

Consumers are informed about the nature of their condition.

- For any given individual, it is not possible to say for certain what the cause of the mental health condition is. If the condition is described as being genetic or biological it may not empower the consumer to believe that recovery is possible and that they are in charge of their life. The consumer may feel disempowered and hopeless. Clinicians will be careful to provide explanations for a condition that include a range of possible causes.
- Consumers are informed about what is known about their mental health condition with explanations that are empowering. Mental health conditions may be related to genetics, trauma, life experiences, or biology and all associative causes should be discussed.
- Consumers are told that there is hope for improvement and recovery, that many people with their condition do improve and recover, and that treatment, including medications, may only be needed for a period of time.

Consumers are informed about the effects of treatment options offered.

- Consumers are fully informed about the risks and benefits of treatments, including the risks and benefits of psychiatric medications.
- Consumer are informed about a range of mental health and alternative treatments and encouraged to select an intervention based on their choice.
- Consumers are informed by their LaneCare medical provider that they will be provided medical support if they choose to reduce or end their use of psychiatric medications, to assure medication changes can be made in the safest way possible.

**Morbidity and Mortality in
People with Serious Mental
Illness**

National Association of State Mental Health Program
Directors
Medical Directors Council
July 2006

Overview- THE PROBLEM

- Increased Morbidity and Mortality Associated with Serious Mental Illness (SMI)
- Increased Morbidity and Mortality Largely Due to Preventable Medical Conditions
 - Metabolic Disorders, Cardiovascular Disease, Diabetes Mellitus
 - High Prevalence of Modifiable Risk Factors (Obesity, Smoking)
 - Epidemics within Epidemics (e.g., Diabetes, Obesity)
- Some Psychiatric Medications Contribute to Risk
- Established Monitoring and Treatment Guidelines to Lower Risk Are Underutilized in SMI Populations

Overview - PROPOSED SOLUTIONS

- Prioritize the Public Health Problem
 - Target Providers, Families and Clients
 - Focus on Prevention and Wellness
- Track Morbidity and Mortality in Public Mental Health Populations
- Implement Established Standards of Care
 - Prevention, Screening and Treatment
- Improve Access to and Integration of Physical Health and Mental Health Care

Why Should we be Concerned About Morbidity and Mortality?

- **Recent data from several states have found that people with serious mental illness served by our public mental health systems die, on average, at least 25 years earlier than the general population.**

Increased Mortality From Medical Causes in Mental Illness

- Increased risk of death from medical causes in schizophrenia and 20% (10-15 yrs) shorter lifespan¹
- Bipolar and unipolar affective disorders also associated with higher SMRs from medical causes²
 - 1.9 males/2.1 females in bipolar disorder
 - 1.5 males/1.6 females in unipolar disorder
- Cardiovascular mortality in schizophrenia increased from 1976-1995, with greatest increase in SMRs in men from 1991-1995³

SMR = standardized mortality ratio (observed/expected deaths).

1. Harris et al. *Br J Psychiatry*. 1998;173:11. Newman SC, Bland RC. *Can J Psych*. 1991;36:239-245.
2. Osby et al. *Arch Gen Psychiatry*. 2001;58:844-850.
3. Osby et al. *BMJ*. 2000;321:483-484.

Recent Multi-State Study Mortality Data: Years of Potential Life Lost

Year	AZ	MO	OK	RI	TX	UT	VA (IP only)
1997		26.3	25.1		28.5		
1998		27.3	25.1		28.8	29.3	15.5
1999	32.2	26.8	26.3		29.3	26.9	14.0
2000	31.8	27.9		24.9			13.5

- Compared to the general population, persons with major mental illness typically lose more than 25 years of normal life span

Colton CW, Manderscheid RW. *Prev Chronic Dis* [serial online] 2006 Apr [date cited]. Available from: URL:http://www.cdc.gov/pcd/issues/2006/apr/05_0180.htm

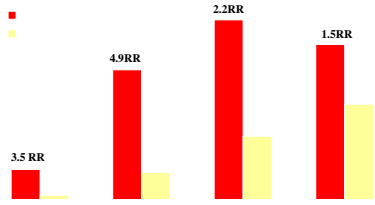
Ohio Study-1998-2002

Mean Years of Potential Life lost

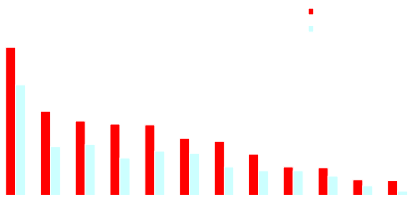
20,018 persons discharged, 608 deaths

Cause	M	F	N
All	31.8	32.5	32.0
Intentional self-harm (suicide)	41.4	42.7	41.7
Assault (homicide)	42.3	35.8	41.6
Accidents (unintentional injuries)	39.5	43.1	40.4
Symptoms, signs, & abnormal clinical & laboratory findings, NEC	32.8	35.0	33.4
Diabetes mellitus	25.8	37.2	30.2
Pneumonia & Influenza	29.4	25.0	28.3
Diseases of heart	27.7	26.6	27.3
Cerebrovascular diseases	20.7	32.8	25.5
Malignant neoplasms (cancers)	24.3	26.9	25.3
Chronic lower respiratory diseases	18.6	24.1	21.1

Massachusetts Study: Deaths from Heart Disease by Age Group/DMH Enrollees with SMI Compared to Massachusetts 1998-2000



Maine Study Results: Comparison of Health Disorders Between SMI & Non-SMI Groups



Ohio Study
Leading Causes of Death

Cause	ICD-9 Codes	ICD-10 Codes	M	E	N	%
Diseases of heart	390-398, 402, 404, 410-429	I00-09, I11, I13, I20-51	83	43	126	20.7
Intentional self-harm (suicide)	E950-959	X60-84, Y87.0	84	24	108	17.8
Accidents (unintentional injuries)	E800-869, E880-929	V01-X59, Y85-86	61	22	83	13.7
Malignant neoplasms (cancers)	140-208	C00-C97	27	17	44	7.2
Symptoms, signs, & abnormal clinical & laboratory findings, NEC	780-799	R00-99	23	9	32	5.3
Chronic lower respiratory diseases	490-494, 496	J40-J47	17	14	31	5.1
Diabetes mellitus	250	E10-14	11	7	18	3.0
Pneumonia & Influenza	480-487	J10-18	12	4	16	2.6
Cerebrovascular diseases	430-434, 436-438	I60-69	6	4	10	1.6
Assault (homicide)	E960-969	X85-Y09, Y87.1	9	1	10	1.6

Ohio Study
Standardized Mortality Ratios

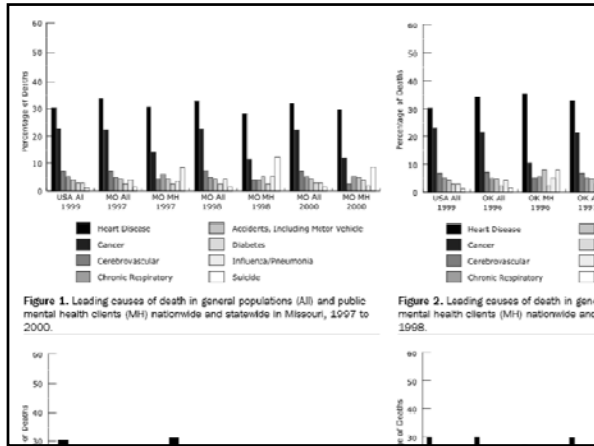
Cause	Overall	
	N	SMR
All causes of death	608	3.2†
Intentional self-harm (suicide)	108	12.6†
Symptoms, signs, & abnormal clinical & laboratory findings, NEC	32	9.7†
Pneumonia & Influenza	16	6.6†
Chronic lower respiratory diseases	31	5.5†
Accidents (unintentional injuries)	83	3.8†
Diseases of heart	126	3.4†
Diabetes mellitus	18	3.4†
Assault (homicide)	10	1.7
Cerebrovascular diseases	10	1.5
Malignant neoplasms (cancers)	44	0.9

† P<0.001

What are the Causes of Morbidity and Mortality in People with Serious Mental Illness?

- *While suicide and injury account for about 30-40% of excess mortality, about 60% of premature deaths in persons with schizophrenia are due to “natural causes”*
 - Cardiovascular disease
 - Diabetes
 - Respiratory diseases
 - Infectious diseases

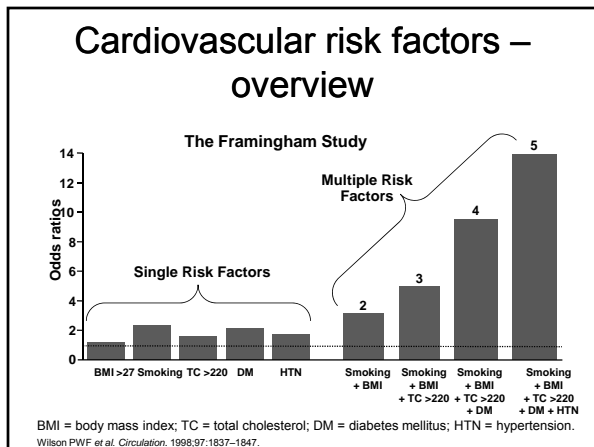
Need slide (see next) from CDC paper indicating CVD as leading cause of death...this should be simple and direct



Schizophrenia: Natural Causes of Death

- Higher standardized mortality rates than the general population from:
 - Diabetes 2.7x
 - Cardiovascular disease 2.3x
 - Respiratory disease 3.2x
 - Infectious diseases 3.4x
- Cardiovascular disease associated with the largest number of deaths
 - 2.3 X the largest cause of death in the general population

Osby U et al. *Schizophr Res.* 2000;45:21-28.

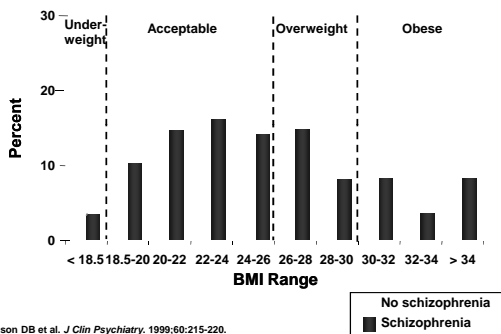


Cardiovascular Disease (CVD) Risk Factors

Modifiable Risk Factors	Estimated Prevalence and Relative Risk (RR)	
	Schizophrenia	Bipolar Disorder
Obesity	45–55%, 1.5-2X RR ¹	26% ⁵
Smoking	50–80%, 2-3X RR ²	55% ⁶
Diabetes	10–14%, 2X RR ³	10% ⁷
Hypertension	≥18% ⁴	15% ⁵
Dyslipidemia	Up to 5X RR ⁸	

1. Davidson S, et al. *Aust N Z J Psychiatry*. 2001;35:196-202. 2. Allison DB, et al. *J Clin Psychiatry*. 1999; 60:215-220. 3. Dixon L, et al. *J Nerv Ment Dis*. 1999;187:496-502. 4. Herran A, et al. *Schizophr Res*. 2000;41:373-381. 5. McElroy SL, et al. *J Clin Psychiatry*. 2002;63:207-213. 6. Ussak A, et al. *Psychiatry Clin Neurosci*. 2004;58:434-437. 7. Cassidy F, et al. *Am J Psychiatry*. 1999;156:1417-1420. 8. Allebeck. *Schizophr Bull*. 1999;15(1):81-89.

BMI Distributions for General Population and Those With Schizophrenia (1989)



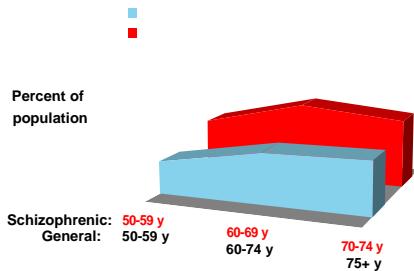
Allison DB et al. *J Clin Psychiatry*. 1999;60:215-220.

Mental Disorders and Smoking

- Higher prevalence (56-88% for patients with schizophrenia) of cigarette smoking (overall U.S. prevalence 25%)
- More toxic exposure for patients who smoke (more cigarettes, larger portion consumed)
- Smoking is associated with increased insulin resistance
- Similar prevalence in bipolar disorder

George TP et al. *Nicotine and tobacco use in schizophrenia*. In: Meyer JM, Nasrallah HA, eds. *Medical Illness and Schizophrenia*. American Psychiatric Publishing, Inc. 2003; Ziedonis D, Williams JM, Snelson D. *Am J Med Sci*. 2003(Oct);326(4):223-330

Prevalence of Diagnosed Diabetes in General Population Versus Schizophrenic Population



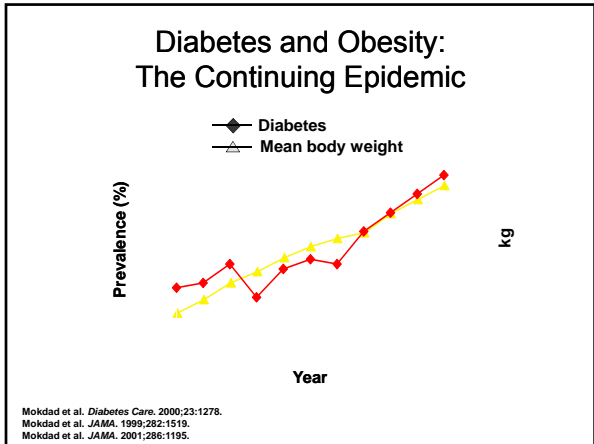
Harris et al. *Diabetes Care*. 1998; 21:518.
 Mukherjee et al. *Compr Psychiatry*. 1996; 37(1):68-73.

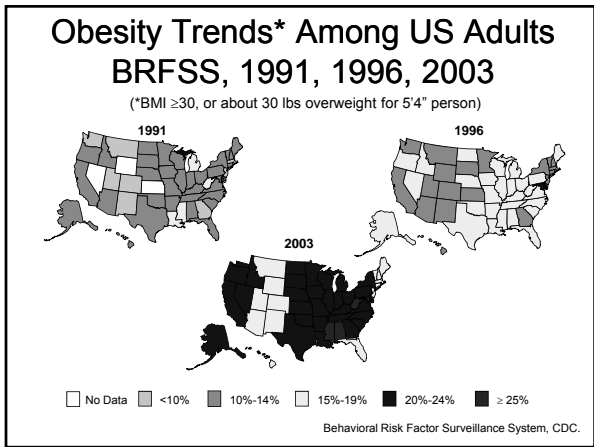
Hypothesized Reasons Why There May Be More Type 2 Diabetes in People With Schizophrenia

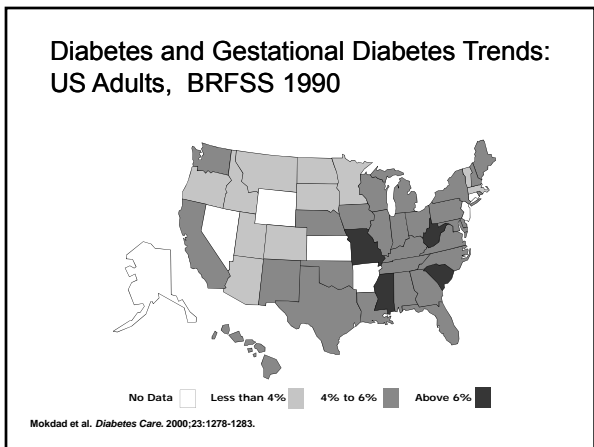
- Genetic link between schizophrenia and diabetes
- Impact of lifestyle
- Medication effect increasing insulin resistance by impacting insulin receptor or postreceptor function
- Drug effect on caloric intake or expenditure (obesity, activity)

How Does This Relate to What is Happening in the General Population?

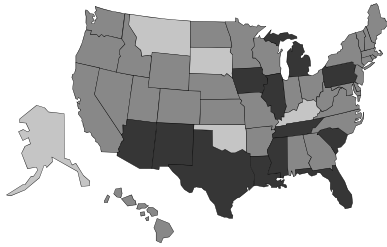
- *There is an "epidemic" of obesity and diabetes, increasing risk of multiple medical conditions and cardiovascular disease.*
 - Obesity
 - Diabetes
 - Metabolic Syndrome
 - Cardiovascular Disease







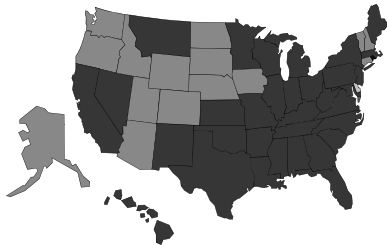
Diabetes and Gestational Diabetes Trends:
US Adults, BRFSS 1995



No Data Less than 4% 4% to 6% Above 6%

Mokdad et al. *Diabetes Care*. 2000;23:1278-1283.

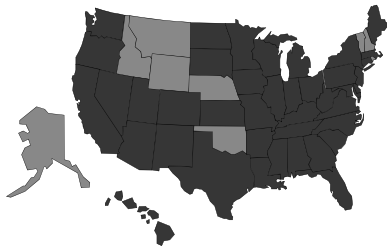
Diabetes and Gestational Diabetes Trends:
US Adults, BRFSS 1999



No Data Less than 4% 4% to 6% Above 6%

Mokdad et al. *Diabetes Care*. 2001;24:412.

Diabetes and Gestational Diabetes Trends:
US Adults, BRFSS 2000



No Data Less than 4% 4% to 6% Above 6%

Mokdad et al. *JAMA*. 2001;286(10).

Diabetes and Gestational Diabetes Trends: US Adults, Estimate for 2010

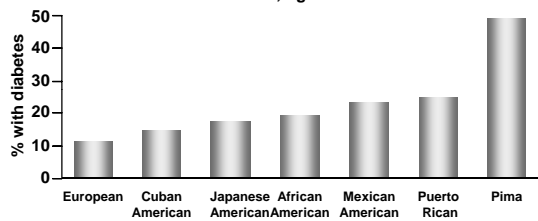


No Data Less than 4% 4% to 6% Above 6% Above 10%

www.diabetes.org.

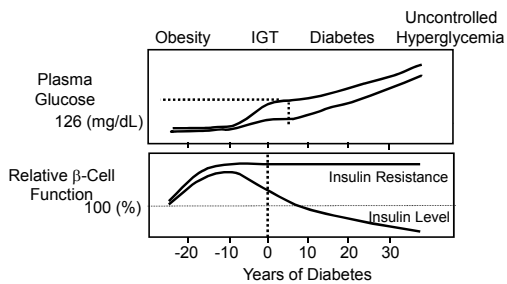
US Diabetes Prevalence by Ethnic Group

Men and Women, Age 45-74 Years



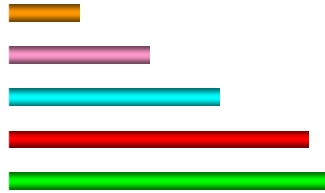
Harris et al. *Diabetes*. 1987;36:523.
Flegal et al. *Diabetes Care*. 1991;14(suppl 3):628.
Knowler et al. *Diabetes Care*. 1993;16(suppl 1):216.
Fujimoto et al. *Diabetes Res Clin Pract*. 1991;13:119.
Fujimoto et al. *Diabetes*. 1987;36:721.

Natural History of Type 2 Diabetes



IGT = impaired glucose tolerance.
Adapted from: International Diabetes Center (IDC). Available at:
www.parknicollet.com/diabetes/disease/diagnosing.cfm. Accessed March 26, 2006.

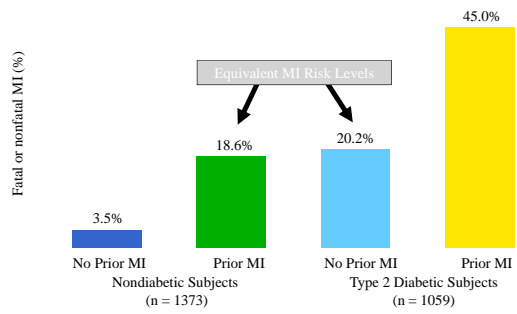
Prevalence of Diabetic Tissue Damage at Diagnosis of Type 2 Diabetes



Prevalence

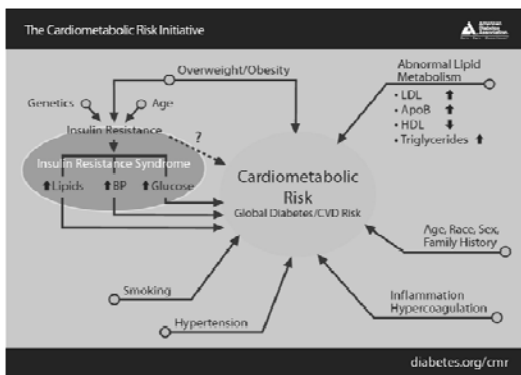
Dagogo-Jack et al. *Arch Int Med.* 1997;157:1802-1817.

Diabetes is a CVD Risk Equivalent to Previous Myocardial Infarction



Haffner SM et al. *N Engl J Med.* 1998;339:229-234.

ADA Cardiometabolic Risk Initiative

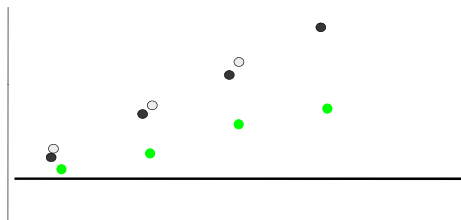


Identification of the Metabolic Syndrome

≥3 Risk Factors Required for Diagnosis	
Risk Factor	Defining Level
Abdominal obesity	Waist circumference
Men	>40 in (>102 cm)
Women	>35 in (>88 cm)
Triglycerides	≥150 mg/dL (1.69mmol/L)
HDL cholesterol	<40 mg/dL
Men	(1.03mmol/L)
Women	<50 mg/dL (1.29mmol/L)
Blood pressure	≥130/85 mm Hg
Fasting blood glucose	≥110 mg/dL (6.1mmol/L)

HDL = high-density lipoprotein.
NCEP III. *Circulation*. 2002;106:3143-3421.

CHD Risk Increases with Increasing Number of Metabolic Syndrome Risk Factors



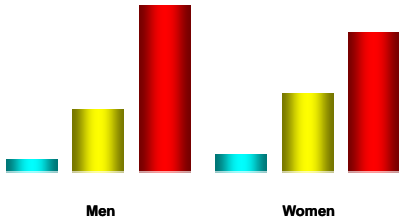
● Sattar et al, *Circulation*, 2003;108:414-419
● Whyte et al, *American Diabetes Association*, 2001
○ Adapted from Ridker, *Circulation* 2003;107:393-397

Comparison of Metabolic Syndrome and Individual Criterion Prevalence in Fasting CATIE Subjects and Matched NHANES III Subjects

36.0%	51.6%
35.5%	76.3%
50.7%	42.3%
48.9%	63.3%
47.2%	46.9%
14.1%	21.7%

Meyer et al., Presented at APA annual meeting, May 21-26, 2005.
McEvoy JP et al. *Schizophr Res*. 2005;(August 29).

Prevalence of Metabolic Syndrome According to BMI in the Adult General Population



N=12,363
 "Overweight" = BMI 25-29.9
 "Obese" = BMI ≥30
 (National Heart, Lung, and Blood Institute, Obesity Guidelines)

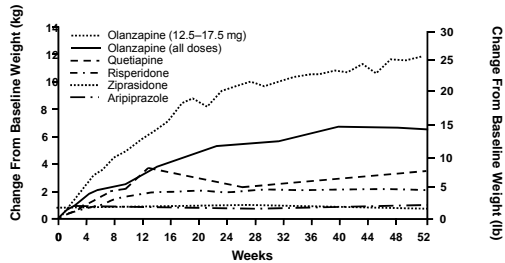
Park et al. *Arch Intern Med.* 2003;163:427.

Modifiable Risk Factors Affected by Psychotropics

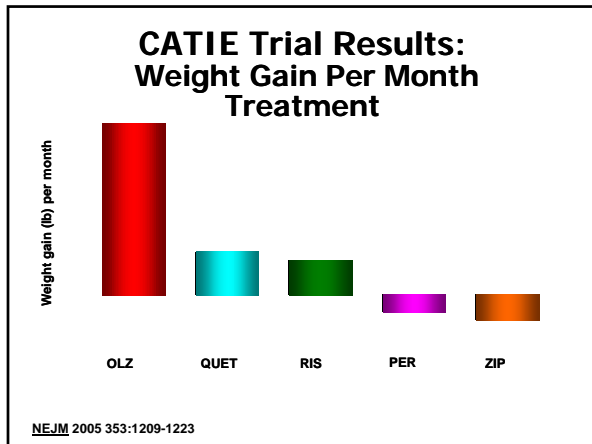
- Overweight / Obesity
- Insulin resistance
- Diabetes/hyperglycaemia
- Dyslipidemia

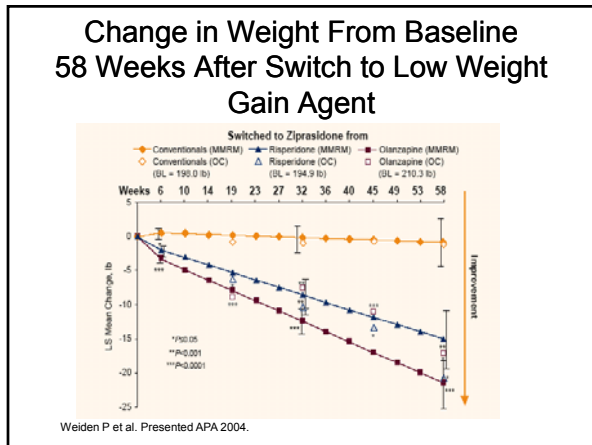
Newcomer JW. *CNS Drugs* 2005;19(Supp 1):1.93.

1-Year Weight Gain: Mean Change From Baseline Weight



Nemeroff CB. *J Clin Psychiatry.* 1997;58(suppl 10):45-49; Kinon BJ et al. *J Clin Psychiatry.* 2001;62:92-100; Brecher M et al. *American College of Neuropsychopharmacology.* 2004. Poster 114; Brecher M et al. *Neuropsychopharmacology.* 2004;29(suppl 1):S109; Geodon® [package insert]. New York, NY:Pfizer Inc; 2005. Risperdal® [package insert]. Titusville, NJ: Janssen Pharmaceutica Products, LP; 2005. Abilify® [package insert]. Princeton NJ: Bristol-Myers Squibb Company and Rockville, Md: Otsuka America Pharmaceutical, Inc.; 2005.





Levels of Evidence

- Case reports, case series, uncontrolled observational studies - *hypothesis-generation only*
- Retrospective database analyses - *could be hypothesis-testing, but methodological issues might limit these to hypothesis-generation*
- Controlled analytic studies, including randomized clinical trials - *hypothesis-testing*

Casey DE, Haupt DW, Newcomer JW, Henderson DC, Sernyak MJ, Davidson M, Lindenmayer JP, Manoukian SV, Banerji MA, Lebovitz HE, Hennekens CH, J Clin Psychiatry 65(Suppl 7):4-18, 2004.

Modifiable Risk Factors Affected by Psychotropics

- Overweight / Obesity
- Insulin resistance
- Diabetes/hyperglycaemia
- Dyslipidemia

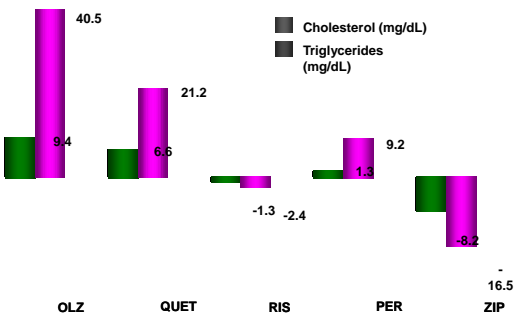
Newcomer JW. *CNS Drugs* 2005;19(Supp 1):1-93.

Randomized Clinical Trials

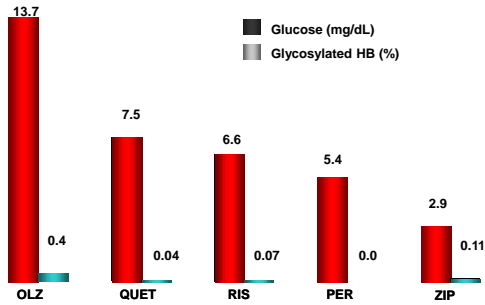
Growing number of studies measure drug effects on the following:

- Insulin resistance
- Fasting lipids
- Fasting or post-load glucose and insulin
- Metabolic syndrome

CATIE Results: Metabolic Changes From Baseline



CATIE Results: Metabolic Changes From Baseline



NEJM 2005 353:1209-1223

American Diabetes Association, American Psychiatric Association,
American Association of Clinical Endocrinologists, North American
Association for the Study of Obesity:
**Consensus Conference on Antipsychotic Drugs and
Risk of Obesity and Diabetes**

Drug	Weight Gain	Diabetes Risk	Dyslipidemia
clozapine	+++	+	+
olanzapine	+++	+	+
risperidone	++	D	D
quetiapine	++	D	D
aripiprazole	+/-	-	-
ziprasidone	+/-	-	-

+ = increased effect; - = no effect; D = discrepant results.

Diabetes Care 27:596-601, 2004

ADA/APA/AACE/NAASO Consensus on Antipsychotic Drugs and Obesity and Diabetes: Monitoring Protocol*

	Start	4 wks	8 wks	12 wk	qtrly	12 mos.	5 yrs.
Personal/family Hx	X					X	
Weight (BMI)	X	X	X	X	X		
Waist circumference	X					X	
Blood pressure	X			X		X	
Fasting glucose	X			X		X	
Fasting lipid profile	X			X		X	X

*More frequent assessments may be warranted based on clinical status

Diabetes Care. 27:596-601, 2004

Goals: Lower Risk for CVD

- Blood cholesterol
 - 10% ↓ = 30% ↓ in CHD (200-180)
- High blood pressure (> 140 SBP or 90 DBP)
 - 4-6 mm Hg ↓ = 16% ↓ in CHD; 42% ↓ in stroke
- Cigarette smoking cessation
 - 50%-70% ↓ in CHD
- Maintenance of ideal body weight (BMI = 25)
 - 35%-55% ↓ in CHD
- Maintenance of active lifestyle (20-min walk daily)
 - 35%-55% ↓ in CHD

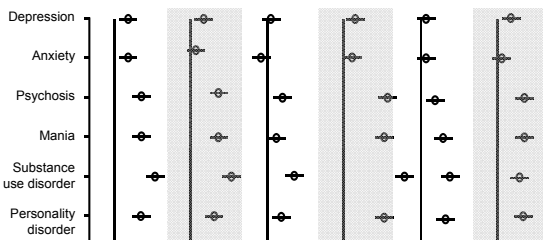
Hennekens CH. *Circulation*. 1998;97:1095-1102.

Survival Following Myocardial Infarction

- 88,241 Medicare patients, 65 years of age and older, hospitalized for MI
- Mortality increased by
 - 19%: any mental disorder
 - 34%: schizophrenia
- Increased mortality explained by measures of quality of care

Druss BG et al. *Arch Gen Psychiatry*. 2001;58:565-572.

Disparities in care: impact of mental illness on diabetes management



Odds ratio for:

313,586 Veteran Health Authority patients with diabetes
76,799 (25%) had mental health conditions (1999)

Frayne et al. *Arch Intern Med*. 2005;165:2631-2638

Why Should we be Concerned About Morbidity and Mortality?

- **Recent data from several states have found that people with serious mental illness served by our public mental health systems die, on average, at least 25 years earlier than the general population.**

Overview - PROPOSED SOLUTIONS

- **Prioritize the Public Health Problem**
 - Target Providers, Families and Clients
 - Focus on Prevention and Wellness
- **Track Morbidity and Mortality in Public Mental Health Populations**
- **Implement Established Standards of Care**
 - Prevention, Screening and Treatment
- **Improve Access to and Integration of Physical Health and Mental Health Care**

Recommendations

NATIONAL LEVEL

1. Seek federal designation of people with SMI as a distinct at-risk health disparities population. Establish co-ordinated mental health and general health care as a national healthcare priority.
2. Establish a committee at the federal level to recommend changes to national surveillance activities that will incorporate information about health status in the population with SMI.
 - Consider representation from SAMHSA, Medicaid, the Centers for Disease Control and Prevention, state MH authorities / NASMHPD, and experts
 - This may include the IOM project and other national surveys.

Recommendations

NATIONAL LEVEL

3. Share information widely about physical health risks in persons with SMI to encourage awareness and advocacy. Educate the health care community. Encourage consumers and family members to advocate for wellness approaches as part of recovery.

Recommendations

STATE LEVEL

1. Seek state designation of people with SMI as BOTH an at-risk and a health disparities population.
2. Establish co-ordinated mental health and general health care as a state healthcare priority.
3. Education and advocacy
 - policy makers
 - funders
 - providers
 - individuals, family, community

Recommendations

STATE LEVEL

4. Require, regulate and lead Behavioral Health provider systems to screen, assess and treat both mental health and general health care issues. Provide for
 - staffing
 - time
 - record keeping
 - reimbursement
 - linkage with physical healthcare providers
5. Funding
6. Promote co-ordinated and integrated mental health and physical health care for persons with SMI.

See 11th NASMHPD Technical Paper: *Integrating Mental Health and Primary Care*.

Recommendations

STATE LEVEL

5. Develop a quality improvement (QI) process that supports increased access to physical healthcare and ensures appropriate prevention, screening and treatment services.
 - Target common causes of increased mortality and chronic medical illness in the SMI population
 - Include all key stakeholders: state agencies, practitioners, individuals and their families, academic and training institutions in QI planning and review
 - A key component : training and technical assistance for practitioners in both mental health and primary health fields

Recommendations LOCAL AGENCY / CLINICIAN

1. BH providers shall provide quality medical care and mental health care
 - Screen for general health with priority for high risk conditions
 - Offer prevention and intervention especially for modifiable risk factors (obesity, abnormal glucose and lipid levels, high blood pressure, smoking, alcohol and drug use, etc.)
 - Prescribers will screen, monitor and intervene for medication risk factors related to treatment of SMI (e.g. risk of metabolic syndrome with use of second generation anti-psychotics)
 - Treatment per practice guidelines, e.g heart disease, diabetes, smoking cessation, use of novel anti-psychotics.

LOCAL AGENCY / CLINICIAN Recommendations

2. Care coordination Models
 - I Assure that there is a specific practitioner in the MH system who is identified as the responsible party for each person's medical health care needs being addressed and who assures coordination all services.
 - Routine sharing of clinical information with other providers (primary and specialty healthcare providers as well as mental health providers)
 - Care integration where services are co-located

**LOCAL AGENCY / CLINICIAN
RECOMMENDATIONS**

- 3. Support consumer wellness and empowerment to improve personal mental and physical well-being
 - educate / share information to make healthy choices regarding nutrition, tobacco use, exercise, implications of psychotropic drugs
 - teach /support wellness self-management skills
 - teach /support decision making skills
 - motivational interviewing techniques
 - Implement a physical health Wellness approach that is consistent with Recovery principles, including supports for smoking cessation, good nutrition, physical activity and healthy weight.
 - attend to cultural and language needs

Overview - PROPOSED SOLUTIONS

- Prioritize the Public Health Problem
 - Target Providers, Families and Clients
 - Focus on Prevention and Wellness
- Track Morbidity and Mortality in Public Mental Health Populations
- Implement Established Standards of Care
 - Prevention, Screening and Treatment
- Improve Access to and Integration of Physical Health and Mental Health Care

Full report available at

- <http://www.nasmhpd.org/publications.cfm#techpap>
