Understanding and Addressing Morbidity and Mortality in People with Serious Mental Illness

Joseph Parks, MD

Sponsored by the Substance Abuse and Mental Health Services Administration
NASMHPD Medical Directors Council

- Identify emerging clinical issues impacting state mental health authorities and the public mental health service delivery system;
- Provide advice and guidance to NASMHPD members and staff alike on best practices and policy for these issues;
- Provide forums to encourage states to share planning, programming, and research and evaluation findings to improve public mental health services; and
- Foster peer-to-peer information sharing, and encourage collaborative responses to identified technical assistance needs in states.
Technical Papers -

• Integrating Behavioral Health and Primary Care Services: Opportunities and Challenges for State Mental Health Authorities (2005)
• Morbidity and Mortality in People with Serious Mental Illness (2006)
• Smoking Policy and Treatment in State Operated Psychiatric Facilities (2006)
• Obesity Reduction & Prevention Strategies for Individuals with Serious Mental Illness (2008)
• Measurement of Health Status for People with Serious Mental Illnesses (2008)
Overview: THE PROBLEM

Increased morbidity and mortality associated with serious mental illness (SMI)

• people with serious mental illness die decades earlier than the general population
• SAMHSA will be releasing upcoming data on the mortality gap derived from its National Survey of Drug Use and Health (NSDUH)

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
Multi-State Pilot Study

- Compared DMH clients with general population
- 1997 – 2000
- States: Arizona, Missouri, Oklahoma, Rhode Island, Texas, Utah
## Mortality Associated with Mental Disorders: Mean Years of Potential Life Lost

<table>
<thead>
<tr>
<th>Year</th>
<th>AZ</th>
<th>MO</th>
<th>OK</th>
<th>RI</th>
<th>TX</th>
<th>UT</th>
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<tr>
<td>1997</td>
<td></td>
<td>26.3</td>
<td>25.1</td>
<td></td>
<td>28.5</td>
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<td>1998</td>
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<td>25.1</td>
<td></td>
<td>28.8</td>
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<td>1999</td>
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<td>26.3</td>
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<td>26.9</td>
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<td>2000</td>
<td>31.8</td>
<td>27.9</td>
<td></td>
<td>24.9</td>
<td></td>
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</tbody>
</table>

Lutterman, T; Ganju, V; Schacht, L; Monihan, K; et.al. Sixteen State Study on Mental Health Performance Measures. DHHS Publication No. (SMA) 03-3835. Rockville, MD: Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, 2003. Colton CW, Manderscheid RW. *Prev Chronic Dis.* Available at: [http://www.cdc.gov/pcd/issues/2006/apr/05_0180.htm](http://www.cdc.gov/pcd/issues/2006/apr/05_0180.htm).
# Total YPLL by Primary Cause for Public Mental Health Patients with Mental Illness

Combined data for schizophrenia and schizoaffective disorder from 5 US states (MO, OK, RI, TX and UT) from 1997 to 2001

<table>
<thead>
<tr>
<th>Primary Cause of Death</th>
<th>Total YPLL (Persons-Year Lost)</th>
<th>Deaths (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>14,871.2</td>
<td>612</td>
</tr>
<tr>
<td>Cancer</td>
<td>5,389.9</td>
<td>241</td>
</tr>
<tr>
<td>Suicide</td>
<td>4,726.1</td>
<td>115</td>
</tr>
<tr>
<td>Accidents, including vehicle</td>
<td>3,467.0</td>
<td>98</td>
</tr>
<tr>
<td>Chronic Respiratory</td>
<td>2,700.9</td>
<td>113</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1,419.6</td>
<td>61</td>
</tr>
<tr>
<td>Pneumonia/influenza</td>
<td>1,254.2</td>
<td>67</td>
</tr>
<tr>
<td>Cerebrovascular Disease</td>
<td>1,195.9</td>
<td>58</td>
</tr>
<tr>
<td>All Causes of Death *</td>
<td>47,812.2</td>
<td>1829</td>
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</table>

*Note: Includes deaths from causes not listed; YPLL = years of potential life lost

Unpublished results courtesy of CW Colton
Change in US General Population Age-Adjusted Mortality (1979-1995)

Decline (%)

Year

Noncardiovascular Disease

Coronary Heart Disease (CHD)

Stroke

Mortality Risk From All Causes and From Cardiovascular Disease Increased Among Patients With Schizophrenia Between 1970-2003

Test for time trends of excess relative risks for SMRs were statistically significant ($P<0.001$) for all cause mortality and mortality due to cardiovascular disease.

Life Expectancy

- No Mental Disorder
- Any Mental Disorder General Population
- Any Mental Disorder Public Sector
Maine Study Results: Comparison of Health Disorders Between SMI & Non-SMI Groups
What are the Causes of Morbidity and Mortality in People with Serious Mental Illness?

88% of the deaths and 83% of premature years of life lost in persons with serious mental illness are due to “natural causes”

- Cardiovascular disease
- Diabetes
- Respiratory diseases
- Infectious diseases
# Risk of Obesity Among Patients with SMI

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Increase Odds of Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression (1, 2)</td>
<td>1.2 – 1.8 X</td>
</tr>
<tr>
<td>Bipolar Disorder (1, 2)</td>
<td>1.5 – 2.3 X</td>
</tr>
<tr>
<td>Schizophrenia (3)</td>
<td>3.5 X</td>
</tr>
</tbody>
</table>

Obesity and Diabetes are closely related!

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

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CATIE N=509</td>
<td>NHANES N=509</td>
</tr>
<tr>
<td><strong>Metabolic Syndrome Prevalence</strong></td>
<td>36.0%</td>
<td>19.7%</td>
</tr>
<tr>
<td><strong>Waist Circumference Criterion</strong></td>
<td>35.5%</td>
<td>24.8%</td>
</tr>
<tr>
<td><strong>Triglyceride Criterion</strong></td>
<td>50.7%</td>
<td>32.1%</td>
</tr>
<tr>
<td><strong>HDL Criterion</strong></td>
<td>48.9%</td>
<td>31.9%</td>
</tr>
<tr>
<td><strong>BP Criterion</strong></td>
<td>47.2%</td>
<td>31.1%</td>
</tr>
<tr>
<td><strong>Glucose Criterion</strong></td>
<td>14.1%</td>
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</table>

Meyer et al., Presented at APA annual meeting, May 21-26, 2005.
Mental Disorders and Smoking

- Higher prevalence of cigarette smoking (56-88%) for SMI patients (overall U.S. prevalence 25%)
- More toxic exposure for patients who smoke (more cigarettes, larger portion consumed)
- Smoking is associated with increased insulin resistance
- 44% of all cigarettes in US are smoked by persons with mental illness

Cardiovascular Risk Factors – Overview

BMI = body mass index; TC = total cholesterol; DM = diabetes mellitus; HTN = hypertension.

PROBLEMS

No Matter how great and destructive your problems may seem now, remember, you've probably only seen the tip of them.
Access To Health Care

• An issue for all people with limited income, particularly preventive care
• Over use of emergency and specialty care
• Complicated by mental illness
• Significantly lower rates of primary care
• Significantly lower rates of routine testing
• Very poor dental care
• Little integration of primary care and psychiatry
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.
Problem:
SMI and Reduced Use of Medical Services

- Less likely to be screened or treated for dyslipidemia, hyperglycemia, hypertension
- Less likely to receive angioplasty or CABG
- Less likely to receive drug therapies of proven benefit (thrombolytics, aspirin, beta-blockers, ACE inhibitors) post-myocardial infarction
- More likely to have premature mortality post-myocardial infarction

Druss BG et al. *Arch Gen Psychiatry*. 2001;58:565-572.
### Comparison of Metabolic Syndrome and Individual Criterion Prevalence in Fasting CATIE Subjects and Matched NHANES III Subjects

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Meyer et al., Presented at APA annual meeting, May 21-26, 2005.
The CATIE Study

At baseline investigators found that:

- 88.0% of subjects who had dyslipidemia
- 62.4% of subjects who had hypertension
- 30.2% of subjects who had diabetes

WERE NOT RECEIVING TREATMENT

A Few Observations

• The leading contributors include significant preventable causes
• Lifestyle issues are significant
• Iatrogenic effects of medications are significant
• Inattention by medical and behavioral health professionals is significant
• And inadequate care is probably very expensive!
Per Member Per Month Costs

- **Private Sector**
  - No Mental Disorder: $0
  - Any Mental Disorder: $600

- **Medicare**
  - No Mental Disorder: $200
  - Any Mental Disorder: $1,400

- **Medicaid**
  - No Mental Disorder: $1,000
  - Any Mental Disorder: $1,600

Melek et al Milliman Inc, 2013
MH/SA costs in NY State’s Medicaid Program

Disorder

Behavioral Health costs

Physical Health costs

$30,000
$28,000
$26,000
$24,000
$22,000
$20,000
$18,000
$16,000
$14,000
$12,000
$10,000

MH Disorder  SU Disorder  No MH/SU Disorder
CMHC Mission

Recovery for Persons with SMI
CMHC Problem

Early Death from Physical Illness Prevents Recovery from SMI
STUPIDITY

Quitters Never Win, Winners Never Quit,
But Those Who Never Win AND Never Quit Are Idiots.
Principles

• Physical healthcare is a core service for persons with SMI

• MH systems have a primary responsibility to ensure:
  • Access to preventive healthcare
  • Management and integration of medical care
APATHY
If we don’t take care of the customer, maybe they’ll stop bugging us.
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
Mortality 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
Mortality 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.
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.
2. Care coordination Models

- 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
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
Obesity Recommendations for States

• Educate mental health professionals on the importance of weight monitoring and weight reduction in people with serious mental illness
  • The belief that obesity is related to the person’s mental illness;
  • The belief that people with SMI lack the motivation to improve their health and well-being;
  • The socioeconomic challenges of living with a SMI;
  • Discrimination and stigma associated with obesity; and
  • The high prevalence of weight gain as a side effect in mental health medications.
Obesity Recommendations for States

- Develop standards of care for mental health providers and work with State Medicaid agencies and other health insurers to ensure that persons with severe mental illness and obesity have access to the following interventions
  - Educational/behavioral interventions for weight management
  - Use of lower weight gain antipsychotics whenever possible
  - Medical treatment of obesity
  - Surgical treatment of obesity
Obesity Recommendations for States

• Adopt American Diabetes Association (ADA) and American Psychiatric Association (APA) Second Generation Antipsychotic (SGA) monitoring as a standard of care practice for the population with serious mental illness
  • Be weighed on every visit;
  • Receive testing of glucose and lipids every year;
  • Receive blood pressure checks at 12 weeks and then annually
  • Receive treatment interventions;
Obesity Recommendations for CMHCs

• All people with SMI should have access to weight monitoring and management programs

• Monitor mental health consumers for diabetes and metabolic syndrome in mental health clinics

• Promote opportunities for health care providers, including peer specialists, to teach healthy lifestyles to families, individuals, and older adults
Obesity Recommendations for Prescribers

• Prescribing clinicians should use medications with lower risk of weight gain when possible
  • Choose low weight gain medications initially
  • Switch to lower weight gain medications if
    • Weight increases
    • Glucose intolerance occurs
    • Lipid levels rise
Obesity Recommendations for Prescribers

- Utilize weight loss medication when appropriate
  - Only when Lifestyle changes fail
  - Only in patients with a BMI ≥ 30 or a BMI ≥ 27 with at least two risk factors
- In consultation with the patient, recommend bariatric surgery when all other methods of weight loss have been tried and failed
  - Only when all other interventions fail
  - Only in persons with a BMI of 40 or higher; or a BMI of 35 or higher in a patient with a high-risk condition
Obesity Recommendations for CMHCs

• Encourage the development of novel approaches to educate and support weight control through community programs
  • Hold a “biggest loser” contest
  • Start a walking club
  • Reminders to consider using stairs instead of elevators
  • Planning and holding a progressive dinner
  • Keep it Simple and Keep it Fun
Smoking Position Statement

• As physicians, we commit to educating individuals about the effects of tobacco and facilitating and supporting their ability to manage their own physical wellness.

• As administrators, we will commit the leadership and resources necessary to create smoke free systems of care.

NASMHPD Research Institute, Inc. © 2006
National Decision Makers

- Medicare Part D plans should cover NRT
- State Medicaid should cover smoking cessation and prevention including NRT
- Studies should be done to look at long-term benefits of facilities and agencies going smoke free
State Mental Health Commissioners

- SMHA inpatient facilities should be encouraged and supported in their efforts to provide smoking cessation and prevention and in going smoke free with *focus on wellness*
- Offer cessation support including NRT for staff as well as consumers
State Mental Health Commissioners

- Work with the community to ensure tobacco cessation help is available for discharged patients
- SMHA facilities should not sell tobacco products
Recommendations for Facilities

- Smoking cessation and prevention and be smoke-free
- Implement no smoking policy over time
- Increase awareness of NRT options
- Offer ‘optimized’ tobacco cessation treatment
- Encourage smoke free homes
- Support self-help
Recommendations for Community Service Systems

• Smokers Anonymous
• Quit Line
• Address community-based smoking cessation programs and services understanding of mental illness
• Address community-based mental health programs and services understanding of smoking cessation
DMH NET – Strategy

• Health technology is utilized to support the service system
• “Care Coordination” is best provided by a local community-based provider
• Community Support Workers who are most familiar with the consumer provide care coordination at the local level
• Nurse Liaisons working within each provider organization provide system support
• Statewide coordination and training support the network of providers
CMHC as Health Care Home

• Case management coordination and facilitation of healthcare
• Medical disease management for persons with SMI
• Preventive healthcare screening and monitoring by MH providers
• Integrated/consolidated CMHC/CHC Services
Recommendation – Medical Needs Have Same Priority as MH Needs

- Obtaining a “medical home” – a primary care provider responsible for overall coordination
- Medication adherence – just as important for non-MH meds
- Assisting in scheduling and keeping medical care appointments
Care Coordination Integrates Healthcare Issues into CMHC Care Mechanisms

- Include healthcare goals in treatment plan
- Include healthy lifestyle goals in treatment plan
- Identify client’s internal health care expert/champion
- Develop health and wellness services
- Provide nurse healthcare liaison – proven practice
- Verify healthcare services are occurring by utilizing data
Recommendations – Provide Information to Healthcare Providers

• HIPAA permits sharing information for coordination of care
• Nationally consent not necessary
• Exceptions:
  • HIV
  • Substance abuse treatment – not abuse itself
  • Stricter local laws
What Drives Primary Care Crazy

• Long delays in getting patient seen for initial consult
• No responses back when they refer a patient
• Long responses that use mental health jargon
• Lack of explicit recommendations they can act on
• No response to a medical record/release of information request
Defining health homes

- Enumerated in Sec. 1945 of the Social Security Act
- Provides states the option to cover care coordination for individuals with chronic conditions through health homes
- Eligible Medicaid beneficiaries have:
  - Two or more chronic conditions,
  - One condition and the risk of developing another, or
  - At least one serious and persistent mental health condition
Defining health homes

• Provides 90% FMAP for eight quarters for:
  • Comprehensive care management
  • Care coordination
  • Health promotion
  • Comprehensive transitional care
  • Individual and family support
  • Referral to community and support services

• Services by designated providers, a team of health care professionals or a health team
What is a CMHC Healthcare Home?

- Not just a Medicaid Benefit
- Not just a Program or a Team
- A System and Organizational Transformation
Population Based – Data Driven

• Payment for HH Services will be paid PMPM, not unit by unit
• Service needs will be identified by patient health history and status
• Outcomes will be measured by groups of clients (i.e., by organization, region, medication used, co-morbid conditions)
CMHC Healthcare Homes

- State Plan Amendment approved 10/20/11
  - Effective 1/1/12
- 27 CMHC Healthcare Homes
- 17,882 individuals auto-enrolled
  - CMHC consumers with at least $10,000 Medicaid costs
- PMPM Staffing: $78.74
  - Health Home Director 1 per 500 enrollees
  - Primary Care Physician Consultant 1hr per enrollee
  - Nurse Care Managers 1 per 250 enrollees
RISKS

If you never try anything new,
you'll miss out on many of life's great disappointments.
Clients Eligible for CMHC HH

- A serious and persistent mental illness
  - Adults with SMI (Schizophrenia, Bipolar Disorder, Major Depression Recurrent)
  - Youth with Severe Emotional Disturbance
Clients Eligible for CMHC HH

- A mental health condition, **OR**
- A substance abuse condition, **AND**
- One other chronic health condition
  - asthma,
  - cardiovascular disease,
  - diabetes,
  - substance abuse disorder,
  - developmental disability,
  - overweight BMI>25
Healthcare Home Team Members

Healthcare Home Director

• Champions Healthcare Home practice transformation
• Oversees the daily operation of the HCH
• Tracks enrollment, declines, discharges, and transfers
• May serve as a NCM on a part-time basis
  • HCHs must have at least a half-time HCH Director
• Coordinates management of HIT tools
• Develops MOUs with hospitals and coordinates hospital admissions and discharges with NCMs
Healthcare Home Team Members
Nurse Care Managers

- Champion healthy lifestyles and preventive care
- Provide individual care for consumers on their caseload
  - Initially review client records and patient history
  - Participate in annual treatment planning including
    - Reviewing and signing off on health assessments
    - Conducting face-to-face interviews with consumers to discuss health concerns and wellness and treatment goals
  - Consult with CSS’s about identified health conditions of their clients
  - Coordinate care with external health care providers (pharmacies, PCPs, FQHC’s etc.)
  - Document individual client care and coordination in client records
Healthcare Home Team Members
Primary Care Physician Consultant

• Assures that HCH enrollees receive care consistent with appropriate medical standards
• Consults with HCH enrollees’ psychiatrists as appropriate regarding health and wellness
• Consults with NCM and CPR team regarding specific health concerns of individual HCH enrollees
• Assists with coordination of care with community and hospital medical provider
Healthcare Home Team Members
Psychiatrists, QMHPs, PSR and CSSs

• Continue to fulfill current responsibilities
• Collaborate with Nurse Care Managers in providing individualized services and supports
• CSSs participate in required HCH training to enable them to serve as health coaches who
  • Champion healthy lifestyle changes and preventive care efforts, including helping consumers develop wellness related treatment plan goals
  • Support consumers in managing chronic health conditions
  • Assist consumers in accessing primary care
Comprehensive Care Management

- Identification and targeting of high-risk individuals
- Monitoring of health status and adherence
- Development of treatment guidelines
- Individualized planning with the consumer
Method

• Screen for general health with priority for high risk conditions

• Prescribers will screen, monitor and intervene for metabolic syndrome and related care gaps

• Treatment per practice guidelines: eg, heart disease, diabetes, smoking cessation, use of novel anti-psychotics

• Offer prevention and intervention for modifiable risk factors and care gaps

• Track and improve performance thru patient disease registry
Step 1 – Create Disease Registry

- Get Historic Diagnosis from Admin Claims
- Get Clinical Values from Metabolic Screening
- Combine into EHR Disease Registry
- Online Access available to all Providers
Metabolic Syndrome Disease Registry

- Metabolic Syndrome
  - Obesity - weight height
  - Cholesterol
  - Triglycerides
  - Blood pressure
  - Blood sugar
- Screening Required Annually since 2010
- Disease registry with results maintained on cyber access
- Billing Code under Rehab Option
Step 2 – Identify Care Gaps and ACT!

- Compare Combined Disease Registry Data to accepted Clinical Quality Indicators
- Identify Care Gaps
- Sort patients with care gaps into agency specific To-Do lists
- Send to CMHC nurse care manager
- Set up PCP visit and pass on info with request to treat
DMHNET Performance Indicators

• Use of inhaled corticosteroid medications by persons with a history of COPD (chronic obstructive pulmonary disease) or Asthma
• Adherence to * different Classes of Medication
• Contact and medication reconciliation within 72 hours of Hospital Discharge
• Control of Blood Pressure and Glucose
• Obesity Substance abuse and Smoking Measures
Initial Results

• Provide specific lists of CMHC clients with care gaps as identified by HEIDIS indicators to CMHC primary care nurse liaisons quarterly

• Provide HEIDIS indicator/disease state training on standard of care to CMHC MH case managers

• First quarter focus on indicator one-asthma substantially reduced percentage with care gap
  • Range 22% - 62% reduction
  • Median 45% reduction
Support Patient Wellness through Self Management using Peer Specialists and Case Managers

• Re-trained CSWs to be Wellness Coaches consistent with recovery principles, including supports for smoking cessation, good nutrition, physical activity and healthy weight
• Educate patient on implications of psychotropic drugs
• Teach/support wellness self-management skills
• Teach/support decision making skills using Direct Inform
• Use motivational interviewing techniques
• New psychosocial rehab focus
  • Smoking cessation
  • Enhancing Activity
  • Obesity Reduction/Prevention
Comprehensive Transitional Care

- Hospital admission follow-up
- Hospital discharge follow-up
- Development of intermediate care tools
- Data and patient registry supported
Use of Health Information Technology to Link Services

• Medicaid requires hospitals to notify MHN within 24 hours of a new admission of any Medicaid enrollee and provide information about diagnosis, condition and treatment for authorization of an inpatient stay using a web based tool

• A daily data transfer listing all new hospital admissions discharges is transferred to the HH data analytic staff

• New admits are matched to the list of all persons assigned and/or enrolled in a healthcare home

• An Automated email notifies the healthcare home provider of the admission
Practice Transformations

• Focus on overall health
• More medically oriented team members
• Open access scheduling
• No-show/cancellation policies
• Increased patient input processes
• Significant increase in data reporting and outcomes
• Treatment planning tools supported by treatment guidelines
OUTCOMES

• Cost
• Quality of Care
  • Medication adherence
  • HEDIS indicators
• Clinical Outcomes
  • Avoidable hospital readmissions
• Experience of care
  • MHSIP
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

It’s The Right Thing to DO

• “Try to kill as few patients as possible”
  Oliver Wendall Holmes
A Typical Participant in This Overview

- A 47 year old male
- More than one major targeted disease
- Likely has a major cardiovascular diagnosis and diabetes
- Likely has experienced a major cardiac event
- A third have a major behavior health co-morbidity
- A generally motivated cohort

Continuously Enrolled 7/1/2007 - 6/30/2008

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<th>Disease</th>
<th>Number of Individuals</th>
<th>Percentage</th>
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<td>9,817</td>
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</tr>
<tr>
<td>CAD</td>
<td>16,982</td>
<td>68.8%</td>
</tr>
<tr>
<td>CHF</td>
<td>5,746</td>
<td>23.3%</td>
</tr>
<tr>
<td>COPD</td>
<td>8,155</td>
<td>33.0%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>12,939</td>
<td>52.4%</td>
</tr>
<tr>
<td>GERD</td>
<td>12,592</td>
<td>51.0%</td>
</tr>
<tr>
<td>Sickle Cell</td>
<td>558</td>
<td>2.3%</td>
</tr>
<tr>
<td>Behavioral Disability</td>
<td>8,395</td>
<td>34.0%</td>
</tr>
</tbody>
</table>

*Includes co-morbid conditions

7/31/2013
HbA1c testing provides an estimation of average blood glucose values in people with diabetes. Enrollees in the CCIP program received substantially more HbA1c testing than those not enrolled.
Missouri CCIP Coronary Artery Disease (CAD) Outcomes

CCIP enrollees with coronary artery disease (CAD) received recommended treatment with beta blocker medications at nearly twice the rate of non-enrollees.
Trend Analysis of Total Costs

Average Total Monthly Costs for CCIP-enrolled participants were below projection. March 2008 demonstrates a $321 PMPM savings.

7/31/2013
Trend Analysis of Emergency Room Utilization

ER Usage Rate per 1000

ER visits decreased more substantially than projected representing another key cost driver for savings

7/31/2013
## Cost Savings achieved for clients in CMHCs

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Period (CY2006)</td>
<td>$1,556</td>
</tr>
<tr>
<td>Expected Trend</td>
<td>16.67%</td>
</tr>
<tr>
<td>Expected Trend with no Intervention</td>
<td>$1,815.81</td>
</tr>
<tr>
<td>Actual PMPM in Performance Period (FY2007)</td>
<td>$1,504.34</td>
</tr>
<tr>
<td>Gross PMPM Cost Savings</td>
<td>$311.47</td>
</tr>
<tr>
<td>Lives</td>
<td>6,757</td>
</tr>
<tr>
<td>Gross Program Savings</td>
<td>$25,254,928</td>
</tr>
<tr>
<td>Vendor Fees</td>
<td>$1,301,560</td>
</tr>
<tr>
<td>Net Program Savings</td>
<td>$23,953,368</td>
</tr>
<tr>
<td>NET PMPM Program Savings</td>
<td>$295.41</td>
</tr>
<tr>
<td>Net Program Savings/(Cost) as percentage of Expected PMPM</td>
<td>16.3%</td>
</tr>
</tbody>
</table>
Total Healthcare Cost Trend
Pre-/Post CMHC Enrollment

• Selection Criteria – 636 persons identified
  • Newly enrolled in CMHC case management
  • At least nine months of Medicaid claims in each of the preceding two years and two years following CMHC enrollment

• Methodology
  • Calculate total monthly Medicaid costs PMPM 24 months pre and post-enrollment
  • month zero is 24 months prior to enrollment, month 24 is the month of enrollment, month 48 is 24 months after enrollment
  • Calculate linear regression trend lines
Total HealthCare Utilization Per User Per Month Pre and Post Community Mental Health Case Management

Months with case management initiated on month 24
Preliminary Health Home Outcomes

Reduction in Hospitalization

Percentage of Patients with at least 1 Hospitalization

- Total
- CMHC
- PC

Individuals enrolled in health home at least 2 months
All Cause Adm & Re-Adm Rate per 1,000 among Patients with at least 1 Hospitalization

Total

Index Adm

Re-Adm

(# of adm / # of patients) x 1000
Preliminary Health Home Outcomes

Cost Savings

- ER and Hospital
  - Reduction in admissions per 1000: 12.8%
  - Reduction in ER usage per 1000: 8.2%
  - Difference = $127.55 PMPM
  - Cost = $78.74 PMPM
  - Net Savings: $48.81 PMPM
Preliminary Health Home Outcomes

Cost Savings

• Total Medicaid Savings
  • Pre-HCH Average Cost: $28,280
  • Post- HCH Average Cost: $26,316
  • Difference = $162 PMPM
  • Cost = $78.74
  • Net Savings $83.26 PMPM
<table>
<thead>
<tr>
<th></th>
<th>St. Louis Central</th>
<th>Columbia</th>
<th>St. Louis South</th>
<th>Kansas City</th>
</tr>
</thead>
<tbody>
<tr>
<td>HbA1c</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>BP</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>LDL</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Tobacco Cessation</td>
<td>+</td>
<td>+</td>
<td>U</td>
<td>U</td>
</tr>
<tr>
<td>Pediatric Asthma</td>
<td>U</td>
<td>U</td>
<td>U</td>
<td>U</td>
</tr>
<tr>
<td>Adults Asthma</td>
<td>U</td>
<td>U</td>
<td>U</td>
<td>U</td>
</tr>
<tr>
<td>Pediatric BMI</td>
<td>-</td>
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<td>U</td>
</tr>
<tr>
<td>Adult BMI</td>
<td>U</td>
<td>U</td>
<td>U</td>
<td>U</td>
</tr>
</tbody>
</table>
What Made it Possible? - Relationships

- DSS - MO HealthNet
- DMH
- State Budget Office
- The Missouri Primary Care Association
- Missouri Coalition of CMHCs
- MO Foundation for Health (MFH)
- Consultants: Michael Bailit & Alicia Smith
- Missouri Hospital Association (MHA)
- Vendors: Xerox, CMT, Arcadia/Azara, MIMH
CHANGE

When the Winds of Change Blow Hard Enough, The Most Trivial of Things can turn into Deadly Projectiles.
WebSites

• www.dmh.mo.gov/about/chiefclinicalofficer/healthcarehome.htm