

Metabolic Syndrome:

Prevention, Identification and Treatment in the Context of Antipsychotic Treatment

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LIHP Quality Charter

“To ensure the quality of care delivered to enrollees in San Diego County Assistance Programs, such as County Medical Services (CMS) and the Low Income Health Program (LIHP), and to assure the most cost-effective and appropriate utilization of resources which promote positive patient outcomes. “

LIHP Quality Projects

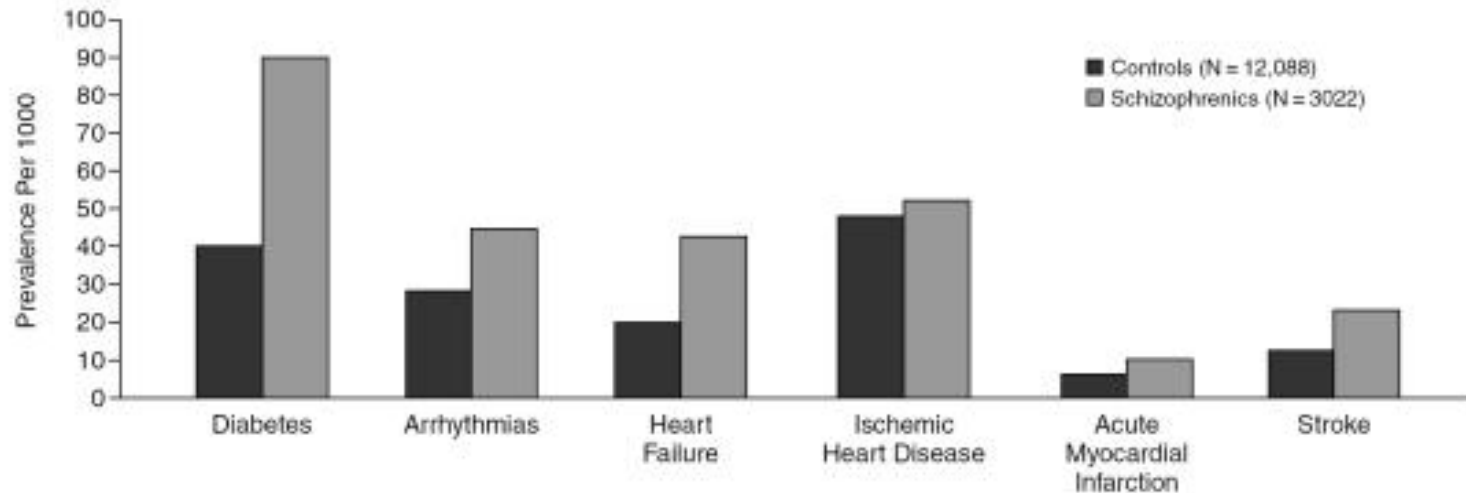
- Designed to evaluate and improve care given to enrollees
- An evidence-based approach utilizing best practice guidelines to enhance outcomes

Atypical Antipsychotic Medication Project

Background

- Life expectancy in schizophrenia is reduced by 20%
 - Non-psychiatric or physical health issues contribute to 60% of the risk
 - Life style choices:
 - Poor Diet
 - Lack of Exercise
 - High rates of smoking
 - Limited health care access
 - Increased prevalence of Type-II Diabetes and cardiovascular disease

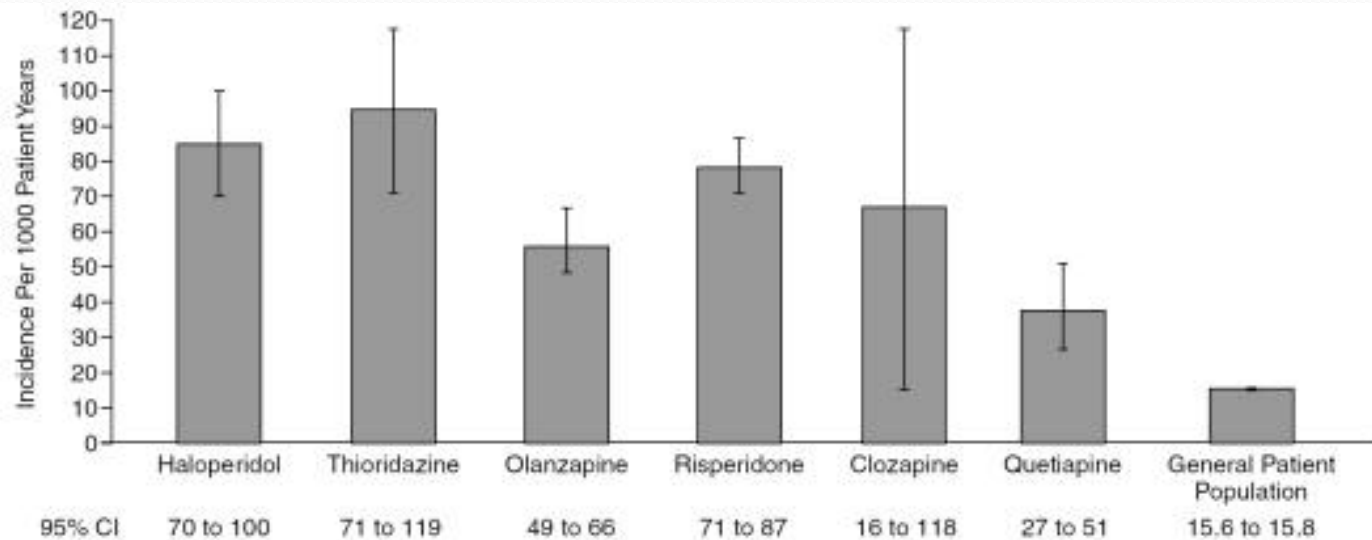
Prevalence of Cardiovascular Comorbidities in Schizophrenia



^aAdapted from Curkendall et al.¹³

[Prim Care Companion J Clin Psychiatry. 2003; 5\(1\): 6-14.](#)

Newly Diagnosed Diabetes During New Antipsychotic Monotherapy



^aAdapted from Cavazzoni et al.¹⁴

Annualized Incidence of Diabetes Mellitus in Specific Antipsychotic Treatment Cohorts

Atypical Antipsychotic Medication Project

Background

- Schizophrenia is a risk factor for diabetes



- Atypical Antipsychotic Medications (AAMs) have metabolic consequences as well



- 24% - 53% of individuals with schizophrenia meet criteria for metabolic syndrome

Antipsychotic medications

	Generic name	Trade name	Year approved
1 st Generation	Chlorpromazine	Thorazine	—
	Perphenazine	Trilafon	—
	Trifluoperazine	Stelazine	—
	Thiothixene	Navane	—
	Haloperidol	Haldol	—
	Fluphenazine	Prolixin	—
2 nd Generation	Clozapine	Clozaril	1989
	Risperidone	Risperdal	1993
	Olanzapine	Zyprexa	1996
	Quetiapine	Seroquel	1997
	Ziprasidone	Geodon	2001
	Aripiprazole	Abilify	2002
	Paliperidone	Invega	2007
	Asenapine	Saphris	2009
	Iloperidone	Fanapt	2009
	Lurasidone	Latuda	2010

SGA's and Metabolic Abnormalities

<u>Drug</u>	<u>Weight Gain</u>	<u>Risk for Diabetes</u>	<u>Worsening Lipid Profile</u>
Clozapine (Clozaril)	+++	+	+
Olanzapine (Zyprexa)	+++	+	+
Risperidone (Risperdal)	++	D	D
Quetiapine (Seroquel)	++	D	D
Aripiprazole* (Abilify)	+/-	-	-
Ziprasidone* (Geodon)	+/-	-	-

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

*Newer drugs with limited long-term data.

Consensus Development Conference on Antipsychotic Drugs and Obesity and Diabetes.
Diabetes Care 27, 596-601, 2004.

Metabolic Changes with Antipsychotics

- Decrease in insulin sensitivity
- Not related to:
 - A decrease in insulin secretion or production
 - Serotonin 5-HT_{2c} antagonism
- Possible connection:
 - Histamine H₁ receptors

Neuropsychopharmacology. 2008 Jun;33(7):1633-41.

J Clin Psychiatry. 1999 Jun;60(6):358-63.

Physiol Behav. 2011 Sep 26;104(4):590-8.

Atypical Antipsychotic Medication Project

Background

- Definition of Metabolic Syndrome
 - Hypertension ($\geq 140/90$ mm/Hg)
 - Central obesity
 - Glucose intolerance/insulin resistance
 - Dyslipidemia
 - Reduced HDL cholesterol
 - Increased triglycerides

Risk Factors for Metabolic Syndrome

- Genetic Factors
 - Family history of type 2 diabetes or gestational diabetes
 - Race – Hispanic and Asian backgrounds
- Age
 - Risk increases with age
 - 10% in people in their 20's
 - 40% in their 60's
- Obesity
 - A BMI > 25
- Other Diseases
 - Hypertension
 - Cardiovascular Disease
 - Polycystic Ovary Syndrome

Atypical Antipsychotic Medication Project

Background

- Metabolic syndrome is reversible.
 - Diet
 - Exercise
 - Medications
 - Antihypertensives
 - Cholesterol lowering drugs
 - Hypoglycemic meds (metformin, glipizide, etc)

Wu R, et al. Metformin Addition Attenuates Olanzapine-Induced Weight Gain in Drug-Naïve First-Episode Schizophrenia Patients: A Double-Blind, Placebo-Controlled Study. *Am J Psychiatry* 2008; 165:352-358.

Klein DJ, et al. A Randomized, Double-Blind, Placebo-Controlled Trial of Metformin Treatment of Weight Gain Associated with Initiation of Atypical Antipsychotic Therapy in Children and Adolescents. *Am J Psychiatry* 2006; 163:2072-2079.

Atypical Antipsychotic Medication Project

Background

- Screening for metabolic syndrome is offered infrequently and often incompletely in the psychiatric population
- A variety of screening methods take place
- Screening only occurs in 4 – 41% of psychiatric patients on antipsychotic drugs

Barnes TR, et al. A UK Audit of Screening for the Metabolic Side Effects of Antipsychotics in Community Patients. *Schizophr Bull.* 2007;33(6): 1397-1403.

Atypical Antipsychotic Medication Project

Interventions

- Screening Recommendations
 - Glucose levels > 110mg/dl
 - Abdominal Obesity defined as:
 - > 40” in males
 - > 35” in females
- Not associated with:
 - Specific diagnosis
 - Specific antipsychotic regimen
 - Gender or ethnicity

Straker D, et al: Cost-effective Screening for the Metabolic Syndrome in Patients Treated with Second-Generation Antipsychotic Medications. *Am J Psychiatry* 2005;162:1217-1221.

Atypical Antipsychotic Medication Project

Goals

- Encourage utilization of PCP visits and connection to Medical Home for enrollees filling a prescription for atypical antipsychotic medications for the purpose of screening all of these individuals for metabolic syndrome.

Atypical Antipsychotic Medication Project

Goals

- PCPs or mental health providers will check LDL and glucose levels at baseline and every 6 months for individuals filling a prescription for atypical antipsychotic medications.
- Facilitate PCP treatment of any abnormal LDL and glucose levels for individuals filling a prescription for atypical antipsychotic medications.

Atypical Antipsychotic Medication Project

Interventions

- Encourage PCP visits and connection to Medical Home for enrollees
- Monitor weight/BMI & abdominal girth
- Check LDL and glucose levels every 6 months
- Facilitate PCP treatment of any abnormal LDL and glucose levels
- Facilitate diagnosis and treatment of metabolic syndrome in these individuals
- Encourage communication between the PCP and the psychiatrist

Atypical Antipsychotic Medication Project **Interventions**

- Once a new prescription for an antipsychotic medication is filled, the LIHP will notify the primary care provider (PCP)/medical home via email in a monthly medical director report.
- PCP may follow-up with further inquiry and screening tests

Atypical Antipsychotic Medication Project

Interventions

- The Primary Care Provider Role:
 - Engage
 - Schedule patients on these meds for follow-up & screening labs
 - Develop rapport, take an active interest in their lifestyle
 - Educate
 - Handout on Metabolic Syndrome
 - Diet and Exercise Interventions
 - Monitor
 - Weight, BMI, Abdominal Circumference
 - Labs: glucose, LDL, HDL, triglycerides
 - Treat
 - As indicated

From: **The Metabolic Syndrome**

JAMA. 2006;295(7):850-850. doi:10.1001/jama.295.7.850



<http://jama.jamanetwork.com/article.aspx?articleid=202379>

Questions?