

# Analysis of the Interdependence of Mental Health, Physical Health and Health Risk in Maine

**Brenda Harvey, Commissioner  
Maine DHHS**

**Elsie Freeman, M.D. M.P.H.  
Medical Director, Maine DHHS, Adult Mental Health**

**James T. Yoe, Ph.D  
Director, Maine DHHS, Office of Quality Improvement**

**Kip Neale  
BRFSS Coordinator, Maine DHHS . Public Health**

# 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](http://www.cdc.gov/pcd/issues/2006/apr/05_0180.htm)

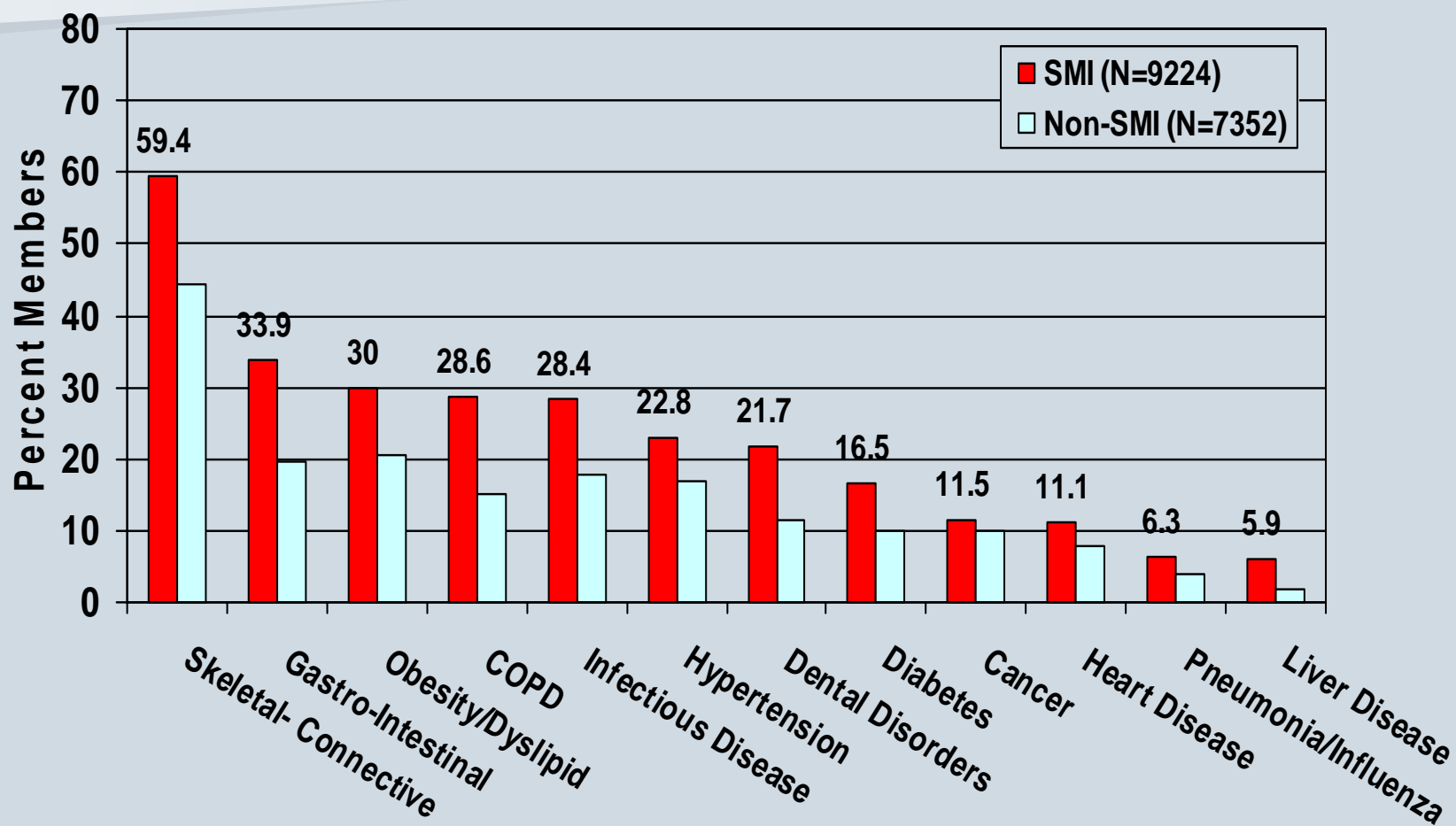
# What are they dying from?

<b>Massachusetts</b>	<b>% of SMI deaths</b>	<b>Number of Excess deaths</b>
<b>All injuries</b>	<b>24%</b>	<b>67</b>
<b>Suicide</b>	<b>10.9%</b>	<b>35</b>
<b>Natural Causes</b>	<b>76%</b>	<b>124</b>
<b>Heart Disease</b>	<b>27%</b>	<b>61</b>

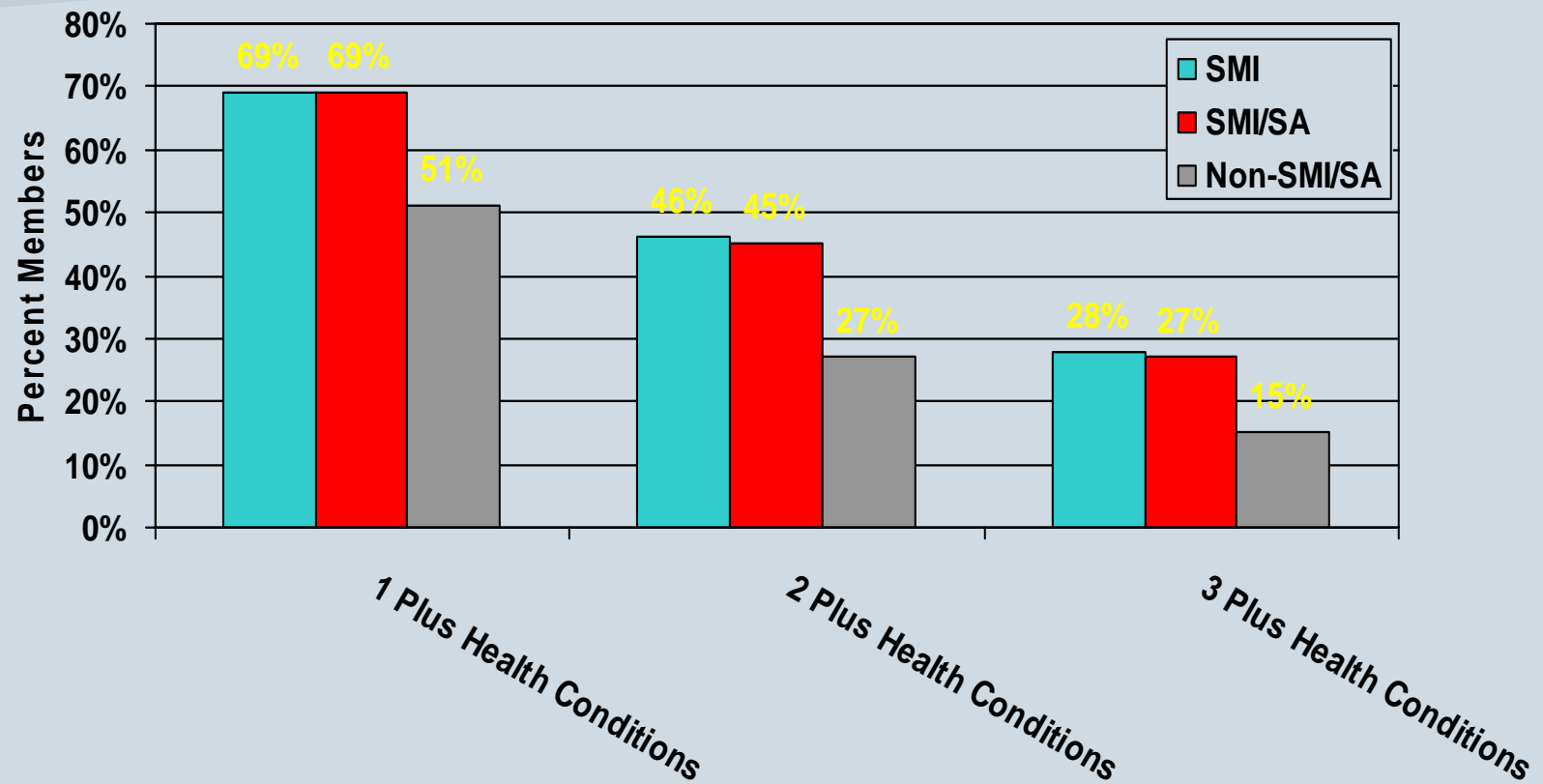
# Cardiovascular Disease is Associated with the Largest Number of Deaths in the SMI population

Deaths related to heart disease  
exceed deaths from suicide

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



# Burden of Medical Illness



For Persons with SMI  
Chronic Health Conditions Are an  
**Expectation**  
Not an Exception

# Impact on Cost

- Medical Care

- Psychiatric Care

# Poor outcome, higher costs

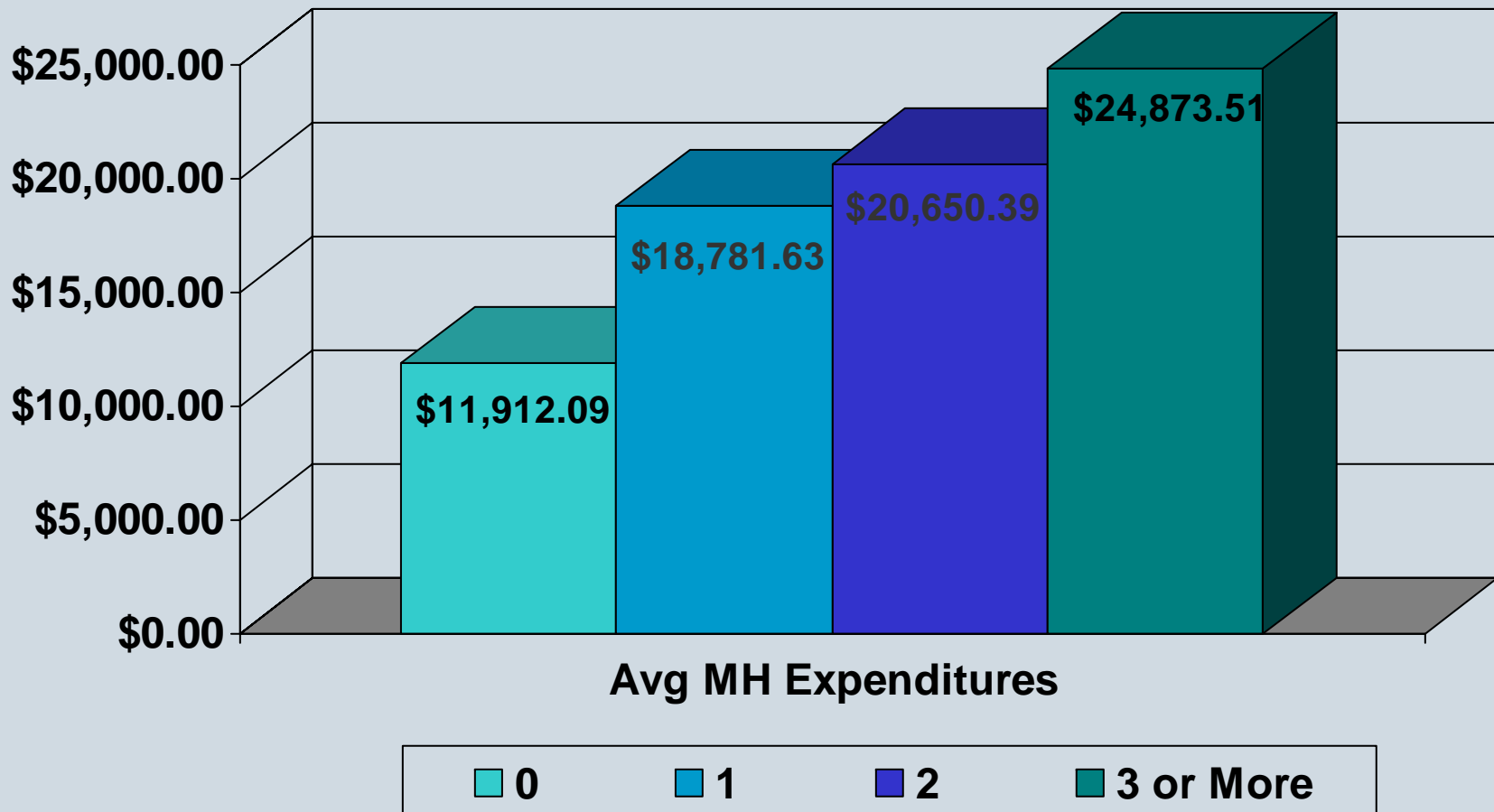
- Increased costs of medical care, especially with co-occurring SMI/SA
- In some instances, lower costs of medical care. e.g. for cancer, may indicate lower access/quality of care
- Psychiatric care costs increase significantly with increase in co-morbid medical conditions

## Comparison of Mean Per Member Expenditures

Health Condition	SMI (N=9224)	Non-SMI (N=7357)	F (P Value)
Skeletal- Connective	2015.42	1594.97	6.22, p<.013
Gastro-Intestinal	2634.62	3486.09	4.47, P<.03
Obesity/Dyslipid	1435.16	1221.65	NS
COPD	2954.13	2939.70	NS
Infectious Disease	2052.90	1616.92	NS
Cancer	2877.58	6667.77	11.8, p<.001
Heart Disease	7232.91	12452.42	6.88, p<.009
Hypertension	2292.76	2080.27	NS
Pneumonia/ flu	4002.76	3513.89	NS
Diabetes	5294.71	3738.88	4.97, .p<026
Liver Disease	2959.42	5332.35	NS
Dental Disorders	643.02	613.85	NS
Pregnancy	9898.96	11565.02	NS
Ill-Defined Conditions	2372.25	1696.39	14.91, p<.001
Injury-Related	2631.83	2535.71	NS

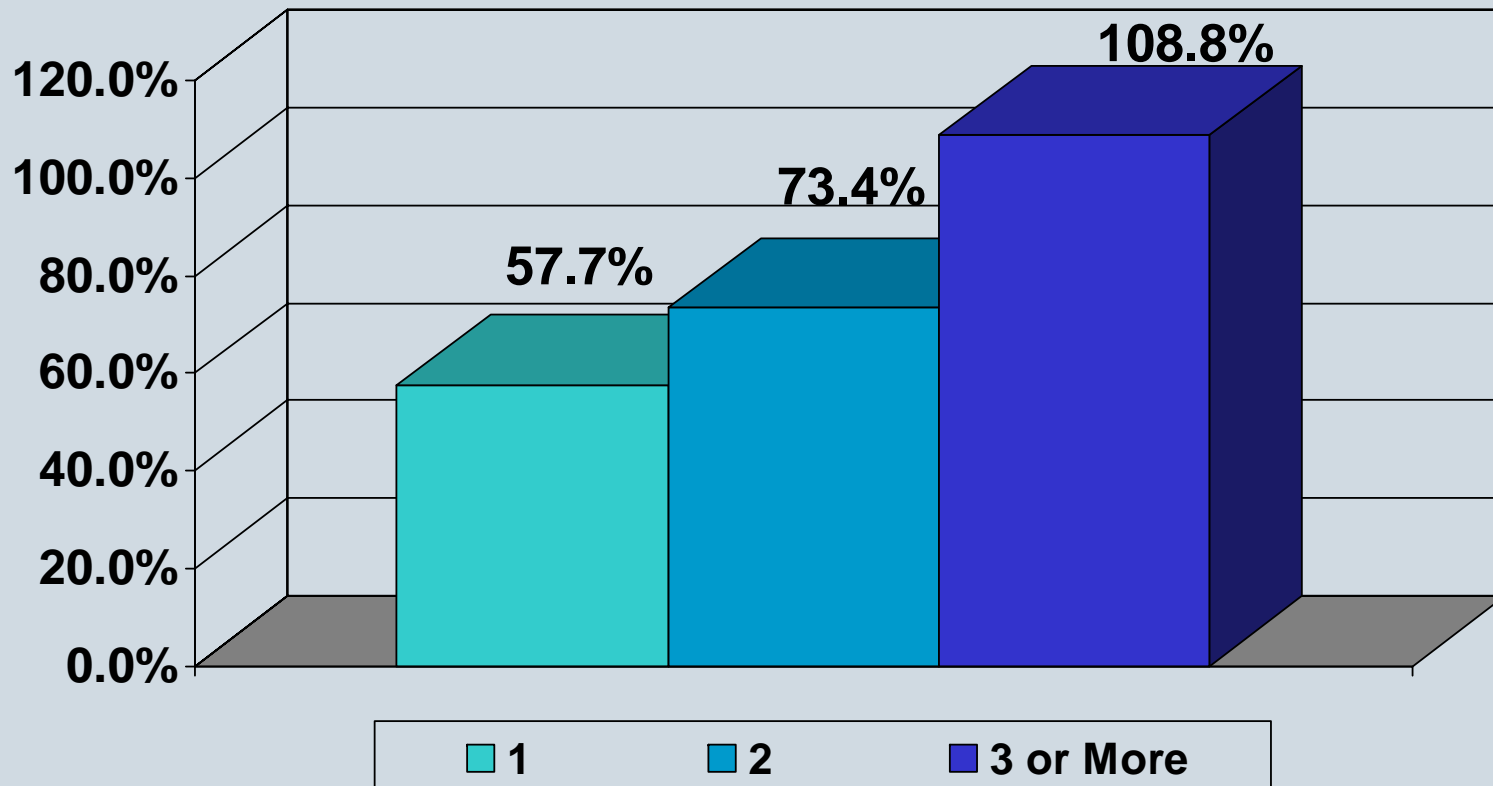
# Mental Health Expenditures for SMI and Chronic Health Conditions

## MaineCare Mental Health Expenditures for Persons with SMI by Number of Chronic Health Conditions



# Mental Health Expenditures for SMI and Chronic Health Conditions

## Percent Increase in Mental Health Expenditures with Increasing Number of Chronic Health Conditions



# Recovery

- Quality of Life depends on health status
- Engagement with work, play, community depends on having good health
- Premature death is an undesirable outcome
- Poor health contributes to cost of psychiatric care
- Time to put the body back on the head

# **The Behavioral Risk Factor Surveillance System**

**B R F S S**

Source for National, State, and Local Data

# What Type of Information is Collected?

- Chronic Disease: Diabetes, Asthma, Cardiovascular, Cancer, etc.
- Risk Factors: Smoke, Obesity, Wear a Seat Belt, etc.
- Prevention Activities: Exercise, Fruits and Vegetables, PAP Test, etc.
- Health Status: Health Condition, Access to Care, Insurance, PCP, etc.
- Demographics: Gender, Age, Income, Education, Martial Status, etc.

# How is BRFSS data used: mostly by health policy and public health

- For State Health Plans: Establish and track health objectives (e.g. Healthy People 2010 goals and objectives)
- Develop and evaluate public health policies and programs (e.g. effectiveness of Tobacco Control, Healthy Weight, Diabetes Prevention)
- Many states also use BRFSS data to support health-related legislative efforts.
- States have health data by county, region; also by sub-populations

How might BRFSS be used by  
mental health policy makers



# A proposal for BRFSS analysis: beyond demographics

- Relating mental health questions to core BRFSS data on health risk, chronic health conditions, self care and preventive health care
- Describing the inter-relationship of physical health and mental health

# Mental Health Question

- Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

Core Question 1994-2001; 2003-2007

Frequent Mental Distress (FMD): 14 days or more

<http://apps.nccd.cdc.gov>

# Maine BRFSS data 2000-2005

## 16,903 respondents

Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

- No Days: 66.9% N=11,000
- Frequent Mental Distress (FMD): 14 days or more: 10.7% N=1746
- In between: 1-13 N= 22.4% N = 3495

# New Mental Health Questions

These are state added, not Core:

2006 Depression and Anxiety Module (8 of the PHQ-9 questions) (41 states)

2007 SMI and Stigma Module (K-6 questions)

# Maine BRFSS data

## 2006 Depression Module

- Score each of 8 questions:
  - Score 0: 0-1 days
  - 1: 2-6 days
  - 2: 7-11 days
  - 3: 12 or more days
- Add up scores on 8 individual questions:
  - Total Score 0-4 = No depression
  - 5-9 = Mild, minimal depression
  - 10-14 = Moderated depression
  - > 20 = Severe depression

# Preliminary Analysis: MAINE BRFSS Depression Module

- N = 2818
- No Depression: N = 2566, 91.1%
- Mild Depression: N = 224, 8%
- Moderate: N = 18, 0.64%
- Moderately Severe: N = 3, 0.11%
- Severe: N = 7, 0.25%
- Any Depression: N = 252, 8.9%

# FMD and Depression

	0 days Poor Mental Health	>14 days Frequent Mental Distress
No Depression	78%	2.7%
Any Depression	35.7%	43.9%

\*\*\* Preliminary Chi Square<0.05

# BRFSS Frequent Mental Distress and Health Risk

Days of Mental Distress	0 Days	14 or more
Heavy Drink	4.6%	7.9%**
Binge Drinking	12.4%	15.8%*

Chi Square, \*\*p<.0005; \*p<.05

# BRFSS Frequent Mental Distress and Health Risk

Mental Distress	0 Days	14 or more
Smoking	19%	40.6 %**
Obesity	19.7%	29.3%**
No Exercise	22.5%	35%**
<5 Fruit/Veggie	70.6%	78%**

\*\*Chi Square, p < .0005

# Depression and Health Risk

Depression	Not Depressed	Any Depression
Smoking	31.2%	49%
Obesity	23.3%	28.5%
No Exercise	16.7%	26.2%

\*\*\* Preliminary Chi Square<0.05

# Frequent Mental Distress, Health Risk and Preventive Care

Mental Distress	0 Days	14 or more
Cholesterol High	33.0%	40.3% <sup>**</sup>
No Cholesterol Test in past 5 years	20%	26% <sup>*</sup>
HIV Test Ever	33.5%	48.5% <sup>**</sup>

Chi Square, \*\*p<.0005; \*p<.05

# Frequent Mental Distress and Preventive Care

<b>Mental Distress</b>	<b>0 Days</b>	<b>14 or more</b>
Mammogram	71.0%	61.2% <sup>**</sup>
Teeth Cleaned	69.2%	8.1% <sup>**</sup>
Flu Shot	37%	28.9% <sup>**</sup>
Pneumonia Shot	25.9%	24.8% <sup>NS</sup>

<sup>\*\*</sup>Chi Square,  $p < .0005$

# Depression and Preventive Care

	No Depression	Any Depression
Mammogram	92.4%	86.3%
Teeth Cleaned	70.3%	61.9%
Flu Shot	38.2%	34.7%

# Health Status

Mental Health	0 Days	FMD **	Not Dep	Dep
Good/Excellent	89%	60.5%	92.3%	78.4%
Poor/Fair	11%	39.5%	7.7%	21.6%

\*\*Chi Square,  $p < .0005$

# Days of Poor Physical Health

<b>Mental Distress</b>	<b>0 Days</b>	<b>14 or more</b>
>14 Days Poor Physical Health	8.0%	33.2% <sup>**</sup>

<sup>\*\*</sup>Chi Square,  $p < .0005$

# Chronic Health Conditions

<b>Mental Distress</b>	<b>0 Days</b>	<b>14 or more</b>
Arthritis	27.8%	43% <sup>**</sup>
Diabetes	7.0%	10.4% <sup>**</sup>
Asthma	8.2%	16.4% <sup>**</sup>

<sup>\*\*</sup>Chi Square,  $p < .0005$

# Chronic Health Conditions and Self Care

<b>Mental Distress</b>	<b>0 Days</b>	<b>14 or more</b>
High BP	26.5%	28.6% NS
Yes, high BP Not Taking Meds	19.6%	33%*

\* Chi Square,  $p < .05$

# Chronic Health Conditions and Self Care

<b>Mental Distress</b>	<b>0 Days</b>	<b>14 or more</b>
Heart Attack or Stroke or CVD	8.5%	11.2%* <small>p&lt;.05</small>
Yes CVD No Aspirin	26.7%	36.1% <small>NS</small>
Yes CVD Chol Check No or >5 yrs	3.1%	7.2% <small>NS</small>

# Depression and Chronic Conditions

Prevalence of a chronic medical condition  
(diabetes, asthma or CVD)

- Any Depression: 26.2%
- No Depression: 19.6%

# BRFSS Frequent Mental Distress and Health Care Coverage\*\*

Insurance Status	% reporting FMD
Any Health Insurance	10.1%
No Health Insurance	14.8%
Medicaid	22%

# Gender

	FMD	0 days PMH	Depressed	Not depressed
Male	34.4% <sup>**</sup>	43.5	34.1%	40.7
Female	65.6	56.4	65.8	59.3

\*\*Chi Square:  $p < .0005$

# Marital Status

	FMD	0 days PMH	Depressed	Not depressed
Married	8.7**	70.8	60.2	63.7
Not married	14.2	60.2	39.8	36.3

\*\*Chi Square:  $p < .0005$

# Frequent Mental Distress by Age\*\*

<b>AGE</b>	<b>% FMD</b>
■ 18-34	12.6%
■ 35-49	12.3%
■ 50-64	9.4%
■ 65+	6.6%

\*\*Chi Square:  $p < .0005$

# Education

	FMD**	Depression
< High School	17%	10.9%
High School	12.3	10.7
Some college	11	9.5
College/ College plus	6.6	6.9

\*\*Chi Square:  $p < .0005$

# BRFSS Frequent Mental Distress and Income\*\*

Income	% reporting FMD
<\$15,000	23.9%
\$15,000-\$24,999	13.7%
\$25,000-\$49,999	9.7%
>\$50,000	6.0%

\*\*Chi Square:  $p < .0005$

# BRFSS Frequent Mental Distress and Employment\*\*

<b>Mentally Unhealthy Days</b>	<b>% report 0 days</b>	<b>% report FMD</b>
Employed	66.8%	8.3%
Unemployed	67.3%	14.7%

\*\*Chi Square:  $p < .0005$

# Conclusions

- A relationship exists between mental ill health and an increase in health risk behaviors
- Mental ill health is associated with poor overall health, a high number of physically unhealthy days, diabetes, arthritis, asthma and cardiovascular disease
- Mental ill health is associated with poor self care for various health conditions
- Mental ill health is associated with lower rates of certain preventive practices: flu shot, mammogram, dental care

Persons with Mental Illness  
appear to be a health  
disparities population

# Future work

- Application of regression analysis to clarify the relationships between mental health and health variables
- Similar integrated analysis of depression/anxiety and SMI modules

# Implications for Mental Health Systems

Importance of developing a vision of Recovery and associated survey methodology that includes physical health as an essential element

# Why the BRFSS is useful for mental health policy makers

- One survey that includes both mental health and health modules
- Annually in each state
- Population based
- Permits ongoing tracking of health risk, chronic health conditions, self care, preventive care and quality of life for persons with Mental Illness
- Supports the development of a public health approach to mental illness
- Moves us towards collaboration with our public health and health care partners

- [Elsie.Freeman@maine.gov](mailto:Elsie.Freeman@maine.gov)
- [Jay.Yoe@maine.gov](mailto:Jay.Yoe@maine.gov)

For name of BRFSS coordinator in your state  
go to [www.cdc.gov/brfss](http://www.cdc.gov/brfss)