seven years ago diagnosed with obstructive sleep apnea with RDI of 27, oxygen desaturation to 81%. He uses CPAP regularly and reports no problems.
- Offer?

Cases

Case 1

std T-2-3 T-4-6 T-8 decline reasons:

Case 2

std T-2-3 T-4-6 T-8 decline reasons:

Case 3

std T-2-3 T-4-6 T-8 decline reasons:

Brief Overview of Psychiatric Illnesses

- Human behavior is complex with cognition, thoughts, emotions, and actions, style, and coping all playing a role in our behavior
- **Cognitive problems** can be acute or chronic
- **Dementia** is the broad diagnostic category of cognitive decline
- **Thought disorders** are included in the group of **psychotic** and **schizophrenic** disorders
- **Emotional disorders** are also called **mood disorders** and/or **affective disorders** are the subject of this talk
- Dysfunctional actions, style, and coping are categorized as various **personality disorders**

Mood Disorders

Mood Conscious state of mind or predominant emotion, feeling; a prevailing attitude; a state of mind in which an emotion gains ascendancy

Affect Feeling, the conscious subjective aspect of an emotion considered apart from bodily changes

Emotion Disturbance or excitement; the affective aspect of consciousness, a state of feeling, a psychic and physical reaction subjectively experienced as strong feeling and physiologically involving changes that prepare the body for immediate vigorous action

Feeling Generalized body consciousness or sensation; appreciative or responsive awareness or recognition; an emotional state or reaction; the undifferentiated background of one's awareness considered apart from any identifiable sensation, perception or thought

Mood Disorders

- **Mood disorders** are all related to feelings and emotions.
- **Mood disorders** run the gamut from feeling or being **depressed** to feeling or being **manic**. **Depression** can occur by itself, so-called **unipolar mood disorder**. **Depression** can occur with **mania**, called **bipolar mood disorder**.
- **Mania** is always also associated with **depression**.

Mood Disorders

The spectrum of the four Mood Disorders:

- **Depression…**
- **Dysthymia…**
- **Cyclothymia…**
- **Bipolar Disorders I,II**

Brief History of Mood Disorders

2600 BC	Melancholia and hysteria identified in Egypt and Sumerian
1400 BC	Psychiatric nosology contained in the medical classification system of the Ayur-Veda in India
400 BC	Hippocrates (460-357 BC) in Greece developed a theory of temperaments
166 BC	Galen (201-131 BC) refined the system of humors, which persisted until the middle ages

Brief History of Mood Disorders

150 AD	Aretaeus of Cappadocia is credited with making the connection between melancholia and mania, i.e., bipolar
1621 AD	Robert Burton published the first English text devoted to affective illness, *Anatomy of Melancholy*
1800 AD	Benjamin Rush (1745-1813) described tristamania a form of melancholia in which sadness predominated

Brief History of Mood Disorders

1870 Henry Maudsley (1835-1918) coined the term "affective disorders"; affective disorders=mood disorders

1880 Seven categories of mental illness in the U.S. census: melancholia, mania, monomania, paresis, dementia, dipsomania, epilepsy

1994 DSM-IV published last major revision:

- Axis I-all mental disorders
- Axis II-personality disorders and mental retardation
- Axis III-physical and medical conditions
- Axis IV-psycho-social, environmental problems
- Axis V-GAF score

Brief History of Mood Disorders

Global Assessment of Functioning (GAF) score

- The ICD-10 is used in Europe. All DSM-IV categories are used in the ICD-10, but not all ICD-10 categories are in the DSM-IV.

- 2000 DSM-IV Text Revision Published; next planned major revision is planned for release 2013 (Diagnostic and Statistical Manual of Mental Disorders)

DSM 5

- Approved by American Psychiatric Association
- To be published 2013
- Multiaxial system will be removed and a nonaxial documentation of diagnosis will combine the former Axes I, II and III
- There will be separate notations for psychosocial and contextual factors (formerly Axis IV) and disability (formerly Axis V)
- Rearrangement of chapter order based on disorders' relatedness to one another
- DSM 5 will align with the International Classification of Diseases (ICD-11) to facilitate improved communication and common use of diagnoses across disorders within chapters

Global Assessment of Functioning (GAF) Scale

(From DSM-IV-TR, p. 34.)

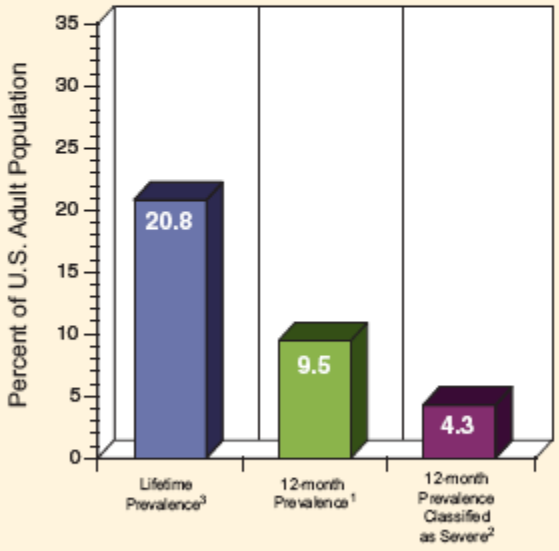
Consider psychological, social, and occupational functioning on a hypothetical continuum of mental health-illness. Do not include impairment in functioning due to physical (or environmental) limitations.

Code	(Note: Use intermediate codes when appropriate, e.g., 45, 68, 72.)
100 | 91	**Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his or her many positive qualities. No symptoms.**
90 | 81	**Absent or minimal symptoms** (e.g., mild anxiety before an exam)**, good functioning in all areas, interested and involved in a wide range of activities. socially effective, generally satisfied with life, no more than everyday problems or concerns** (e.g. an occasional argument with family members).
80 | 71	**If symptoms are present, they are transient and expectable reactions to psychosocial stressors** (e.g., difficulty concentrating after family argument); **no more than slight impairment in social, occupational or school functioning** (e.g., temporarily failing behind in schoolwork).
70 | 61	**Some mild symptoms** (e.g. depressed mood and mild insomnia) **OR some difficulty in social, occupational, or school functioning** (e.g., occasional truancy, or theft within the household)**, but generally functioning pretty well, has some meaningful interpersonal relationships.**
60 | 51	**Moderate symptoms** (e.g., flat affect and circumstantial speech, occasional panic attacks) **OR moderate difficulty in social, occupational, or school functioning** (e.g.. few friends, conflicts with peers or co-workers).
50 | 41	**Serious symptoms** (e.g.. suicidal ideation, severe obsessional rituals, frequent shoplifting) **OR any serious impairment in social, occupational, or school functioning** (e.g., no friends, unable to keep a job).
40 | 31	**Some impairment in reality testing or communication** (e.g., speech is at times illogical, obscure, or irrelevant) **OR major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood** (e.g., depressed man avoids friends, neglects family, and is unable to work; child frequently beats up younger children, is defiant at home, and is failing at school).
30 | 21	**Behavior is considerably influenced by delusions or hallucinations** **OR serious impairment in communication or judgment** (e.g., sometimes incoherent, acts grossly inappropriately, suicidal preoccupation) **OR inability to function in almost all areas** (e.g., stays in bed all day; no job, home, or friends).
20 | 11	**Some danger of hurting self or others** (e.g., suicide attempts without clear expectation of death; frequently violent; manic excitement) **OR occasionally fails to maintain minimal personal hygiene** (e.g., smears feces) **OR gross impairment in communication** (e.g., largely incoherent or mute).
10 | 1	**Persistent danger of severely hurting self or others** (e.g., recurrent violence) **OR persistent inability to maintain minimal personal hygiene** **OR serious suicidal act with clear expectation of death.**
0	Inadequate information.

Mood Disorders

Prevalence

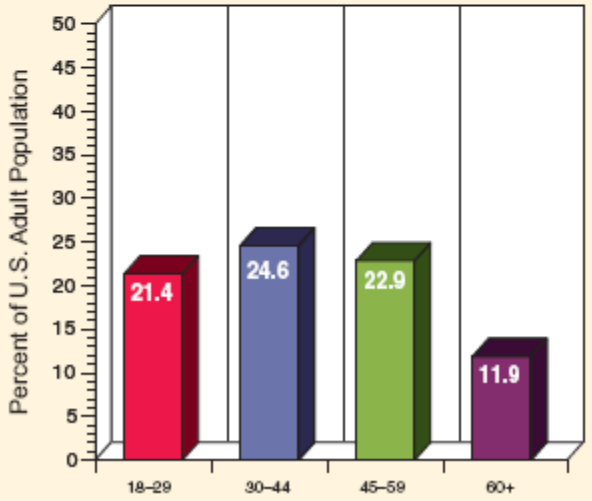
- **12-month Prevalence:** 9.5% of U.S. adult population[1]
- **Severe:** 45.0% of these cases (e.g., 4.3% U.S. adult population) are classified as "severe"[2]



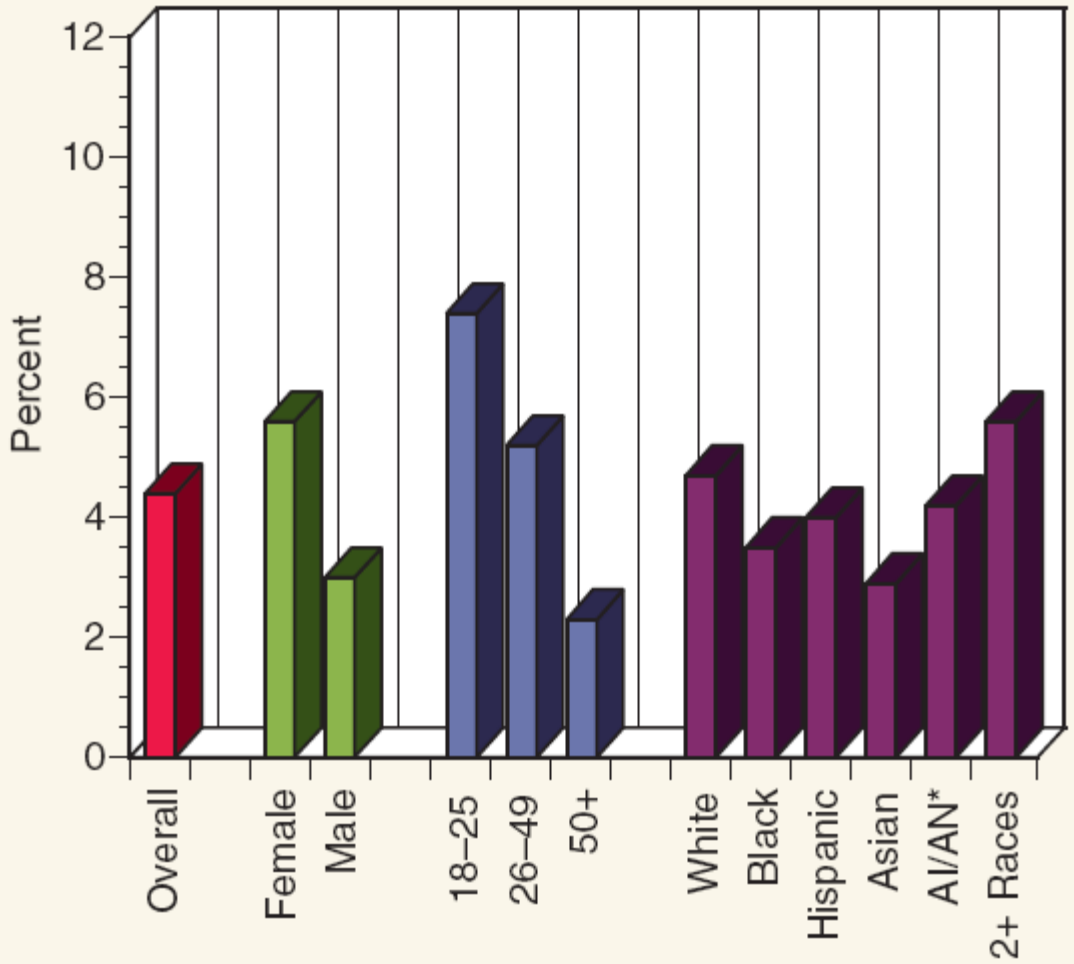
Average Age-of-Onset: 30 years old[4]

Demographics (for lifetime prevalence)[5]

- **Sex:** Women are 50% more likely than men to experience a mood disorder over their lifetime
- **Race:** Non-Hispanic blacks are 40% less likely, and Hispanics are 20% less likely, than non-Hispanic whites to experience a mood disorder during their lifetime
- **Age:**



Prevalence of Serious Mental Illness Among U.S. Adults by Sex, Age, and Race in 2008



*AI/AN = American Indian/Alaska Native

Data courtesy of SAMHSA

Problems with Depression

1. There are definitions and criteria for **depression** and other psychological disorders, but the definitions are all based on the **presence or absence of subjective symptoms** and signs
2. There are no **specific objective tests** to diagnose **depression** or any psychological disorder
3. There are **no specific biochemical/physiological laboratory tests** to diagnose **depression** or any psychological disorder or the severity of the **depression** or psychological disorder
4. The **etiology** and **pathogenesis** of **depression** and all of the psychological disorders are **unknown**

Problems with Depression

5. Difficulties elucidating the pathophysiology of the mood disorders include:
    a) No gross neuropathological changes
    b) No satisfactory animal model
    c) Limitations of studying brain function in vivo
    d) Complexity of studying interactions between psychosocial stressors and biological predisposition
    e) No biological markers to differentiate mood disorder subtypes and the normal state

Major Depressive Episode Criteria

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure

   Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations

   1. depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). Note: In children and adolescents, can be irritable mood.
   2. markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)
   3. significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. Note: In children, consider failure to make expected weight gains.
   4. insomnia or hypersomnia nearly every day
   5. psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)
   6. fatigue or loss of energy nearly every day
   7. feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
   8. diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)
   9. recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

B. The symptoms do not meet criteria for a Mixed Episode

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism)

E. The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

Manic Episode Criteria

A. A distinct period of abnormally and persistently elevated, expansive or irritable mood, lasting at least 1 week (or any duration if hospitalization is necessary)

B. During the period of mood disturbance, three (or more) of the following symptoms have persisted (four if the mood is only irritable) and have been present to a significant degree:

1. inflated self-esteem or grandiosity
2. decreased need for sleep (e.g., feels rested after only 3 hours of sleep)
3. more talkative than usual or pressure to keep talking
4. flight of ideas or subjective experience that thoughts are racing
5. distractibility (i.e., attention too easily drawn to unimportant or irrelevant external stimuli)
6. increase in goal-directed activity (at work, at school, or sexually) or psychomotor agitation
7. excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g., engaging in unrestrained buying sprees, sexual indiscretions, or foolish business investments)

C. The symptoms do not meet criteria for a Mixed Episode

D. The mood disturbance is sufficiently severe to cause marked impairment in occupational functioning or in usual social activities or relationships with others, or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.

E. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication or other treatment) or a general medical condition (e.g., hyperthyroidism)

Note: Manic-like episodes that are clearly caused by somatic antidepressant treatment (e.g., medication, electroconvulsive therapy, light therapy) should not count toward a diagnosis of Bipolar I disorder.

Dysthymic Disorder Criteria

A. Depressed mood for most of the day, for more days than not, as indicated either by subjective account or observation by others, for at least 2 years. Note: In children and adolescents, mood can be irritable and duration must be at least 1 year.

B. Presence, while depressed, of two (or more) of the following:

   1. poor appetite or overeating
   2. Insomnia or Hypersomnia
   3. low energy or fatigue
   4. low self-esteem
   5. poor concentration or difficulty making decisions
   6. feelings of hopelessness

C. During the 2-year period (1 year for children or adolescents) of the disturbance, the person has never been without the symptoms in Criteria A and B for more than 2 months at a time.

D. No Major Depressive Episode has been present during the first 2 years of the disturbance (1 year for children and adolescents); i.e., the disturbance is not better accounted for by chronic Major Depressive Disorder, or Major Depressive Disorder, In Partial Remission. Note: There may have been a previous Major Depressive Episode provided there was a full remission (no significant signs or symptoms for 2 months) before development of the Dysthymic Disorder. In addition, after the initial 2 years (1 year in children or adolescents) of Dysthymic Disorder, there may be superimposed episodes of Major Depressive Disorder, in which case both diagnoses may be given when the criteria are met for a Major Depressive Episode.

E. There has never been a Manic Episode, a Mixed Episode, or a Hypomanic Episode, and criteria have never been met for Cyclothymic Disorder.

F. The disturbance does not occur exclusively during the course of a chronic Psychotic Disorder, such as Schizophrenia or Delusional Disorder.

G. The symptoms are not due to the direct physiological effects of a substance(e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

H. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

"The Depressive Disorder Not Otherwise Specified includes disorders with depressive features that do not meet the criteria of Major Depressive Disorder, Dysthymic Disorder, Adjustment Disorder With Depressed Mood, or Adjustment Disorder With Mixed Anxiety and Depressed Mood." Six examples of Depressive NOS disorders are provided in the main text but no separate diagnostic codes are specified for these examples:

1. Premenstrual dysphoric disorder;
2. Minor depressive disorder;
3. Recurrent brief depressive disorder;
4. Postpsychotic depressive disorder of Schizophrenia;
5. A Major Depressive Episode superimposed on Delusional Disorder, Psychotic Disorder NOS, or the active phase of Schizophrenia; and
6. A depressive disorder is present but the clinician cannot determine whether it is primary or due to a general medical condition or substance induced.

Depression

- **Depression** is classified as a primary **mood disorder**, but it can also be a normal feeling or a symptom associated with another disease
- **Major Depressive Disorder** (**MDD**) is at the severe end of unipolar depressive mood disorders
- In the U.S., **MDD** has a lifetime prevalence of 16% (about 1 out of 6 people) and 7% of outpatients are said to have **MDD**
- **MDD** occurs twice as often in **females** compared to **males**
- **MDD** is characterized by **anergia** (loss of energy), **anhedonia** (loss of ability to experience pleasure), and **loss of libido**
- The median age of onset is 34, and **depression** rates are highest in the 25-44 year olds
  - 20% have onset as teenagers
  - 10% of **MDD** cases develop a **bipolar disorder**

Depression

- **Depression** occurs more commonly in people with a family history of mood disorders, but the exact inheritance pattern is undefined and felt likely to be polygenic in nature (more than one gene involved)
- **Environmental factors** increasing the risk of depression include experiencing punitive child rearing, parental negativity, lower income, poor marital relationship, divorce, chronic medical conditions, poor medical health, poor social support, and loss of a loved one
- **Dysthymia** is chronic **depressive** symptoms for two years, but not severe enough to be diagnosed as a **MDD** ~5% of OP have **dysthymia**
- Up to 75% of women have dysphoric mood prior to menstruation (**premenstrual dysphoric disorder**-PMDD or PMS), and **postpartum depression** occurs in 10-20% of women

Bipolar Disorder

- **Bipolar disorder** is characterized by **depression** and episodes of **mania** with grandiosity, impulsivity, distractibility, rapid flight of ideas, excessive involvement in pleasurable activities, loss of economic and social judgment, and impaired social function.
- **Bipolar I** is episodes of **MDD** and **mania**, females=males
- **Bipolar II** is at least two episodes of **MDD** and **hypomanic** episodes, females>males
- **Cyclothymia** is characterized by numerous fluctuating periods of **depressive** and **hypomanic** symptoms for at least two years, but the symptoms and episodes do not meet the criteria for full blown **manic** episodes or **MDD**

Bipolar Disorder

- **Bipolar disorder** affects about 1.5% of the population-incidence. The lifetime prevalence of **bipolar disorder I** is 4.5%, of **bipolar disorder II** is 1.1%, and of people with mania and depression not meeting **bipolar disorder I** or **II** criteria is 2.4% for a total of 8%
- Peak age of onset is 15 to 25 years old, earlier onset more likely in males
- 10-15% of **bipolar disorder** patients have four or more episodes per year of **mania** and **depression**, called **rapid cycling**, which is more common in females, and carries a worse prognosis
- **Bipolar disorder** is the sixth leading cause of disability adjusted life-years in ages 15-44 worldwide, and **depression** is the number four cause of disability worldwide

Bipolar Disorder

- **Bipolar disorder** has the strongest genetic component of all the mood disorders; monozygotic twins have a 50% concordance rate; the condition is said to be 80% heritable
- There is no strong evidence for **environmental factors**, but factors implicated include obstetrical complications, traumatic brain injury, stressful life events, and winter-spring births
- Suicide risk in **bipolar disorder** is high; the incidence of suicide is 0.4% per year and accounts for 15 to 20% of all deaths in people with **bipolar disorder** with the suicide risk highest, up to 25%, in the first year of the illness

DSM-IV	Mood Disorder	Disease Classification

Depressive disorders

1. **Major depressive disorder**
   - single episode
   - recurrent
2. **Dysthymic disorder**
3. **Depressive disorder NOS**

secondary to/associated with

Bipolar disorders

1. Bipolar I disorder
2. Bipolar II disorder
3. Cyclothymic disorder
4. Bipolar disorder NOS

Reactive	Medical illness	Other psych illnesses
loss of a loved one	Alzheimer's/dementia	ETOH/drug abuse
financial loss	cancer	eating disorders
object loss	CAD/MI/cabg	anxiety disorders
job loss	dialysis	personality disorders
	DM, thyroid disease	schizophrenia
	chronic pain	
	chronic inflammation	
	infections	
	medications	

there are multiple other mental disorders classifications

- anxiety disorders
- somatoform disorders
- eating disorders
- sleep diorders
- personality disorders
- impulse-control disorders

Depression

- 50% of **Obsessive Compulsive Disorder (OCD), panic disorder**, and **schizophrenia** patients develop depression (**MDD**)
- Persons with an affective disorder (**mood disorder**) have a life-time risk for alcohol-use disorders of 22%
- The name for the combination of impairments occurring in the same person is **comorbidity**
- **Comorbidities** are common with all mental disorders and with alcohol and substance abuse

Depression and Comorbidities

- **60%** of **bipolar disorder** cases develop substance abuse (8% in the general population)
- **20.5%** of alcoholism cases have **depression** (7.2% of the general population)
- **23.5%** of alcoholism cases have **anxiety** (11.1% of the general population)

Depression Natural History

- Average length of **untreated MDD** episodes ~8 months
  - 50% recovered in one year
  - 70% recovered in five years
  - 85% recovered in fifteen years
- **Treated** episodes
  - 63% recovery in four months,
  - 80% recovery in 3 years
- 5-15% of **untreated MDD** commit **suicide**
- 10-15% of **MDD** develop **mania**
  (i.e., progressing to **bipolar disorder**)

Cardiac Patient Treatment

- **Diet** - wt loss, low salt, low fat, avoid sugars
- **Exercise** - close monitoring, cardiac rehab classes, home exercise program
- **Medications** - lipid lowering, lower BP, beta blockers, diuretics, blood thinners
- **Follow-up** - cardiologist, family care doctor, support group

Depression Patient Treatment

- **Diet** - may be mentioned if wt loss needed or eating disorder
- **Exercise** - may be recommended
- **Medications** - an office visit requires 4.5 minutes to prescribe a medication
- **Follow-up** - psychiatrist, psychologist, family doctor, possibly a support group

Depression Treatment

- According to National Institute of Mental Health surveys, **70%** of **depressed** patients **do not** receive treatment
- **Antidepressant medication** is the mainstay of treatment, and **65%** of patients ultimately respond to medication and recover
- Another **20%** are helped by or respond to **electroconvulsive therapy** (**ECT**) – severe or life threatening depression, unable to take medications or unresponsive to medications
- About **15%** of patients are refractory or resistant to treatment
- The mechanisms of therapeutic action of all of the medications used to treat **depression** remain uncertain
- Redevelopment of symptoms **<6** months after treatment is discontinued is a **relapse**; redevelopment of symptoms **>6** months after treatment is discontinued is a **recurrence**

Anti Depression Medications

Major Classes of Medications

- Selective Serotonin Reuptake Inhibitors – (SSRI's) – block reabsorption of the neurotransmitter Serotonin in the brain. This balances the Serotonin levels in the brain.
- Serotonin-Norepinephrine Reuptake Inhibitors (SNRI's) – increase Norepinephrine as well as Serotonin levels.
- Monoamine Oxidase Inhibitors (MAOI's) – block the action of monoamine oxidase which break down levels of Serotonin, Norepinephrine and Dopamine which in turn allows the levels of these to increase in the brain.
- Tricyclics – inhibit reabsorption of Serotonin and Norepinephrine and to a lesser extent Dopamine.
- Serotonin Antagonist and Reuptake Inhibitor (SARI's) and Norepinephrine Dopamine Reuptake Inhibitors (SNRI's)

Serotonin

- **Serotonin** is a **neurotransmitter** discovered in 1948; its name came from the facts that it was found in serum and it affected vascular tone (vasoconstriction)
- Our bodies have 5-10 mg total of **serotonin**
- **Serotonin** (**5-HT**) has many functions
  - Via **blood vessel receptors**, **5-HT** causes vasoconstriction and increased platelet aggregation
  - Via **GI receptors**, **5-HT** affects secretion, peristalsis, vomiting, and increases GI motility
  - Via **CNS receptors**, **5-HT** affects appetite control, temperature, sleep, mood, behavior, memory and learning (not a complete list)
- Increased **serotonin** is associated with an increased pain threshold, increased mental alertness, decreased food intake, an increased ease of falling asleep, and a general sense of well-being
- **Chocolate** and **vigorous exercise** are known to increase serotonin levels
- In summary, there is still much unknown about serotonin and the serotonin receptors in normal health and in various diseases

Top 10 Prescribed Antidepressants

- Zoloft (SSRI)
- Lexapro (SSRI)
- Prozac (SSRI)
- Wellbutrin (NDRI)
- Paxil (SSRI)
- Effexor (SNRI)
- Celexa (SSRI)
- Desyrel (SARI)
- Elavil (Tricyclic)
- Cymbalta (SNRI)

Antidepressant Medications

- All of the **antidepressant medications** are effective in some patients and not in other patients
- There is no way to predict ahead of time which antidepressant is the most likely to be effective, nor which antidepressant will have unpleasant side effects in a specific patient
- Even though a particular antidepressant is not effective, a different antidepressant may be very effective
- A therapeutic trial of medications is necessary
- Some patients benefit from combining medications, i.e., one medication for depression, one medication to aid sleeping, one medication to help with mania/hypomania, or one medication to help anxiety

Depression and Mortality Risk

- **Depression** is associated with an increased mortality risk due to **accidents**, **suicides**, and **adverse effects** of **depression** on illnesses such as heart disease, cancer, stroke, diabetes and other chronic diseases
  - The more severe the depression, the greater the adverse effects and mortality risk
- Introduced in 1961, the **Beck Depression Inventory (BDI)** is a commonly used tool to assess the degree of **depression** present, which is as effective at detecting **depression** as longer, more costly interviews
  - A fifth-grade to sixth-grade reading level is required. (there are numerous other tests that are performed in a similar manner)

Beck Depression Inventory (BDI)

- Self-administered, 21 symptoms are rated by intensity on a scale of 0 to 3, and then totaled
- The 21 items:
- Sadness, pessimism, sense of failure, guilt, dissatisfaction, expectation of punishment, dislike of self, self-accusation, suicidal ideation, episodes of crying, irritability, social withdrawal, indecisiveness, change in body image, retardation in work, insomnia, loss of appetite, fatigability, loss of weight, somatic preoccupation, low level of energy

Beck Depression Inventory - II

- Revamped in 1996 to be more consistent with DSM-IV criteria for Major Depressive Disorder
- Still 21 questions – asked about feelings over a two week period versus one week in BDI original version
- Useful with patients ages 13 and over

Beck Depression Inventory (BDI)

Scores and general level of depression:

0 to 13	No or minimal depression
14 to 19	Mild depression
20 to 28	Moderate depression
29 to 63	Severe depression, possible exaggeration of depression; possible borderline or histrionic personality disorder. Higher total scores indicate more severe depression symptoms.

Depression and Co Morbid Conditions

- Type 2 diabetics with depression have an increased risk for MI; with depression only MI rate 3.5%; with diabetes only MI rate 5.9%; with depression and diabetes combined MI rate 7.4%
- Patients hospitalized for acute coronary syndrome who have major depression are twice as likely to die within 7 years if their depression does not significantly improve (same risk no matter if one or multiple episodes of depression in their history)
- Prevalence of co-morbid diabetes and depression was significantly higher in patients who had an MI (more than 2 times). Use of antidepressant drug was significantly associated with decreased risk of MI – further studies warranted to verify

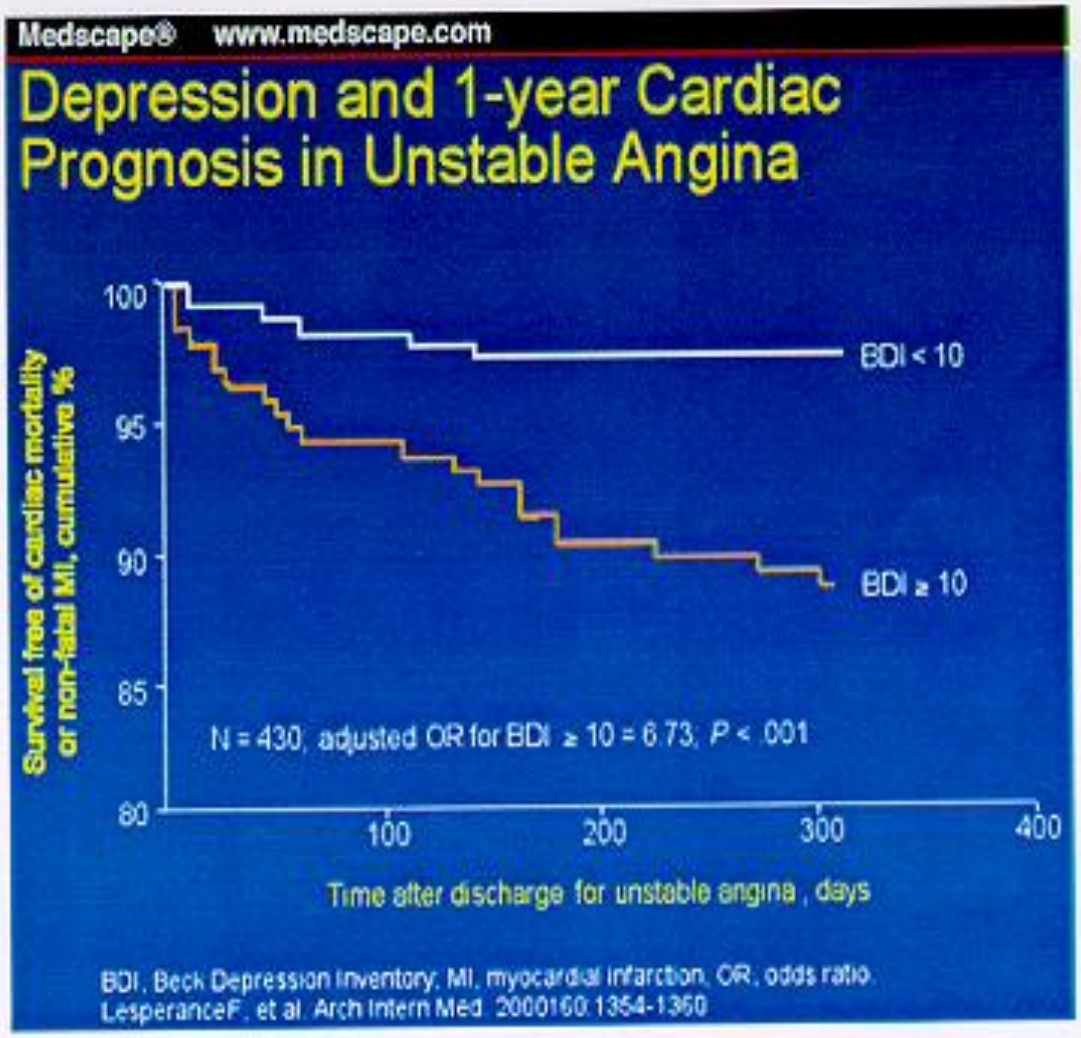


Figure 2. Depression and 1-year cardiac prognosis in unstable angina. [Lespérance F, Frasure-Smith N, Juneau M, Théroux P. Depression and 1-year prognosis following unstable angina. Arch Intern Med. 2000;160:1354-1360.]

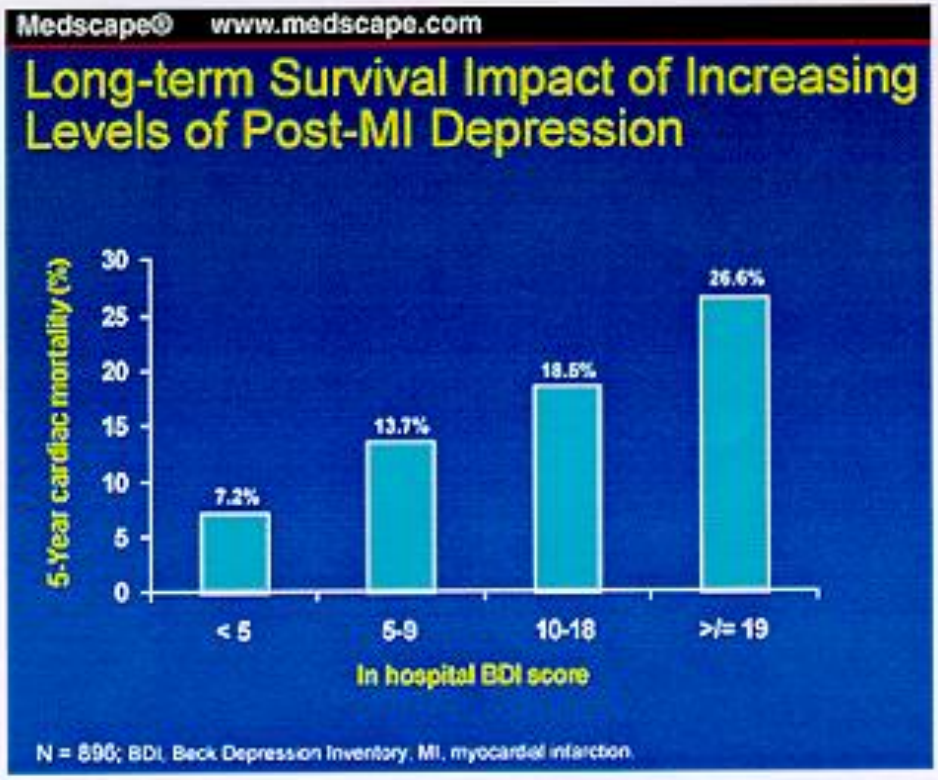


Figure 1. Long-term survival impact of increasing levels of post-MI depression. Risk of cardiac mortality in relation to initial severity and 5-year changes in depression symptoms after myocardial infarction.

Is it really depression, per se? It has been argued that rather than "depression," it is really factors such as job stress, anger/hostility, type A behavior, anxiety, and lack of social support that are the real prognostic factors for death from CAD in the depressed patient. However, when the occurrence of death from CAD is correlated with these various other factors and then correlated with depression, it is the association of CAD with depression that is the most consistent. The majority of studies demonstrate that depression is associated with at least a doubling of risk for cardiovascular events, independent of age and various other cardiac risk factors. Similar data exist for survival and myocardial infarction (MI) after an acute presentation in patients with unstable angina (Figure 2).

Suicide Epidemiology

- In the world each year, about one million people die by suicide or about 2700 people per day; in the U.S. in 2007, there were 34,598 reported suicides, about 95 people per day
- In Latin America and Muslim countries the suicide rate is ~6.5/100,000; in Ireland and Egypt the suicide rate is <10/100,000; the U.S. suicide rate is ~12/100,000; the Eastern Europe suicide rate is ~27/100,000, while the Baltic states suicide rate average >35/100,000. 7/10 Marine suicide rate is 24/100,000 per USA Today
- The number one suicide site in the world is the Golden Gate Bridge in San Francisco
- In 2005 in the U.S., of the 25,566 **male** suicides committed, 58% were by **firearms**, 23% hanging or suffocation, and 12% by poisons. Of the 6,873 **female** suicides committed, 39% were by **poisons**, 31% by firearms, and 20% by hanging or suffocation

Suicide Epidemiology

- There are about 12 suicide attempts for 1 completed suicide
  - Lifetime suicide risk for attempters is 10-15%
  - There are 4 male suicides for every female suicide
  - There are three female attempted suicide for every male attempted suicide
- 90%-95% of suicides are associated with a **mental** or **addictive disorder**
  - **MDD** accounts for 50% of the suicides, yet 80% of victims are untreated
  - **Alcohol** and **substance abuse** accounts for 33% of the suicides
  - 33% have a **personality disorder**, often antisocial type
  - 5% have **schizophrenia**, often young and better educated
- **Comorbidity** is present in 75% of suicides
- 66% of suicides victims communicated suicidal thoughts in advance of the suicide act, and 50% had seen their primary care doctor within the past month

Suicide Epidemiology

- Suicide rates increase with age
  - Male rates peak after age 45
  - Females peak after age 55
  - For males >65, the suicide rate is 40/100,000, which is about 25% of suicides, while that age group is only 10% of the population
- For males <30 besides **depression**, substance abuse and antisocial personality disorders were common **comorbidities** in suicide victims
- For males >30 besides **depression**, cognitive disorders, widowhood, and ill health/physical illness were common **comorbidities** in suicide victims
- With **alcoholism**, recent life disruption, loss of a close relationship, **MDD** (75%), health problems (50%), unemployment (50%), and living alone (33%) were factors at the time of suicide

Suicide Risk Factors

1. **Male** gender, 4-5x rate compared to females
2. **Caucasian** 2x rate compared to non-Caucasians; Native Americans and immigrants have an increased suicide rate
3. **Divorced**, separated, widowed 4-5x rate compared to single, which have 2x rate compared to married persons, who have the lowest rate
4. **Unemployed**
5. **Family history** of suicide increases the risk of suicide; twin and adopted children studies confirm a genetic effect
6. **Physical disorders**: Cushing's, Klinefelter's, porphyria, cirrhosis, BPH, hemodialysis, cancer- not a complete list; males with cancer who commit suicide tend to do so in the first year of diagnosis

Suicide Risk Factors

7. **CNS diseases**: seizures, MS, head injury, dementia, Parkinson's, Huntington's chorea, schizophrenia-10% commit suicide, usually in the first few years of diagnosis
8. First few weeks to months after **discharge from a psychiatric unit**
9. **Prior suicide attempt**
10. Presence of a **gun** in the home
11. Having to appear in court as a **defendant**
12. Serious **spouse argument**
13. **Impulsive** - 2/3s of attempters thought about suicide for less than one hour
14. **Psychiatric diagnosis**, especially **depression**, **bipolar disorder**, and **alcoholism** or **substance abuse**

Suicide Risk Factors

15. **Seven risk factors for another attempt**: **ETOH use**, antisocial personality disorder, impulsive, previous inpatient psychiatric treatment, previous outpatient psychiatric treatment, previous suicide attempt lead to a hospital admission, and living alone
16. One study showed a 2-5x increase in suicide attempts for any of eight **adverse childhood experiences**, as did self-reported **depression**, **alcoholism** and **illicit drug use** show a similar suicide attempt increase

    The eight **adverse childhood experiences**:

    Emotional abuse, physical abuse, sexual abuse, battered mother, substance or alcohol abuse in the house, mentally ill household member, parents separated or divorced, incarcerated family member

Top 15 Causes of Death in the U.S. (2007)

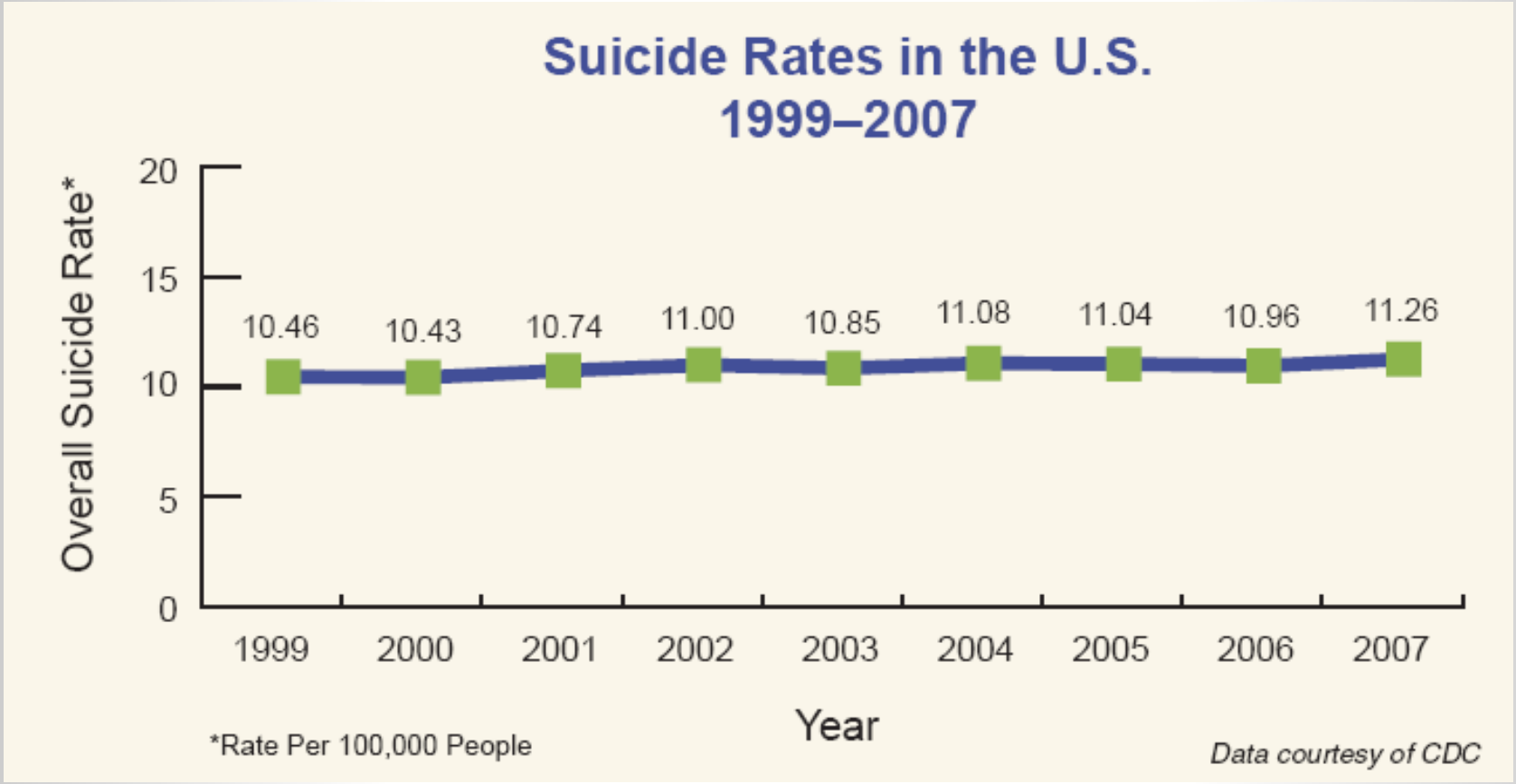
Rank	Ages 1–85+	Rank	Ages 1–85+	Rank	Ages 1–85+
1	Heart Disease 615,616	6	Alzheimer's Disease 74,629	11	Septicemia 34,543
2	Malignant Neoplasms 562,795	7	Diabetes Mellitus 71,373	12	Liver Disease 29,158
3	Cerebrovascular 135,814	8	Influenza and Pneumonia 52,492	13	Hypertension 23,963
4	Chronic Lower Respiratory Disease 127,875	9	Nephritis 46,304	14	Parkinson's Disease 20,056
5	Unintentional Injury 122,387	10	Suicide 34,592	15	Homicide 17,984

Data courtesy of CDC

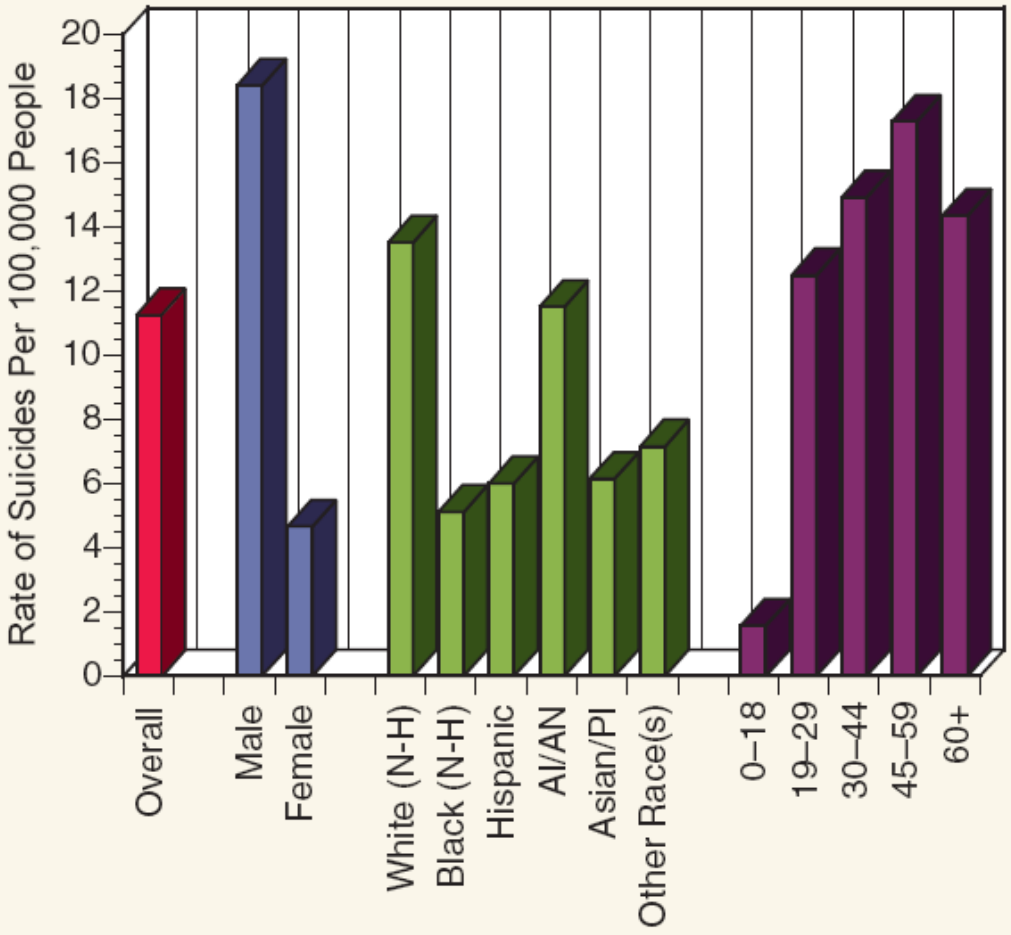
Top 10 Causes of Death in the U.S. (2007)

Rank	Ages 18–65	Rank	Ages 18–65
1	Malignant Neoplasms 184,190	6	Cerebrovascular 21,093
2	Heart Disease 126,738	7	Chronic Lower Respiratory Disease 20,231
3	Unintentional Injury 78,327	8	Liver Disease 19,796
4	Suicide 28,628	9	Homicide 15,627
5	Diabetes Mellitus 21,143	10	HIV 10,770

Data courtesy of CDC

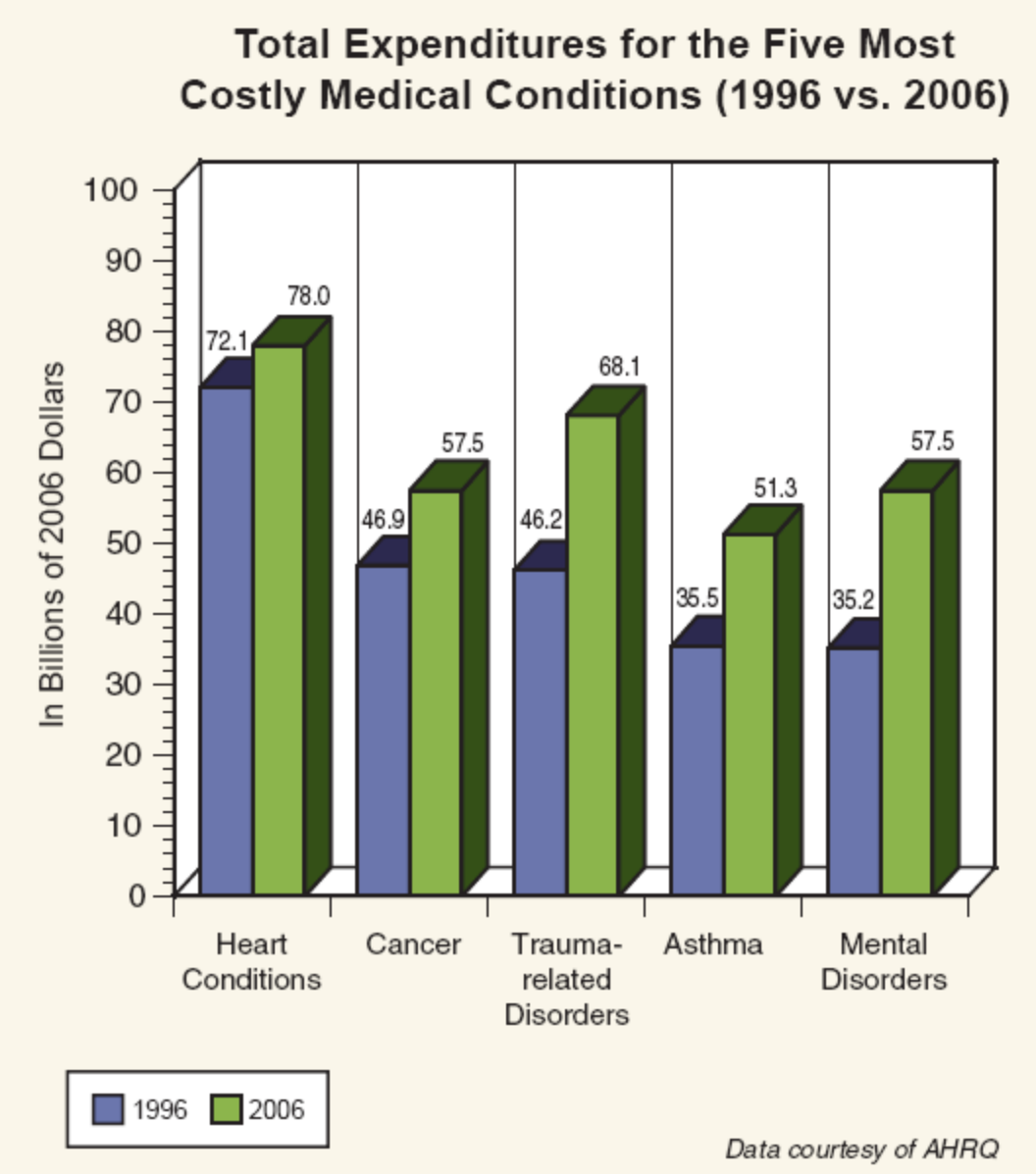

Suicide Rates in the U.S.
1999–2007
Overall Suicide Rate*
20
15
10
5
0
10.46
10.43
10.74
11.00
10.85
11.08
11.04
10.96
11.26
1999
2000
2001
2002
2003
2004
2005
2006
2007
Year
*Rate Per 100,000 People
Data courtesy of CDC

Rate of Suicides in the U.S. by Sex, Race, and Age in 2007



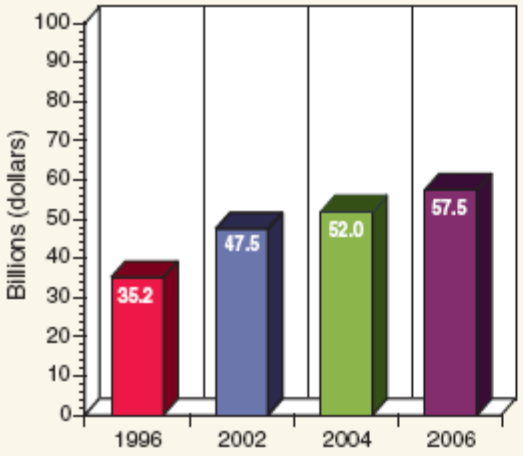
N-H = Non-Hispanic
AI/AN = American Indian/Alaska Native
PI = Pacific Islander

Data courtesy of CDC

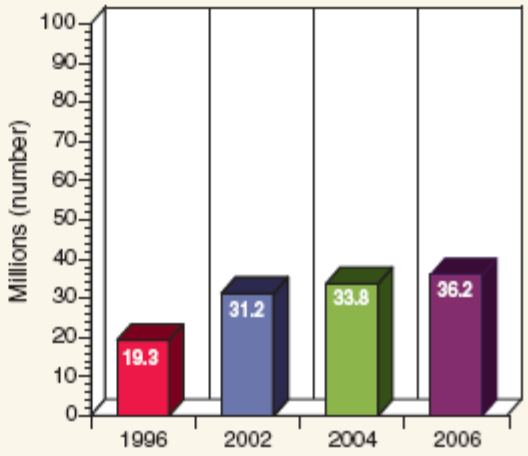

Total Expenditures for the Five Most Costly Medical Conditions (1996 vs. 2006)
In Billions of 2006 Dollars
100
90
80
70
60
50
40
30
20
10
0
72.1
78.0
46.9
57.5
46.2
68.1
35.5
51.3
35.2
57.5
Heart Conditions
Cancer
Trauma-related Disorders
Asthma
Mental Disorders
1996
2006
Data courtesy of AHRQ

Mental Healthcare Costs for All Americans (1996–2006)

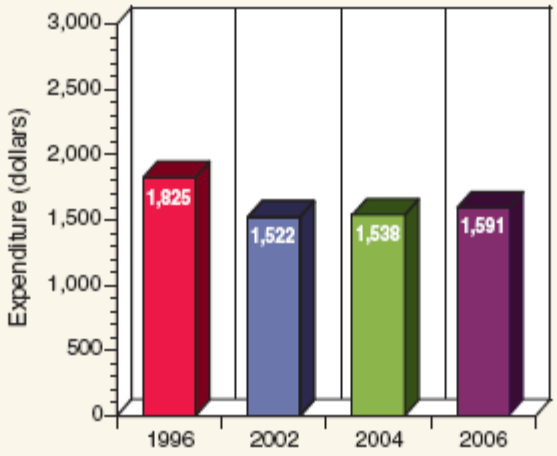
Total Expenditures (in billions)



Number of Americans (millions)



Average Expenditure Per Person



Data courtesy of AHRQ

Anxiety

- Extra mortality relates to degree of distress caused and efforts to alleviate symptoms
- Concerns related to significant disability, concurrent depression, alcohol or substance abuse

Post Traumatic Stress Disorder (PTSD)

- Acute stress reaction with symptoms lasting more than 4 weeks
- Usually a reaction to extreme trauma

- Diagnostic symptoms:
- Reliving – flashbacks, hallucinations, nightmares
- Avoiding – avoid reminders
- Increased Arousal – excessive emotions, physical symptoms

- Outcome negatively impacted with decreased ability to function, substance abuse, history of other pre-existing mental illness

- Treatment – behavioral therapy, psychotherapy, medications

Depression and Suicide Key Points

1. **Depression** and other **mood disorders**, in their various forms, are common health problems, known for centuries, but their **causes** are **unknown**, and **specific diagnostic tests** or markers remain unidentified
2. **Depression** can be effectively treated, but many patients do not receive treatment
3. The main mortality concerns for **depression** are from **adverse effects** on **other diseases** (CAD), **accidents**, and **suicide**; increasing frequency and severity of **depression** have increasing adverse effects
4. The **Beck Depression Inventory** is a good measure of the severity of the depression; there are other similar tests

Depression and Suicide Key Points

5. There is no exact formula to predict who will commit suicide; however, **depression**, **bipolar disorder**, and **alcohol** and **substance abuse** are key suicide risk factors (see the other **suicide risk factors)**
6. Treatment of the mood disorders decreases the suicide risk using antidepressant **medications** and **ECT** are effective for treating **depression**, and **lithium** has been demonstrated to decrease the suicide risk in **bipolar disorder**
7. **Comorbidity** is common with alcohol and substance abuse and all psychiatric diagnoses; **comorbidity** and **non-compliance** with treatment are often present at the time of suicide

Underwriting Considerations

- Symptoms and length of time present (situational or reactive response versus chronic)
- Diagnosis and Treatment (information available such as GAF, BDI, etc; specific medications/treatment)
- Continuation of medications/treatment and follow-up (MD, support groups)
- Co Morbidities (other medical conditions, any substance use criticisms)
- Suicide risk factors present
- Insured and APS's are primary sources of information; type of medical provider (personal care physician versus psychiatrist or psychologist or another type therapist/support group)

Case Study 1

- Male age 36 Nonsmoker Applying for $100,000
- Occupation is OB/GYN
- Current labs, build and BP all favorable
- Family history grandfather died of asphyxiation (? Suicide)
- Fifteen years ago sought treatment for depression, wanted to lie in bed, weight loss 10-15 #, anhedonia, sadness, wished he would die. Rx Imipramine and was discharged from care. He had a leave from medical school at this time.
- Five years later he had returned during his residency with recurrent symptoms and rx Imipramine again; He was tempted to take phenobarbital but reported he decided against suicide. He look a leave of absence from his residency, tapered off meds within 6 months and reported doing well.

Case Study 1 (continued)

- Two years later his wife phoned his MD and said he was in a tail spin; reportedly suicidal. Rx Imipramine and went into remission after which meds were tapered again.
- Five years later he had a mild recurrence of depression that responded to one MD visit and a few weeks of meds. This was the last documented occurrence of depression and treatment; no further information on this condition in three years prior to application.
- Other medical history includes GERD, endoscopy for food obstruction many years ago, hemorrhoidectomy, chest pain 5 years ago with a negative cardiac evaluation.

- Offer?

Case Study 2

- Male age 48 Nonsmoker Applying for $200,000
- Occupation is Attorney
- Current labs, build and BP are all favorable
- Rare alcohol use, no drug use
- Suicide attempt 10 years ago with an aspirin overdose due to marital and job stress, inpatient monitoring 48 hours and discharged to see a psychiatrist as an outpatient. He was seen and Rx Paxil 20 mg. He later divorced.
- Eight years ago during a physical exam he had discontinued Paxil, history of MVP, WPW – asymptomatic and an echo showed moderate mitral regurgitation.

Case Study 2 (continued)

- Seven years ago he had an episode of transient global amnesia while on vacation/honeymoon in Mexico. An MRI of the brain was normal.

- Offer?

Case Study 3

- Male age 47 Nonsmoker Applying for $1,000,000
- Occupation is Anesthesiologist
- Current labs, build and BP are all favorable
- Twelve years ago noted history of daily cocaine and alcohol use but none since then. Psych APS verified this history. He had been followed by Psych and maintained on Wellbutrin 150 md qd and Prozac 40 mg qd. Diagnosis was depressed mood without suicidality.
- Seven years ago diagnosed with obstructive sleep apnea with RDI of 27, oxygen desaturation to 81%. He uses CPAP regularly and reports no problems.
- Offer?

Depression Cases

Case #1: Multiple episodes of severe depression, suicidal thoughts and plan, quits treatment early-does not continue treatment, family history noted

Case #2: Situational depression, suicide gesture versus attempt, took treatment for two years, no recurrence

Case #3: Comorbidity noted, occupational exposure and availability of mood altering drugs, takes medications, faithful psych MD follow-up, complete abstinence

Rating Depression and Suicide Risk

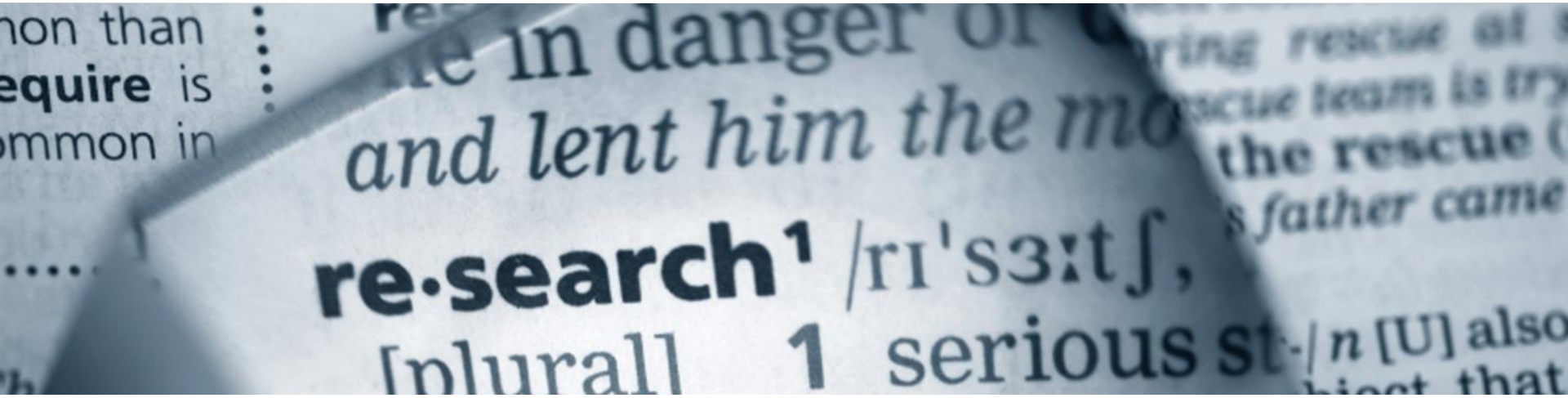
Depression-degree of severity:

Very mild	Dysthymia
Mild	No loss of work, hospitalizations, little suicidal ideation
Moderate	Medications and psychotherapy, usually no hospitalizations, mild to moderate suicide risk factors
Severe	Medications, hospitalizations, significant suicide risk factors

Rating Depression and Suicide Risk

Degree of suicidal ideation:

Mild	Brief, rare, vague thoughts of death
Moderate	More frequent thoughts of death
Severe	Well thought-out, specific suicide plan



Depression and Suicide

Kim Lancaster, FALU, FLMI
Vice President, Underwriting

Wisconsin Association of Health and Life Underwriters
April 23, 2013