

Effects of Care Models to Improve General Medical Outcomes for Individuals With Serious Mental Illness



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VA-ESP Project #09-010; 2011



**Bradford DW, Slubicki MN, McDuffie JR, Kilbourne AM, Nagi A,
Williams JW Jr.**

<http://vaww.hsrd.research.va.gov/publications/esp/smi.cfm>

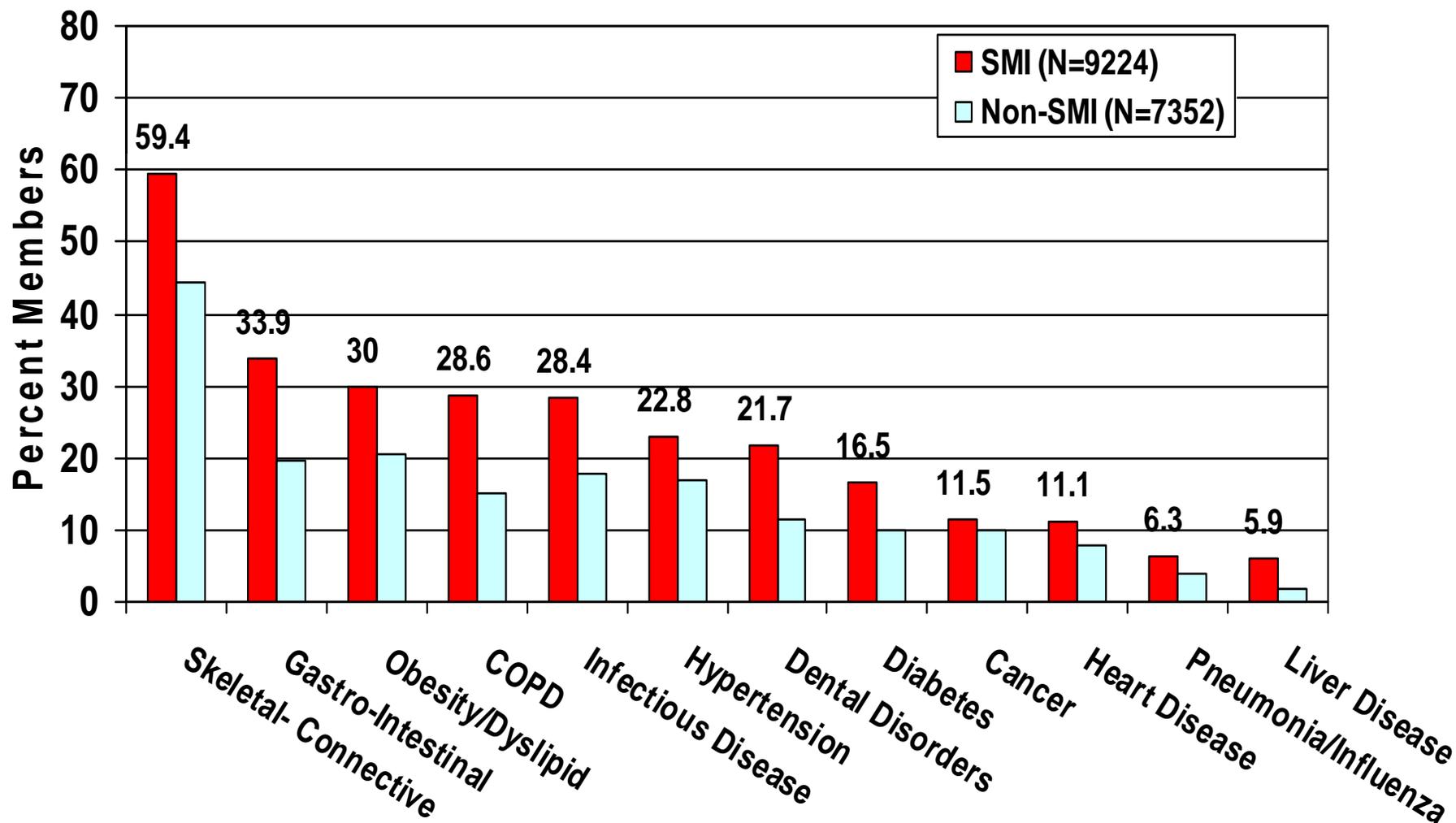
Poll question #1

- **What is your primary professional role?**
 - **Mental health researcher**
 - **Medical researcher**
 - **Research (other)**
 - **Mental health clinician**
 - **Medical clinician**

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- **I. General medical morbidity and mortality in individuals with SMI**
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- **VI. Future Directions**
- **VII. Question and Answer**

General Medical Morbidity: SMI & Non-SMI Groups in Maine Medicaid Data



Source:
National Association of State Mental Health Program
Directors
(NASMHPD) Medical Directors Council 2006

Increased Mortality From Medical Causes in SMI

- Increased risk of death from medical causes in schizophrenia and 20% (10-15 yrs) shorter lifespan(1)
- 25 years shorter life span in SMI served by public mental health system (2)
- Schizophrenia, SMR= 1.6 in 1999 and 2.2 in 2006 (3)
- Bipolar disorder, SMR= 1.3 in 1999 and 1.9 in 2006(3)

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

(1) Harris et al 1998. British Journal of Psych

(2) *Sixteen-State Study on Mental Health Performance Measures* (Lutterman et al., 2003).

(3)Hoang et al 2011.BMJ

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Risk factors of poor health in SMI

- Homelessness
- Victimization/ trauma
- Unemployment
- Poverty
- Incarceration
- Social isolation
- Psychotropic medication side effects

Higher rates of modifiable risk factors

- **Smoking**
- **Alcohol Consumption**
- **Poor nutrition/ obesity**
- **“Unsafe” sexual behavior**
- **Lack of exercise**
- **IV drug use**
- **Residence in group care facilities and homeless shelters**

Factors Impacting Health Outcomes in Persons with SMI

- **Patient factors: amotivation, fearfulness, social instability, unemployment, incarceration**
- **Provider factors: attitude and comfort level with SMI population, coordination of care, and stigma**
- **System factors: fragmentation between mental health and general health care; funding**

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Primary Medical Care Access and Reported Barriers from a Nationally Representative Survey (n=156,475)

Table 2

Likelihood of having a primary care physician and of facing barriers to receipt of medical care among persons with psychotic disorders, bipolar disorder, or major depression^a

Characteristic	Psychotic disorders (N=592)				Bipolar disorder (N=511)				Major depression (N=1,828)			
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Has a regular source of primary medical care	.47	.38–.58	.55	.44–.69	.63	.51–.79	.74	.56–.98	.90	.78–1.03	.97	.83–1.13
Needed medical care but was unable to get it	5.27	3.95–7.04	4.01	2.93–5.49	6.94	5.17–9.32	6.37	4.49–9.02	5.54	4.69–6.55	4.46	3.59–5.54
Delayed medical care because of concerns about cost	3.21	2.51–4.11	2.56	1.97–3.33	4.73	3.78–5.92	4.15	3.19–5.40	4.20	3.71–4.76	3.75	3.21–4.37
Needed prescription medication but was unable to get it	7.00	5.33–9.19	4.83	3.57–6.53	6.81	5.07–9.15	5.45	3.82–7.77	6.61	5.65–7.74	4.80	3.95–5.84

^a Odds ratios are based on analysis of data from 156,475 individuals with appropriate weighting to account for complex stratified sampling design.

Quality of Care in People with SMI

- *Overuse:*
- Persons with SMI have high use of somatic emergency services (Salisbury et al 2005, Hackman et al 2006)
- *Underuse:*
- Fewer routine preventive services (Druss 2002)
- Lower rates of cardiovascular procedures (Druss 2000)
- Worse diabetes care (Desai 2002, Frayne 2006)
- *Misuse:*
- • During medical hospitalization, persons with Schizophrenia are about twice as likely to have infections due to medical care postoperative deep venous thrombosis and postoperative sepsis (Daumit 2006)

Poll question #2: To improve general medical outcomes for Veterans with SMI, which location do you think is best for delivery of primary care services?

- **Co-located mental health and general medical services (in mental health area)**
- **Co-located mental health and general medical services (in general medical area)**
- **General medical clinic with care managers in mental health clinic**
- **General medical clinic**

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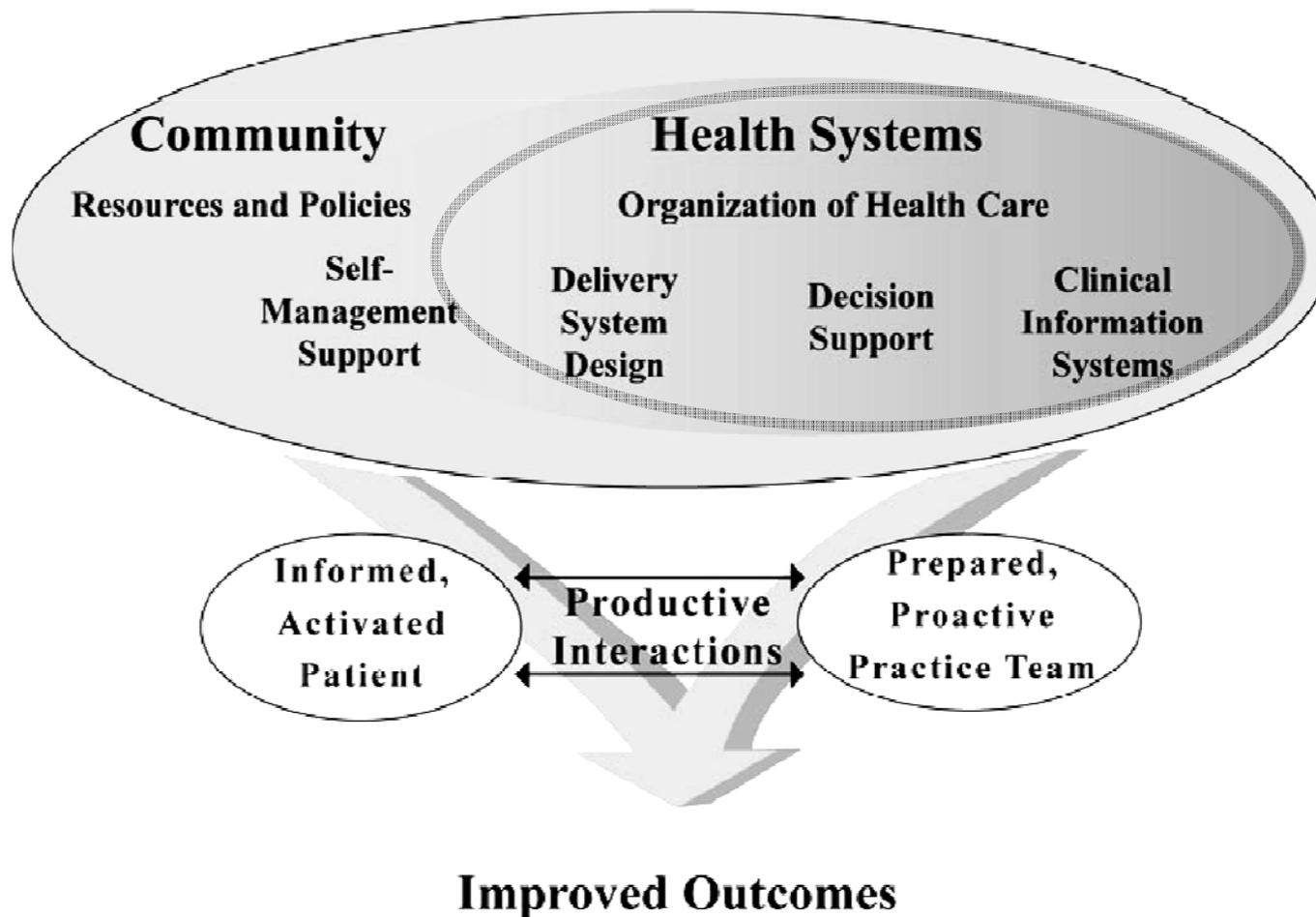
SAMHSA's Consensus Statement on Mental Health Recovery

Components of Recovery



Mental health recovery is a journey of healing and transformation enabling a person with a mental health problem to live a meaningful life in a community of his or her choice while striving to achieve his or her full potential.

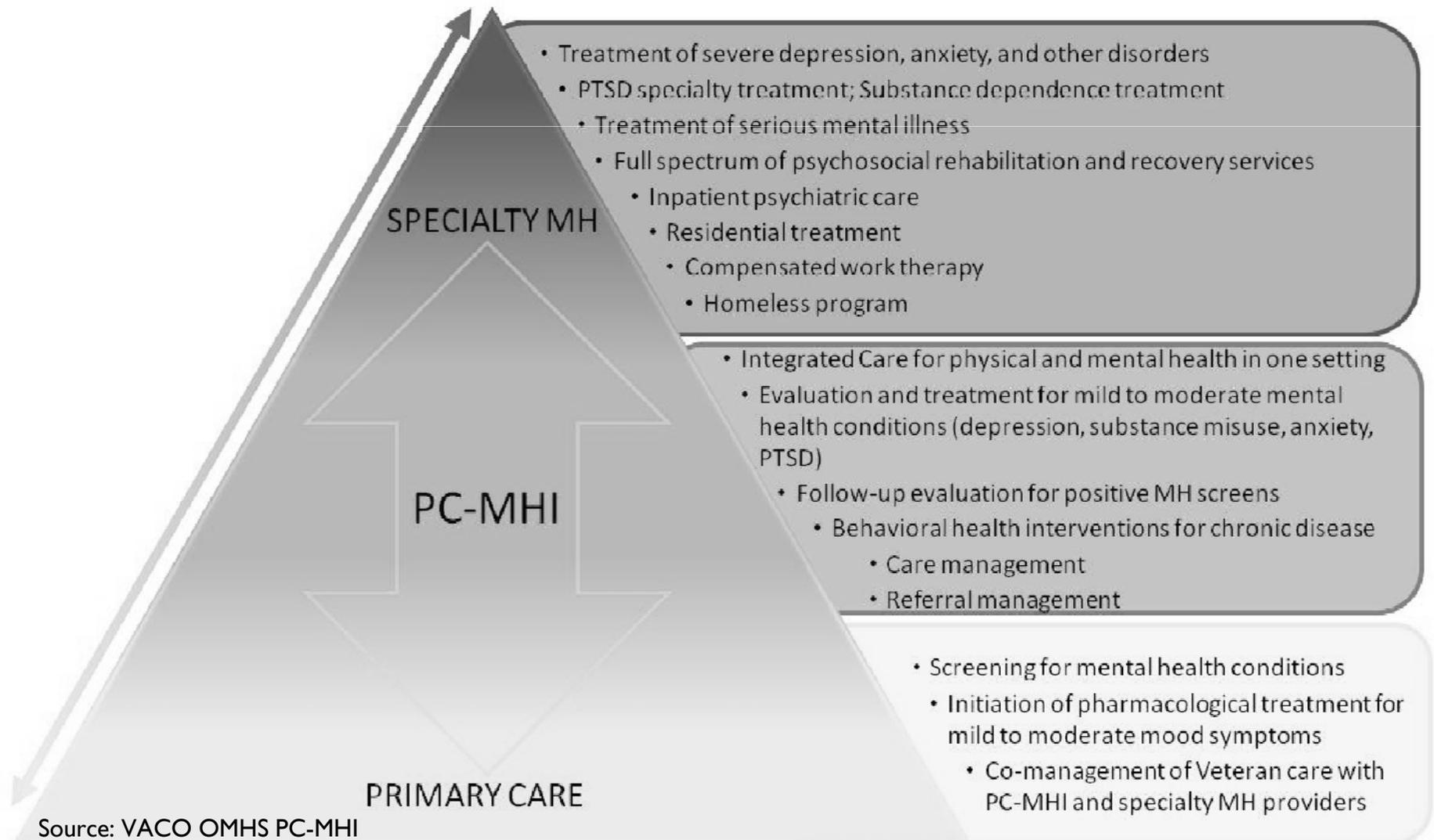
The Chronic Care Model



Patient Centered Medical Home

- The Patient Centered Medical Home (PCMH) Model is a patient-driven, team-based approach that delivers efficient, comprehensive and continuous care through active communication and coordination of healthcare services. PCMH is based on a set of seven principles and depends on a core and expanded team of healthcare personnel who work with the Veteran patient to plan for their overall health.
- *Patient-driven*
- *Team-based*
- *Efficient*
- *Comprehensive*
- *Continuous*
- *Communication*
- *Coordination*

Integration of mental health and primary care



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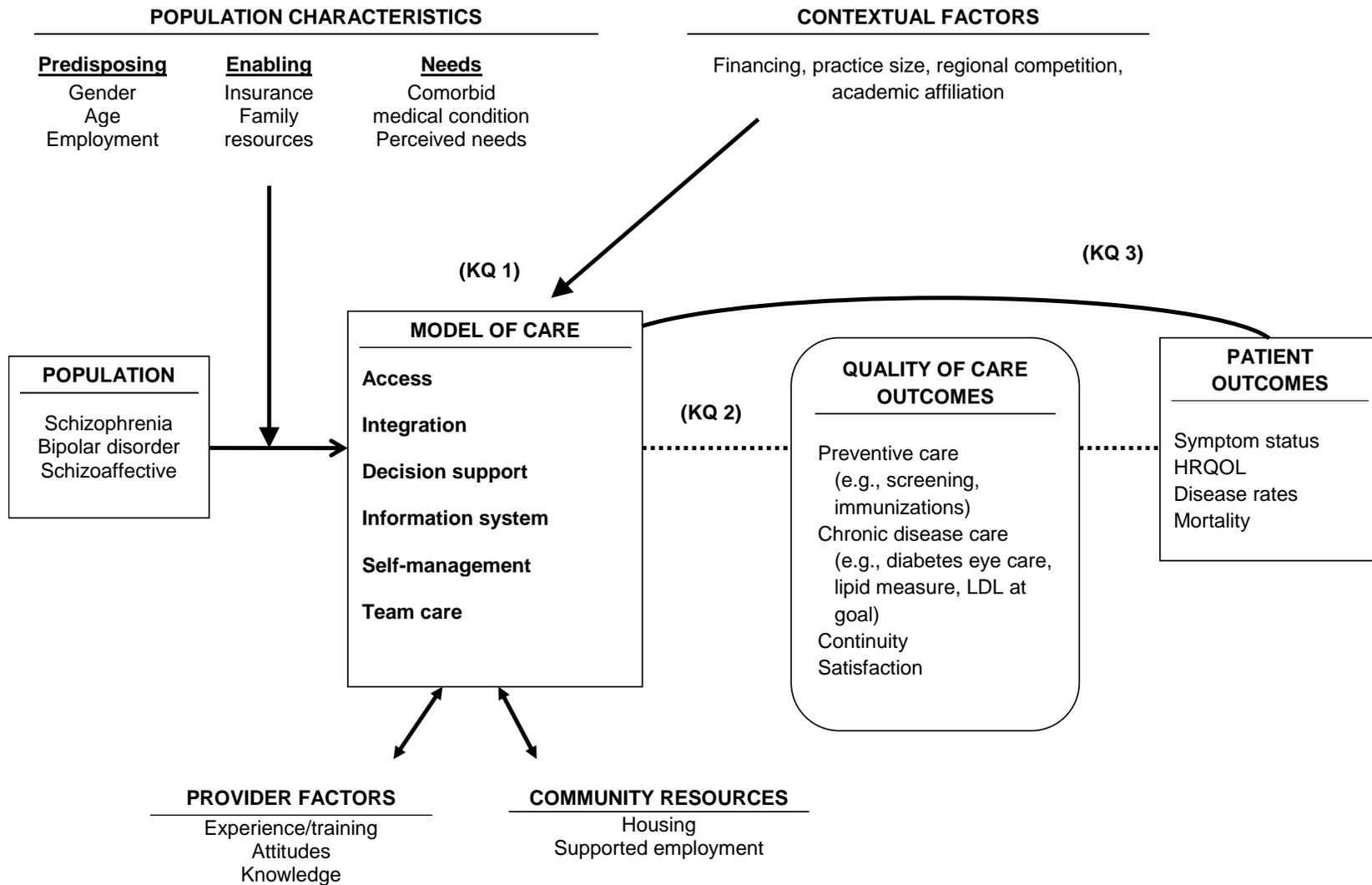
Effects of Care Models to Improve General Medical Outcomes for Individuals With Serious Mental Illness: Key Questions

KQ 1. What types of care models have been evaluated prospectively that integrate mental health care and primary medical care with the goal of improving general medical outcomes for individuals with serious mental illness (SMI)?

KQ 2. Do models of integrated care for individuals with SMI improve the process of care for preventive services (e.g., colorectal cancer screening) and chronic disease management (e.g., annual eye examination in patients with diabetes mellitus [DM])?

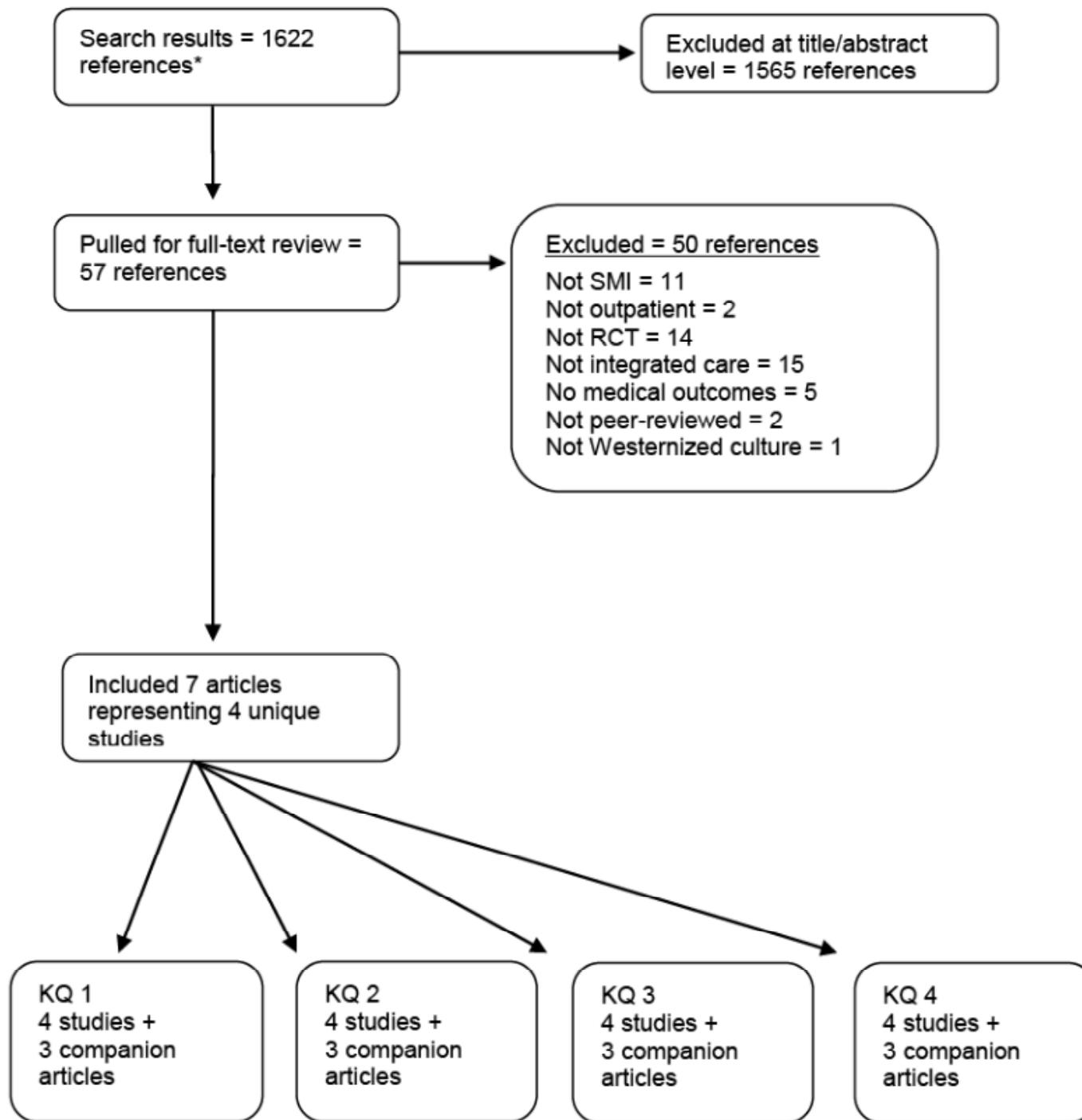
Effects of Care Models to Improve General Medical Outcomes for Individuals With Serious Mental Illness: Key Questions (cont'd)

- **KQ 3. (3a) Do models of integrated care for individuals with SMI improve general functional status outcomes (e.g., as measured by SF-36) or disease-specific functional status outcomes (e.g., Seattle Angina Questionnaire) related to medical care for chronic medical conditions such as DM, hypertension, or heart failure?**
- **(3b) Do models of integrated care for individuals with SMI improve clinical outcomes related to preventive services (e.g., influenza rates) and chronic medical care (e.g., kidney disease, amputations, retinopathy in patients with coexisting DM)?**
- **KQ 4. What are the gaps in evidence for determining how best to integrate care to improve general medical outcomes for individuals with SMI?**



Study inclusion criteria

- (1) be a randomized controlled trial (RCT) or quasi-experimental study design,**
- (2) evaluate a care model designed to integrate mental and general medical care,**
- (3) include a sample of adult patients with SMI (i.e., schizophrenia, bipolar disorder, schizoaffective disorder) or who met the definition of SMI based on low functional status (e.g., by Global Assessment of Functioning score)**
- (4) report an outcome relevant to our key questions**



*Search results from PubMed (1016), PsychInfo (453), Cochrane (129), and manual (24) were combined.

KQ 1. What types of care models have been evaluated prospectively that integrate mental health care and primary medical care with the goal of improving general medical outcomes for individuals with serious mental illness (SMI)?

Study	Design	Subjects		Setting	Followup
		<i>Disorder</i>	<i>Demographics</i>		
Druss et al., 2001 ⁶⁰ <u>Co-location/ care coordination</u>	RCT with usual care control N = 120	<ul style="list-style-type: none"> Mixed diagnoses Schizophrenia: 21% Major affective disorder: 13% 	<ul style="list-style-type: none"> Mostly male Mean age (yr): 45.2 +/- 8.2 Race: 70% white 	VA outpatient mental health	52 wk
Bauer et al., 2006 ^{55,56} Kilbourne et al., 2009 ⁵⁸ <u>Collaborative care for bipolar disorder/ care management/ primary care collaboration</u>	RCT with usual care control N = 306	<ul style="list-style-type: none"> Bipolar disorder (100%) 	<ul style="list-style-type: none"> Gender: 28% female Mean age (yr): 46.6 +/- 10.1 Race: 71% "minority" 	VA outpatient mental health	156 wk

Study	Design	Subjects		Setting	Follow up
		<i>Disorder</i>	<i>Demographics</i>		
Kilbourne et al., 2008 ^{57,59} <u>Collaborative care for bipolar disorder/ care management/ medical self-management sessions</u>	RCT with usual care control N = 58	<ul style="list-style-type: none"> • Bipolar disorder (100%) 	<ul style="list-style-type: none"> • Mostly male • Mean age (yr): 55.3 • Race: 10% African American 	VA outpatient mental health	24 wk
Druss et al., 2010 ⁵⁴ <u>Care management</u>	RCT with usual care control N = 407	Mixed diagnoses, including Schizophrenia/ schizoaffective disorder: 36.4% Bipolar disorder: 13.1%	<ul style="list-style-type: none"> • Even gender • Mean age (yr): 46.7 • Race: 77.4% African American • Hispanic or Latino: 1.5% • White: 21.1% 	Urban community mental health center	52 wk

Study	Model elements							
	Primary provider	Team-based	Enhanced access	Self-management support	Decision support	Delivery system	Information systems	Community linkages
Druss et al., 2001⁶⁰ <u>Co-location/care coordination</u>	Primary care: yes Psychiatric care: per usual care procedure	Supervising family practitioner and nurse practitioner; liaison with mental health providers	Primary care appts scheduled to follow mental health appts when possible	None reported	None reported	Co-location of mental health and primary care services	VA computerized record (both study arms)	None reported

Model elements

Study	Model elements							
	Primary provider	Team-based	Enhanced access	Self-mgt support	Decision support	Delivery system	Information systems	Community linkages
<p>Bauer et al., 2006^{55,56}</p> <p>Kilbourne et al., 2009⁵⁸</p> <p>(VA Cooperative Study)</p> <p>Collaborative care for bipolar disorder/ care mgt/ primary care collaboration</p>	<p>Primary care: per usual care procedure</p> <p>Psychiatric care: nurse care manager for bipolar disorder specific care; otherwise per usual care procedure</p>	<p>Primary care: emphasis on primary care enrollment and collaboration; otherwise per usual care procedure</p> <p>Psychiatric care: “specialty team” of psychiatrist and nurse care coord.</p>	<p>Nurse care manager provided same day telephone and next business day clinic appts</p>	<p>Psychoed program (Life Goals Program) primarily addressing bipolar disorder symptoms</p>	<p>Simplified VA Bipolar Clinical Practice Guidelines for providers</p>	<p>Care mgt; Bipolar Disorders Program</p>	<p>VA computerized record (both study arms)</p>	<p>None reported</p>

Study	Model elements							
	Primary provider	Team-based	Enhanced access	Self-mgt support	Decision support	Delivery system	Information systems	Community linkages
Kilbourne et al., 2008^{57,59} <u>Collaborative care for bipolar disorder/ care management/ medical self-management sessions</u>	Primary care: per usual care procedures Psychiatric care: nurse care manager as first response for bipolar disorder specific care; otherwise per usual care procedures	Nurse care manager provided liaison between existing providers	None reported	Four-session group lead by nurse care manager	Continuing medical education and guidelines; pocket cards for medical and mental health providers related to cardiovascular risk factor mgt	Care mgt; Bipolar D/o Medical Care Model	VA computerized record (both study arms)	None reported

Model elements

	Primary provider	Team-based	Enhanced access	Self-mgt support	Decision support	Delivery system	Information systems	Community linkages
Druss et al., 2010⁵⁴ <u>Care management</u>	Primary care and mental health care: per usual care procedure	Nurse care manager provided liaison between mental health and medical providers	None reported	Care manager provided motivational interviewing, development of action plans, and coaching	None reported	Care mgt	None reported	Public transport and child care

KQ 2. Do models of integrated care for individuals with SMI improve the process of care for preventive services (e.g., colorectal cancer screening) and chronic disease management (e.g., annual eye examination in patients with diabetes mellitus [DM])?

Process of care outcomes for preventive care (KQ 2)

Study	Design	Intervention summary	Preventive care			
			Immunizations		Screening procedures	
Druss et al., 2001 ⁶⁰ (additional preventive care results reported) <u>Co-location/ care coordination</u>	RCT	Co-located general medical clinic with care provided by a nurse practitioner with supervision from a family practitioner. Care coordination provided by a nurse.	<u>Intervention</u> <ul style="list-style-type: none"> Flu: 32.2% Pneumovax: 11.9% 	<u>Control</u> <ul style="list-style-type: none"> Flu: 11.5% Pneumovax: 32.8% 	<u>Intervention</u> <ul style="list-style-type: none"> Hemoccult: 49.2% Digital rectal exam: 65.9% Flexible sigmoidoscopy: 33.9% 	<u>Control</u> <ul style="list-style-type: none"> Hemoccult: 44.3% Digital rectal exam: 44.3% Flexible sigmoidoscopy: 14.8%
Druss et al., 2010 ⁵⁴ (additional preventive care results reported) <u>Care management</u>	RCT	Nurse care management with self-management, liaison, and case management components.	<u>Intervention</u> 24.7% ^a	<u>Control</u> 3.8% ^a	<u>Intervention</u> 50.4% ^b	<u>Control</u> 21.6% ^b

Process of care outcomes for chronic disease management (KQ 2)

Study	Design	Intervention summary	Chronic disease management	
			<i>Intervention</i>	<i>Control</i>
Druss et al., 2001 ⁶⁰ <u>Co-location/ care coordination</u>	RCT	Co-located general medical clinic with care provided by a nurse practitioner with supervision from a family practitioner. Care coordination provided by a nurse.	<ul style="list-style-type: none"> • (At 12 mo) Diabetes screening: 71.2% • Cholesterol screening: 79.7% • Weight measured: 84.7% • Smoking education 84.7% 	<ul style="list-style-type: none"> • Diabetes screening: 45.9% • Cholesterol screening: 57.4% • Weight measured: 59.0% • Smoking education: 63.9%
Druss et al., 2010 ⁵⁴ <u>Care management</u>	RCT	Nurse care management with self-management, liaison, and case management components.	<ul style="list-style-type: none"> • Proportion of indicated services received for cardiovascular disease: 34.9%^a • Framingham Cardiac Index: 6.9% 	<ul style="list-style-type: none"> • Proportion of indicated services received for cardiovascular disease: 27.7% • Framingham Cardiac Index: 9.8%

KQ 3. (3a) Do models of integrated care for individuals with SMI improve general functional status outcomes (e.g., as measured by SF-36) or disease-specific functional status outcomes (e.g., Seattle Angina Questionnaire) related to medical care for chronic medical conditions such as DM, hypertension, or heart failure?

KQ 3. (3a) Do models of integrated care for individuals with SMI improve general functional status outcomes (e.g., as measured by SF-36) or disease-specific functional status outcomes (e.g., Seattle Angina Questionnaire) related to medical care for chronic medical conditions such as DM, hypertension, or heart failure?

Study	Followup	Intervention versus control outcome
Druss et al., 2001 ⁶⁰ <u>Co-location/ care coordination</u>	52 weeks	SF-36 physical component: mean 50.9 (SD 7.1) vs. 45.3 (SD 9.7); p <0.001 for difference in change scores using baseline, 6-month and 12-month assessments
Bauer et al., 2006 ^{55,56} Kilbourne et al., 2009 ⁵⁸ <u>Collaborative care for bipolar disorder/ care management/ primary care collaboration</u>	156 weeks	SF-36 physical component: mean 43.4 (95% CI, 42.4 to 44.4) vs. 42.9 (95% CI, 41.9 to 43.9)
Kilbourne et al., 2008 ^{57,59} <u>Collaborative care for bipolar disorder/ care management/ medical self-management sessions</u>	12 weeks 24 weeks	SF-12 physical component: mean 38.5 (SD 8.4) vs. 33.9 (SD 8.6), p = NR SF-12 physical component: mean 37.0 (SD 7.3) vs. 35.1 (SD 7.7) , p = NR; difference in change scores using baseline, 3 month and 6 month assessments: 2.5, 95% CI, 0.5 to 4.9
Druss et al., 2010 ⁵⁴ <u>Care management</u>	52 weeks	SF-36 physical component: mean 37.1 (SD 11.5) versus 34.7 (SD 11.9); p < 0.08; difference in change scores: “not significant,” p value not reported

(3b) Do models of integrated care for individuals with SMI improve clinical outcomes related to preventive services (e.g., influenza rates) and chronic medical care (e.g., kidney disease, amputations, retinopathy in patients with coexisting DM)?

No clinical outcomes reported in any studies

KQ 4. What are the gaps in evidence for determining how best to integrate care to improve general medical outcomes for individuals with SMI?

Gaps in Evidence (KQ4)

The key intervention components are uncertain.

There is greater uncertainty about intervention effects for individuals with SMIs other than bipolar disorder.

Effects on clinical outcomes have not been studied.

Sustainability of intervention effects is uncertain.

Effects of interventions (effectiveness) are uncertain when part of routine care rather than part of an RCT.

Effects of current VA delivery models are uncertain, including primary care services co-located in the mental health setting and assertive community treatment.

There is uncertainty about effects of current VA programs to improve mental health outcomes of veterans with SMI (e.g., assertive community treatment) that theoretically may have beneficial effects on general medical outcomes.

Key question	Strength of evidence	Summary
<p>KQ 1. What types of care models have been evaluated prospectively that integrate mental health care and primary medical care with the goal of improving general medical outcomes for individuals with serious mental illness (SMI)?</p>	<p>Not relevant to KQ 1</p>	<p>4 good-quality studies</p> <p>Conclusions:</p> <ul style="list-style-type: none"> • The degree of integration of care ranged from limited to moderate. • The range of integrated care models tested was relatively limited. Many PCMH elements were not included in tested models. • A broader range of disciplines should be included in future evaluations of integrated care models.

Key question	Strength of evidence	Summary
<p>KQ 2. Do models of integrated care for individuals with SMI improve the process of care for preventive services (e.g., colorectal cancer screening) and chronic disease management (e.g., annual eye examination in patients with diabetes mellitus [DM])?</p>	<p>Moderate</p>	<p>2 good-quality studies</p> <p>Conclusions:</p> <ul style="list-style-type: none"> • Studies showed generally positive effects on immunization rates, cancer screening, and selected screening for cardiovascular disease. • Important cancer-screening practices (e.g., mammography, pap smears) and chronic disease care unrelated to cardiovascular disease were not studied.

Key question	Strength of evidence	Summary
<p>KQ 3. (3a) Do models of integrated care for individuals with SMI improve general functional status outcomes (e.g., as measured by SF-36) or disease-specific functional status outcomes (e.g., Seattle Angina Questionnaire) related to medical care for chronic medical conditions such as DM, hypertension, or heart failure?</p> <p>(3b) Do models of integrated care for individuals with SMI improve clinical outcomes related to preventive services (e.g., influenza rates) and chronic medical care (e.g., kidney disease, amputations, retinopathy in patients with coexisting DM)?</p>	<p>Moderate for KQ 3a</p> <p>Insufficient for KQ 3b</p>	<p>4 good-quality studies for KQ 3a; no studies reported data relevant to KQ 3b</p> <p>Conclusions:</p> <ul style="list-style-type: none"> • Studies reported inconsistent effects on physical functional status. Two studies showed small, positive effects, and two showed no statistically or clinically significant benefit. • No study reported effects on disease-specific functional status or clinical outcomes.

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Study title	VA/DOD population?	Intervention	Comparator	Sponsor and ClinicalTrials.gov ID number	Funding start and stop date	Status
Life Goals Behavioral Change to Improve Outcomes for Veterans With Serious Mental Illness	Y	Behavioral: life goals collaborative care	Usual care	Department of Veterans Affairs NCT01244854	October 2010 to December 2011	Enrolling by invitation
Treatment of Metabolic Syndrome in a Community Mental Health Center	N	IMBED: active comparator—a primary care provider Liaison: Active comparator—a medical case manager	Treatment as usual; no intervention	The University of Texas Health Science Center at San Antonio NCT01115114	January 2009 to September 2012	Recruiting
The Medical HOME Study	N	Care team	No intervention; referral only	National Institute of Mental Health NCT01228032	April 2010 to January 2015	Recruiting
Non-RCT						
Reduction of Cardiovascular Risk in Severe Mental Illness (RISCA-TMS)	N	Nurse-administered lifestyle counseling	None	Consorti Hospitalari de Vic NCT01182012	August 2010 to December 2012	Recruiting
Benefits of a Primary Care Clinic Co-located and Integrated in the Mental Health Setting for Veterans with Serious Mental Illness	Y	Enrollment in a co-located, integrated primary care clinic in the mental health outpatient unit	Subject is own comparator; time-series design	Systems Outcomes and Quality in Chronic Disease and Rehabilitation; Providence VA Medical Center	Unfunded	Completed; manuscript in press

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